

10.00

INSTALLATION PROCEDURES/DETAILS

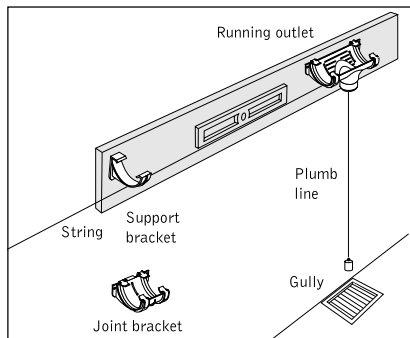
Hunter Rainwater Systems



10.00 INSTALLATION PROCEDURES

- Position outlet
- Establish fall
- Fix support and joint bracket
- Buildings with fascias
- Fixing corner angles
- Install gutter and downpipe
- Gutter positioning
- Fault finding tips
- Gutter to gutter connections
- Rise and fall brackets
- Rainwater hopper heads
- Downpipe installation
- Downpipe offsets
- Downpipe brackets
- Internal and external Rainwater pipes
- Connecting downpipes to drain (Surface water only)
- Connecting downpipes to gullies (Combined systems)
- Repair and replacement
- Connecting PVCu Half round /Squareflo to C.I. Half round gutter
- Connecting to spigot
- Connecting PVCU Half round to C.I. Ogee gutter
- Pipe cutting, gutter cleaning and maintenance
- Safety

POSITION OUTLET



Before starting work, check that fascia boards are level and straight; crooked fascias can produce the appearance of a wavy gutter.

Use a plumb line centred over any gully or drain connection to establish the position of the outlet.

Using 25mm (1") x No 10 sheradised round head screws, fix the outlet to the section of fascia board at the appropriate height for level gutter or

gutter with falls. Screws should be located through the moulded lugs. Where moulded lugs are not pierced, fittings may be drilled (running outlets must always be fixed with two screws).

Note: Use 38mm (1½") x No 12 sheradised round head screws for Stormflo - or screw length to suit fixings.

ESTABLISH FALL

Fix a support bracket at the end of the fascia board furthest from the outlet. Position the bracket towards the top of the fascia board, to create a fall to the outlet not steeper than 1:350 (BS EN 12056 - Part 3).

N.B: Excessive gap between lowest edge of roof and top of gutter must be avoided.

FIX SUPPORT AND JOINT BRACKET

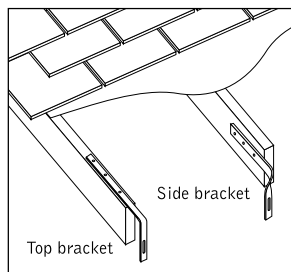
A string secured tautly between the outlet and the furthest bracket will assist in installing the gutter in a level line.

For gutters that are to be fixed level, a spirit level should be used against the string (see diagram above).

Support or joint brackets are fixed at a maximum of 1 metre centres, (800mm for Stormflo and Ogee profiles). For fixing recommendations in areas subject to heavy snow and for steeply pitched roofs, see 'Snow loads' on page 4. More detailed information is provided in BS EN 12056 - Part 3.

BUILDINGS WITHOUT FASCIAS

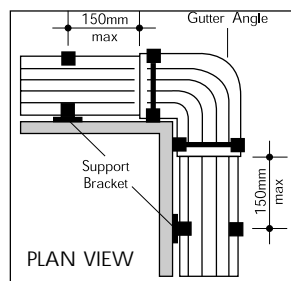
On older properties not having fascia boards, Hunter side or top rafter brackets are used, suitable for use with all Hunter rainwater systems except 170mm Half round and 200mm Stormflo. The brackets are screwed to exposed rafters and come complete with fixing nuts and bolts for securing outlets and brackets. The installation procedure is as above. On buildings without projecting eaves, and no fascia board, use Hunter variable rise and fall brackets, supplied with fixing stake for brickwork.



FIXING CORNER ANGLES

Except for the Surefit system, internal and external angles are provided with moulded lugs which can be drilled for fixing direct to the fascia. The next gutter support may then be fixed up to 1 metre away.

It is recommended that corner angles should be fixed to the fascia. Where this is not possible, support brackets should be fixed not more than 150mm from each end of the fitting.



INSTALL GUTTER AND DOWNPIPE

To ease installation and reduce thermal movement noise factor after installation, lubricate the seals in joint brackets, outlets and angles with either Hunter liquid lubricant (SC960-3ml/SC966-250ml) or Hunter silicone spray (SC967-300ml).

NB: Washing-up liquid should not be used as a lubricant

There are two methods of fitting guttering together:

For 112mm Half round and 114mm Squareflo

NOTE: For installation to PVCu fascia contact the board manufacturer for recommended fixings

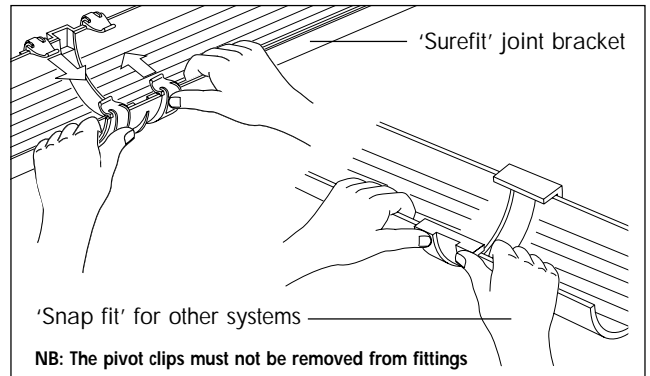
The unique 'Surefit' system allows simple fixing as follows.

- Insert the rear gutter edge under the back retaining lip of the snap lock clip.
- Ensure that it is fully home.
- With all fingers over the front edge of the gutter, pull down, while pushing up on the fitting with your thumbs until the gutter snaps into position.

Gutter seals are pre-lubricated, however additional silicone lubricate may aid installation.

Lifting the clips allows simple removal of the gutter.

NB: Always ensure seals are free from dirt and grit



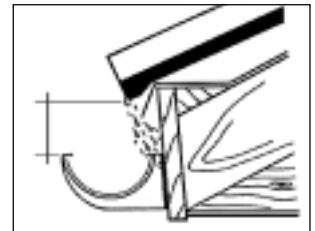
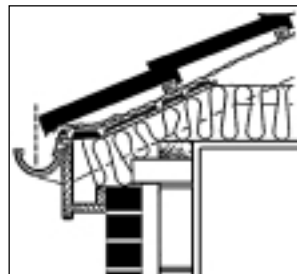
For all other systems

'Snap fit' the guttering by inserting the rear gutter edge under the back retaining lip of the bracket. Ensure that it is fully home, then pull the front of the gutter down to engage in the front lip. This is done by exerting pressure with the thumb and forefinger of both hands until the gutter 'clicks' into place (see diagram). The top edge of the gutter must not be cut, filed or notched in any way.

Gutter ends must be clear of any swarf, burrs, dirt or sharp matter which may damage the seals.

Downpipe lengths are then jointed by means of pipe connectors and secured by pipe brackets fixed at max. of 1.8 metre centres.

GUTTER POSITIONING



The gutter should, where practicable, be fixed centrally under the roof edge and close beneath it, particularly where roof edges that give a wide spread of water are used.

If a fall is required, although plastic guttering can be fixed level, a recommended rate of fall is 1:350. Too steep a fall should be avoided, as this leads to an excessive gap between the lowest edge of the roof and the top of the gutter. Any roof felt or eaves ventilator tray skirt should be extended to just below the top of the gutter edge, to prevent wind blowing water behind the gutter.

FAULT FINDING TIPS

- Fittings not screwed to the fascia.** This causes the gutter to pull out of the fittings, as there is no restriction on movement.
- Gutter cut short between fittings.** This causes it to ride over the sealing rubbers. All Hunter fittings are marked with an "insert to here" line to assist the installer.
- Recommended spacing of gutter clips exceeded.** This causes guttering to sag in hot weather, thereby restricting thermal movement.
- The roof tiles overhanging the centre of the gutter.** Causes the rainwater to overshoot the gutter. The correct position for the gutter is fixed centrally under the roof tile end.
- An excessive gap between the lowest edge of the roof and the top of the gutter.** Causes the rainwater to overshoot the gutter.
- No roofing felt, or felt cut short.** In all cases, roofing felt should be extended to just below the top edge of the gutter to prevent wind blowing water behind the gutter.
- No silicone lubricant used when installed.** This may lead to irritating juddering noises caused by the restriction of natural expansion and contraction of the gutter.

NOTE: It is essential that fascia boards treated with creosote are left for at least 48 hours to dry before fixing commences

10.00

Installation Details

RAINWATER PIPES

Support:

All rainwater pipe connectors, shoes and bottom-offset bends should be supported to prevent the pipe slipping out of position. All other brackets are to be spaced at:

Dia	Vertical/Horizontal	
50 - 74mm	2m	1m
75 - 110mm	2m	1m
160mm	2m	1.2m

Offset pipe:

The pipe from the eaves gutter outlet to the face of the wall should be offset using 2 no. 112 degree bends. Smaller offsets, between 22 - 80mm (R24) and 25 - 65mm (R399), are made with the Surefit Half Round or Squareflo 'Adjustable offset'. Rainwater pipe bends not manufactured as stock items are to be fabricated by Hunter Plastics Ltd. fabrication service department.

Horizontal pipes:

The joints on horizontal pipes should be sealed and when fixed internally, they should be tested as for internal rainwater pipes.

Internal rainwater pipes:

To compensate for thermal movement only pipes and fittings with ring seal joints must be used within a building. Internal rainwater pipes should be tested to withstand a constant air pressure of 38mm water gauge for three minutes (England, Wales and Northern Ireland) and 50mm water gauge for five minutes (Scotland). When rainwater pipe from eaves guttering is to be run within a building the transition from the smaller diameter pipe to the larger diameter, should be done in the shortest distance and with the minimum number of joints. All joints should be watertight. To connect 68mm diameter rainwater pipe to 82mm pipe use Hunter reducer (R4). To connect 68mm diameter rainwater pipe to 110mm pipe use hunter reducer (R3).

Access to Pipes

All parts of the pipework system should be accessible to hand held rodding equipment with adequate number of points for removal of debris from the system.

Warning Pipes

Internal rainwater pipes must be able to withstand the head of water likely to build up if a blockage occurs. However, to indicate that the pipe is in danger of being filled to the roof level warning pipes should be provided above the point where a blockage is likely to occur, e.g at the base of the stack and at changes of direction. It is important to note that flexible joints on all types of modern pipe systems are able to withstand an approximate head of 0.5 bar or 5 metre head of water. On plastic pipe systems warning pipes can be made using waste pipe or overflow pipe.

Sealed Joints:

Small diameter joints (50-74mm) should be cleaned with solvent cleaner and sealed with solvent cement. The larger diameter ring seal joints (82mm plus) should have the end of the pipe cut square, chamfered and lubricated before insertion into the ring seal socket.

SAFETY TIPS



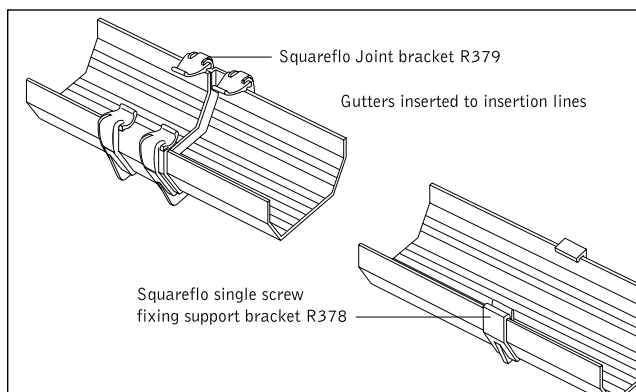
When using a ladder, make sure it is securely fixed and on level ground. If the ground is smooth or slippery, place a bag filled with sand or soil at the foot of the ladder. Take care not to over-reach, Take special care when removing old cast iron systems, as they can be extremely heavy and therefore dangerous.

10.00 Installation Details

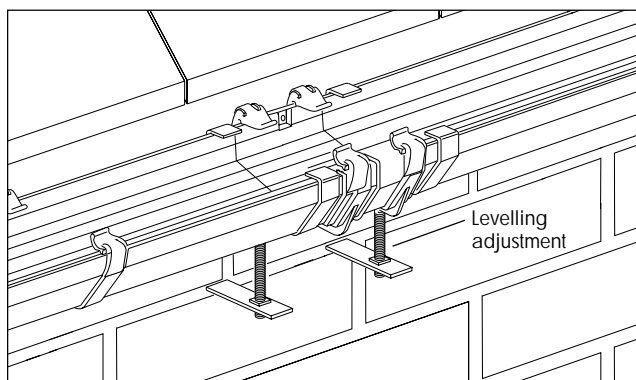
GUTTER TO GUTTER CONNECTIONS

Gutter to gutter connections are made using joint brackets (these have 2 rubber seals). Markings on the inside front face indicate the gap that must be left to accommodate thermal movement. To allow for consistent thermal movement of each section of gutter, joint brackets must always be securely fixed. Alternatively with half round systems gutters may be joined by means of a gutter union which must be secured in position by a support bracket.

NB: Every effort should be made to ensure that unsecured lengths exceeding 1 metre are not installed adjacent to external Stopends.



RISE AND FALL BRACKETS



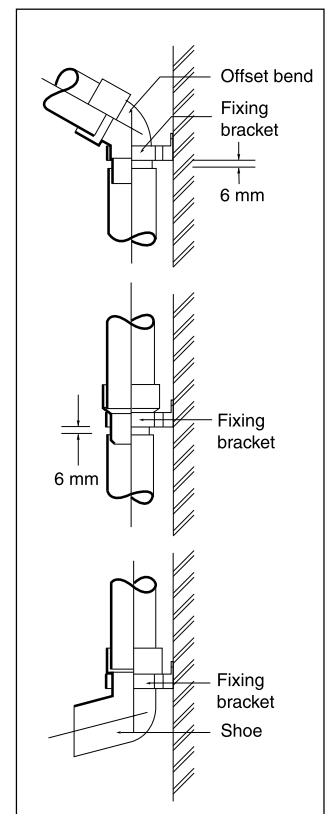
For buildings without fascias, galvanised rise and fall brackets are available for most of the Hunter range of gutter profiles as an alternative to top or side fixing rafter brackets. These may be built in to the brickwork as work proceeds, or driven in after construction. When installing, all gutter unions and ends of gutters should be supported by a bracket, with intermediate brackets at not greater than 1 metre centres (800mm for Ogee). Running outlets should be supported by a bracket at both ends.

RAINWATER HOPPER HEAD

Rainwater hopper heads are available to collect discharging water from flat roofs or from adjacent rainwater downpipes, to suit Half Round and Squareflo profiles. Two styles and outlet sizes are available. They are provided with two fixing lugs. See pages 14 and 18 for details and dimensions.

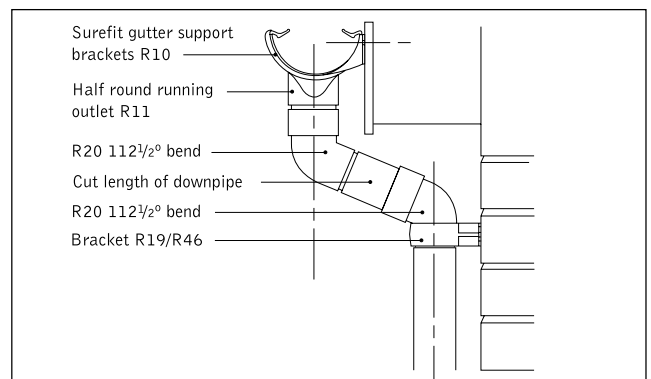
DOWNPIPE INSTALLATION

1. Allowance for expansion must be made on external rainwater downpipes, by leaving a gap of approximately 6mm between spigot connections.
2. Fix each subsequent length of pipe in a similar manner, securing at the lower end with pipe connector and pipe bracket and ensuring 6mm gap is allowed at each joint.
3. Fix additional pipe brackets as required to provide support for pipes, not further apart than 1.8 metre centres.
4. A bracket must be fitted around the shoe, to support the bottom section of pipe. 38mm (1 1/2") x No.12 sheradised round head screws are recommended for rainwater pipe bracket fixings.
5. Joints on external vertical rainwater pipes are to be left unsealed.



OFFSET PIPE

The pipe from the eaves gutter outlet to the face of the wall should be offset using 2 no. 112 degree bends. Smaller offsets, between 22 - 80mm (R24) and 25 - 65mm (R399), are made with the Surefit Half Round or Squareflo 'Adjustable offset'. Rainwater pipe bends not manufactured as stock items are to be fabricated by Hunter Plastics Ltd. fabrication service department.



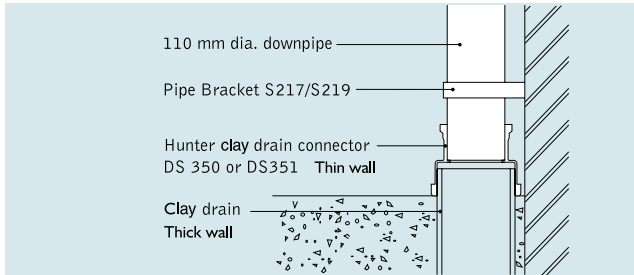
DOWNPIPE BRACKETS

There is a wide choice of downpipe bracket for use with any of the downpipe profiles, including single screw, single screw/snap fit, double screw and socket fixing types. The Regency system includes a bracket spacer, giving scope for minor offset adjustments.

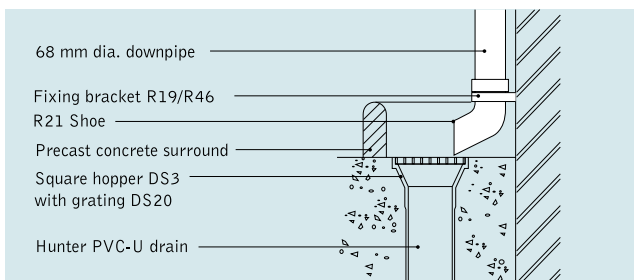
10.00 Installation Details

CONNECTING DOWNPIPES TO DRAIN (SURFACE WATER ONLY)

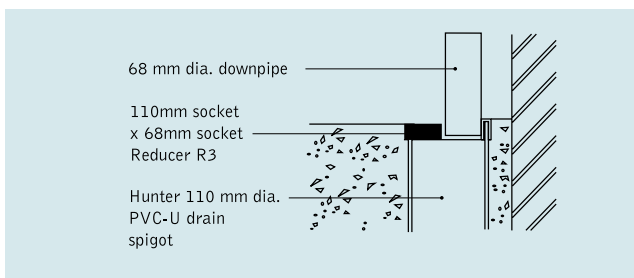
Illustrated are three common methods of connecting rainwater pipes to a surface water drainage system. For further details, refer to the Hunter Underground Technical Handbook (UGT).



Connection to vitrified clay spigot with DS 350/351



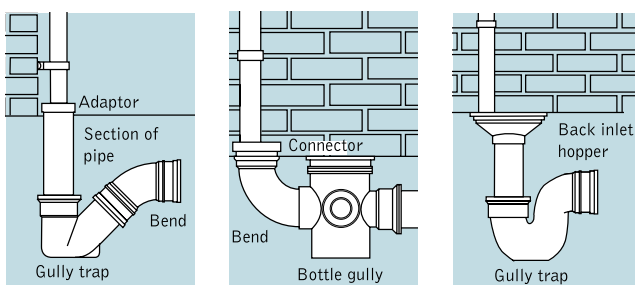
Shoe discharging to vertical PVCu hopper



Connection to vertical PVCu drain using R3 reducer

CONNECTING DOWNPIPES TO GULLIES (COMBINED SYSTEMS)

Illustrated are three common methods of connecting rainwater pipes to a combined underground drainage system. In a separate (surface water only) drainage system, trapped gullies are not normally required, but the Local Authority should be consulted. For further details, refer to the Hunter Underground Web site pages.



NOTE:

The pipe assembly sequence is reversed when the downpipe is to be connected to a drain or back inlet gully already in position.

Assembly commences at the drain connection and proceeds upwards.

REPAIR AND REPLACEMENT

Existing systems can be repaired or replaced with the use of the appropriate Hunter gutter connector. This enables compatible systems to be connected (eg Hunter Half round to half-round) or for the profile to be changed (eg Squareflo to half-round, Half round to Ogee). It also enables Hunter PVCu systems to be connected to existing asbestos cement, cast iron, or PVCu systems.

CONNECTING PVCU HALF ROUND/SQUAREFLO TO C.I. HALF ROUND GUTTER (SEE DETAIL BELOW, LEFT)

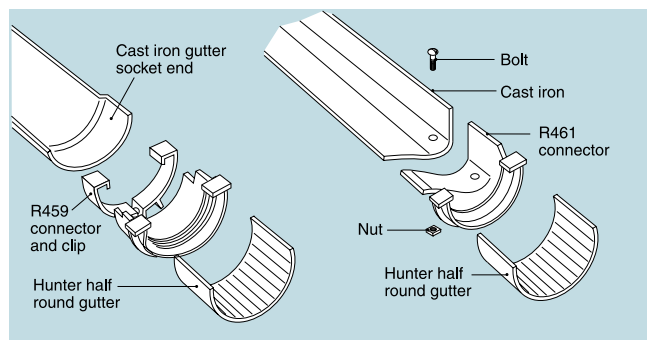
Connection is simpler if the existing half round gutter can be dismantled at the nearest suitable joint. With cast iron or asbestos cement systems this can be achieved by removing the gutter bolt. If this proves difficult because of rust or paint, the nut may be cut off with a hacksaw. Whichever the case, the gutter or joint must be thoroughly cleaned with a wire brush.

In the case of existing PVCu guttering, the gutter should be dismantled at the nearest joint or cut through with a saw.

The new length of Hunter gutter should be measured to allow sufficient length at each end for an expansion joint.

CONNECTING TO SPIGOT

Sawing through the gutter will leave a spigot for connection. When connecting to cast iron or asbestos cement guttering, which both exist in a variety of sizes, experiment with the connector by positioning inside or outside the gutter to obtain the best fit. Place the connector inside existing 100mm gutter and outside 110mm gutter. Locate clip over appropriate level and tighten nut and bolt to suitable stress. Snap new length of Hunter gutter into position. The joint should be made with a suitable jointing compound.



CONNECTING PVCU HALF ROUND TO C.I. OEGEE GUTTER (RIGHT ABOVE) AND C.I. HALF ROUND GUTTER (LEFT ABOVE)

Either dismantle gutter at a suitable point or cut with hacksaw and drill new hole to align with hole in the Hunter Ogee connector. Thoroughly clean gutter and spread inside liberally with non-bitumastic based compound. Position the appropriate connector (left hand or right hand) firmly onto compound. Push the gutter bolt through both holes and tighten nut until compound begins to squeeze from joint. Do not overtighten. Finally, snap Hunter gutter length into position.

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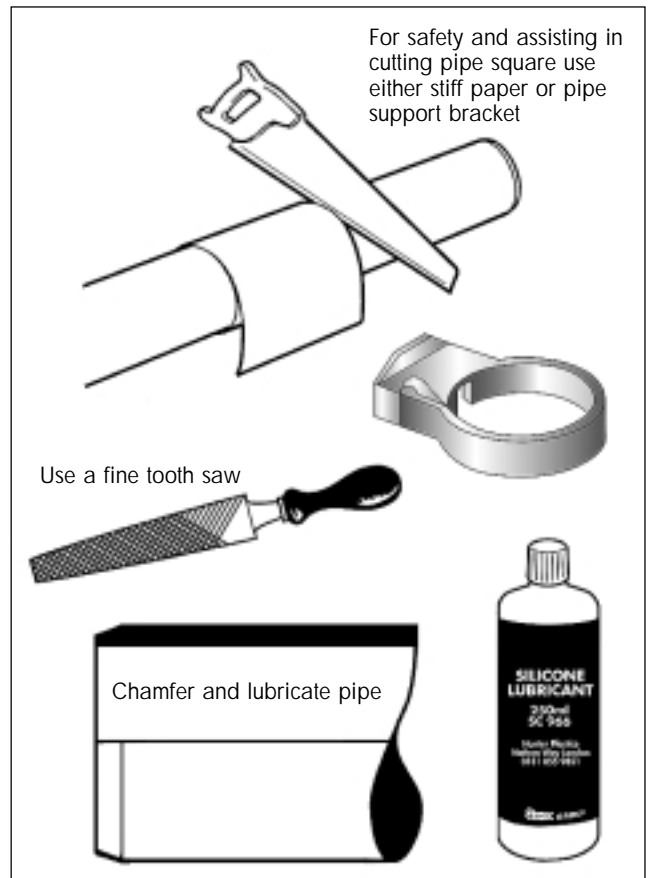
PIPE CUTTING

When cutting gutter or pipe on-site Hunter recommend it to be;

- clean cut at right angles to its axis
- cut end then deburred with a scraper
- if cut end of pipe is inserted into a push-fit or solvent weld joint then the spigot end must be chamfered to ensure that the glue or sealing ring is not displaced during insertion

Safety

The relevant regulations are outlined in the Health and Safety At Work Act 1974 and should be followed. Hazard sheets, dealing with potential hazards of working with solvent cement and silicone lubricant are available from Hunter Plastics.



PVCu gutter cleaning and maintenance

Although PVCu gutters are considered to be relatively maintenance-free it is important to clear rainwater goods of fallen leaves and other debris at least once a year. More frequent inspections may be necessary in areas of high pollution and where there are trees in the vicinity. Inspection of the gutter and supports is also advisable during and after periods of ice formation in the guttering system.

In some cases our lighter coloured gutter system may require cleaning. We recommend the plastic is washed down with a solution of soapy warm water, in severe cases a non-abrasive kitchen cream cleaner should be used.

Should the instance arise where the gutter requires painting, we suggest the system be cleaned with a degreasing agent such as sugar soap. After cleaning paint with two coats of a good quality topcoat paint. Scoring or roughening the surface of the plastic to form a key for the paint will affect the overall finish and is not recommended.