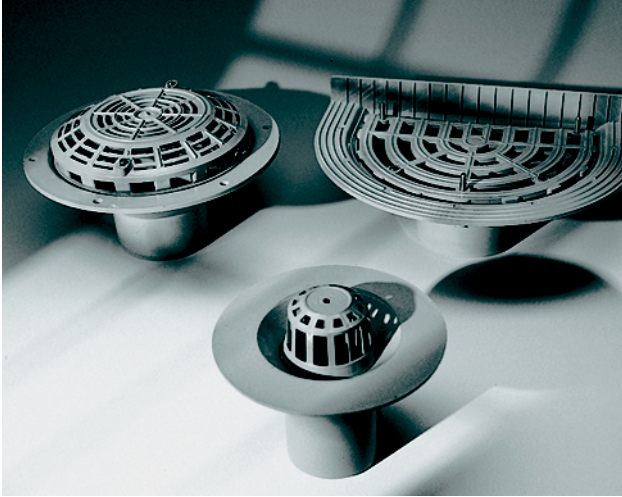


# 12.00

# FLAT ROOF OUTLETS

## Hunter Rainwater Systems



### **12.00** FLAT ROOF OUTLETS

Introduction

Roof outlet drainage data

Installation procedures

Profiles

Typical site work detail

# 12.00 Flat Roof Outlets

## INTRODUCTION

Hunter roof outlets are three-piece components manufactured in PVCu and consist of a funnel shaped body, clamping ring and grille. Hunter flat roof outlets are a natural choice when considering roof drainage in commercial, domestic and industrial applications: they are easy to install and compatible with most types of roofing materials – including hot asphalt, bituminous felt and PVCu roof membrane.

The outlet features an integral, ribbed clamping ring and a pre-drilled flange for quick, secure anchorage. The grille design offers efficient filtering and is easily removed for cleaning and maintenance.

The range of spigot and socket tails, box gutter and balcony outlets are durable, lightweight and offer highly efficient flat roof drainage. Working on the national average rainfall intensity of 75mm per hour, a single 82mm Spigot Tail outlet, for example, can drain a roof area of up to 310m<sup>2</sup> (6.45 litres per second) and a single 160mm size outlet can drain up to 515m<sup>2</sup> (10.72 litres per second).

The depth of water that can be allowed upon a flat roof during a storm depends upon the method of construction, its inherent strength, and upon the height of the upstand and other features that project through the roof. However, water depths of up to 35mm around the flat roof outlets are acceptable if these considerations are met.

## Benefits

- Compatible with most flat roofing materials, including hot asphalt, bituminous felt and PVCu roof membranes
- Quick and easy to install
- Comprehensive range of sizes available
- Non corrosive and maintenance free
- Replacement components available

## ROOF OUTLET DRAINAGE DATA

Maximum roof area that can be drained by one outlet(with or without box gutter)

Nominal outlet and pipe size Maximum depth of flow at edge of outlet	82mm m <sup>2</sup>	110mm m <sup>2</sup>	160mm m <sup>2</sup>
35mm (1 <sup>3</sup> / <sub>8</sub> "	310	380	515
32mm (1 <sup>1</sup> / <sub>4</sub> "	210	330	440
25mm (1"	145	230	310
19mm (3/ <sub>4</sub> "	115	150	200
13mm (1/ <sub>2</sub> "	80	85	95

Note: These values are based upon:

- Rainfall intensity of 75mm(3") per hour
- Absence of abutting vertical walls rising above roof level
- NB. Reduce the above figures by 20% when using balcony outlets

# 12.00 Flat Roof Outlets

## INSTALLATION PROCEDURES

### Hot Asphalt

1. The roof construction should have an appropriate size hole. To give support to the sloping sides of the roof outlet, the roof screed should be dished. All roof outlets must be securely fixed to the roof structure.
2. Roof outlet is now placed in position, making sure that the spigot is truly vertical and then giving a sound push-fit connection into the rainwater pipe.
3. Remove grating and clamping ring. Hot asphalt is applied to the roof in layers. The first layer should be allowed to flow into the roof outlet.
4. The clamping ring is now secured by the brass wingnuts down onto the hot asphalt. Although the outlet flange will soften from the effect of the hot asphalt, there will be no distortion providing the correct support is given.
5. Finish the second asphalt coat to the outlet opening edge and cover with a dusting of fine sand.
6. Fix the grating in position with the bolts.

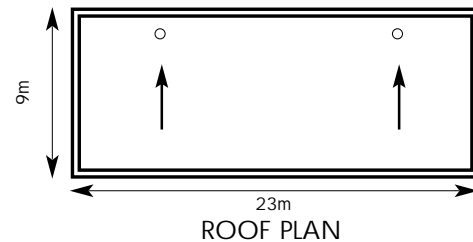
### Bituminous Felt Roofing

1. The hole in the roof should be as in 1 above.
2. Set the flange on the roof outlet into a recess in the roofboarding to give a level finish.
3. When applying the liquid bitumen to the roof, allow it to cover the outlet flange and the sloping part of the outlet.
4. Then when bonding the felt onto the roof with the liquid bitumen, the felt should be taken over the outlet top flange.
5. Cut the part of the felt over the hole of the outlet.
6. Using a blow lamp form the felt down onto the sloping edge and retain with the clamping ring and wing nuts.
7. With the bolts, fit the grating into position.

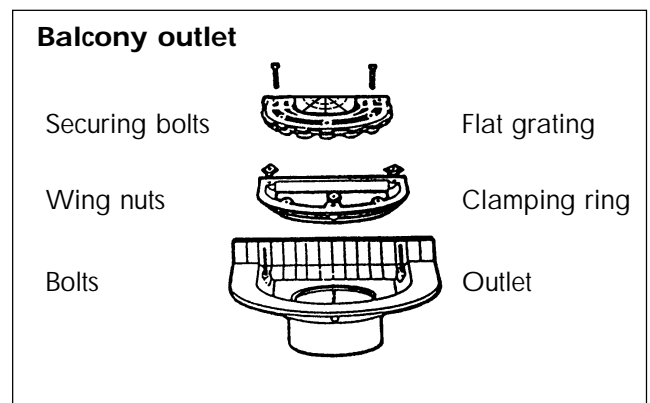
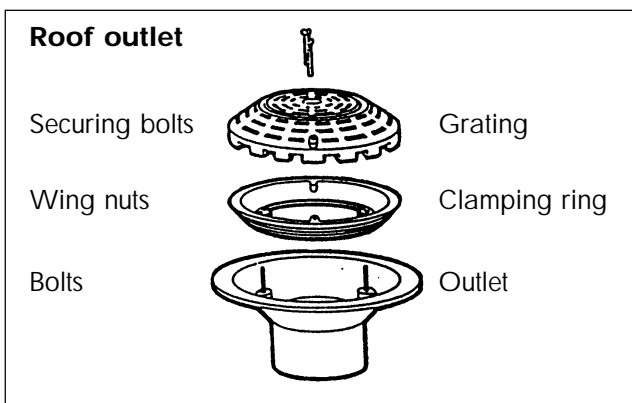
### PVC Roofing

1. The hole in the roof should be as in 1. above.
2. Apply recommended adhesive to flange and sloping part of the outlet.
3. Lay plastic material into flange and dress into outlet.
4. Retain with clamping ring.
5. fix grating into position with bolts.

Roof outlet and downpipe sizes for flat roofs. The following example illustrates the use of the drainage data table



1. Determine outlet positions:  
Underground drainage schemes will permit two downpipes to be used.
2. Determine design requirements:  
Constructional factors require depth of water at edge of outlet to be limited to 19mm.
3. Calculate roof area:  $23 \times 9 = 207$  sq. m.
4. Consult table and select outlet size appropriate to roof area and any limitations on depth of flow at edge of outlet: A single 110mm outlet would drain 230 sq. m. That is more than the whole of this roof area if a depth of flow at edge of outlet of up to 25m was acceptable and is satisfactory falls to the roof could be provided. However, with the depth of flow at edge of outlet limited to 19mm, two 82mm outlets will drain  $2 \times 115 = 230$  sq. m. and will, therefore, drain this roof with a reasonable margin, assuming a rainfall intensity of 75mm per hour.
5. Downpipe size will be the same as nominal size of outlet: 82mm.
6. Further guidance on selecting an acceptable rainfall intensity can be found in the National Annex of BS EN 12056: 3: 2000.



# 12.00 Flat Roof Outlets

## RAINWATER SYSTEM ROOF OUTLET

### Spigot Tail

Size	Code	Colours	A	B	C	D
82mm	RV637	G	280	157	214	130
110mm	RV369	G	280	157	214	122
160mm	RV482	G	380	170	250	148

### Socket Tail

Size	Code	Colours	A	B	C	D
110mm	RV372	G	280	157	214	110

### Box Gutter - Straight Spigot Tail, Pre-fabricated

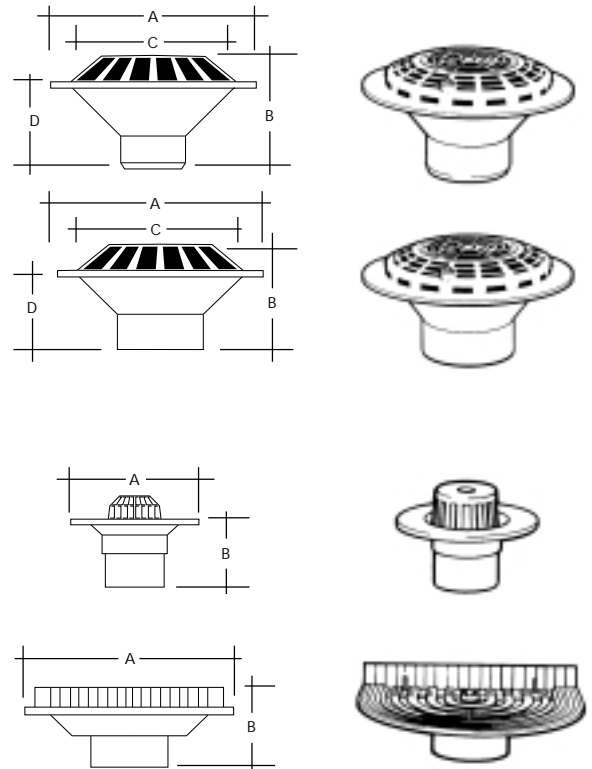
Size	Code	Colours	A	B
82mm	RV491	G	190	125

### Balcony - Full Flat Grating, Solvent Socket Tail

Size	Code	Colours	A	B
82mm	RV195	G	355	165
110mm	RV196	G	335	140

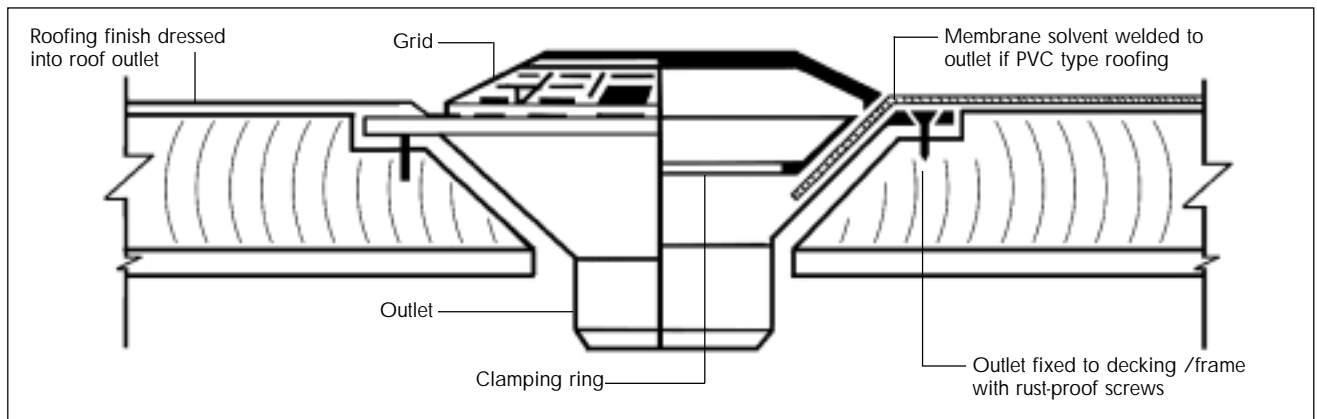
G = Grey B = Black V = Van dyke brown W = White

Galv = Galvanised metal



NB: It may be necessary to provide a warning pipe to indicate blockage on internal rainwater systems. For more details refer to - NE.2.11 - BS EN 12056 - 3: 2000.

### TYPICAL SITE WORK DETAIL



NB: It is important to prevent upthrust on the vertical rainwater pipe due to thermal movement from breaking the joint between the outlet and roof finish. Thermal movement can be accommodated by anchoring a push-fit socket with a socket bracket and allowing a 10mm expansion gap between spigot end and socket depth. A maximum of 4m between expansion joints should be allowed for.

It may be necessary to provide a warning pipe to indicate blockage on internal rainwater systems. For more details refer to BS EN 12056 - 3

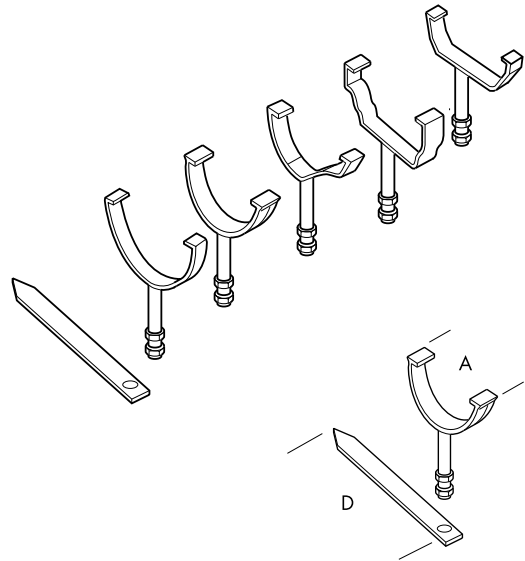
# 12.01 Fixing Brackets

## Additional fixing brackets for Hunter Domestic Gutter Systems

### RAINWATER SYSTEM FIXING BRACKETS

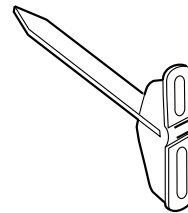
#### Rise and Fall Bracket

Code	Colours	Profile
R377	Galv	Squareflo
R909	Galv	Regency
R818	Galv	Ogee
R18	Galv	Half Round 112
R601	Galv	125
All Supplied with 230mm stake		
R9	Galv	Half Round 112
Supplied with 300mm stake		



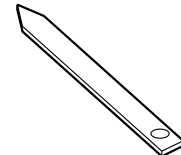
#### Variable Rise and Fall Bracket

Code	Colours	Size
R26	Black	230mm
R27	Black	300mm
Including galvanised stake, order gutter bracket separately. Supplied with fixing nuts and bolts.		



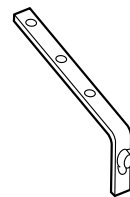
#### Galvanised Stake

Code	Colours	Size
R9A	Galv	300mm
R18A	Galv	230mm



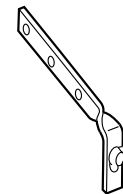
#### Top Rafter Bracket

Code	Colours	
R15	Galv	Supplied with wing nut and bolt. Not for use with 170mm or 200mm gutter.



#### Side Rafter Bracket

Code	Colours	
R16	Galv	Supplied with wing nut and bolt. Not for use with 170mm or 200mm gutter.



#### Wedge Spacer

Code	Colours	
R2	Grey	Use with 112mm Half Round & Squareflo support brackets.

