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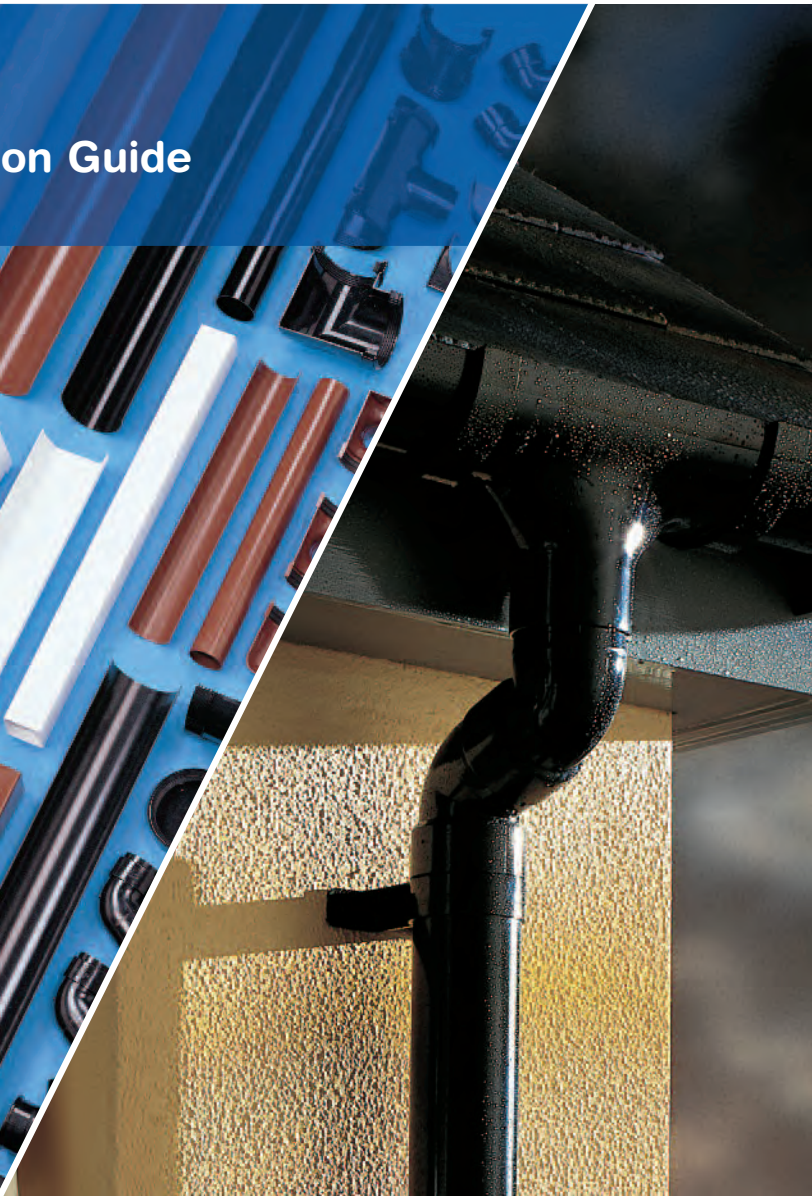
OSMA

Above and below ground drainage by Wavin

Rainwater Systems

Product, Design and Installation Guide



wavin

For residential, commercial and industrial applications

OSMA

From Wavin

Wavin in the UK

Wavin Limited is the UK's leading supplier of water management, plumbing, heating and drainage systems for the Building, Construction and Utilities markets. Highly respected within the construction industry, Wavin has a reputation for innovation and leadership and has an extensive product portfolio under the OSMA, Hepworth, Hep2O, Thermoboard, Intesio and Certus brands.

Wavin Group

Wavin Limited is part of the Wavin Group, the leading supplier of plastic pipe systems and solutions in Europe. The company provides essentials: plastic pipe systems and solutions for tap water, surface heating and cooling, soil and waste, rain- and storm water, distribution of drinking water and gas and telecom applications. Wavin is headquartered in Zwolle (The Netherlands) and has a presence in 26 European countries, with manufacturing sites in 18 of those and one in China.

Quality assured products

OSMA systems are the benchmark for excellence and product innovation: precision-manufactured in the UK using the most advanced injection moulding and extrusion machines. All products comply with or exceed relevant British and European standards to ensure reliability and long-lasting service.

Intelligent connections

OSMA systems offer integrated solutions. This enables specifiers and installers to assemble complete drainage, plumbing and heating, and pressure pipe systems from a single source, with complete confidence in compatibility and performance.

All systems are backed by comprehensive technical support and a nationwide distribution network to ensure availability when and where required.

Environmental responsibility

Wavin Limited has BS EN ISO 9001: 2000 BSI status and was the first plastic pipe manufacturer to be accredited to ISO 14001: 2004 Environmental Management Systems.

Wavin is committed to environmental responsibility, and is a leading pioneer of systems to conserve and control water. In production, the Company recycles the majority of waste materials, and sets annual targets for energy efficiency audited by the certifying body.

Contents

Introduction to the range

GUTTER PROFILES

The OSMA range offers a choice of six rainwater gutter profiles to meet the varying aesthetic, performance and installation requirements for all types of building, from single dwelling to large residential, commercial or industrial premises.

In addition, Osma Domed Roof Outlets provide efficient and reliable drainage for flat roofs.

These pages provide an overview of the OSMA range to help specifiers select the most appropriate system for a specific project.

For flow capacities, see page 6.

Half-Round Gutter Systems

RoundLine 112mm (4½")

Half-round gutter system

- Classic, simple shape
- Ideal for domestic/housing projects
- For roof areas up to a maximum of 163m² with one downpipe
- Connects to 68mm (2½") circular downpipe
- Available in Black, Grey, White and Brown

SuperLine 125mm (5")

Half-round gutter system

- Versatile system offering excellent volume removal rate
- Suitable for large domestic roof areas and small commercial buildings
- For roof areas up to a maximum of 250m² with one downpipe
- Connects to 68mm (2½") circular downpipe
- Available in Black

RoofLine 150mm (6")

Half-round gutter system

- Very high capacity in a classic profile
- Suitable for large commercial and industrial buildings
- For roof areas up to a maximum of 317m² with one downpipe
- Connects to 110mm (4") circular downpipe
- Available in Black and Grey

Semi-Elliptical Gutter System

DeepLine 113mm (4½")

Semi-elliptical gutter system

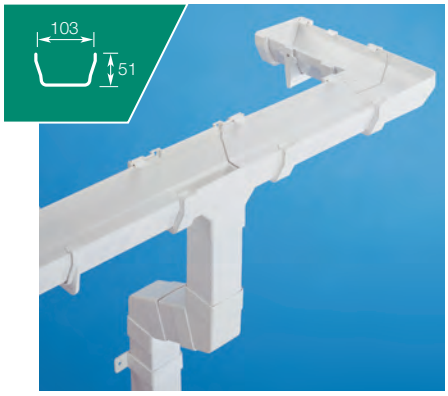
- Compact gutter with high capacity
- Suitable for domestic and small commercial buildings
- For roof areas up to a maximum of 299m² with one downpipe
- Connects to 68mm (2½") circular downpipe
- Available in Black, Grey, White and Brown

Square/Profiled Gutter Systems

SquareLine 100mm (4")

Square section gutter system

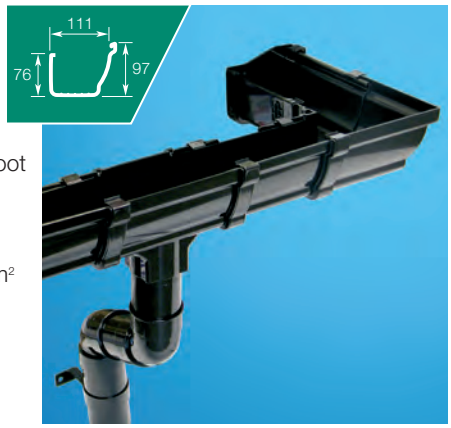
- Smart, efficient rectilinear profile
- Suitable for domestic buildings
- For roof areas up to a maximum of 178m² with one downpipe
- Connects to 61mm (2½") square and (via adaptor) 68mm (2½") circular downpipe, installed either flush to the wall or off the wall
- Available in Black, White and Brown



StormLine 111x76x97 (4¼x3¾")

Ogee profile gutter system

- Distinctive, high capacity ogee profiled design
- High front edge to prevent water overshoot
- Higher capacity to cope with increased rainfall levels
- For roof areas up to a maximum of 254m²
- Connects to both 68mm (2½") circular downpipe and 61mm (2½") square downpipe
- Available in Black and White



Roof Outlets

Osma Domed Roof Outlets

82mm and 110mm Domed Roof Outlets

- For flat roofs
- May be installed in mastic asphalt or built-up roofing
- For roof areas up to a maximum of
  - 143m² for 82mm outlet
  - 209m² for 110mm outlet

  with one downpipe
- Connects to 82mm and 110mm circular downpipe

Approvals

BS EN 607: 2004

Eaves gutters & fittings - PVCU. Definitions, requirements and testing.

Approved Systems:

RoundLine, Deepline, SuperLine, RoofLine, SquareLine*, StormLine*.

BS EN 1462: 2004

Gutter brackets. Classification, requirements & testing.

Approved Systems:

RoundLine, Deepline, SuperLine, RoofLine, SquareLine, StormLine.

BS EN 12200-1: 2000

Plastics rainwater piping systems for above ground external use - PVCU.

Approved Systems:

Round pipes 68, 82 and 110mm. Square pipe 61mm.

*Gutter only

Downpipes - Circular Pipe

(All dimensions in millimetres)

Nominal Size	Outside Dimension Min	Outside Dimension Max	Wall Thickness Min	Wall Thickness Max	System Usage
68	68.3	68.7	1.8	2.1	RoundLine, DeepLine, SuperLine, StormLine
82	82.4	82.8	3.2	3.5	Domed Roof Outlets
110	110.0	110.4	3.2	3.5	RoofLine and Domed Roof Outlets

Downpipes - Square Pipe

(All dimensions in millimetres)

Nominal Size	Outside Dimension Min	Outside Dimension Max	Wall Thickness Min	Wall Thickness Max	System Usage
61	60.60	61.40	1.45	1.75	SquareLine, StormLine

Selection Guidance

The next few pages provide a quick-reference **system selector** for typical building types *(page 7)*. For other projects, or if you need to check capacity requirements in more detail, see below and **roof area calculations** *(opposite)*.

NOTE: *For full capacity and flowrate information, see* **pages 52-53**

The main factors

Rainwater system selection firstly needs to consider:

- Volume of water to be managed by the system – this defines the *required capacity* of the rainwater system to be installed.

Required capacity

This is determined by:

- Type of building
- Roof area to be drained
- Anticipated rainfall level

NOTE: Building Regulations require allowance for a 1 in 30-year storm

Steps to selection

System selection is decided by:

- System capacity: its ability to handle the required capacity
- Appearance: gutter profile shape and colour

System capacity

This is dependent on:

- Gutter capacity (flow in litres per second)

according to size and profile shape, but also influenced by:

- How the gutter is laid – with a gradient (FALL), or LEVEL
- Number of outlets
- Location of outlets – at the END, or in the CENTRE, of the gutter run

System capacity will be less if the gutter

– is laid level, rather than with a fall

– includes an angle, rather than a single straight run

– outlet is at the end of the run rather than mid-run

For a quick-reference comparison of system capacity for each OSMA system, see page 5

If in doubt – or if your project is not a typical building/size

- Calculate maximum roof area to be drained
- If you still require advice, call the **Wavin Technical Hotline: 01249 766655**

Simplified method

- Measure the roof plan area (**A** x **B**) in sq. metres
- Multiply the area by the appropriate 'roof pitch factor'

– Shallow (approx. 30º): 1.29

– Normal (approx. 45º): 1.50

– Steep (approx. 60º): 1.87

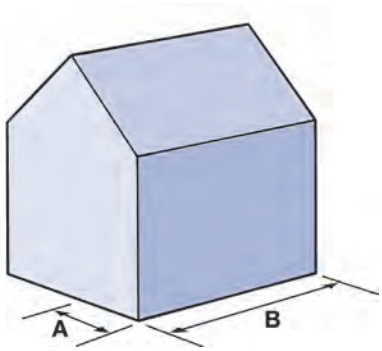
EXAMPLE:

A = **5m** and B = **12m**.

Shallow pitch: **30º**

– Roof plan area: 5m x 12m = 60m²

– **Effective roof area**: 60 x 1.29=**77.4m²**



How many brackets?

Whichever system you select, you'll need:

Gutter Support Brackets

- **3** per 4m gutter length when using Gutter Jointing Brackets
- **4** per 4m gutter length when using Gutter Unions

NOTE: Increase number of brackets if allowing for snow-loading

Pipe Support Brackets

- **1** per 2m downpipe length

How long?

Downpipe

- Standard 2-storey house: **5.5m** length
- Bungalow: **2.75m** length

Maximum effective roof area for each system

Having calculated the effective roof area to be drained

- Check which OSMA systems have sufficient capacity

	Maximum effective roof area (m²): gutter laid to 1:600 fall Running outlet position		
	At END of gutter	At CENTRE of gutter	Flow capacity litres/sec
RoundLine	79	163	1.25-3.43
SquareLine	96	178	1.30-3.71
StormLine ■	130	254	1.32-5.28
StormLine ●	125	239	1.26-4.98
DeepLine	145	299	2.28-6.21
SuperLine	121	250	2.10-5.19
RoofLine	164	317	2.48-6.59

NOTE: System capacity/performance capability is reduced if the roof includes valleys, dorma windows, steep pitch, *or* Guttering is laid level (reduction approx. 20-30%), *or* Gutter includes an angle (reduction approx. 15%)

■ With SquareLine downpipe
● With RoundLine downpipe

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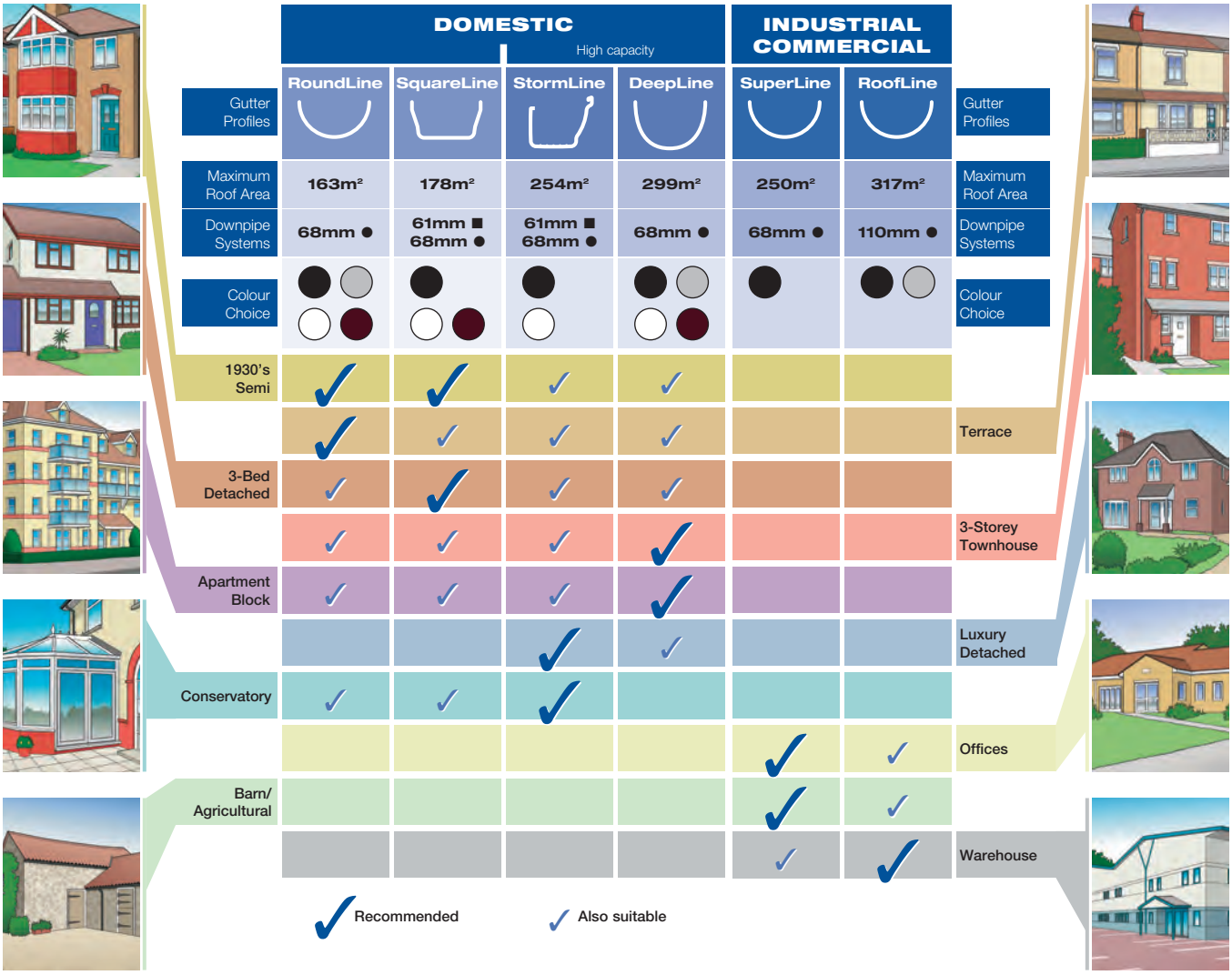
System Selector



Compatibility Table

OSMA	Compatibility table							
	FloPlast	Hepworth	Hunter	Marley	Marshall Tufflex	Polypipe	Terrain	Brett
RoundLine	YES	YES	YES	YES[1]	YES	YES	No equivalent	YES
SquareLine	No equivalent	No equivalent	No equivalent	No equivalent	No equivalent	No equivalent	No equivalent	No equivalent
StormLine	No equivalent	No equivalent	No equivalent	No equivalent	No equivalent	No equivalent	No equivalent	No equivalent
DeepLine	YES	YES	No equivalent	YES	YES	YES	YES[2]	YES
SuperLine	No equivalent	No equivalent	No equivalent	No equivalent	No equivalent	No equivalent	No equivalent	No equivalent
RoofLine	No equivalent	YES	YES	NO	No equivalent	YES	YES	No equivalent

[1] *Marley Clipmaster only (Marley Premier NOT compatible)*

[2] *Adaptor required*

Gutter Profiles

Key Gutter Fittings

Gutter Profiles	Size (mm)	Colour	Jointing: Bracket	Jointing: Union	Brackets: Support	Brackets: Rise and Fall	Brackets: Rafter	Brackets: Rafter (Adjustable)	Brackets: Hanging	Connectors (See KEY)	Outlets: Running	Outlets: Stopend	Angles: 90	Angles: 60	Angles: 45
Half-round gutter systems															
RoundLine	112	B G W N	■	■	■	■	■	■	-	a b d	■	■	■	■	■
SuperLine	125	B	-	■	■	■	■	■	-	-	■	-	■	-	■
RoofLine	150	B G	-	■	■	■	■	■	-	-	■	-	■	-	-
Semi-elliptical gutter system															
DeepLine	113	B G W N	-	■	■	■	-	■	-	-	■	-	■	-	■
Square/Profiled gutter systems															
SquareLine	100	B W N	■	■	■	■	-	■	-	c e	■	■	■	-	■
StormLine	111 x 97	B W	-	■	■	■	-	-	■	-	■	■	■	-	■
Flat roof and balcony system															
Roof Outlets	-	G	-	-	-	-	-	-	-	-	-	-	-	-	-

Colour Key

Colour	Ref. Code
Black	**B**
Grey	**G**
White	**W**
Brown	**N**

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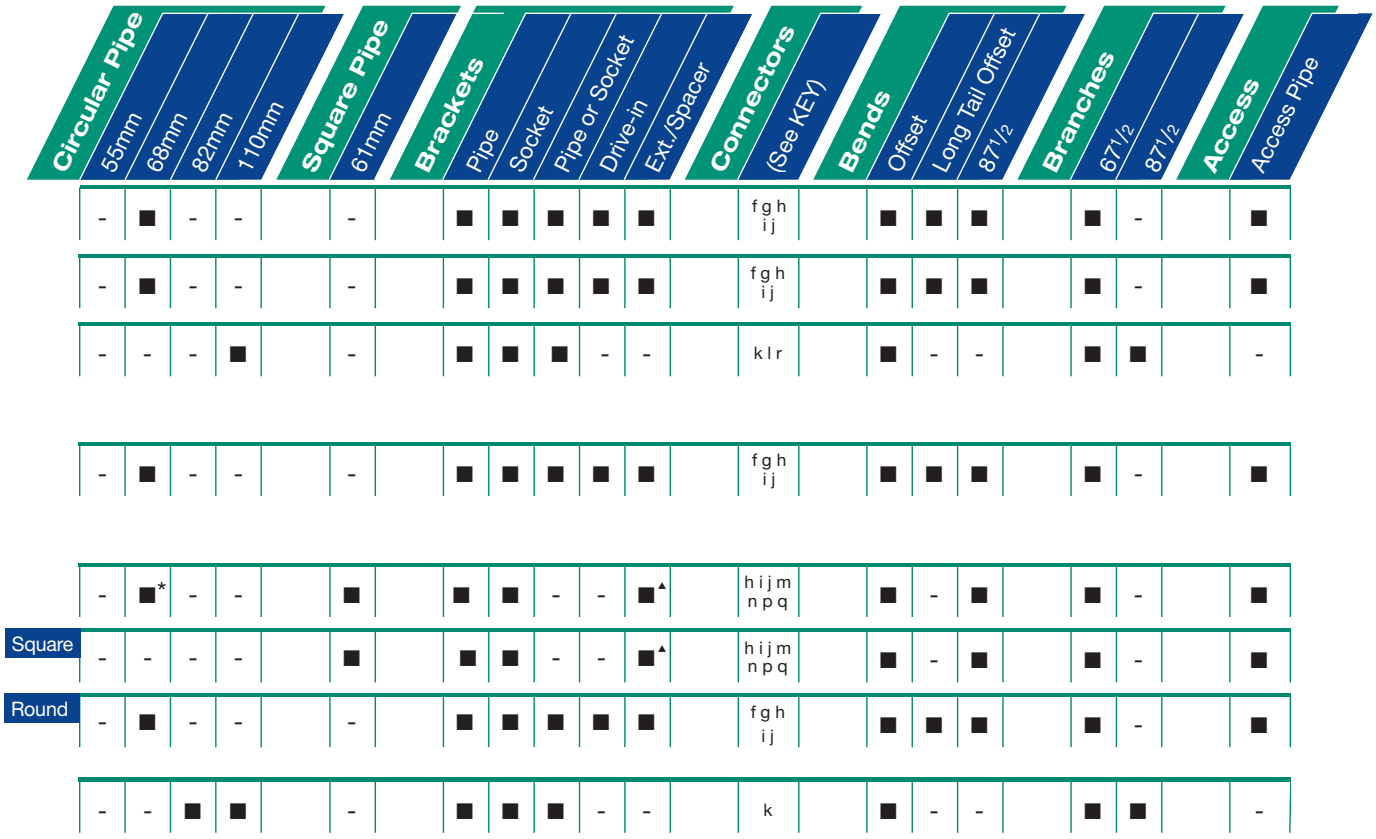
Downpipes

Key Pipe Fittings



Key

Gutter Connectors

a Connector to 4” or 4½” cast-iron half-round gutter

b Connector to 4½” cast-iron ogee gutter

c Connector to 4”, 4½” or 5” cast-iron ogee gutter – L/H and R/H versions

d Connector to PVC-U true half-round gutter

e Connector to 4½” RoundLine Gutter

Pipe Connectors and Adaptors

f Pipe Connector

g Connector to 2½” cast-iron rainwater pipe

h Connector to 82mm PVC-U Drain Socket

i Rainwater Adaptor – 68mm pipe to 110mm PVC-U drain

j Universal Drain Adaptor

k P/E Connector to cast-iron spigot

l S/S Connector to cast-iron or clay drain socket

m Pipe Connector and Bracket

n Pipe Connector and Bracket – Stand Off

p Drain Adaptor – Square-to-Round

q Outlet Adaptor – Square-to-Round

Reducer

r S/S Reducer

■ Standard

† Saddle Bracket

▲ Stand Off Bracket

* Via Square-to-Round Outlet Adaptor

△ Also 45° Bend

Gutter

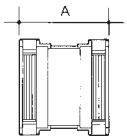
RoundLine Gutter

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	LENGTH [m]
112	0T072	2
112	0T074	4

COLOURS: **Black, Grey, White, Brown**

Gutter Union and Jointing Bracket



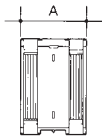
Gutter Union

- Use with **Gutter Support Brackets 0T019/0T039** *(see below)*, **Top/Side Rafter Brackets** *(page 11)* or **Rise-and-Fall Brackets** *(page 11)*

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
112	0T009	105

COLOURS: **Black, Grey, White, Brown**



Gutter Jointing Bracket

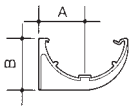
- Used to join running lengths of gutter and fixing to fascia

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
112	0T005	97

COLOURS: **Black, Grey, White, Brown**

Support Brackets and Spacers



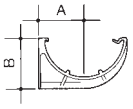
Gutter Support Bracket

- *For support centres, see page 56*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
112	0T019	67	73

COLOURS: **Black, Grey, White, Brown**



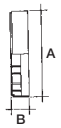
Gutter Support Bracket – 3 screw fixing

- *For support centres, see page 56*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
112	0T039	67	73

COLOURS: **Black, Grey, White, Brown**



Gutter Bracket Spacer

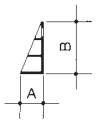
- Use with **Support Brackets 0T019** or **0T039** *(see above)* to provide additional 21mm clearance

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
-	0T044	103	21

COLOURS: **Black, Grey, White, Brown**

Support Brackets and Spacers continued



Angled Bracket Spacer

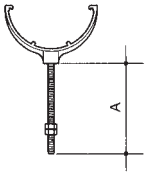
- 22½° angle
- Use with **Support Bracket 0T019** *(page 10)* when fascia board or rafter/truss ends are angled

MATERIAL: Polypropylene

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
-	**0T045**	**33**	**74**

COLOURS: **Black**

Rise-and-Fall Bracket and Spikes



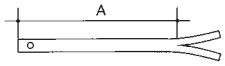
Bow and Pin for Rise-and-Fall Bracket

- Use with **Spikes 0T985/986** or **0T988/989** *(see below)*
- Diameter of rod: 8mm

MATERIAL: Pin – Stainless steel; Bracket – PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
112	**0T914**	**115**

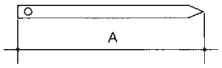
COLOURS: **Black, Grey, White, Brown**



Build-in Spikes

MATERIAL: Galvanised mild steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	LENGTH
-	**0T985**	**160**	**230**
-	**0T986**	**260**	**330**

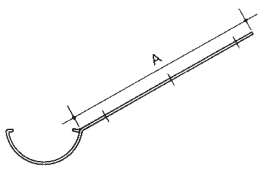


Drive-in Spikes

MATERIAL: Galvanised mild steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	**0T988**	**230**
-	**0T989**	**330**

Rafter Brackets



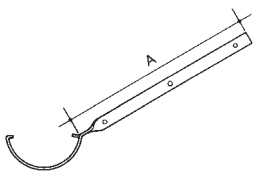
Top Rafter Brackets

- Angle of bracket: 30°

MATERIAL: 0T745 PVC-coated steel
0T245 Galvanised mild steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
112	**0T745**	**300**
112	**0T245**	**300**

COLOURS: **0T745 Black, Grey, Brown**



Side Rafter Brackets

- Angle of bracket: 30°

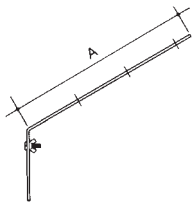
MATERIAL: 0T746 PVC-coated steel
0T246 Galvanised mild steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
112	**0T746**	**300**
112	**0T246**	**300**

COLOURS: **0T746 Black, Grey, Brown**

Rafter Brackets *continued overleaf*

Rafter Brackets continued

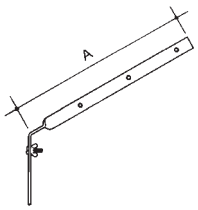


Adjustable Top Rafter Bracket

- Use with **Gutter Support Bracket 0T019** *(page 10)*
- Angle of bracket: 30°

MATERIAL: BZP-plated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	0T147	300



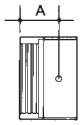
Adjustable Side Rafter Bracket

- Use with **Gutter Support Bracket 0T019** *(page 10)*
- Angle of bracket: 30°

MATERIAL: BZP-plated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	0T148	300

Connectors to Metal and PVC-U Gutters



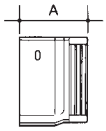
Connector to 4" or 4½" Cast-Iron Half-Round Gutter

- Use with waterproof mastic

MATERIAL: PVC-U, with EPDM seal

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
112	0T008	54

COLOURS: **Black, Grey**



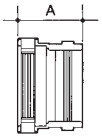
Connector to 4½" Cast-Iron Ogee Gutter

- Use with waterproof mastic

MATERIAL: PVC-U, with EPDM seal

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
112 LH	0T014	97
112 RH	0T015	97

COLOURS: **Black, Grey**



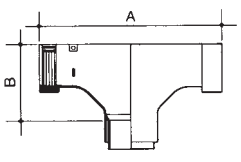
Connector to PVC-U True Half-Round Gutter

MATERIAL: PVC-U, with EPDM seal

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
112	0T018	93

COLOUR: **Grey**

Outlets and Stopends



Running Outlet

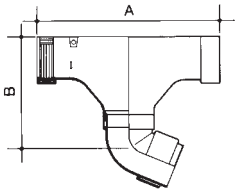
- *For gutter capacity, see page 6*
- Outlet for 68mm pipe

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
112	0T624	257	105

COLOURS: **Black, Grey, White, Brown**

Outlets and Stopends continued



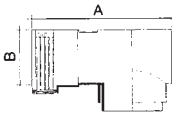
Swivelock Running Outlet, with Fitted 67½° Offset Bend

- Maximum fascia depth 138mm
- *For gutter capacity, see page 6*
- Outlet for 68mm pipe

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
112	0T625	257	155

COLOURS: **Black, Grey, White, Brown**



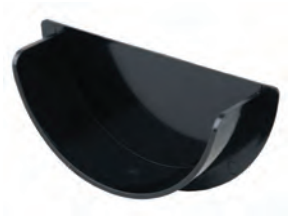
Stopend Outlet

- *For gutter capacity, see page 6*
- Outlet for 68mm pipe

MATERIAL: PVC-U, with EPDM seal

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
112	0T007	148	56

COLOURS: **Black, Grey, White, Brown**



Internal Stopend

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
112	0T010	33

COLOURS: **Black, Grey, White, Brown**

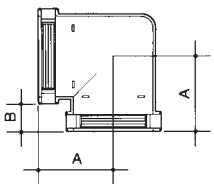
External Stopend

MATERIAL: PVC-U, with EPDM seal

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
112	0T011	30

COLOURS: **Black, Grey, White, Brown**

Gutter Angles

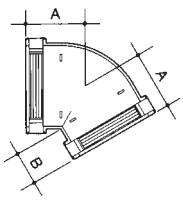


90° Angle

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
112	0T003	106	47

COLOURS: **Black, Grey, White, Brown**



60° Angle

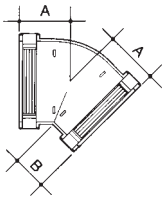
MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
112	0T016	82	48

COLOURS: **Black, Grey, White, Brown**

Gutter Angles *continued overleaf*

Gutter Angles continued



45° Angle

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
112	0T004	71	48

COLOURS: **Black, Grey, White, Brown**

24°- 130° Multi-Angle

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER
112	0T002

COLOURS: **Black**

Fabricated Angles

- Angles fabricated to order
- *For details, contact Technical Design Department*

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER
112	-

COLOURS: **Black, Grey, White, Brown**

Leaf Guard

Leaf Guard

- Plastic mesh designed to fit into 112mm gutter to prevent blocking by leaves and debris
- Pack contains 10 x 500mm lengths

MATERIAL: Recycled plastic

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
112	0T017	500	108

COLOURS: **Black**

Spares

Flexiclip

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER
112	0T116

COLOURS: **Black, Grey, White, Brown**

Multi-Angle Flexiclip

- For use with multi-angle only

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER
112	0T115

COLOURS: **Black**

Spares continued

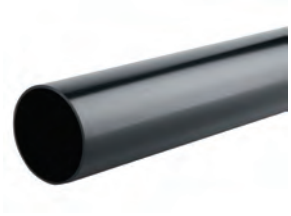
Gutter Seal

MATERIAL: EPDM

NOMINAL SIZE	PART NUMBER
112	0T064

COLOUR: **Black**

Pipe



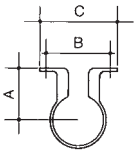
68mm Circular Pipe

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	LENGTH [m]
68	0T082	2.0
68	0T086	2.75
68	0T084	4.0
68	0T088	5.5

COLOURS: **Black, Grey, White, Brown**
Except 0T082: Not available in White

Pipe and Socket Brackets



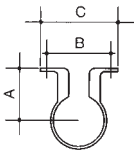
Pipe Bracket

- *For pipe support centres, see page 56*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
68	0T034	72	90	110

COLOURS: **Black, Grey, White, Brown**



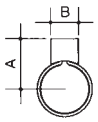
Socket Bracket

- Use with **Pipe Connector 0T024** *(page 16)*, **67½° Branch 0T035** *(page 18)*, **Pipe Shoe 0T037** *(page 17)*, **87½° Bend 0T161** *(page 17)*, **Access Pipe 0T274** *(page 18)*
- *For pipe support centres, see page 56*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
68	0T038	72	90	110

COLOURS: **Black, Grey, White, Brown**



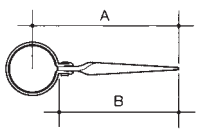
Pipe or Socket Bracket

- *For pipe support centres, see page 56*
- Use outside grooves for sockets

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
68	0T033	71	38

COLOURS: **Black, Grey, White, Brown**



Drive-in Pipe Bracket

- *For pipe support centres, see page 56*

MATERIAL: Spike – Galvanised steel; Bracket – PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
68	0T143	206	171

COLOURS: **Black, Grey, Brown**

Pipe and Socket Brackets and Spacer *continued overleaf*

Pipe and Socket Brackets continued

Bracket Extension Piece

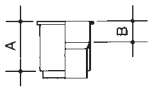
- Use with **Pipe or Socket Bracket 0T033** *(page 15)* as a spacer
- Adds a maximum of 45mm to the wall-to-pipe centre dimension
- Can be cut to suit

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
68	0T030	45

COLOURS: **Black, Grey, White, Brown**

Connectors and Adaptors



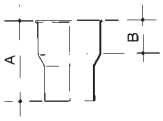
Pipe Connector

- Support with **Socket Bracket 0T038** *(page 15)*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
68	0T024	70	30

COLOURS: **Black, Grey, White, Brown**



Connector to 2½" Cast-Iron Rainwater Pipe

- Use with **Pipe Connector 0T024** *(see above)*
- Support with **Socket Bracket 0T038** *(page 15)*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
68	0T092	110	45

COLOURS: **Black, Grey**

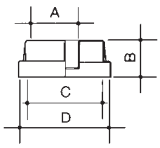
Rainwater Adaptor - 68mm to 82mm PVC-U Drain socket

- For external use only

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
-	3D206	-	-	-

COLOUR: **Golden Brown**



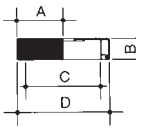
Rainwater Adaptor – 68mm Pipe to 110mm PVC-U Drain

- For external use only
- For use with 110mm drain socket or spigot

MATERIAL: Polypropylene

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C	D
-	4D149	69	55	110	132
-	0T149	69	55	110	132

COLOURS: **4D149 Golden Brown**
0T149 Black



Universal Drain Adaptor

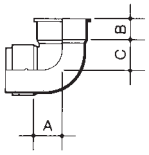
- For external use only
- For 110mm drain socket or spigot

MATERIAL: EPDM

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C	D
-	4D159	68	30	110	136

COLOUR: **Black**

Bend



87½° Bend

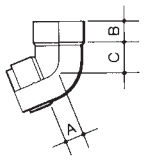
- Use with **Socket Bracket 0T038** *(page 15)*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
68	0T161	39	30	40

COLOURS: **Black, Grey, White, Brown**

Offset Bends



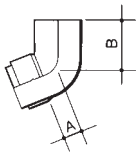
Offset Bend – Socket

- 67½° offset. Minimum achievable offset: 90mm
- For use as top or bottom bend

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
68	0T025	29	30	40

COLOURS: **Black, Grey, White, Brown**



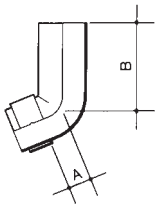
Offset Bend – Spigot

- 67½° offset. Spigot may be cut back by 20mm to achieve 70mm offset
- For use as top or bottom bend
- Use with **Offset Bend 0T025** *(see above)*, or **Running Outlets 0T624/625** *(pages 12–13)*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
68	0T026	30	70

COLOURS: **Black, Grey, White, Brown**



Long Tail Offset Bend – Spigot

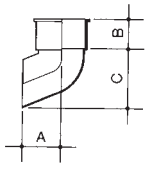
- 67½° offset
- Use with **Straight Running Outlet 0T624** *(page 12)*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
68	0T027	46	122

COLOURS: **Black, Grey, White, Brown**

Pipe Shoe



Pipe Shoe

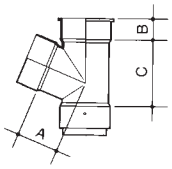
- Use with **Socket Bracket 0T038** *(page 15)*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
68	0T037	40	30	83

COLOURS: **Black, Grey, White, Brown**

Branch



67½° Pipe Branch

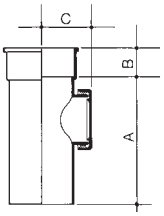
- Use with **Socket Bracket 0T038** *(page 15)*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
68	0T035	62	30	93

COLOURS: **Black, Grey, White, Brown**

Access Pipe



Access Pipe with Screwed Door

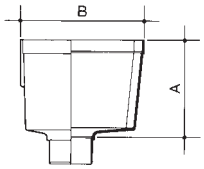
- Use with **Socket Bracket 0T038** *(page 15)*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
68	0T274	135	30	50

COLOURS: **Black, Grey, White, Brown**

Hopper Head



Hopper Head

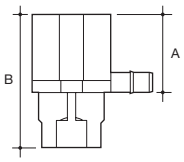
- Flow capacity 2.40 l/s
- Spigot sized for 68mm pipe

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	WIDTH
68	0T332	130	178	255

COLOURS: **Black, Grey, White, Brown**

Waterbutt Filler Kit



Waterbutt Filler Kit

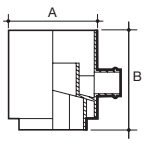
- Provides an outlet to allow a waterbutt to be filled from a downpipe

MATERIAL: Polypropylene

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
68	0T200	68	110

COLOUR: **Black**

Rainwater Diverter Kit



Rainwater Diverter Kit

- Provides an outlet to allow a waterbutt to be filled from a downpipe

MATERIAL: PVC-U; Connector – Polypropylene; Seal – EPDM

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
68	0T201	76	87

COLOURS: **Black, Grey, White, Brown**

Gutter

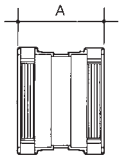
SuperLine Gutter

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	LENGTH [m]
125	5T574	4

COLOURS: **Black**

Gutter Union



Gutter Union

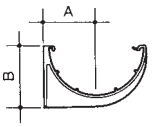
- Use with **Gutter Support Bracket 5T519** *(see below)*, or with **Top/Side Rafter Brackets** *(page 20)*, or with **Rise-and-Fall Brackets** *(page 20)*

MATERIAL: PVC-U, with EPDM seals

SIZE	NUMBER	A
125	5T509	124

COLOURS: **Black**

Support Bracket, Spacers and Bracer



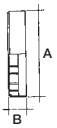
Gutter Support Bracket

- *For support centres, see page 56*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
125	5T519	75	87

COLOURS: **Black**



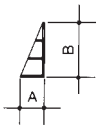
Gutter Bracket Spacer

- Use with **Gutter Support Bracket 5T519** *(see above)* to provide additional 21mm clearance

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
-	0T044	103	21

COLOURS: **Black**



Angled Bracket Spacer

- 22½° angle
- Use with **Gutter Support Bracket 5T519** *(see above)* when fascia board or rafter/truss ends are angled

MATERIAL: Polypropylene

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
-	0T045	33	74

COLOURS: **Black**

Support Bracket Bracer

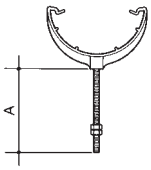
- Converts **Gutter Support Bracket 5T519** *(see above)* to three-screw fixing for areas with adverse weather conditions

MATERIAL: Polypropylene

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	0T119	48

COLOUR: **Black**

Rise-and-Fall Bracket and Spikes



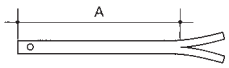
Bow and Pin for Rise-and-Fall Bracket

- Use with **Spikes 0T985/986 or 0T988/989** *(see below)*
- Diameter of rod: 8mm

MATERIAL: Pin – stainless steel; Bracket – PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
125	**5T594**	**115**

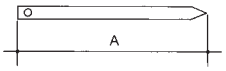
COLOURS: **Black**



Build-in Spike

MATERIAL: Galvanised mild steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	LENGTH
-	**0T985**	**160**	**230**
-	**0T986**	**260**	**330**

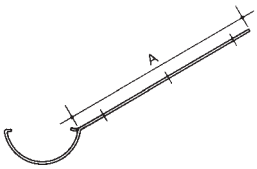


Drive-in Spike

MATERIAL: Galvanised mild steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	**0T988**	**230**
-	**0T989**	**330**

Rafter Brackets



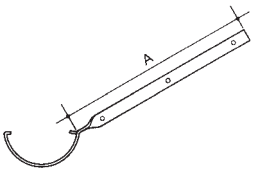
Top Rafter Brackets

- Angle of bracket, 30°

MATERIAL: PVC-coated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
125	**5T595**	**300**

COLOURS: **Black**



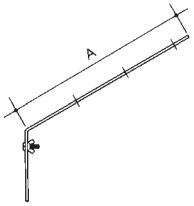
Side Rafter Brackets

- Angle of bracket, 30°

MATERIAL: PVC-coated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
125	**5T596**	**300**

COLOURS: **Black**



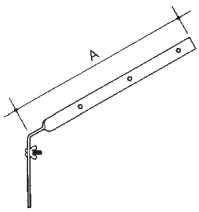
Adjustable Top Rafter Bracket

- Use with **Gutter Support Bracket 5T519** *(page 19)*
- Angle of bracket: 30°

MATERIAL: BZP-plated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	**0T147**	**300**

Rafter Brackets continued



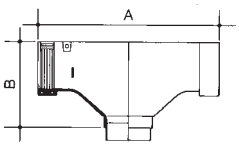
Adjustable Side Rafter Bracket

- Use with **Gutter Support Bracket 5T519** *(page 19)*
- Angle of bracket: 30°

MATERIAL: BZP-plated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	0T148	300

Outlet and Stopends



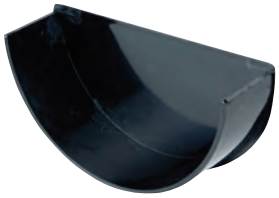
Running Outlet

- *For gutter capacity, see page 6*
- Outlet for 68mm pipe

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
125	5T508	260	123

COLOURS: **Black**

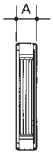


Internal Stopend

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
125	5T510	41

COLOURS: **Black**



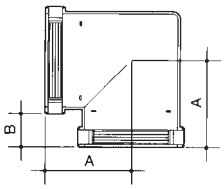
External Stopend

MATERIAL: PVC-U, with EPDM seal

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
125	5T511	28

COLOURS: **Black**

Gutter Angles

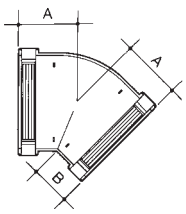


90° Angle

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
125	5T503	122	49

COLOURS: **Black**



45° Angle

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
125	5T504	169	110

COLOURS: **Black**

Gutter Angles *continued overleaf*

Gutter Angles continued

Fabricated Angles

- Angles fabricated to order
- *For details, contact Technical Design Department*

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER
125	-

COLOURS: **Black**

Spares

Gutter Seal

MATERIAL: EPDM

NOMINAL SIZE	PART NUMBER
125	5T564

COLOUR: **Black**

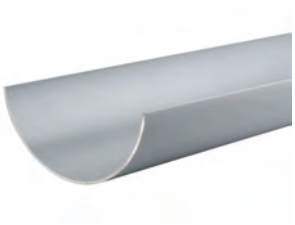
Flexiclip

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER
125	5T516

COLOURS: **Black**

Gutter



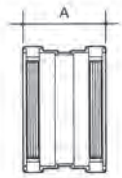
RoofLine Gutter

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	LENGTH [m]
150	6T674	4

COLOURS: **Black, Grey**

Gutter Union



Gutter Union

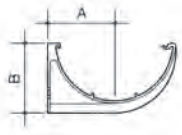
- Use with **Gutter Support Bracket 6T619** *(see below)*, or with **Top/Side Rafter Brackets** *(page 24)* and **Rise-and-Fall Brackets** *(see below)*

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
150	6T609	125

COLOURS: **Black, Grey**

Gutter Bracket and Spacer



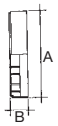
Gutter Support Bracket

- *For support centres, see page 56*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
150	6T619	98	101

COLOURS: **Black, Grey**



Gutter Bracket Spacer

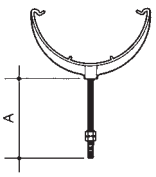
- Use with **Gutter Support Bracket 6T619** *(see above)* to provide additional 21mm clearance

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
-	0T044	103	21

COLOURS: **Black, Grey**

Rise-and-Fall Bracket and Spikes



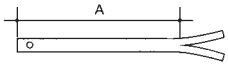
Bow and Pin for Rise-and-Fall Bracket

- Use with **Spikes 0T985/986** *(see below)* or **0T988/989** *(page 24)*
- Diameter of rod: 8mm

MATERIAL: Pin – stainless steel; Bracket – PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
150	6T694	115

COLOURS: **Black, Grey**



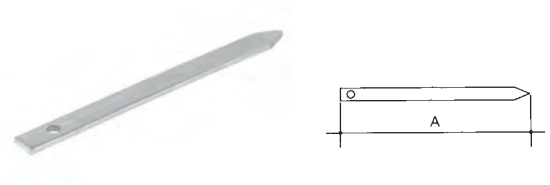
Build-in Spikes

MATERIAL: Galvanised mild steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	LENGTH
-	0T985	160	230
-	0T986	260	330

Rise-and-Fall Bracket and Spikes *continued overleaf*

Rise-and-Fall Bracket and Spikes continued

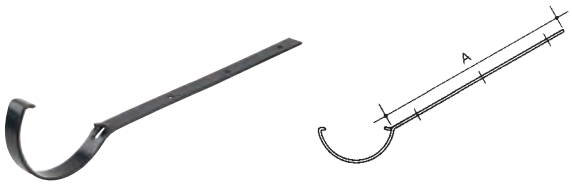


Drive-in Spikes

MATERIAL: Galvanised mild steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	0T988	230
-	0T989	330

Rafter Brackets



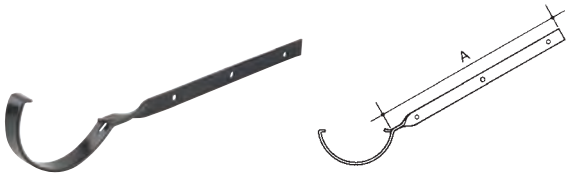
Top Rafter Brackets

- Angle of bracket: 30°

MATERIAL: PVC-coated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
150	6T695	300

COLOURS: **Black, Grey**



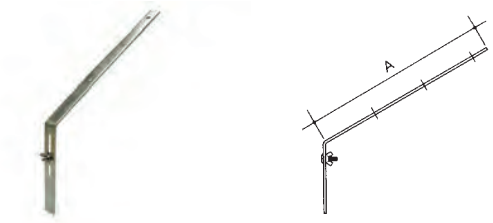
Side Rafter Brackets

- Angle of bracket: 30°

MATERIAL: PVC-coated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
150	6T696	300

COLOURS: **Black, Grey**

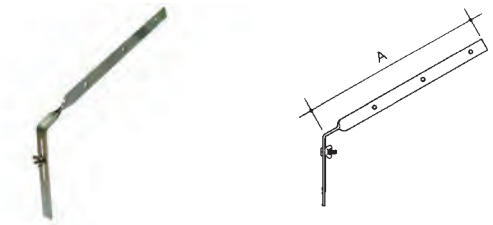


Adjustable Top Rafter Brackets

- Use with **Gutter Support Bracket 6T619** *(page 23)*
- Angle of bracket: 30°

MATERIAL: BZP-plated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	0T147	300



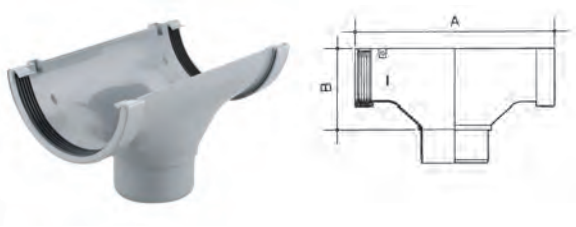
Adjustable Side Rafter Brackets

- Use with **Gutter Support Bracket 6T619** *(page 23)*
- Angle of bracket: 30°

MATERIAL: BZP-plated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	0T148	300

Outlet and Stopends



Running Outlet

- *For gutter capacity, see page 6*
- Outlet for 110mm pipe

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
150	6T606	303	122

COLOURS: **Black, Grey**

Outlet and Stopends continued

Internal Stopend

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
150	6T610	33

COLOURS: **Black, Grey**

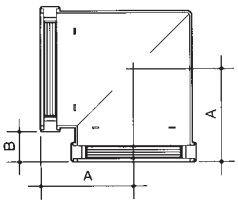
External Stopend

MATERIAL: PVC-U, with EPDM seal

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
150	6T611	29

COLOURS: **Black, Grey**

Gutter Angles



90° Angle

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
150	6T603	141	49

COLOURS: **Black, Grey**

Fabricated Angles

- Angles fabricated to order
- *For details, contact Technical Design Department*

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER
150	-

COLOURS: **Black, Grey**

Spares

Gutter Seal

MATERIAL: EPDM

NOMINAL SIZE	PART NUMBER
150	6T664

COLOUR: **Black**

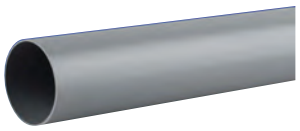
Flexiclip

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER
150	6T616

COLOURS: **Black, Grey**

Pipe



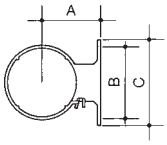
110mm Circular Pipe

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	LENGTH [m]
110	4S073	3
110	4S074	4

COLOURS: **Black, Grey**

Pipe and Socket Brackets



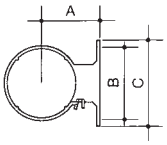
Pipe Bracket

- *For pipe support centres, see page 56*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
110	4S082	94	120	140

COLOURS: **Black, Grey**



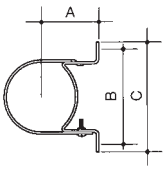
Socket Bracket

- Position in the recessed area adjacent to the sealing-ring housing
- *For pipe support centres, see page 56*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
110	4S083	94	120	140

COLOURS: **Black, Grey**



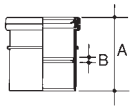
Pipe or Socket Bracket

- Multi-functional bracket that will support pipes or sockets
- When used as a socket bracket, position in the recessed area adjacent to the sealing-ring housing
- *For pipe support centres, see page 56*

MATERIAL: BZP-Plated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
110	4S084	94	162	180

Sockets



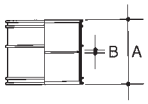
S/SW Single Socket

- For creating a fixed ring-seal joint on plain-ended pipe or fittings
- Has one ring-seal socket and one solvent-weld socket

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
110	4S124	115	2

COLOURS: **Black, Grey**



D/SW Double Socket

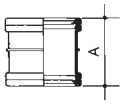
- Has a solvent-weld socket at each end

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
110	4S104	98	2

COLOURS: **Black, Grey**

Sockets continued



D/S Double Socket

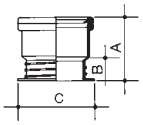
- A slip coupler for repair work
- Has ring-seal sockets

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
110	**4S105**	**115**

COLOURS: **Black, Grey**

Connectors and Reducer



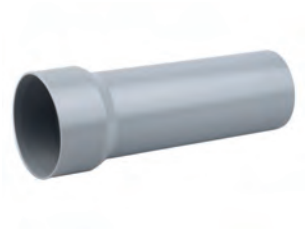
S/S Connector to Cast-Iron or Clay Drain Socket

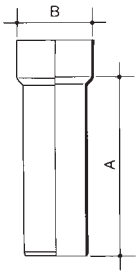
- Connects 110mm pipe to BS 1211 or BS 437 cast-iron socket, or BS 65 clay drain socket
- Has one special end and one ring-seal socket

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
110	**4S107**	**121**	**51**	**134**

COLOUR: **Grey**





P/E Connector to Cast-Iron Spigot

- Plain-ended connector
- Connects 110mm pipe to cast-iron pipe with outside diameter 108-120mm
- Heat-shrink Connector to BS 416 to Cast-Iron Spigot
- Use with **Gasket 4S119** *(see below)*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B (MAX)	B (MIN)
110	**4S134**	**300**	**125**	**108**

COLOURS: **Black, Grey**

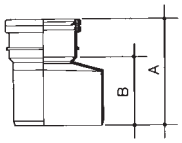
Gasket

- For use with **Connector 4S134** *(see above)*

MATERIAL: Neoprene synthetic rubber

NOMINAL SIZE	PART NUMBER
110	**4S119**

COLOUR: **Black**



S/S Reducer

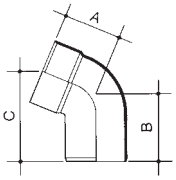
- Enables 110mm plain-ended pipe to be connected to a 160mm socket
- Has one plain end and one ring-seal or push-fit socket

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
160 x 110	**6S099**	**127**	**70**

COLOUR: **Grey**

Offset Bends



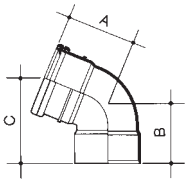
SW/S Offset Bend

- 67½° offset
- Has one solvent-weld socket and one plain end

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
110	4S435	99	105	143

COLOURS: **Black, Grey**



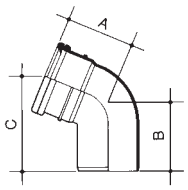
S/SW Offset Bend

- 67½° offset
- Has one ring-seal socket and one solvent-weld socket

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
110	4S440	110	99	140

COLOURS: **Black, Grey**



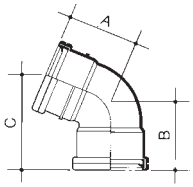
S/S Offset Bend

- 67½° offset
- Has one plain end and one ring-seal socket

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
110	4S444	110	105	147

COLOURS: **Black, Grey**



D/S Offset Bend

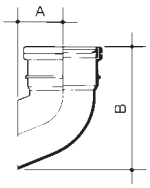
- 67½° offset
- Has a ring-seal socket at each end

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
110	4S445	110	110	155

COLOURS: **Black, Grey**

Pipe Shoe



S/S Pipe Shoe

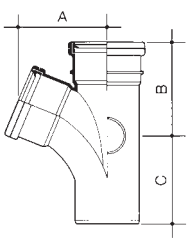
- Use with **Socket Bracket 4S083** *(page 26)*
- Has one plain end and one ring-seal socket

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
110	4S288	65	243

COLOURS: **Black, Grey**

Branches



S/S Single Branch – 67½°

- Has one plain end and two ring-seal sockets

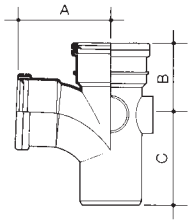
MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
110	4S200	160	159	155

COLOURS: **Black, Grey**

Connects to RoofLine (page 23) and 110mm Roof outlets (page 45)

Branches continued



S/S Single Branch – 87½°

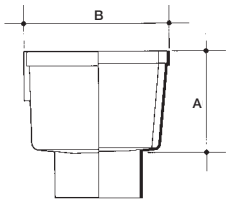
- Has one plain end and two ring-seal sockets

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
110	4S190	150	120	142

COLOURS: **Black, Grey**

Hopper Head



Hopper Head

- Flow capacity 6.47 l/s
- Spigot sized for 110mm socket

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	WIDTH
110	4S326	132	183	255

COLOURS: **Black, Grey**

Gutter

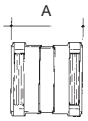
DeepLine Gutter

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	LENGTH [m]
113	WW	4

COLOURS: **Black, Grey, White, Brown**

Gutter Union



Gutter Union

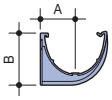
- Use with **Support Bracket 9T919** *(see below)* and **Rise-and-Fall Bracket 9T994** *(page 31)*

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
113	9T909	121

COLOURS: **Black, Grey, White, Brown**

Support Bracket and Spacers



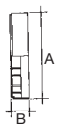
Gutter Support Bracket

- *For support centres, see page 56*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
113	9T919	66	100

COLOURS: **Black, Grey, White, Brown**



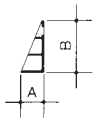
Gutter Bracket Spacer

- Use with **Support Bracket 9T919** *(see above)* to provide additional 21mm clearance

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
-	0T044	103	21

COLOURS: **Black, Grey, White, Brown**



Angled Bracket Spacer

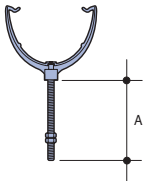
- 22½° angle
- Use with **Support Bracket 9T919** *(see above)* when fascia board or rafter/truss ends are angled

MATERIAL: Polypropylene

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
-	0T045	33	74

COLOUR: **Black**

Rise-and-Fall Bracket and Spikes



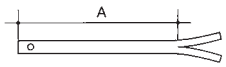
Bow and Pin for Rise-and-Fall Bracket

- Use with **Spikes 0T985/986** or **0T988/989** *(see below)*
- Diameter of rod: 8mm

MATERIAL: Pin – Stainless steel; Bracket – PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
113	9T994	115

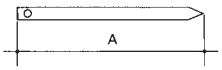
COLOURS: **Black, Grey, White, Brown**



Build-in Spikes

MATERIAL: Galvanised mild steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	LENGTH
-	0T985	160	230
-	0T986	260	330

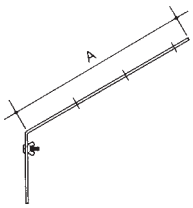


Drive-in Spikes

MATERIAL: Galvanised mild steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	0T988	230
-	0T989	330

Rafter Brackets

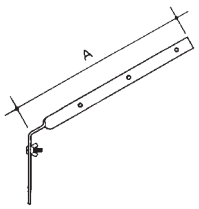


Adjustable Top Rafter Bracket

- Use with **Gutter Support Bracket 9T919** *(page 30)*
- Angle of bracket: 30°

MATERIAL: BZP-Coated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	0T147	300



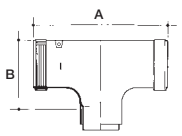
Adjustable Side Rafter Bracket

- Use with **Gutter Support Bracket 9T919** *(page 30)*
- Angle of bracket: 30°

MATERIAL: BZP-Coated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	0T148	300

Outlet and Stopends



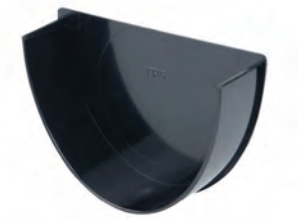
Running Outlet

- *For gutter capacity, see page 6*
- Outlet for 68mm pipe

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
113	9T906	235	116

COLOURS: **Black, Grey, White, Brown**



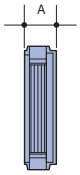
Internal Stopend

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
113	9T910	33

COLOURS: **Black, Grey, White, Brown**

Outlet and Stopends continued



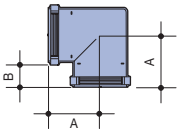
External Stopend

MATERIAL: PVC-U, with EPDM seal

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
113	9T911	32

COLOURS: **Black, Grey, White, Brown**

Gutter Angles

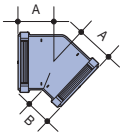


90° Angle

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
113	9T903	110	46

COLOURS: **Black, Grey, White, Brown**



45° Angle

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
113	9T904	75	51

COLOURS: **Black, Grey, White, Brown**

Fabricated Angles

- Angles fabricated to order
- *For details, contact Technical Design Department*

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER
113	-

COLOURS: **Black, Grey, White, Brown**

Spares

Gutter Seal

MATERIAL: EPDM

NOMINAL SIZE	PART NUMBER
113	9T964

COLOUR: **Black**

Flexiclip

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER
113	9T916

COLOURS: **Black, Grey, White, Brown**

Gutter

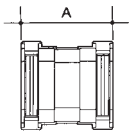
SquareLine Gutter

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	LENGTH [m]
100	4T872	2
	100	4T874 4

COLOURS: **Black, White, Brown**

Gutter Union and Jointing Bracket



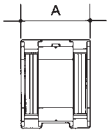
Gutter Union

- Use with **Gutter Support Bracket 4T819** *(see below)* or with **Adjustable Top/Side Rafter Brackets** *(page 34)* **Rise-and-Fall Brackets** *(page 34)*

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
100	4T809	128

COLOURS: **Black, White, Brown**



Gutter Jointing Bracket

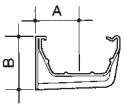
- Used to join running lengths of gutter and fixing to fascia

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
100	4T805	99

COLOURS: **Black, White, Brown**

Support Bracket and Spacers



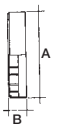
Gutter Support Bracket – 3 Screw Fixing

- *For support centres, see page 56*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
100	4T819	64	76

COLOURS: **Black, White, Brown**



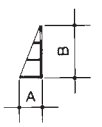
Gutter Bracket Spacer

- Use with **Support Bracket 4T819** *(see above)* to provide additional 21mm clearance

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
-	0T044	103	21

COLOURS: **Black, White, Brown**



Angled Bracket Spacer

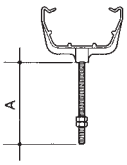
- 22½° angle
- Use with **Support Bracket 4T819** *(see above)* when fascia board or rafter/truss ends are angled

MATERIAL: Polypropylene

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
-	0T045	33	74

COLOURS: **Black**

Rise-and-Fall Bracket and Spikes



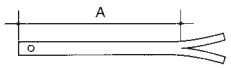
Bow and Pin for Rise-and-Fall Bracket

- Use with **Spikes 0T985/986** or **0T988/989** *(see below)*
- Diameter of rod: 8mm

MATERIAL: Pin – Stainless steel; Bracket – PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
100	**4T894**	**115**

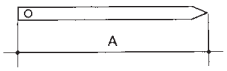
COLOURS: **Black, White, Brown**



Build-in Spikes

MATERIAL: Galvanised mild steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	LENGTH
-	**0T985**	**160**	**230**
-	**0T986**	**260**	**330**

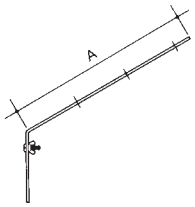


Drive-in Spikes

MATERIAL: Galvanised mild steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	**0T988**	**230**
-	**0T989**	**330**

Rafter Brackets

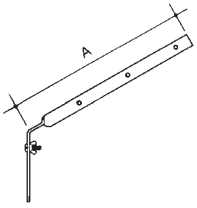


Adjustable Top Rafter Bracket

- Use with **Gutter Support Bracket 4T819** *(page 33)*
- Angle of bracket: 30°

MATERIAL: BZP-Plated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	**0T147**	**300**



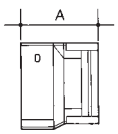
Adjustable Side Rafter Bracket

- Use with **Gutter Support Bracket 4T819** *(page 33)*
- Angle of bracket: 30°

MATERIAL: BZP-Plated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	**0T148**	**300**

Connectors to Other Gutters



Connector to 4", 4½", or 5" Cast-Iron Ogee Gutter

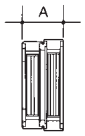
- Use with waterproof mastic

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
100 LH	**4T814**	**114**
100 RH	**4T815**	**114**

COLOUR: **Black**

Connectors to Other Gutters continued



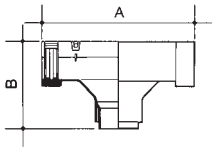
Connector to 4½" RoundLine Gutter

MATERIAL: PVC-U, with EPDM seal

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
100	4T818	56

COLOURS: **Black, White**

Outlets and Stopends



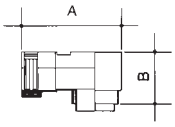
Running Outlet

- *For gutter capacity, see page 6*
- Outlet for 61mm square pipe
- Can be adapted for use with 68mm circular pipe

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
100	4T806	220	95

COLOURS: **Black, White, Brown**



Stopend Outlet

- *For gutter capacity, see page 6*
- Outlet for 61mm square pipe
- Can be adapted for use with 68mm circular pipe
- Use with **Support Bracket 4T819** *(page 33)*

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
100	4T807	142	55

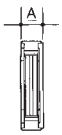
COLOURS: **Black, White, Brown**

Internal Stopend

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
100	4T810	35

COLOURS: **Black, White, Brown**



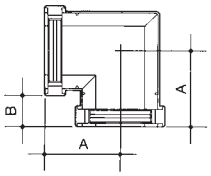
External Stopend

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
100	4T811	28

COLOURS: **Black, White, Brown**

Gutter Angles

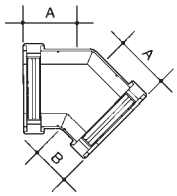


90° Angle

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
100	4T803	109	50

COLOURS: **Black, White, Brown**



45° Angle

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
100	4T804	77	55

COLOURS: **Black, White, Brown**

Fabricated Angles

- Angles fabricated to order
- *For details, contact Technical Design Department*

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER
100	-

COLOURS: **Black, White, Brown**

Spares

Gutter Seal

MATERIAL: EPDM

NOMINAL SIZE	PART NUMBER
100	4T864

COLOUR: **Black**

Flexiclip

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER
100	4T816

COLOURS: **Black, White, Brown**

Pipe

61mm Square Pipe

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	LENGTH [m]
61	4T882	2.0
61	4T886	2.75
61	4T884	4.0
61	4T888	5.5

COLOURS: **Black, White, Brown**

Pipe Brackets and Spacer

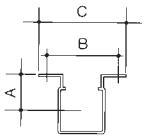
Pipe Bracket

- *For pipe support centres, see page 56*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
61	4T834	35	95	115

COLOURS: **Black, White, Brown**



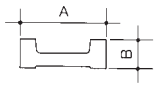
Stand-off Pipe Bracket

- *For pipe support centres, see page 56*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
61	4T833	51	100	127

COLOURS: **Black, White, Brown**



Pipe Bracket Spacer

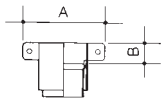
- Use as a spacer with **Pipe Connector and Bracket 4T823** *(see below)* **Pipe Shoe and Bracket 4T832** *(page 39)*, **Pipe Bracket 4T834** *(see above)*, **Access Pipe 4T855** *(page 40)*, and **Wall Offset Pipe with Access 4T858** *(page 39)*
- Adds a maximum of 39mm to the wall-to-pipe centre dimension
- Can be cut to suit

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
-	4T731	121	39

COLOURS: **Black, White, Brown**

Connectors and Adaptors

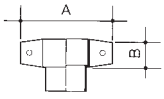


Pipe Connector and Bracket

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
61	4T823	115	30

COLOURS: **Black, White, Brown**



Stand-off Pipe Connector and Bracket

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
61	4T824	127	33

COLOURS: **Black, White, Brown**

Connectors and Adaptors continued

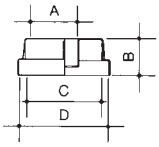
Connector to 82mm PVC-U Drain Socket

- Use with **Square-to-Round Drain Adaptor 4T836** *(see below)*
- For use with 82mm Drain Socket only
- For external use only

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
-	**3D206**	-	-	-

COLOUR: **Golden Brown**



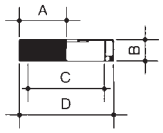
Rainwater Adaptor – 68mm Pipe to 110mm PVC-U Drain

- Use with **Square-to-Round Drain Adaptor 4T836** *(see below)*
- For use with 110mm drain socket or spigot only
- For external use only

MATERIAL: Polypropylene

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C	D
-	**4D149**	**69**	**55**	**110**	**132**
-	**0T149**	**69**	**55**	**110**	**132**

COLOURS: **4D149 Golden Brown** **0T149 Black**



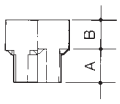
Universal Drain Adaptor

- For use with 110mm drain socket or spigot
- Accepts SquareLine downpipe without an adaptor
- For external use only

MATERIAL: EPDM

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C	D
-	**4D159**	**68**	**30**	**110**	**136**

COLOUR: **Black**



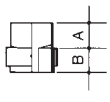
Drain Adaptor – Square-to-Round

- Allows 61mm square pipe to be connected to 68mm (round) **Rainwater Adaptor 4D149**, **0T149** or **Connector 3D209** *(see above)*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
61	**4T836**	**46**	**43**

COLOURS: **Black, White, Brown**



Outlet Adaptor – Square-to-Round

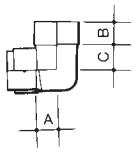
- Allows outlets to be connected to 68mm circular pipe

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
61	**4T837**	**43**	**30**

COLOURS: **Black, White, Brown**

Bend



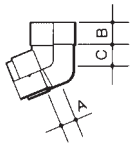
87½° Bend

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
61	**4T862**	**32**	**30**	**39**

COLOURS: **Black, White, Brown**

Offset Bends



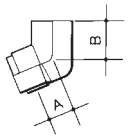
Offset Bend – Socket

- 67½° offset
- For use as top or bottom bend

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
61	4T825	23	30	30

COLOURS: **Black, White, Brown**



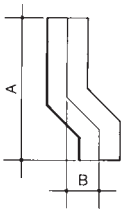
Offset Bend – Spigot

- 67½° offset
- Minimum achievable offset 73mm
- For use as top or bottom bend

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
61	4T826	23	57

COLOURS: **Black, White, Brown**



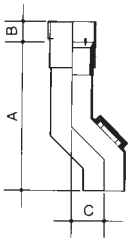
Wall Offset Pipe

- Provides 48mm offset to enable connection to drain outlet

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
61	4T838	208	48

COLOURS: **Black, White, Brown**



Wall Offset Pipe with Access

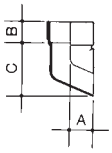
- Provides 48mm offset to enable connection to drain outlet
- Fitted with screwed, square access cover

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
61	4T858	212	30	48

COLOURS: **Black, White, Brown**

Pipe Shoe



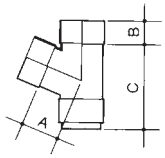
Pipe Shoe and Bracket

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
61	4T832	33	30	76

COLOURS: **Black, White, Brown**

Branch



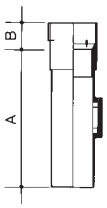
67½° Pipe Branch

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
61	4T835	56	30	122

COLOURS: **Black, White, Brown**

Access Pipe



Access Pipe

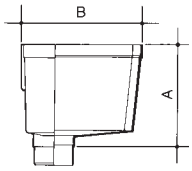
- Fitted with screw-fixed, square access cover

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
61	4T855	170	41

COLOURS: **Black, White, Brown**

Hopper Head



Hopper Head

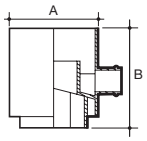
- Flow capacity 2.40 l/s
- Spigot sized for 61mm square pipe

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	WIDTH
61	4T830	138	178	255

COLOURS: **Black, White, Brown**

Rainwater Diverter Kit



Rainwater Diverter Kit

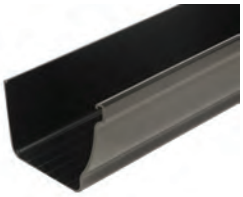
- Provides an outlet to allow a waterbutt to be filled from a downpipe

MATERIAL: PVC-U; Connector – Polypropylene; Seal – EPDM

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
68	0T201	76	87

COLOURS: **Black, White, Brown**

Gutter



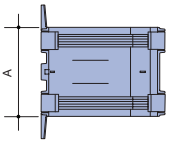
StormLine Gutter

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	LENGTH [m]
111 x 76 x 97	8T874	4

COLOURS: **Black, White**

Gutter Union



Gutter Union

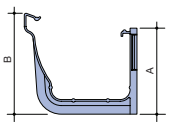
- Used with **Gutter Support Brackets** (**8T819**) (*see below*) or with **Rise and Fall Brackets** (*see page 42*) (**8T894**)

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
111 x 76 x 97	8T809	100

COLOURS: **Black, White**

Support Brackets and Spacer



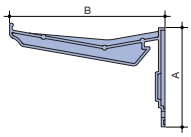
Gutter Support Bracket

- *For support centres, see page 56*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
111 x 76 x 97	8T819	100	117

COLOURS: **Black, White**



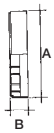
Gutter Hanging Bracket

- For unobtrusive fixing, almost invisible from ground level
- *For support centres, see page 56*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
111 x 76 x 97	8T849	80	125.5

COLOURS: **Black, White**



Gutter Bracket Spacer

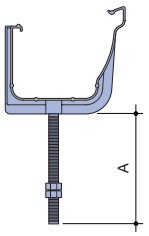
- Use with **Gutter Brackets 8T819** or **8T849** *(see above)* to provide additional 21mm clearance

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
-	0T044	103	21

COLOURS: **Black, White**

Rise-and-Fall Bracket and Spikes



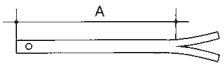
Bow and Pin for Rise-and-Fall Bracket

- Use with **Spikes 0T985/986** or **0T988/989** *(see below)*
- Diameter of rod: 8mm

MATERIAL: Pin – Stainless steel; Bracket – PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
110	**8T894**	**115**

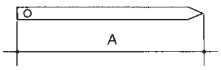
COLOURS: **Black, White**



Build-in Spikes

MATERIAL: Galvanised mild steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	LENGTH
-	**0T985**	**160**	**230**
-	**0T986**	**260**	**330**

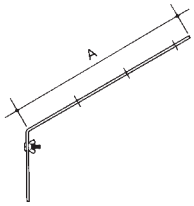


Drive-in Spikes

MATERIAL: Galvanised mild steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	**0T988**	**230**
-	**0T989**	**330**

Rafter Brackets

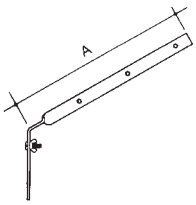


Adjustable Top Rafter Bracket

- Use with **Gutter Support Bracket 8T819** *(page 41)*
- Angle of bracket: 30°

MATERIAL: BZP-Plated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	**0T147**	**300**



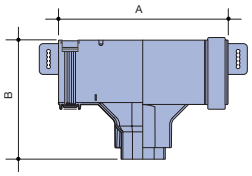
Adjustable Side Rafter Bracket

- Use with **Gutter Support Bracket 8T819** *(page 41)*
- Angle of bracket: 30°

MATERIAL: BZP-Plated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
-	**0T148**	**300**

Outlets and Stopends



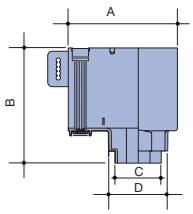
Running Outlet

- *For gutter capacity, see page 6*
- Can be used with 68mm circular pipe and 61mm Square Pipe

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
111 x 76 x 97	**8T806**	**220**	**175**

COLOURS: **Black, White**



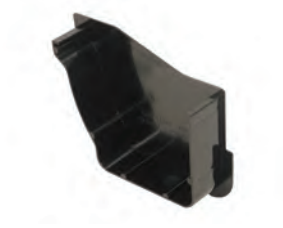
Stopend Outlet

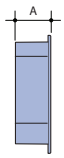
- *For gutter capacity, see page 6*

MATERIAL: PVC-U, with EPDM seal

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C	D
111 x 76 x 97 LH	**8T807**	**135**	**123.5**	**58**	**71**
111 x 76 x 97 RH	**8T808**	**135**	**123.5**	**58**	**71**

COLOURS: **Black, White**



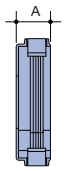


Internal Stopend

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
111 x 76 x 97 LH	**8T840**	**33**
111 x 76 x 97 RH	**8T850**	**33**

COLOURS: **Black, White**



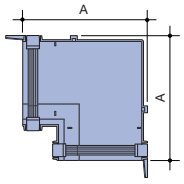
External Stopend

MATERIAL: PVC-U, with EPDM seal

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
111 x 76 x 97 LH	**8T841**	**37.5**
111 x 76 x 97 RH	**8T851**	**37.5**

COLOURS: **Black, White**

Gutter Angles

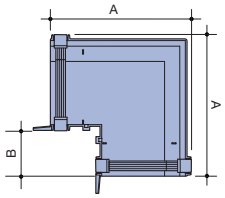


Internal 90° Angle

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
111 x 76 x 97	**8T843**	**178**

COLOURS: **Black, White**



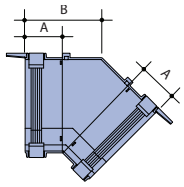
External 90° Angle

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
111 x 76 x 97	**8T853**	**200**	**72.5**

COLOURS: **Black, White**

Gutter Angles continued

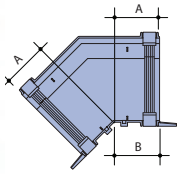


Internal 45° Angle

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
111 x 76 x 97	8T844	50	103

COLOURS: **Black, White**



External 45° Angle

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
111 x 76 x 97	8T854	67.5	67

COLOURS: **Black, White**

Fabricated Angles

- Angles fabricated to order
- *For details, contact Technical Design Department*

MATERIAL: PVC-U, with EPDM seals

NOMINAL SIZE	PART NUMBER
111 x 76 x 97	-

COLOURS: **Black, White**

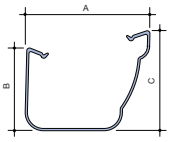
Spares

Gutter Seal

MATERIAL: EPDM

NOMINAL SIZE	PART NUMBER
111 x 76	8T864

COLOUR: **Black**



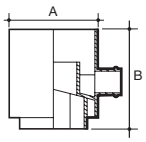
Flexiclip

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER
111 x 76 x 97	8T816

COLOURS: **Black, White**

Rainwater Diverter Kit



Rainwater Diverter Kit

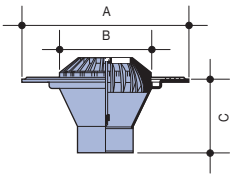
- Provides an outlet to allow a waterbutt to be filled from a downpipe

MATERIAL: PVC-U; Connector – Polypropylene; Seal – EPDM

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
61/68	0T201	76	87

COLOURS: **Black, White**

Roof Outlet



SW/S Domed Roof Outlet

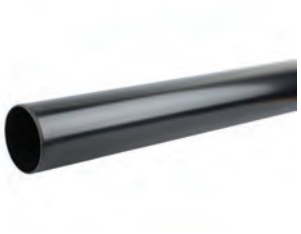
- Outlet capacity (outlet at centre of roof):
  82mm outlet 2.97 l/s; 143m² max. roof area
  110mm outlet 4.35 l/s; 209m² max. roof area
- Fitted with: 82mm outlet solvent-weld socket
  110mm outlet solvent-weld socket

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
82	3S414	270	130	124
110	4S414	338	188	147

COLOUR: **Grey**

Pipe



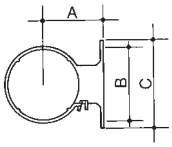
82mm and 110mm Circular Pipe

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	LENGTH [m]
82	3S074	4.0
110	4S074	4.0

COLOURS: **3S074 Black, Grey**
4S074 Black, Grey, Olive, White, Brown

Pipe and Socket Brackets



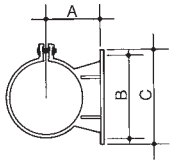
Pipe Bracket

- *For pipe support centres, see page 56*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
82	3S082	76	92	112
110	4S082	94	120	
140				

COLOURS: **3S082 Black, Grey**
4S082 Black, Grey, Olive, White, Brown



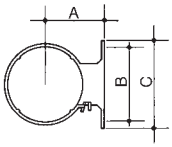
Socket Bracket – 82mm Pipe

- *For pipe support centres, see page 56*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
82	3S083	78	120	140

COLOURS: **Black, Grey**



Socket Bracket – 110mm Pipe

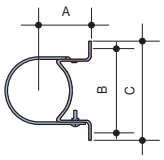
- *For pipe support centres, see page 56*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
110	4S083	94	120	140

COLOURS: **Black, Grey, Olive, White, Brown**

Pipe and Socket Brackets continued



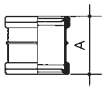
Pipe or Socket Bracket

- Multi-functional bracket that can be used to support pipes or sockets
- When using as a socket bracket, position in the recessed area adjacent to the sealing-ring housing
- *For pipe support centres, see page 56*

MATERIAL: BZP-Coated steel

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
82	3S084	78	120	140
110	4S084	94	162	180

Sockets



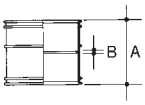
D/S Double Socket

- Provides a slip coupler for repair applications
- Has a ring-seal socket at each end

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A
82	3S105	102
110	4S105	115

COLOURS: **3S105: Black, Grey**
4S105: Black, Grey, Brown



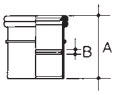
D/SW Double Socket

- Has a solvent-weld socket at each end

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
110	4S104	98	2

COLOURS: **Black, Grey, Brown**



S/SW Single Socket

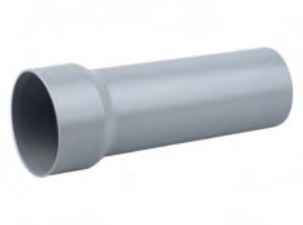
- Creates a fixed ring-seal joint on plain-ended pipe or fittings
- Has one ring-seal socket and one solvent-weld socket

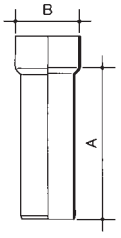
MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
82	3S124	97	2
110	4S124	115	2

COLOURS: **3S124 Black, Grey**
4S124 Black, Grey, Olive, White, Brown

Connectors





P/E Connector to Cast-Iron Spigot

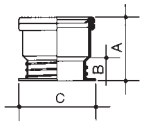
- Plain-ended connector
- Connects OSMA 82mm/110mm circular pipe to cast-iron pipe with outside diameter 80-100mm/108-120mm
- Heat-shrink Connector to BS 416 to Cast-Iron Spigot
- Use with two **Seals 3S130** *(page 51)* **/Gasket 4S119** *(page 27)*

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B (MAX)	B (MIN)
82	3S134	325	105	80
110	4S134	300	125	108

COLOUR: **3S134 Grey**
4S134 Black, Grey, Brown

Connectors continued



S/S Connector to Cast-Iron or Clay Drain Socket

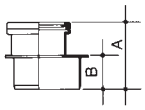
- Connects RoofLine pipe to BS 1211 or BS 437 cast-iron socket, or BS 65 clay drain socket
- Has one plain end and one ring-seal or push-fit socket

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C
110	4S107	121	51	134

COLOUR: **Grey**

Reducer



S/S Reducer

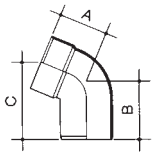
- Enables an 82mm pipe to be connected to a 110mm socket
- Has one plain end and one ring-seal socket

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B
110 x 82	4S095	103	53

COLOURS: **Black, Grey**

Offset Bends



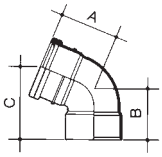
SW/S Offset Bend

- 67½° offset
- Has one solvent-weld socket and one plain end

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C	
82	3S435	92	87	123	
110	4S435	99	105	143	

COLOURS: **3S435 Grey**
4S435 Black, Grey, White, Brown



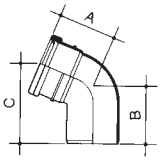
S/SW Offset Bend

- 67½° offset
- Has one ring-seal socket and one solvent-weld socket

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C	
82	3S440	92	87	123	
110	4S440	110	99	140	

COLOURS: **3S440: Black, Grey**
4S440: Black, Grey, White, Brown



S/S Offset Bend

- 67½° offset
- Has one plain end and one ring-seal socket

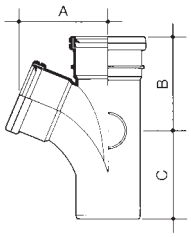
MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C	
82	3S444	95	87	123	
110	4S444	110	105	147	

COLOURS: **3S444 Black, Grey**
4S444 Black, Grey, White, Brown

Connectors *continued overleaf*

Branches and Pipe Shoe



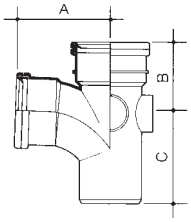
S/S Single Branch – 67½°

- Has one plain end and two ring-seal sockets

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C	
82	3S200	132	121	121	
	110	4S200		160	159
155					

COLOURS: **3S200 Grey**
4S200 Black, Grey, Brown



S/S Single Branch – 87½°

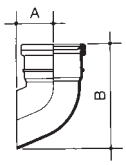
- Has one plain end and two ring-seal sockets

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	C	
82	3S190	155	118	146	
	110	4S190		150	120
142					

COLOURS: **3S190 Black, Grey**
4S190 Black, Grey, White, Brown

Pipe Shoe



S/S Pipe Shoe

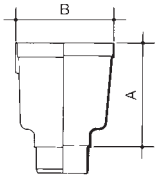
- Use with **Socket Bracket 3S083/4S083** *(page 45)*
- Has one plain end and one ring-seal or socket

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B		
82	3S288	60	162		
	110	4S288		65	243

COLOURS: **Black, Grey**

Hopper Head



Hopper Head

- Flow capacity 3.78 l/s
- Spigot sized for 82mm pipe or socket

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	DIMENSIONS [mm] A	B	WIDTH
82	3S530	260	190	255

COLOURS: **Black, Grey**

Cleaner

Degreasing Cleaner Number 1

- Supplied in screw-top cans
- Use for cleaning solvent-weld joints prior to application of solvent weld

SIZE	PART NUMBER
125ML	4S379
250ML	4S380

Solvent Cement

Solvent Cement Number 2

- Supplied in screw-top cans
- Use for making solvent-weld joints

SIZE	PART NUMBER
125ML	4S383
250ML	4S384
500ML	4S385

Solvent Cement Filler

- Use for solvent welding two surfaces where there is no interference fit
- Supplied in a tube

SIZE	PART NUMBER
200G	4S394

Lubricant

Silicone Lubricant

- Supplied in tubes
- Use to aid assembly of ring-seal socket-and-spigot joints

SIZE	PART NUMBER
50G	4S391

Silicone Lubricant Spray

- Supplied in 400ml spray can
- Use to aid assembly of ring-seal socket-and-spigot joints

SIZE	PART NUMBER
400ML	4S392

Gutter Spares

Gutter Seal

MATERIAL: EPDM

NOMINAL SIZE	PART NUMBER	
112	0T064	for **RoundLine**
125	5T564	for **SuperLine**
150	6T664	for **RoofLine**
113	9T964	for **DeepLine**
100	4T864	for **SquareLine**
111 x 76	8T864	for **StormLine**

COLOUR: **Black**

Flexiclip

MATERIAL: PVC-U

NOMINAL SIZE	PART NUMBER	
112	0T116	for **RoundLine**
125	5T516	for **SuperLine**
150	6T616	for **RoofLine**
113	9T916	for **DeepLine**
100	4T816	for **SquareLine**
111 x 97	8T816	for **StormLine**

COLOURS: **0T016, 9T916 Black, Grey, White, Brown**
4T816, 8T816 Black, White, Brown
5T516, Black, Brown
6T616, Black, Grey

Gutter Pad – Narrow

- For 'old style' gutter joints – not flexiclip joints
- To glue in seals use waterproof contact adhesive

MATERIAL: EPDM

NOMINAL SIZE	PART NUMBER	
112	0T060	for **RoundLine**
150	6T660	for **RoofLine**
95	3T360	for **Mini-Fit**
100	4T860	for **SquareLine**

COLOUR: **Black**

Gutter Pad – Wide

- For 'old style' gutter joints – not flexiclip joints
- To glue in seals use waterproof contact adhesive

MATERIAL: EPDM

NOMINAL SIZE	PART NUMBER	
112	0T061	for **RoundLine**
150	6T661	for **RoofLine**
100	4T861	for **SquareLine**

COLOUR: **Black**

Pipe Spares

Ring Seal – Spares

MATERIAL: EPDM

NOMINAL SIZE	PART NUMBER
82	3S130
110	4S130

Snap Cap – Spare

- For a Ring-Seal socket

SIZE	PART NUMBER
82	3S116
110	4S116

COLOURS: **3S116 Black, Grey**
4S116 Black, Grey, White, Brown

Determining Gutter Flow Capacity

The capacity of a rainwater system effectively to drain a roof area depends on four factors:

- Gutter capacity
- Level to which the gutter is laid
- Number of outlets
- Location of outlets

To determine the correct combination, first calculate the area to be drained – the Effective Roof Area.

Calculating Effective Roof Area

Pitched roof

There are two methods of calculating Effective Roof Area, which allows for the effects of wind.

PROCEDURE A *(see Fig.1)*

BS EN 12056: Part 3: 2000

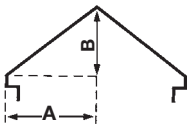
1. Measure in metres:
   A Length from eaves to ridge
   B Height of roof from eaves to ridge
   C Length of roof
2. Use the formula specified in **BS EN 12056: Part 3: 2000**
   Effective Roof Area (in m^2) = $(\mathbf{A} + \mathbf{B}) \times \frac{\mathbf{C}}{2}$
3. Check this figure against the capacity of OSMA systems set out in **Table 1**.

WORKED EXAMPLE: (Procedure A)

A = 7.0m

B = 3.0m

C = 12.0m



$\left(7 + \frac{3}{2}\right) \times 12$

(7 + 1.5) x 12

8.5 x 12 = 102m^2 Effective Roof Area [ERA]

Conclusion: in this example, **Table 1** shows that:

– *If outlet positioned at END of run:*
StormLine and DeepLine are suitable if laid to a fall of 1:600
RoofLine is suitable laid level or to a fall

– *If outlet positioned at CENTRE of run:*
All systems (except Mini-Fit) are suitable if laid to a fall of 1:600
All systems (except RoundLine and Mini-Fit) are suitable if laid level

PROCEDURE B *(see Fig.1)*

Building Regulations Part H 1990

1. Measure roof plan area in square metres:
   Length (**L**) x Width (**W**) = Area (m^2)
2. To find Effective Roof Area, multiply roof plan area as follows, according to angle of pitch:
   – *if 30° pitch* – Area x 1.29
   – *if 45° pitch* – Area x 1.5
   – *if 60° pitch* – Area x 1.87

Wall abutting roof

Walls above abutting roofs will drain on to the roof below. For a single wall the effective catchment area is taken to be half the area of the elevation.

PROCEDURE *(see Fig. 2)*

1. Measures in metres:
   D Length of wall above roof
   E Height of wall above roof
2. Use the formula:
   Effective Wall Area (in m^2) = $(\mathbf{D} \times \frac{\mathbf{E}}{2})$
3. Add the Effective Wall Area (*if appropriate*) to the Effective Roof Area to be drained

Fig. 1 Pitched roof

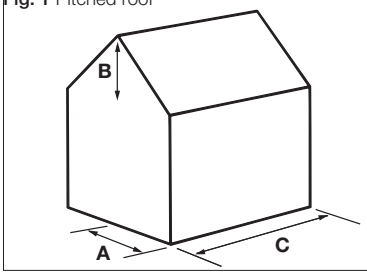


Fig. 2 Wall abutting roof

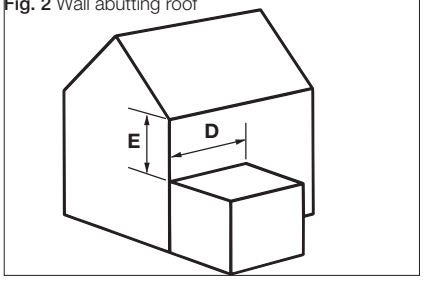


Table 1: Maximum Effective Roof Area (m^2)

System	Running outlet at END of gutter		Running outlet at CENTRE of gutter		Stopend outlet at END of gutter	
	Gutter laid level	Gutter laid at fall 1:600	Gutter laid level	Gutter laid at fall 1:600	Gutter laid level	Gutter laid at fall 1:600
RoundLine	63	79	126	163	60	60
SuperLine	101	121	207	250		
RoofLine	119	164	228	317		
DeepLine	114	145	245	299		
SquareLine	67	96	149	178	63	63
StormLine ■	117	130	228	254	63	63
StormLine ●	115	125	221	239	61	61

NOTE: *The roof areas capable of being drained are calculated in accordance with BS EN 12056: Part 3: 2000, to which reference should be made before varying design considerations.*

Determining Gutter Flow Capacity

Factors to consider

Gutter fall

Gutters laid to a fall are more efficient than gutters laid level. A fall of 1:600 (25mm in 15m) is recommended.

The high capacity characteristics of OSMA gutter systems mean that performance is not compromised by being laid level.

However, laying the gutter to a fall will increase flow capacity and the area of roof that can be drained – particularly if the downpipe is positioned centrally, Silting will also be prevented.

Number of outlet(s)

The more outlets along a gutter, and the shorter the distance rainwater has to travel, the more effective the system.

EXAMPLE:

A

B

C

Layout B is more efficient than A, and C is more efficient than B.

Location of outlet(s)

Outlets located near gutter angles also reduce system efficiency.

EXAMPLE:

Where a gutter length contains 1 or more gutter angles (greater than 10º) then multiply the Maximum Effective Roof Areas in **Table 1** by a reduction factor of 0.85.

Flow rates *(litres/sec)*

Our changeable climate means it is impossible to rule out flooding and overflow. Generally, it is satisfactory to design to a rainfall intensity of 75mm per hour where overflow will not cause damage within the building.

For valley and parapet gutters or where a building or its contents require additional measures of protection, a higher rainfall intensity should be used. See BSEN12056-3:2000

Table 3 shows the maximum capacity for each system, gutter laid level or to a fall of 1:600. Established using the test method prescribed in EN12056 – 3:2000

To calculate flow

- *For 75mm per hour rainfall intensity*, calculate: Effective Roof Area (m^2) x 0.0208 = litres per second
- *For other rainfall intensity levels*, calculate as follows: Effective Roof Area (m^2) x rainfall intensity (mm per hour) ÷ 3600 = litres per second

Flat roofs

- *For roofs with a pitch less than 10º:* the Effective Roof Area for the purposes of flow calculation is simply the plan area of the roof.
- *For drainage via gutters positioned at roof perimeter:* Refer to **Table 3** below to determine whether system capacity is sufficient for area to be drained.
- *For drainage via OSMA flat roof outlets:* Refer to **Table 2** below.

Roof Outlets positioned in the centre of a flat roof can drain larger areas than outlets located at the edge or corner of the roof.

It is good practice to have a minimum of 2 flat Roof Outlets per roof if no overflow point has been designed.

BS EN 12056: Part 3: 2000 7.3.1.

For reference to Standards *see page 75*.

Table 2: Roof Outlet Capacity

Outlet	Outlet Diameter	Maximum roof area	
	mm	m^2	Litres per second
3S414	82	143	2.97
4S414	110	209	4.35

Table 3: Gutter Flow Capacity (l/s)

System	Running outlet at END of gutter		Running outlet at CENTRE of gutter		Stopend outlet at END of gutter	
	Gutter laid level	Gutter laid at fall 1:600	Gutter laid level	Gutter laid at fall 1:600	Gutter laid level	Gutter laid at fall 1:600
RoundLine	1.30	1.65	2.63	3.40	1.25	1.25
SuperLine	2.10	2.52	4.30	5.19		
RoofLine	2.48	3.41	4.74	6.59		
DeepLine	2.38	3.01	5.10	6.21		
SquareLine	1.40	1.99	3.10	3.71	1.30	1.30
StormLine ■	2.44	2.70	4.74	5.28	1.32	1.32
StormLine ●	2.39	2.60	4.60	4.98	1.26	1.26

Gutter Support

Gutter location

BS EN 12056 – 3: 2000, section 7.2.1 & NE.2.1 states "Gutters designed as level or nominally level should be laid to a nominal gradient of between 1mm/m and 3mm/m where practicable. The gradient of an eaves gutter shall not be so steep that the gutter drops below the level of the roof to such an extent that water discharging from the roof will pass over the front edge of the gutter." Also, "the gutter should be fixed centrally under the roof edge and close beneath it."

Support options *(see Fig. 3)*

Support can be provided by

EITHER

– Gutter fittings that incorporate screw-fixing positions (e.g. Running Outlet)

OR

– Gutter Support Brackets, Hanging Brackets or Rise-and-Fall Bracket assemblies, according to the system.

See **Table 4** for bracketing arrangements available for each system.

Gutter support centres

The gutter should be supported as follows:

– At maximum centres of 1m
– Within 150mm of both sides of any angle
– At the centre of gutter joints *(see also* **Gutter Jointing** *page 55)*

Multi-screw fixings

Use of multi-screw fixings is particularly recommended on high buildings and in areas exposed to strong winds.

Rafter Brackets

Where it is not possible to screw-fix direct to fascia, Angled, Adjustable, Top and Side Rafter Brackets, and Drive-in or Build-in Spikes are available.

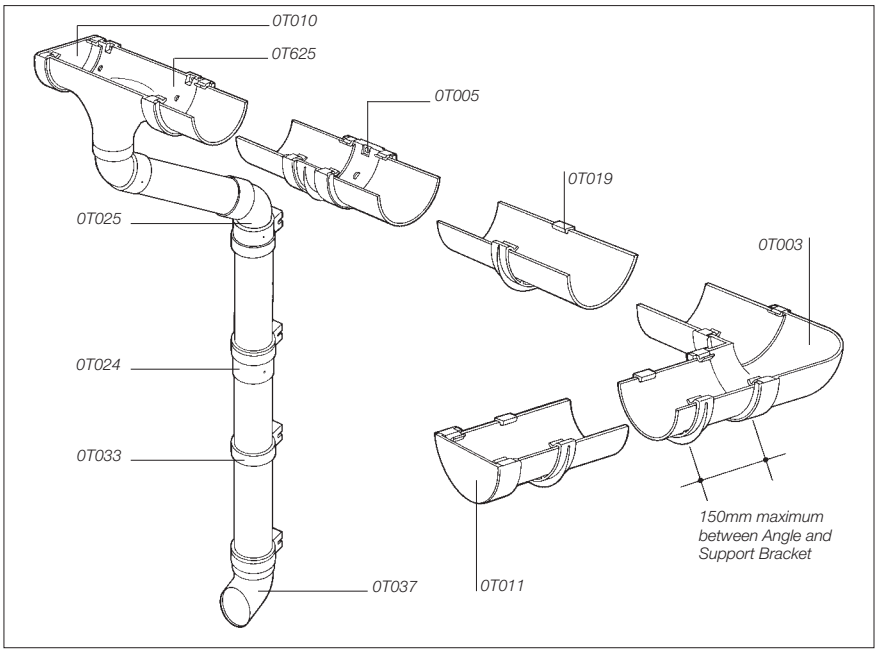
Angled fascias

For support of gutters to be fixed to angled fascia, an **Angled Bracket Spacer 0T045** is available. This is suitable for RoundLine, SuperLine, SquareLine, StormLine and DeepLine systems.

Table 4: Alternative Bracketing Arrangements

System	Gutter Support Bracket		Gutter Hanging Bracket	Rise-and-Fall Bow and Pin Bracket
	Single Screw Fixing	Multi-Screw Fixing		
RoundLine	0T019	0T039	–	0T914
SuperLine	5T519	5T519 + 0T119	–	5T594
RoofLine	6T619	6T619	–	6T694
DeepLine	9T919	9T919	–	9T994
SquareLine	4T819	4T819	–	4T894
StormLine	8T819	–	8T849	8T894

Fig. 3 General arrangement – RoundLine



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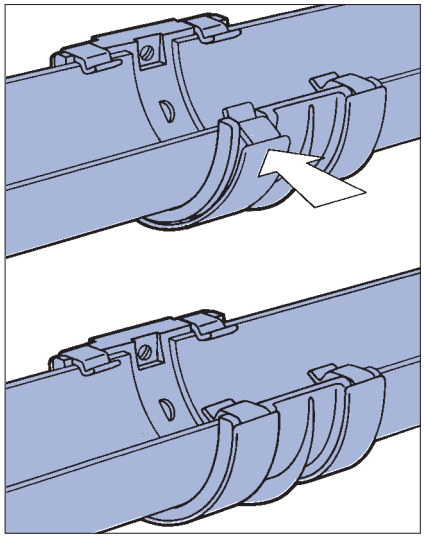
Gutter Jointing

Gutter jointing

OSMA Rainwater systems are fitted with a 'Flexiclip' (excluding Mini-Fit) and seal jointing mechanism, making it easy to connect gutter to fittings. *(See Fig. 4)*

Because the clip is flexed, rather than the whole component, this ensures a positive, permanently watertight joint.

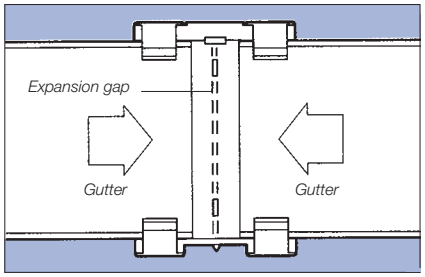
Fig. 4 Flexiclip gutter joint



Thermal movement

Gutter joint fittings are marked to indicate the limit for positioning gutter ends to allow for thermal expansion. These marked positions must be fully observed during assembly and installation. *(See Fig. 5)*

Fig. 5 Allowance for thermal movement



A gutter jointing bracket or gutter union with bracket should be fitted within 300mm from the end of terminal lengths of gutter.

Curved eaves

For a gutter to fit into a curved eaves detail, it is necessary to use a number of shallow angles.

Shallow angles can be fabricated to order. *Contact Wavin Technical Design Department, stating the radius and circumference of the eaves. Wavin will calculate the optimum number and angle of gutter fittings required.*

Leaves

In areas where trees are close to a roof, care should be taken to ensure that gutters and pipes do not become clogged with wet leaves.

The OSMA RoundLine system includes **Leaf Guard 0T017**, which provides a simple-to-fit method to keep gutters and pipes clear of fallen leaves. Required lengths can be easily cut and simply fit inside the gutter.

Leaf Guard can be used with RoundLine and DeepLine systems only.

Connections to Other Gutter Types

OSMA RoundLine and SquareLine systems have a range of special connectors to enable joints between gutter types to be produced, *(see* **Table 5***)*.

These are particularly useful in refurbishment work, where it may be necessary to replace sections of old gutter but also connect to the existing gutter on adjoining buildings. *(See Fig. 6/7)*

Table 5: Connectors

Connection to	Connector Part Numbers	
	RoundLine	SquareLine
4 or 4½" CI half-round	0T008	-
4 or 4½" or 5" ogee (left hand)	0T014	4T814
4 or 4½" or 5" ogee (right hand)	0T015	4T815
PVC-U true half-round	0T018	-
RoundLine to SquareLine	4T818	4T818

CI = Cast Iron

Fig. 6 RoundLine connection to cast iron gutter

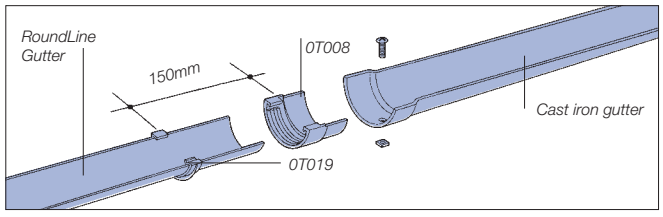
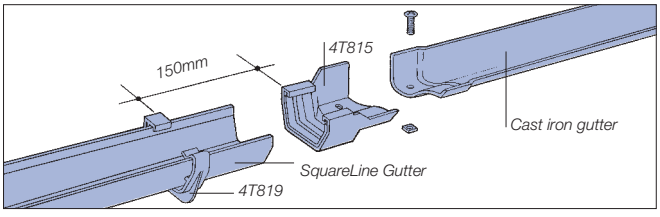


Fig. 7 SquareLine connection to cast iron gutter



Pipe Support

Pipe support centres

The maximum support centres for pipes installed vertically and horizontally are shown in **Table 6** below.

Thermal movement

A gap of 10 -12mm must be left between the top of each length of pipe and the fitting to which it is connected to allow for thermal movement.

Offsets

To give offsets maximum support, a Pipe Bracket should be fitted directly below the lower Offset Bend.

Uneven surfaces

For walls that have an uneven surface (for example, walls featuring 'tudorised' beams), a **Pipe Bracket Spacer** (**0T030** - 68mm round pipe or 4T731 – square pipe) may be used to enable pipe fixings to remain in line. *(See Figs. 8/9)*

For very uneven surfaces such as random rubble stone walls, a special **Drive-in Pipe Bracket 0T143** is available to use with 68mm circular pipe only.

The galvanised steel spike can be driven into the mortar joints to allow the pipe to be installed without distorting.

Fig. 8 Application of Pipe Bracket Spacer

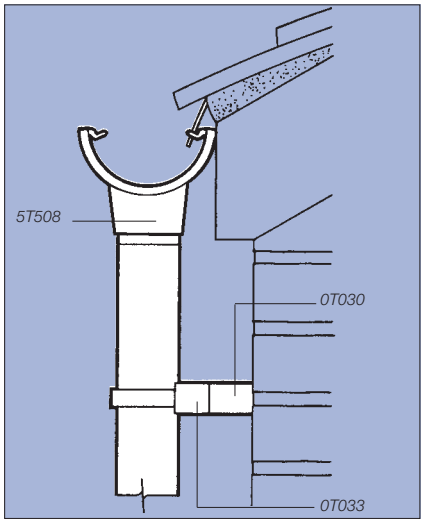


Fig. 9 Use of Pipe Bracket Spacer

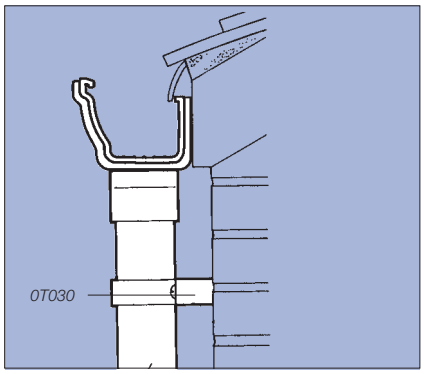


Table 6: Maximum Pipe Support Centres

Pipe Size	Maximum centres (m)	
	Vertical	Horizontal
55mm	1.2	0.6
61mm	2.0	1.0
68mm	2.0	1.0
82mm	2.0	1.0
110mm	2.0	1.0

Typical Connections of Gutter Outlets to OSMA Pipe

Each OSMA rainwater gutter system offers a number of alternatives for connection of pipe to gutter system, depending upon:

- Depth of the fascia
- Whether there is a soffit
- What requirements the designer has of the system

All OSMA systems include a Running Outlet. The following systems offer additional outlets:

RoundLine: **Swivelock Outlet 0T625** - (outlet fitted with integral offset bend) and **Stopend Outlet 0T007.**

SquareLine: **Stopend Outlet 4T807.**

StormLine: **Stopend Outlet 8T807** – left hand; **8T808** – right hand.

Table 7: Outlet Connection Components

System	Circular pipe			Square pipe
	55mm	68mm	110mm	61mm
RoundLine	-	0T624 or 0T625 or 0T007	-	-
SuperLine	-	5T508	-	-
RoofLine	-	-	6T606	-
DeepLine	-	9T906	-	-
SquareLine	-	4T806 or 4T807 + 4T837	-	4T806 or 4T807
StormLine	-	8T806 or 8T807 or 8T808	-	8T806 8T807 8T808

Typical Connections of Gutter Outlets continued

Shallow offsets

Components to achieve a shallow offset are listed in **Table 8** below:

Table 8: Shallow Offset Components

System	Components required
RoundLine	**0T625 + 0T026** (90mm projection or 70mm projection by cutting back spigot of 0T026) OR **0T624** + 2 x **0T026** (90mm projection OR 70mm projection by cutting back spigot of 0T026) To be used with **Pipe Bracket 0T034**, fitted below lowest Offset Bend
SuperLine	*to 68mm circular pipe* **5T508** + 2 x **0T026** (90mm projection OR 70mm projection by cutting back spigot of 0T026) To be used with **Pipe Bracket 0T034**, fitted below lowest Offset Bend
DeepLine	*to 68mm circular pipe* **9T906** + 2 x **0T026** (90mm projection OR 70mm projection by cutting back spigot of 0T026) To be used with **Pipe Bracket 0T034**, fitted below lowest Offset Bend
RoofLine	*to 110mm circular pipe* **6T606** + 2 x **4S444** (minimum projection 155mm) To be used with **Socket Bracket 4S083**, fitted to lowest Offset Bend
SquareLine	*to 68mm circular pipe* **4T806/7** + **4T837** + 2 x **0T026** (90mm projection or 70mm projection by cutting back spigot 0T026) To be used with **Pipe Bracket 0T034**, fitted below lowest Offset Bend *to 61mm square pipe* **4T806/7** + **4T838** + **4T823** (minimum projection 48mm) OR **4T806/7** + 2 x **4T826** (73mm projection) To be used with **Pipe Brackets 4T833** or **4T834** fitted below lowest Offset Bend
StormLine	*to 68mm circular pipe* **8T807/8** + 2 x **0T026** (90mm projection or 70mm projection by cutting back spigot of 0T026) OR **8T806** + 2 x **0T026** (90mm projection or 70mm projection by cutting back spigot of 0T026) To be used with **Pipe Bracket 0T034**, fitted below lowest Offset Bend *to 61mm square pipe* **8T806/7/8** + **4T838** + **4T823** (minimum projection 48mm) OR **8T806/7/8** + 2 x **0T026** (90mm projection or 70mm projection by cutting back spigot of 4T826) To be used with **Pipe Brackets 4T833** or **4T834** fitted below lowest Offset Bend

Fig. 10 RoundLine shallow offset

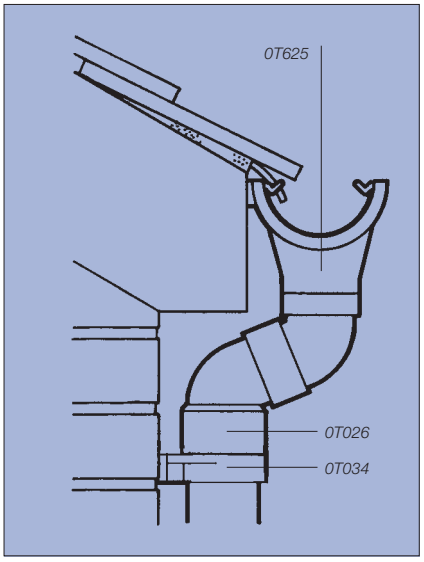


Fig. 11 SquareLine shallow offset

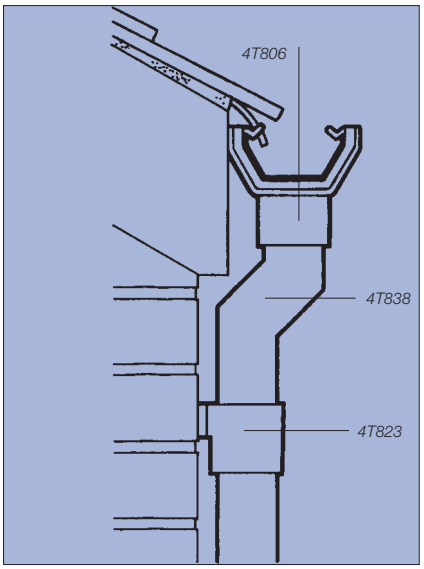
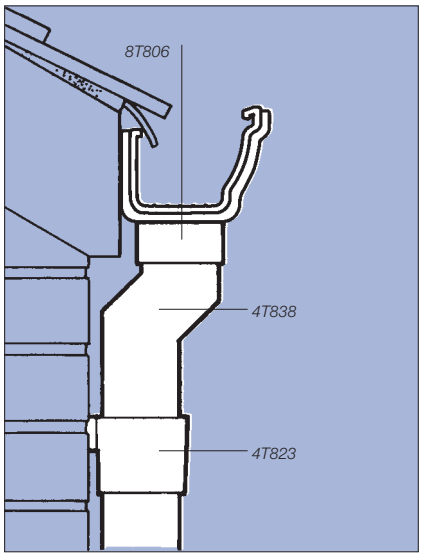


Fig. 12



Typical Connections of Gutter Outlets *continued overleaf*

Typical Connections of Gutter Outlets continued

Deep Offsets

For components to achieve a deep offset, see **Table 9** below

Table 9: Deep Offset Components

System	Components required
RoundLine	**0T625** + **0T025** OR **0T624** + 2 x **0T025** OR **0T624** + **0T027** + **0T025** To be used with **Pipe Bracket 0T034**, fitted below lowest Offset Bend with offcut of pipe, length to suit
SuperLine	*to 68mm circular pipe* **5T508** + 2 x **0T025** OR **5T508** + **0T027** + **0T025** To be used with **Pipe Bracket 0T034**, fitted below lowest Offset Bend with offcut of pipe, length to suit
DeepLine	*to 68mm circular pipe* **9T906** + 2 x **0T027** OR **9T906** + **0T027** + **0T025** To be used with **Pipe Bracket 0T034**, fitted below lowest Offset Bend with offcut of pipe, length to suit
RoofLine	*to 110mm circular pipe* **6T606** + 2 x **4S445** OR **6T606** + 2 x **4S440** To be used with **Socket Bracket 4S083**, fitted to lowest Offset Bend with offcut of pipe, length to suit
SquareLine	*to 68mm circular pipe* **4T806/7** + **4T837** + **0T026** + **0T025** To be used with **Pipe Bracket 0T034**, fitted below lowest Offset Bend with offcut of pipe, length to suit *to 61mm square pipe for downpipe close to wall* **4T806/7** + 2 x **4T825** To be used with **Pipe Bracket 4T834** fitted below lowest Offset Bend with offcut of pipe, length to suit *to 61mm square pipe for downpipe off the wall* **4T806/7** + 2 x **4T825** To be used with **Pipe Bracket 4T833** fitted below lowest Offset Bend with offcut of pipe, length to suit
StormLine	*to 68mm circular pipe* **8T806/7/8** + **0T026** + **0T025** To be used with **Pipe Bracket 0T034**, fitted below lowest Offset Bend with offcut of pipe, length to suit *to 61mm square pipe for downpipe close to wall* **8T806/7/8** + 2 x **4T825** To be used with **Pipe Bracket 4T834** fitted below lowest Offset Bend with offcut of pipe, length to suit *to 61mm square pipe for downpipe off the wall* **8T806/7/8** + 2 x **4T825** To be used with **Pipe Bracket 4T833** fitted below lowest Offset Bend with offcut of pipe, length to suit

Fig. 13 RoundLine deep offset

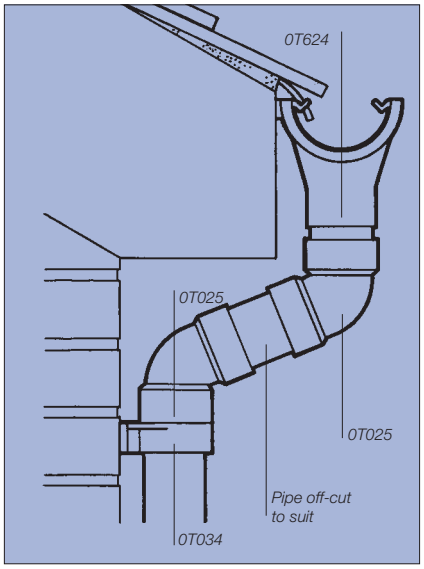


Fig. 14 RoundLine deep offset and deep fascia

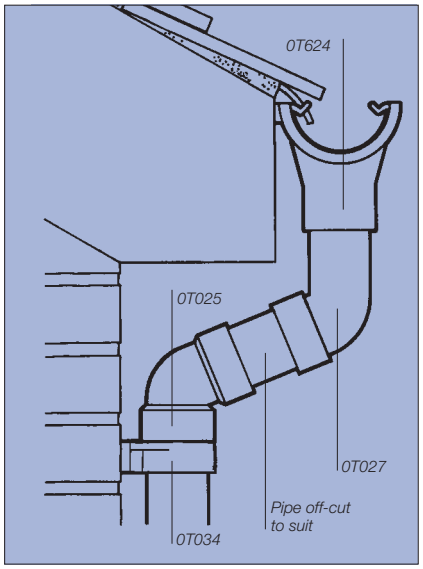
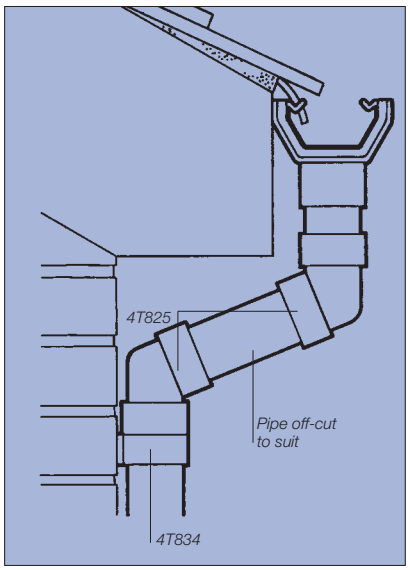


Fig. 15 SquareLine deep offset - close to wall



Connections to Other Materials

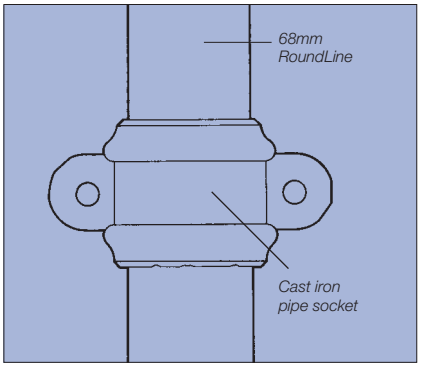
Connections to existing iron pipe

OSMA Rainwater systems can be connected to the sound part of an existing circular cast iron system as follows:

RoundLine, SuperLine, DeepLine, StormLine

68mm pipe can be inserted directly into an existing 2½" cast iron socket. Mastic or other sealing compounds are not needed *(See Fig. 16)*. For connection to a 2½" cast iron spigot, use **Connector OT092** with **Pipe Connector OT024**.

Fig. 16 Connection to existing iron pipe socket

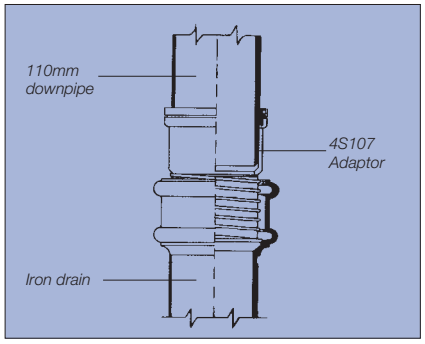


RoofLine

To cast iron socket

Use **S/S Connector 4S107** to connect 110mm circular downpipe to BS 1211 or BS 437 Cast Iron Socket. *(See Fig. 17)*

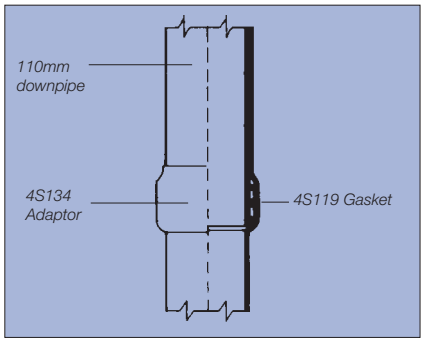
Fig. 17 Cast iron drain socket (via 4S107)



To cast iron spigot

Use **Heat Shrink Connector 4S134**, together with 1 x **Gasket 4S119**, to connect 110mm circular downpipe to a BS 1211 or BS 437 cast iron spigot. *(See Fig. 18)*

Fig. 18 To cast iron soil spigot (via 4S134 and 4S119)



SquareLine, StormLine

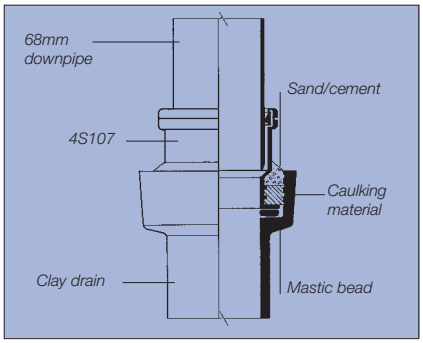
To 2½" round cast iron socket

Use **Outlet Adaptor - Square to Round 4T837** to convert 61mm square downpipe to a 68mm circular Cast Iron Socket. Insert pipe directly in to an existing Cast Iron Socket. Mastic or other sealing compounds are not needed.

Connections to existing clay socket

OSMA RoofLine 110mm PVC-U pipe can also be connected to a BS 65 Clay Drain Socket using **S/S Connector 4S107**. *(See Fig. 19)*

Fig. 19 To Clay Drain Socket (via 4S107)



Connections to Below Ground Drainage

A number of alternative arrangements are available for terminating rainwater downpipe at ground level:

- Discharge over an open gully, using a Pipe Shoe for the relevant downpipe system*
- Indirectly, via an **OSMA** 110mm Bottle Gully or Vertical Inlet Hopper
- Directly, via a Rainwater Adaptor or Universal Drain Adaptor

NOTE: *For full product details, see* **OSMA Below Ground Drainage Systems: Design & Installation Guide**

Table 10 below sets out the component requirements for connection of downpipes to below ground drainage.

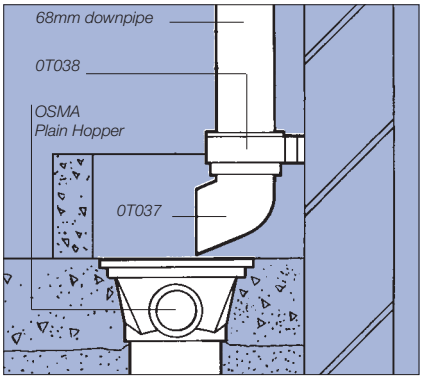
Pipe Shoes

For an open discharge*, a downpipe should be terminated with an open Pipe Shoe.

The Pipe Shoe should be situated centrally over the gully and securely fixed to the wall with the appropriate bracket.

(See Fig. 20)

Fig. 20 Pipe Shoe over gully*
(68mm circular pipe illustrated)



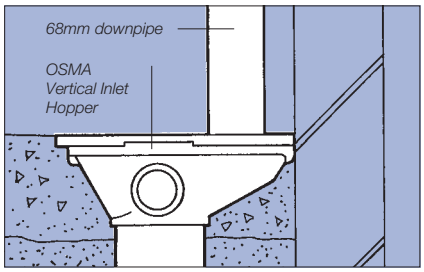
Indirect connections

Via 110mm OSMA Vertical Inlet Hopper

Terminate downpipe below the back plate.

(See Fig. 21)

Fig. 21 Connection to bottle gully
(68mm circular pipe illustrated)



Via 110mm OSMA Bottle Gully

Terminate downpipe below the grating.

(See Fig. 22)

Fig. 22 Connection to bottle gully

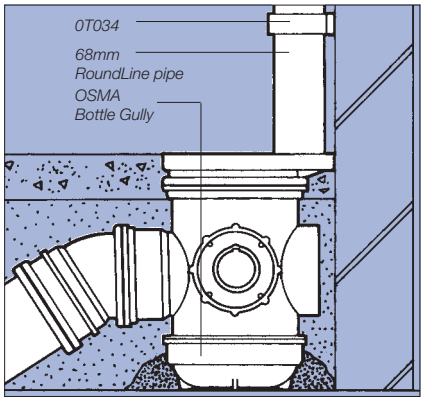


Table 10: Connections to Below Ground Drainage

Type	Circular Pipe				Square Pipe
	55mm	68mm	82mm	110mm	61mm
Discharge over open gully* Pipe Shoe Over Plain Hopper/Bottle Gully	2T227 + 2T081	0T037 + 0T038	3S288 + 3S083	4S288 + 4S083	4T832
Indirect Connection: to 110mm drainage Via OSMA Bottle Gully	4D700 4D900	4D700 4D900	4D095 + 3D161 Into Side Socket	4D161 Into Side Socket	4D700 4D900
Via OSMA Vertical Inlet Hopper	4D508 4D504	4D508 4D504			4D508 4D504
Direct Connection: to 110mm PVC-U drain Via Rainwater Adaptor	-	0T149/4D149	-	No Adaptor Required	4T858/838 + 4T836 + 0T149/4D149
Via Universal Drain Adaptor	4D159	4D159	-	-	4T858/838 +4D159
Reducer	-	-	4S095	-	-
Direct Connection: to 82mm PVC-U drain Via Connector(s)	3S094	3D206	No Adaptor Required	-	4T858/838 +4T836+3D206

***NOTE:** *Rainwater pipe which discharges into a gully must terminate BELOW the gully grating but ABOVE the water seal, preferably by using a back inlet. (BS EN 12056: Part 3: 2000 7.6.9)*

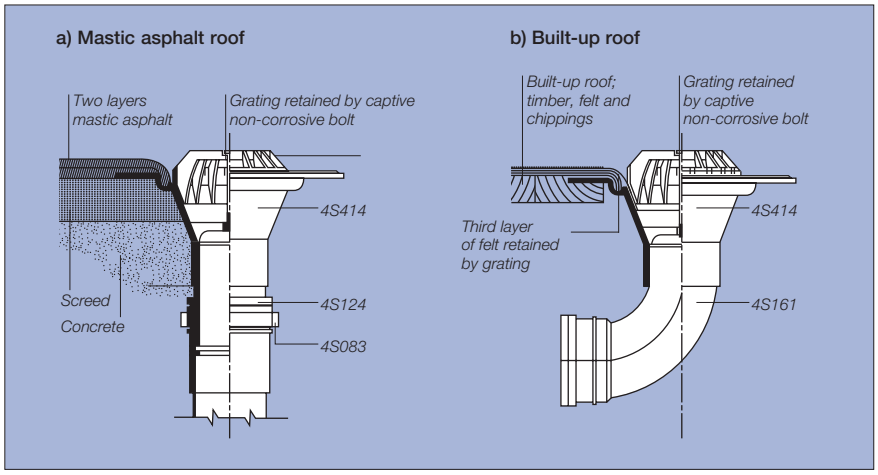
Roof Outlets

OSMA Roof Outlets are two-piece components manufactured in PVC-U. They consist of a funnel-shaped body and a flange which is prominently ribbed to give good adhesion to asphalt and hot bitumen. *(See Fig. 23)*

The outlets have a solvent socket tail for connection to pipe or bends

- Rebated funnel mouth allows a strong, thick edge to mastic asphalt finishes to prevent lifting
- Grating strong enough to withstand normal foot traffic
- Built-in gravel guard to prevent ingress of roof chippings
- Beads and grooves prevent puddling and ensure complete seepage of water
- Grate is secured to outlet body with a non-corrosive bolt (supplied)

Fig. 23 Roof Outlet installation



Materials: Properties and Performance

Chemical resistance

OSMA Rainwater systems components are manufactured from PVC-U or Polypropylene. They are totally unaffected by even the most heavily polluted atmosphere, or by impurities in the rainwater.

The components are self-coloured. They may, however, be painted with normal household paints if an alternative colour is required. Oil-based gloss paint is the most suitable for this purpose. For best results, slightly abrade the surface with sandpaper and clean thoroughly before painting.

Physical attack

OSMA Rainwater systems are not susceptible to insect or vermin attack. Unlike cast iron systems, plastic has no scrap value and is therefore less likely to be targeted by vandals or thieves.

Ultra violet light

OSMA Rainwater systems gutter, pipe and fittings are resistant to the effects of ultra violet light. Although the colour may fade slightly after a number of years exposure to strong sunlight, no integral damage occurs.

Timber preservatives

Due to the aggressive nature of some timber preservatives, timber fascias treated with preservatives MUST be allowed to dry before fixing OSMA Rainwater systems gutter and fittings. Refer to manufacturers' recommendations.

Handling and Storage

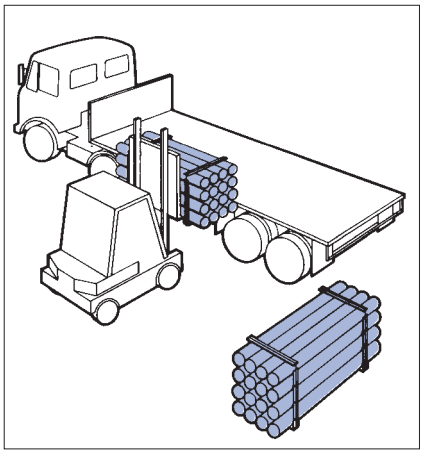
Handling

Care should be taken when handling gutter and pipe. Excessive scratching or scoring harms the appearance and can also affect the joint sealing.

Take extra care when handling gutter and pipe in wintry conditions. Cold weather reduces the impact strength of plastics.

Load and unload loose gutter or pipe by hand. Avoid using skids. When loose pipes have been transported one inside the other, always remove the inner pipe first. *(See Fig. 24)*

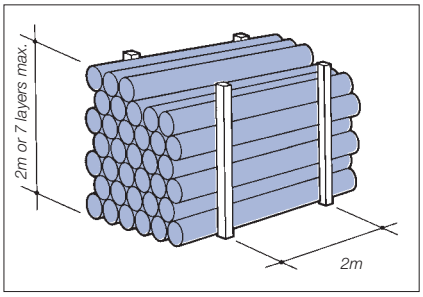
Fig. 24 Unloading of block bundles



Storage

Always store gutter or pipe on a reasonably flat surface free from sharp projections.

Fig. 25 Storage of loose pipe on the ground



Block bundles

Block bundles can be stored up to 3 high without extra side supports or bearers.

Block bundles will remain free-standing when cut. Take care when releasing bundles as the straps are under considerable tension and may flail when cut.

Loose gutter or pipe

Loose gutter or pipe requires side supports at least every 2m. These supports should consist of battens at least 75mm wide.

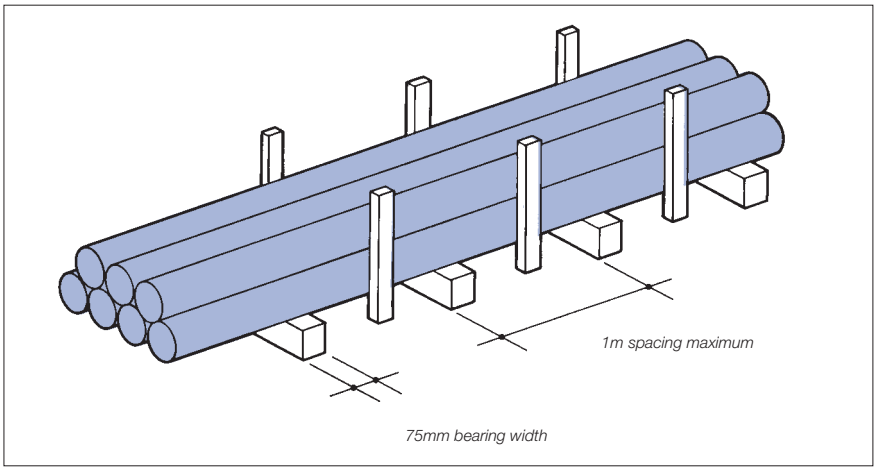
Ideally, support loose gutter or pipe uniformly throughout its entire length. If this is not possible, place timber supports at least 75mm wide at 1m maximum centres beneath the gutter or pipe.

Fittings

Store fittings supplied in plastic bags away from direct sunlight. If this is not possible, open bags to prevent a build-up of temperature.

Store silicone lubricant in a cool place away from any heat source and out of direct sunlight.

Fig. 26 Storage of loose pipe on bearers



Safety and Maintenance

Safety

The relevant regulations detailed in the Health and Safety at Work Act 1974 must be adhered to on site. In particular ensure ladders are properly positioned and secured.

Removing Old Guttering

Remove old gutter with care (especially if cast iron) and recycle if possible.

Check condition of fascia: replace as necessary or use multi-hole screw fixings.

Maintenance

OSMA Rainwater systems are designed to be maintenance-free.

However, in wooded or leafy areas, gutters should be periodically checked to ensure that gutter and pipe have not worked loose or become blocked.

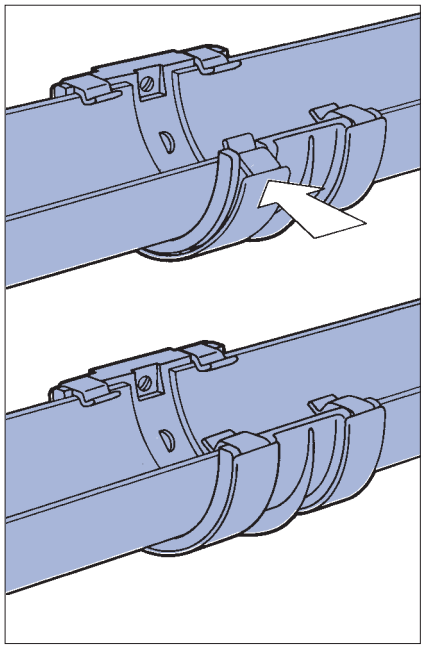
Gutter Jointing

Gutter joint design

The OSMA joint fittings are supplied complete and ready for use. The flexiclip method of gutter jointing enables easy connection of gutter to fittings. It is not necessary to remove the clip from the fitting in order to make the joint.

To make the joint, flex the clip rather than the whole component. This ensures a positive, permanently watertight joint. *(See Fig. 27)*

Fig. 27 Flexiclip gutter joint



Cutting lengths of gutter

Lengths of gutter can be cut to fit as necessary. Use a fine-toothed hand saw and ensure that the cut is clean and square. De-burr the cut end with a scraper.

Gutter fall

Laying OSMA gutter systems to a fall of 1:600, 25mm in 15m, is recommended.

This will increase the flow capacity and increase the area of roof that can be drained, particularly if the downpipe is positioned centrally. It will also prevent silting *(Refer to Flow Capacity Tables pages 52)*.

Thermal expansion

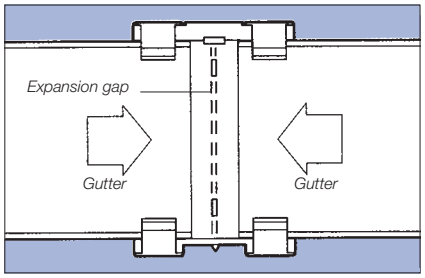
All fittings must be firmly secured to counter the effects of accumulated thermal movement.

Allowance for thermal expansion must be made when fixing the gutter.

Gutter joint fittings have a line marking the position to which the gutter should be inserted.

A gutter jointing bracket or gutter union with bracket should be fitted within 300mm from the end of terminal lengths of gutter.

Fig. 28 Allowance for thermal movement



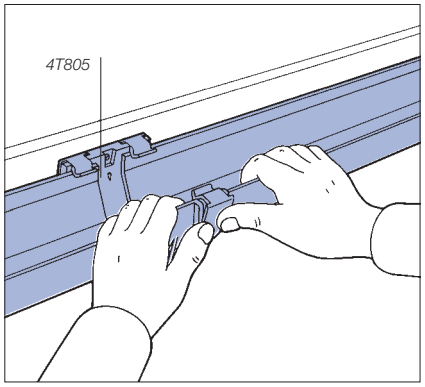
Gutter connection

Connecting the gutter

PROCEDURE

1. Lay the gutter to the 'gutter end line' and place it under the part of the clip nearest the fascia.
2. Pull the gutter down with the fingers whilst simultaneously pushing the clip over the gutter with the thumbs. *(See Fig. 29)*
3. Ensure edge of under-felt or membrane is dressed into gutter

Fig. 29 Connecting SquareLine Gutter

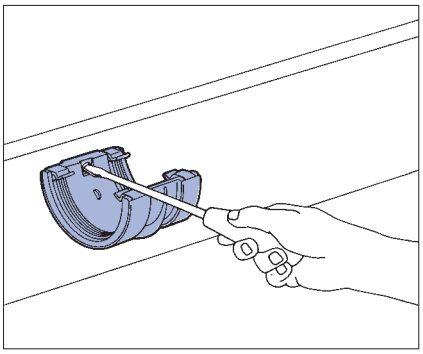


Fixing Gutter Jointing Brackets

Gutter Jointing Brackets 0T005, 4T805, and 3T305 have a single screw fixing, allowing the fitting to pivot to the required gutter fall. *(See Fig. 30)*

Use 1" N°.10 rustless roundhead screws for wooden fascia, and refer to manufacturers instructions for plastic fascia.

Fig. 30 Fixing Gutter Jointing Bracket (0T005)

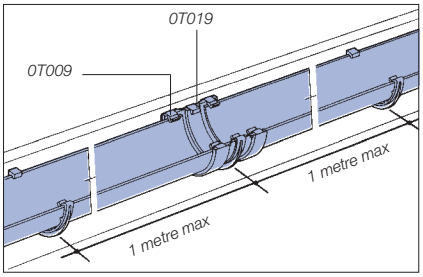


Fixing Gutter Unions

Support **Gutter Unions 0T009, 4T809, 5T509, 6T609, 8T809 and 9T909** at their centre with a Support Bracket, allowing the fitting to pivot to the required gutter fall.

Also fix Support Brackets within 1m of both sides of all gutter joints. *(See Fig. 31)*

Fig. 31 Installation of RoundLine Gutter Union



Gutter Connection to Other Materials

Connection to metal gutters

RoundLine and SquareLine only

PROCEDURE

1. Clip PVC-U gutter into the appropriate connector (*see Figs. 32/33*)
2. Bolt this to the metal gutter
3. Seal the bolted joint with waterproof mastic.

Using **Half-round Connector 0T008**

Bolt *either* outside the spigot end *or* inside the socket end of the metal gutter.

Using **Ogee Connector 0T014** (left hand), *or* **0T015** (right hand)

Bolt inside or outside the metal gutter depending on its size:

- *4" ogee gutter:* fit Connector to the outside of both socket and spigot.
- *4½" ogee gutter:* fit Connector inside the socket and outside the spigot.
- *5" ogee gutter:* fit Connector on the inside of both socket and spigot.

Connection to PVC-U gutter

RoundLine only

Use RoundLine true half-round **Connector 0T018** to connect to 100mm true half-round PVC-U gutter.

Fig. 32 Connection to cast iron gutter

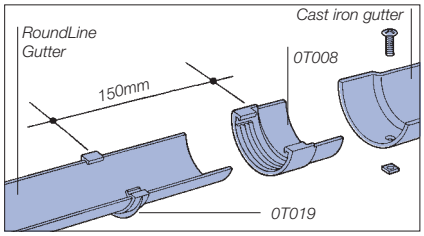
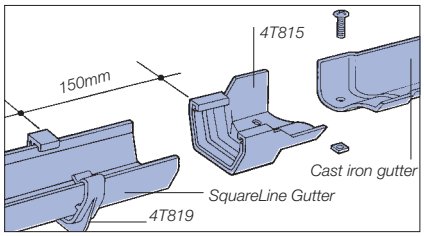


Fig. 33 Connection to cast iron gutter



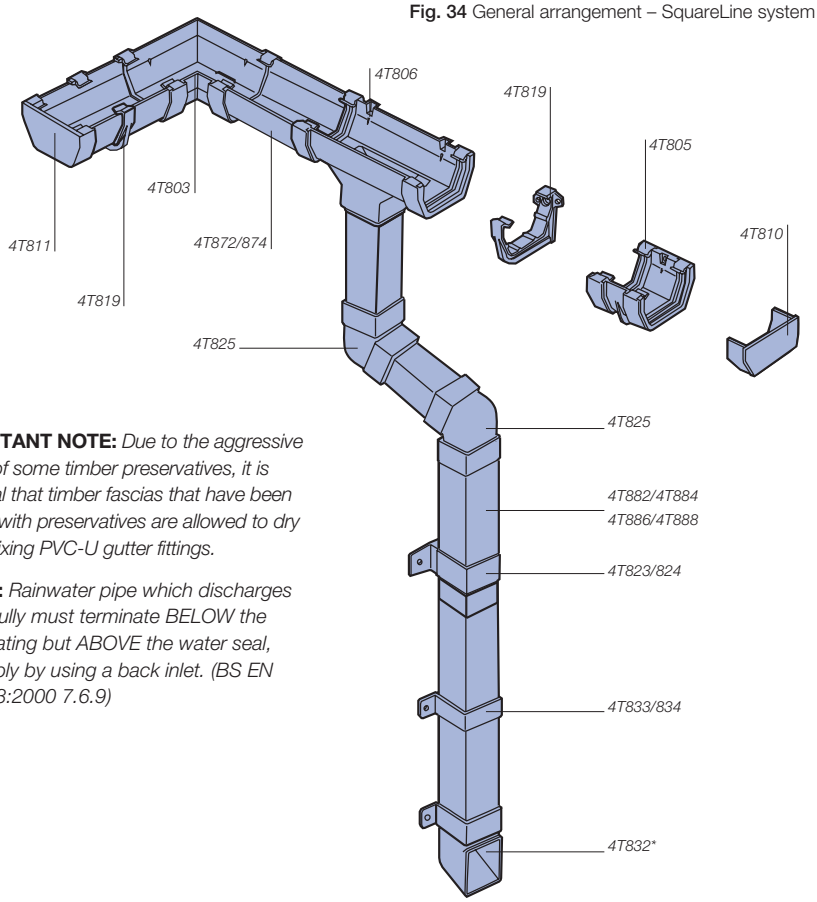
Gutter Support

Gutter support – order of fixing

PROCEDURE

1. Fix the support bracket furthest from the outlet first.
2. Allow for the required fall.
3. Ensure that sufficient space is left below the roof tiles to fix the gutter.

Fig. 34 General arrangement – SquareLine system



IMPORTANT NOTE: *Due to the aggressive nature of some timber preservatives, it is essential that timber fascias that have been treated with preservatives are allowed to dry before fixing PVC-U gutter fittings.*

***NOTE:** Rainwater pipe which discharges into a gully must terminate BELOW the gully grating but ABOVE the water seal, preferably by using a back inlet. (BS EN 12056:3:2000 7.6.9)*

Gutter Support - Installation Methods

Support Brackets

PROCEDURE

1. String a plumb line along the base of the bracket.
2. Then securely screw fix at 1m (maximum) centres. Use 1" N°.10 rustless roundhead wood screws.
3. When installing a bracket with three fixing points, ensure the central fixing hole is used.

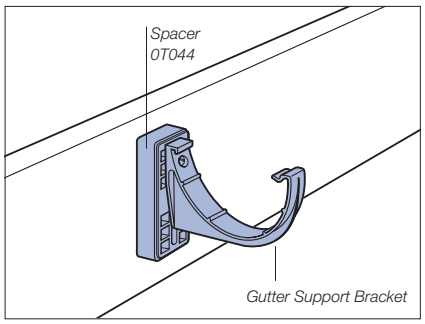
NOTE: *Use multi-screw fixings on high buildings or in areas subject to high winds. See page 8 for component selection.*

Bracket Spacers

RoundLine, SuperLine, RoofLine, DeepLine, SquareLine and StormLine

Each spacer as supplied will extend OSMA Gutter Jointing Brackets, Gutter Support Brackets and Running Outlets by 21mm. Two Gutter Bracket Spacers stacked together will give an overall spacing of 40mm. Individual spacers can be cut back to a minimum of 10mm depth. Fixing should be via N°.10 rustless roundhead wood screws of appropriate length for the number of spacers used. It is recommended that no more than two Gutter Spacers are put together in one installation.

Fig. 35 Gutter Bracket Spacers



Connecting the Bow and Spike

The threaded rod of the Bow allows easy screw connection to the Spike. The threaded connection enables the Bow to be raised or lowered to give the gutter the required fall. *(See Fig. 37)*

Support centres

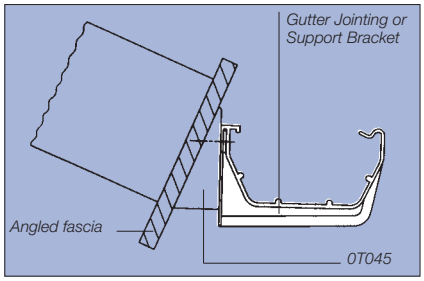
Rise and Fall Brackets should be placed to support the centre of the Gutter Union and to provide intermediate support at maximum 1m centres.

Angled fascias

Where dwellings are designed with angled fascias, place an **Angled Bracket Spacer 0T045** behind Gutter Union and Support Brackets to bring them into the horizontal position. *(See Fig. 36)*

1½" N°.10 rustless roundhead wood screws are recommended for this fixing.

Fig. 36 Application of Angled Bracket Spacer



Snow

All OSMA Rainwater systems are designed to withstand the weight of snow likely from normal falls. However, in areas subject to heavy snowfalls, the distance between support brackets should be reduced to 600mm and it is recommended that brackets are used with three fixing points, and all three fixing points are used.

BS12056: Part 3: 2000 section NB4, 7.7 and **7.2.2** gives details of precautions which should be taken to prevent the accumulation of snow on roofs. These include the use of snowboards and snowguards.

Rise-and-Fall Brackets

RoundLine, SuperLine, RoofLine, DeepLine, SquareLine and StormLine

Rise-and-Fall Brackets comprise of a Bow and Pin, fixed to the wall using either Build-in Spikes or Drive-in Spikes. *(See Fig. 37)*

Incorporate **Build-in Spikes** within the mortar joint below the last-but-one brick course during construction of the wall.

Drive-in Spikes are designed for installation in an existing wall. Drive the spike into the mortar joint below the last-but-one brick course.

Fig. 37 Rise and Fall Bracket Assembly

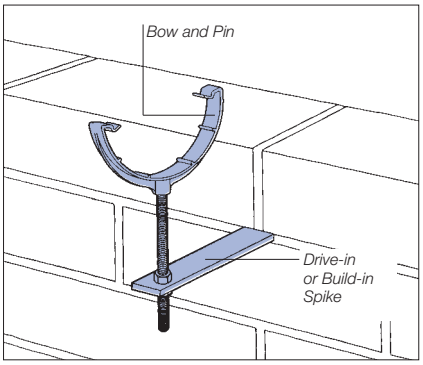
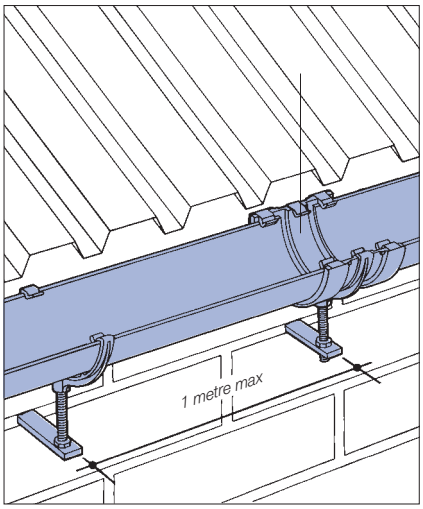


Fig. 38 Installation of Rise and Fall Brackets



Gutter Support - Installation Methods *continued overleaf*

Gutter Support - Installation Methods *(cont.)*

Rafter Brackets

RoundLine, SuperLine, RoofLine, DeepLine and SquareLine only

Designed for use when there is no fascia board, and as an alternative to Rise-and-Fall Brackets. Rafter Brackets are galvanised for protection against corrosion.

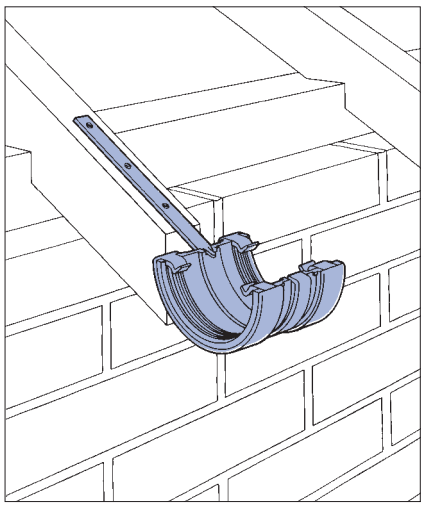
Top Rafter Brackets and Side Rafter Brackets have a 30° angle and are 300mm in length. They are available in plain and adjustable format.

Top Rafter Brackets

Must be fixed before the roof is tiled. *(See Fig. 39)*

NOTE: *If a fall is required, use the Adjustable Top and Side Rafter Brackets*

Fig. 39 Top Rafter Bracket (0T245/745)



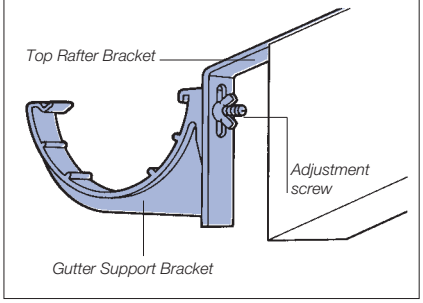
Adjustable Top and Side Rafter Brackets 0T147 and 0T148

RoundLine, SuperLine, RoofLine, DeepLine, SquareLine and StormLine

Adjustable Brackets have a slotted hole in the front face. This is fitted with a rust-proofed wing nut and bolt for connection to a Gutter Support Bracket. *(See Figs. 40/41)*

To achieve a fall, release the wing nut and adjust the bracket up or down as necessary.

Fig. 40 Adjustable Top Rafter Bracket (0T147)



Side Rafter Brackets

Maybe fixed after roof has been tiled. They are particularly useful when replacing the gutter on an existing building. To achieve a fall, alter the position of the Brackets on the side of the rafters. *(See Fig. 42)*

Fig. 42 Side Rafter Bracket (0T246/746)

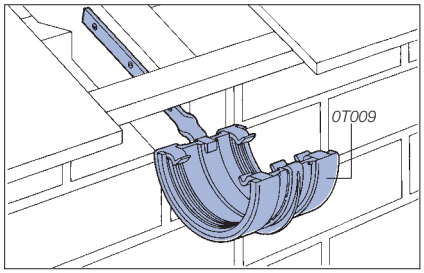
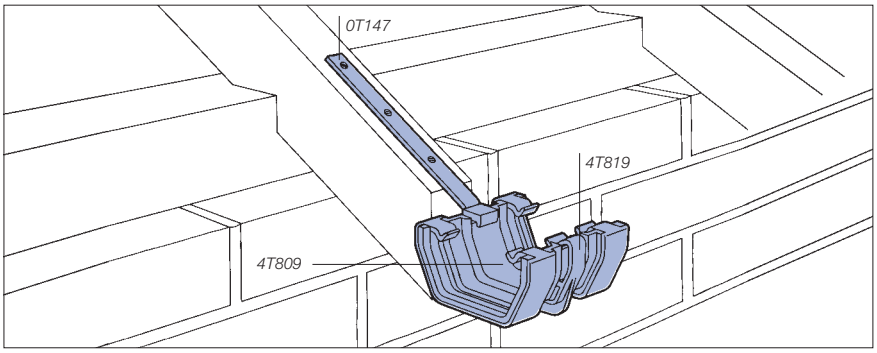


Fig. 41 Adjustable Top Rafter Bracket (with SquareLine Union and Support Bracket)



Hints and tips

Screws

Use 1" N°.10 rustless roundhead wood screws to fix Brackets, Outlets and Angles.

For correct screws to use with plastic fascias seek fascia manufacturer's advice.

Power tools

Power tools can be used to install OSMA guttering. For correct torque setting on plastic fascias, seek manufacturer's advice.

Lubricating seals

Assembly is easier if the seal is lubricated using OSMA Silicone Spray. Lubricant also improves service life and efficiency of seals.

Rainwater Diverter

This is an excellent, environmentally friendly method of collecting roof water for garden use, whilst still ensuring flow to underground drainage if the storage unit is full.

Water test

Don't wait for a downpour do a water test of new guttering before removing the ladder.

Support centres

Rafter Brackets should be positioned to support the centre of the Gutter Union and to provide intermediate support at (maximum) 1m centres.

NOTE: *Due to the design criteria of rafters, if 1m spacing cannot be obtained, the smaller dimension should prevail, i.e. 600mm.*

Downpipe Cutting and Jointing

Pipe cutting

Pipe may be cut on site using a fine-toothed hand saw.

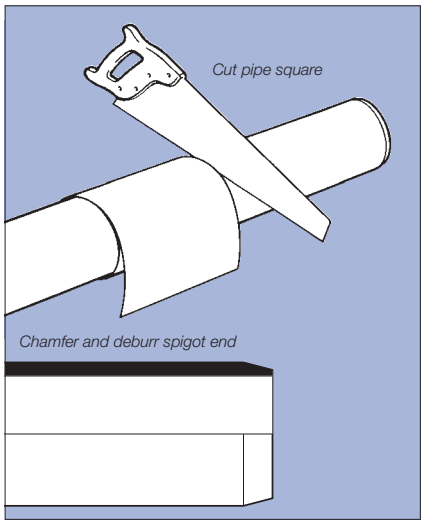
PROCEDURE *(See Fig. 43)*

1. Cut pipe cleanly at right angles to its axis.
2. De-burr the cut end with a scraper.

If the cut end is to be inserted into a ring-seal or push-fit joint.

3. Chamfer the spigot end: this is essential to ensure that the sealing ring is not displaced during insertion.

Fig. 43 Pipe preparation



Thermal expansion

Provision for thermal expansion must be made when installing PVC-U downpipe.

Leave a gap of 10-12mm between the top of each pipe length and the fitting to which it is connected.

Pipe joint design

RoundLine, SuperLine, DeepLine, StormLine

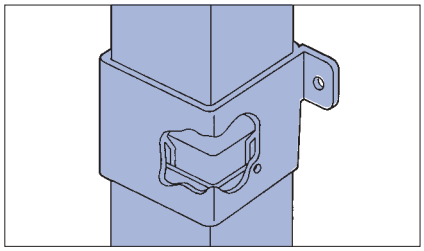
These systems utilise 68mm [2½"] circular pipe and fittings. The Pipe Connector, Branch and all Bends have an aperture socket which gives an interference fit, eliminating any need for solvent welding. This provides a neat and streamlined joint, concealing the required 10mm expansion gap between downpipe and fittings.

SquareLine and StormLine

61mm square pipe is joined with **Pipe Connector 4T823/824** which has a socket at the upper end, an aperture socket at the lower end, and an integral fixing bracket. The pipe may be fixed flush to the wall or, using stand-off components **4T833/824**, fixed standing off from the wall.

The **SquareLine** system can also be used, via an adaptor, with 68mm circular pipe.

Fig. 44 Pipe Connector (4T823)



RoofLine and Roof Outlets

Utilise pipe and fittings from the OSMA 82 and 110mm Soil systems. *See opposite for ring-seal and solvent weld jointing*.

Jointing procedures

RoundLine, SuperLine, DeepLine, StormLine

Use a **Pipe Connector 0T024** supported by a **Socket Bracket 0T033/038**. Ensure 10-12mm expansion gap is provided.

SquareLine and StormLine

Ensure 10 -12mm expansion gap is left between the top of each pipe and the fitting to which it is connected.

RoofLine and Roof Outlets

See opposite for ring-seal and solvent weld jointing.

Connection to Gutter Outlets

RoundLine

Plain ended pipe connects directly to the sockets of the **Running Outlet 0T624,** the **Swivelock Running Outlet 0T625** and the **Stopend Outlet 0T007**.

SuperLine

Plain ended pipe fits over the spigot of the **Running Outlet 5T508**.

DeepLine

Plain ended pipe connects directly to the socket of the **Running Outlet 9T906**.

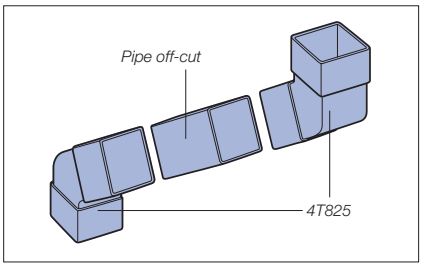
RoofLine

Plain ended pipe fits over the spigot of the **Running Outlet 6T606**.

SquareLine *(See Fig. 45)*

Plain ended pipe connects directly to the sockets of the **Running Outlet 4T806** and the **Stopend Outlet 4T807**. To connect to 68mm circular pipe, use **Square-to-Round Adaptor 4T837**, which fits directly into the socket of the outlet.

Fig. 45 Assembly of offset - SquareLine



StormLine

Plain ended 68mm circular and 61mm square pipe connects directly to the sockets of the **Running Outlet 8T806** and the **Stopend Outlets 8T807/808**.

Installation of Rainwater Diverter Kit

RoundLine, SuperLine, DeepLine, SquareLine and StormLine

PROCEDURE

1. Position waterbutt at required height next to downpipe.
2. Cut away a 30mm section of downpipe, 30mm below the top rim of the waterbutt and insert the downpipe connector.
3. Drill a 26mm hole 80mm down from the top rim of the waterbutt.
4. Fit the waterbutt connector and washer *from the inside*.
5. Fit the nut *from the outside*: tighten nut to form a seal.
6. Cut the connecting hose to the required length and fit between butt and downpipe connection.

IMPORTANT NOTE: *Diverter Kit not suitable for cast iron drainpipes.*

Pipe Jointing

Jointing 82mm and 110mm Pipe

Both RoofLine gutter system and OSMA Roof Outlets connect to OSMA 110mm PVC-U soil pipe and fittings. OSMA Roof Outlets also connect to OSMA 82mm PVC-U soil pipe and fittings.

Joints in lengths of 82mm and 110mm pipe may be formed by:

– Ring-seal, push-fit jointing OR
– Solvent weld jointing

Three sockets are available:

D/SW Double Socket 3S/4S104

D/S Double Socket 3S/4S105
(slip coupler for repair applications)

S/SW Single Socket 3S/4S124
(for creating a fixed ring-seal joint on plain-ended pipe or fittings).

Ring-Seal/Push-Fit Jointing

PROCEDURE

1. Ensure any pipe cut on site is also chamfered.
2. Check that the sealing ring is properly seated in its housing in the socket of the fitting.
3. Ensure all components to be joined are dry, clean and free from grit or dust. Note any deep scratches on the pipe or fitting spigot as these may prevent the sealing ring from forming a water tight seal.
4. Lubricate evenly around the pipe or fitting spigot end with **Silicone Lubricant 4S391**. Do NOT lubricate inside the socket. Do NOT use washing up liquid as a lubricant.
5. Correctly align the components to be joined.
6. Push the pipe or fitting spigot fully into the socket. Mark the pipe or fitting spigot at the socket face and then withdraw it by a minimum of 12mm.
7. Make a subsequent check to ensure that the expansion gap is not lost during further installation work.

Silicone Lubricant Allowance

50g tube 4S391: Sufficient for 9 joints of 110mm pipe and 16 joints of 82mm pipe

Silicone Lubricant Spray

400ml can 4S392: Spray the lubricant onto the spigot and not the ring seal. The spigot can then be inserted into the socket. After installation ensure the pipework is thoroughly flushed through with clean water.

Solvent Weld Jointing

PROCEDURE

1. Before using any solvent based cleaners or cement:
   – Read instructions on the can
   – Ensure there is sufficient ventilation.
2. Make sure pipe or fitting spigot and solvent weld socket are dry, clean and free from grit or dust.
3. Clean surfaces of spigot and socket with **Degreasing Cleaner Nº.1 4S379/380**. Apply liberally using a clean non-synthetic rag or absorbent paper.
4. Apply one coat **Solvent Cement Nº.2 4S383/384/385**. Apply an even coat to both surfaces using the applicator provided or a paint brush. Stroke the cement ALONG and not around the surfaces.
5. Immediately insert pipe or fitting spigot fully into the socket. Each solvent weld joint MUST be completed within 1½ minutes.
6. Hold for 20-30 seconds. Remove any surplus cement from the mouth of the socket.
7. The joint may be handled after 10 minutes and commissioned after 24 hours.

Degreasing Cleaner Allowance (approx.)

Nº.1 - 125ml can **4S379**: Sufficient for 16 joints of 110mm pipe

Nº.1 - 250ml can **4S380**: Sufficient for 32 joints of 110mm pipe

Solvent Cement Allowance

Nº.2 - 125ml can **4S383**: Sufficient for 5 joints of 110mm pipe

Nº.2 - 250ml can **4S384**: Sufficient for 11 joints of 110mm pipe

Nº.2 - 500ml can **4S385**: Sufficient for 22 joints of 110mm pipe

Safety

When making solvent weld joints it is essential to observe normal safety rules for handling solvent:

– Never smoke or bring naked flames near the area of work
– Work in a well ventilated area to avoid inhaling fumes
– Close the solvent container after use and store in a cool area
– Do not allow solvents or cleaners to come into contact with skin

Refer to COSHH Regulations (Control of Substances Hazardous to Health) where applicable.

Pipe Support and Offsets

Pipe support centres

Refer to **Table 11** below for the maximum support centres for pipes.

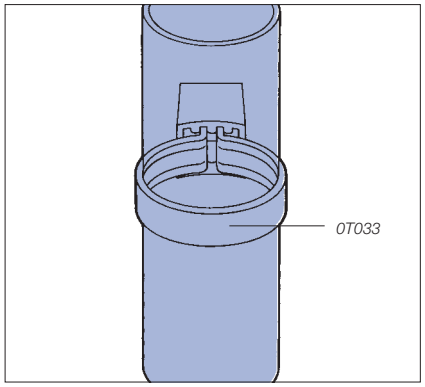
Table 11: Maximum Pipe Support Centres

Pipe Size	Maximum centres (m)	
	Vertical	Horizontal
61mm	2.0	1.0
68mm	2.0	1.0
82mm	2.0	1.0
110mm	2.0	1.0

RoundLine, SuperLine, DeepLine, StormLine

For 68mm Circular Pipe, the concealed **Pipe or Socket Bracket 0T033**, or **Pipe Bracket 0T034** may be used. *(See Fig. 46)*

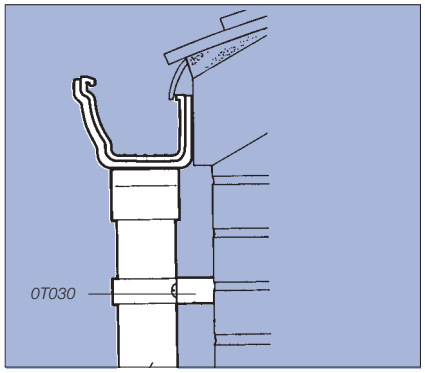
Fig. 46 Pipe or Socket Bracket (0T033)



SquareLine and StormLine

On installations featuring 'tudorised' beams on external walls, it may be necessary to use a **Pipe Bracket Spacer 4T731** *(See Fig. 47)*. This is designed for use with the Pipe Bracket, Pipe Connector and Pipe Shoe. The Pipe Bracket Spacer can be adjusted by cutting to the required depth.

Fig. 47 Use of Pipe Bracket Spacer

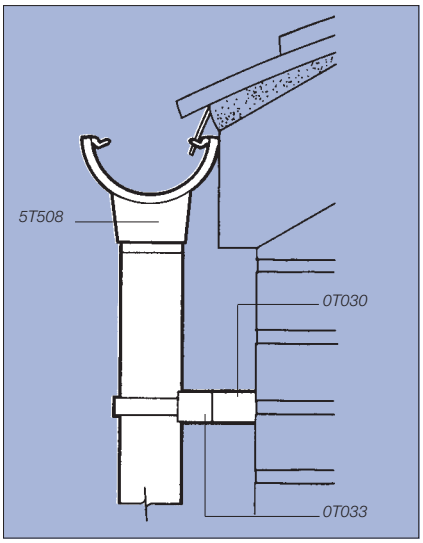


Eaves without soffit

For 68mm Circular Pipe

Keep rainwater pipe parallel to the wall by fitting a **Bracket Spacer 0T031** behind the Pipe Bracket or Pipe/Socket Bracket *(See Fig. 48)*. The Bracket Spacer moves the pipe 36mm further away from the wall and puts it directly in line with the gutter outlet.

Fig. 48 Application of Pipe Bracket Spacer



For 61mm Square Pipe

On installations where the fascia board is fitted to an external wall, or where there is a small eaves projection, use **Pipe Wall Offset 4T836**.

Pipe Support & Offsets *continued overleaf*

Pipe Support and Offsets continued

Offsets

Assemble offsets using Offset Bends. Where necessary, to provide the necessary projection, include a length of pipe offcut to suit. *(See Figs. 50/51/52 for typical examples).*

For a complete list of components and minimum achievable offsets, see pages 57–58.

Fig. 50 Assembly of offset - SquareLine

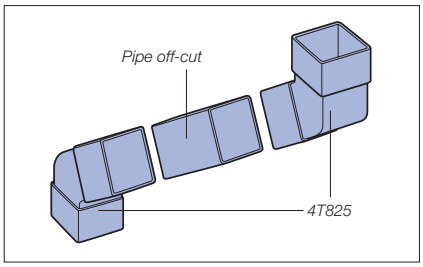
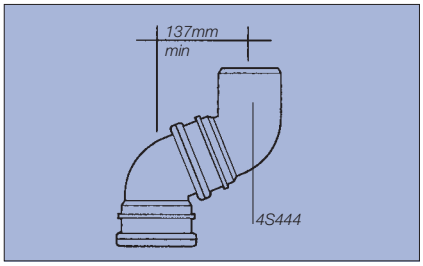


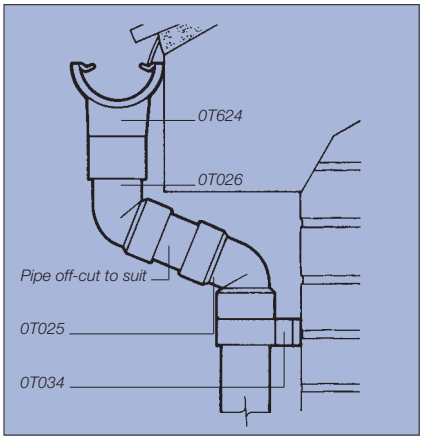
Fig. 51 RoofLine shallow offset



Offset support

To ensure offsets are adequately supported, fit a Pipe/Socket Bracket around the pipe directly below the lower Offset Bend.

Fig. 52 Offset on deep fascia



SquareLine

When using a **SquareLine Pipe Wall Offset 4T739**, support is provided by a **Pipe Connector and Bracket 4T824** which features an integral fixing bracket.

Pipe Wall Offset – with access 4T858 contains an integral bracket.

Connections to Below Ground Drainage

Downpipes may be terminated at ground level by using an adaptor, a pipe shoe, feeding directly into a gully or directly into a drain socket.

Details of required components, system requirements and compatibilities are shown on this and following pages.

Using Rainwater Adaptor 4D149/0T149

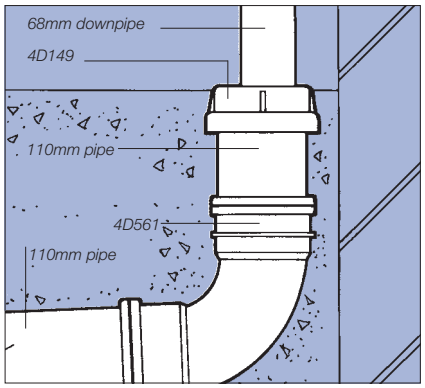
The Adaptor can be used with either a spigot or socket of a 110mm pipe.

68mm Circular Pipe *(See Fig. 53).*

PROCEDURE

1. Fit the Adaptor over the spigot or socket.
2. Fit the end of the 68mm Circular pipe into the plain socket of the Adaptor. Lubrication or solvent welding is not necessary.

Fig. 53 Connection to 110mm PVC-U Spigot (68mm circular pipe)



SquareLine 61mm Square Pipe

(See Figs. 54/55).

PROCEDURE

1. Fit the Adaptor over the spigot or socket.
2. Fit **Drain Adaptor 4T836 – Square to Round** into the plain socket of the Adaptor.
3. Place the 61mm SquareLine pipe into the Drain Adaptor.

Pipe Wall Offset 4T838, or **Pipe Wall Offset – with access 4T858** can be used to connect pipe to drain position as required.

Fig. 54 Connection to 110mm PVC-U Socket (61mm square pipe)

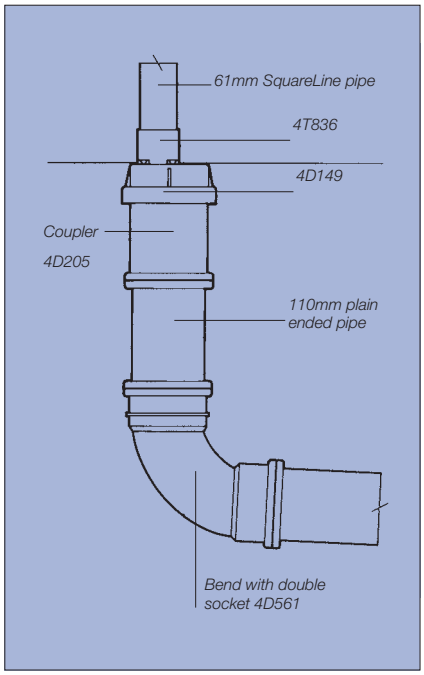
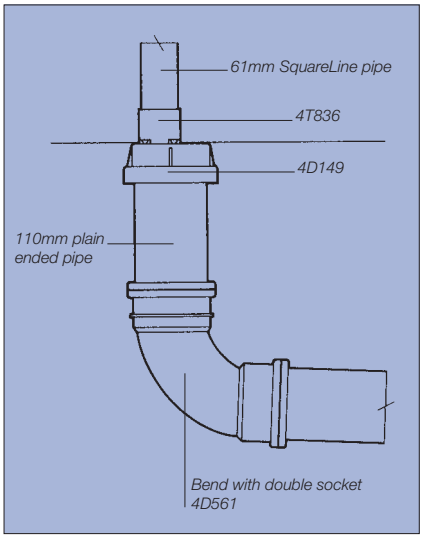


Fig. 55 Connection to 110mm PVC-U Spigot (61mm square pipe)



Connections to Below Ground Drainage *continued overleaf*

Connections to Below Ground Drainage continued

Using Universal Drain Adaptor 4D159

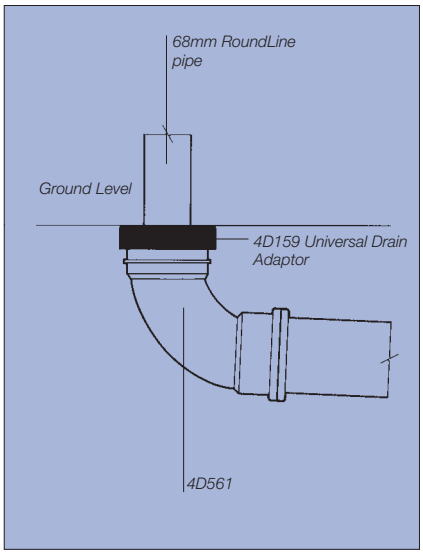
The Universal Drain Adaptor is suitable for connecting both circular and square section pipe, up to 70mm. It can be fitted onto a 110mm pipe spigot or socket, but is suitable for EXTERNAL applications only.

68mm Circular Pipe *(See Fig. 57).*

PROCEDURE

1. Ensure the 68mm Circular pipe is free from swarf.
2. Place the pipe into the Adaptor, working the pipe through the opening, until the pipe is located in the adaptor to a suitable depth.
3. Fix a **Pipe Bracket 0T034** no more than 150mm from the Adaptor.

Fig. 57 Connection of 68mm circular rainwater pipe

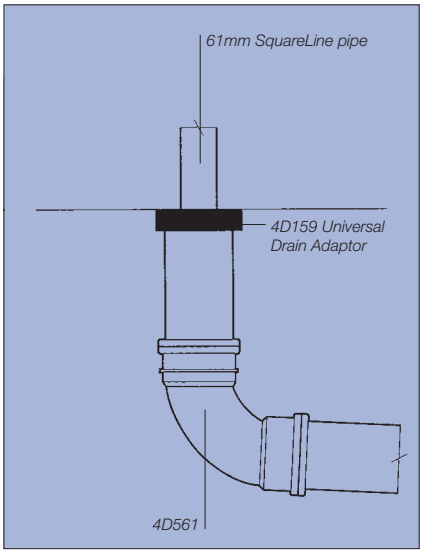


61mm Square Pipe
(See Fig. 58).

PROCEDURE

1. Using the cutting guides located on the underside of the Adaptor, cut the Adaptor to the required size.
2. Fit the Adaptor to either a 110mm drain spigot or 110mm socket.
3. Ensure pipe is free from swarf.
4. Place the pipe into the Adaptor, working the pipe through the opening until the pipe is located in the Adaptor to a suitable depth.
5. Fix **Pipe Bracket 4T833/834** no more than 150mm from the Adaptor.

Fig. 58 Connection of 61mm square rainwater pipe



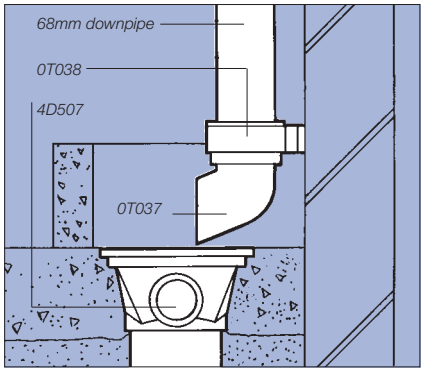
Pipe Shoe

Provides open discharge* from downpipe.
(See Fig. 59).

PROCEDURE

1. Locate Pipe Shoe centrally over gully.
2. Fix securely to wall using Pipe Bracket.

Fig. 59 Pipe Shoe over Gully
(68mm circular pipe illustrated)



***NOTE:** Rainwater pipe which discharges into a gully must terminate BELOW the gully grating but ABOVE the water seal, preferably by using a back inlet. Where discharge onto a lower roof or paved area is unavoidable, fit a pipe shoe to divert water away from the building and reduce splashing.*

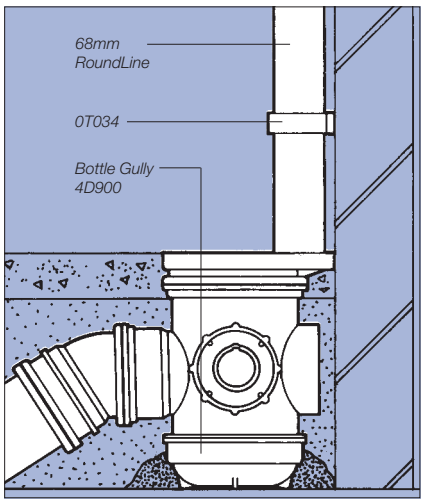
Connection to Bottle Gully

The rainwater downpipe or Pipe Wall Offset can be connected to a Bottle Gully *(See Fig. 60).*

PROCEDURE

1. Remove a section of the Bottle Gully grating so that the downpipe sits neatly below the grating.
2. Position a pipe bracket no more than 150mm from the grating.

Fig. 60 Connection to Bottle Gully
(68mm Circular pipe illustrated)



Connections to Below Ground Drainage continued

Connection to Vertical Inlet Hopper

The rainwater downpipe or Pipe Wall Offset can also be connected to a Vertical Inlet Hopper *(See Figs. 61/62).*

PROCEDURE

1. Cut a hole in the back plate.
2. Insert the pipe making sure discharge is below the grating.

Fig. 61 Connection to Bottle Gully (68mm circular pipe illustrated)

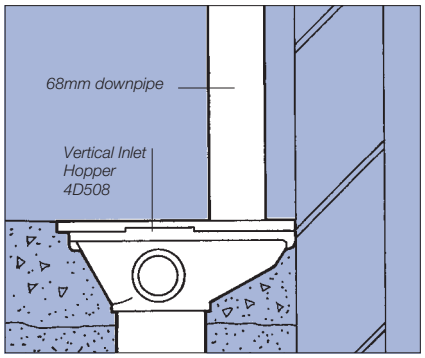
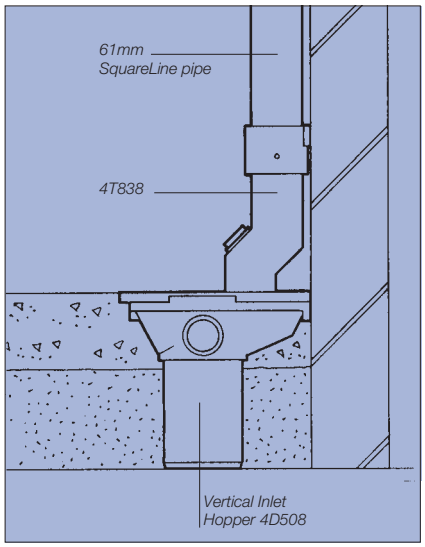


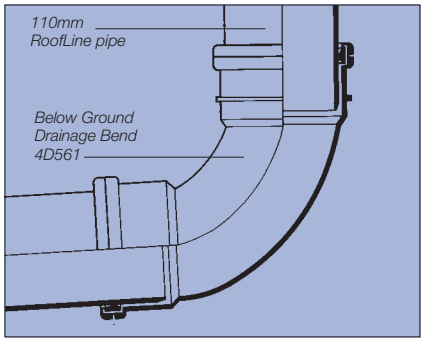
Fig. 62 Connection to Bottle Gully (61mm square pipe illustrated)



RoofLine Connection to 110mm Drain Socket

OSMA RoofLine system utilises OSMA 110mm Soil pipe. This can be connected directly into a drain socket *(See Fig. 63).*

Fig. 63 110mm Connection to PVC-U Drain Socket



Connections to Existing Iron Pipe

68mm Circular Pipe

RoundLine, SuperLine, DeepLine, StormLine Systems

Rusty or cracked cast iron pipe may be replaced easily with PVC-U.

Any sound part of an existing cast iron system can be retained and 68mm PVC-U pipe connected directly to the open socket of a 2½" iron pipe. Mastic or other sealing compounds are not needed.

110mm Circular Pipe

RoofLine, OSMA Roof Outlets

To 4" Cast Iron Spigot

COMPONENTS

Connector 4S134 and **Gasket 4S119** from the OSMA Push-Fit Soil range.

PROCEDURE

1. Fit the Gasket over the spigot of the iron pipe.
2. Push the Connector firmly onto the pipe.
3. Heat the socket of the Connector evenly all round until it shrinks to fit tightly around the seal and iron pipe.

To 4" Cast Iron Socket

COMPONENT

Connector 4S206 from the OSMA Push-Fit Soil range.

PROCEDURE

1. Fit Connector to the PVC-U pipe.
2. Push firmly into the socket.

Roof Outlets

OSMA Roof Outlets are suitable for installation into any type of flat roof construction provided that there is adequate support. Typical constructions include mastic asphalt roofing and built-up roofing *(See Fig. 64).*

Mastic asphalt roofing

PROCEDURE

1. If not cast in-situ, ensure the outlet is suitably supported by shaping the concrete slab to receive the body. The flange may rest on top of the screed – no recess is required.

Outlet	Min. size of hole required
82mm	185mm
110mm	240mm

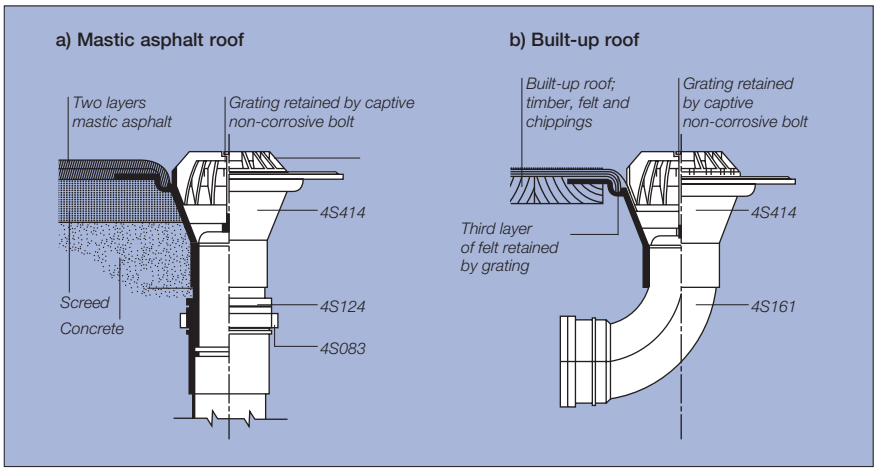
2. Drill four equally spaced counter sunk holes (N°.10 size) in centre of flange.
3. Fix Outlet to roof decking using 1" N°.10 rustless screws. Remove grating.
4. Dress first layer of asphalt up to and over the flange. Feather on the outer edge of the mouth recess.
5. Dress second layer of asphalt over the first. Finish by trowelling to a radius into the mouth recess.
6. Replace and secure grating.

Built-up felt roofing

PROCEDURE

1. Provide a hole in the roof suitably dished to give support to the body and recess the flange level with the top of the roof deck.
2. Drill four equally spaced counter sunk holes (No.10 size) in centre of flange.
3. Fix Outlet to roof decking using 1" No.10 rustless screws. Remove grating.
4. Lay the first two layers of felt across the flange and into the mouth recess.
5. Lay the third layer and dress down into the mouth of the body. This will adhere to the Outlet with bitumen.
6. Replace grating over the third layer of felt and secure.

Fig. 64 Roof Outlet installation



Materials
All gutter, pipe and most fittings in OSMA Rainwater systems are manufactured from PVC-U (Unplasticised Polyvinyl Chloride).

Acceptance
OSMA Rainwater systems comply, where applicable, with the requirements of the following British Standards:

- **BS 6209: 1982** Solvent cement for non-pressure thermoplastics pipe systems
- **BS 1329-1: 2000** Plastics piping systems for soil and waste drainage
- **BS EN 607: 2004** Eaves, gutters and fittings made of PVC-U definitions, requirements and testing. Approval pending.
- **BS EN 1462: 2004** Brackets for eaves gutters: requirements and testing. Approval pending.
- **BS EN 12200-1: 2000** Plastics rainwater piping systems for above ground external use – unplasticized Poly Vinyl Chloride (PVC-U) – Part 1 specification for pipes, fittings and the system. Approval pending.

The British Standard Kitemark identifies gutter, pipe and fittings that are manufactured under the BSI certification scheme.

Health and Safety
The relevant provisions of the following legislation should be adhered to on site:

- **Construction (Design and Management) Regulations 1994**
- **Control of Substances Hazardous to Health Regulations 1988**
- **Health and Safety At Work Act 1974**
- **Management of Health and Safety At Work Regulations 1999**
- **Manual Handling Operations Regulations 1992**

References
OSMA Rainwater systems should be designed and installed in accordance with the guidance provided in the appropriate sections of the following:

- **Building Regulations 2000 (England and Wales):** Approved Document H, Part H3
- **Building Standards (Scotland) Regulations 1993-2002** (including current amendments: Technical Standards Part M)
- **Building Regulations (Northern Ireland) 2000:** Technical Booklet N
- **BS 8000 Workmanship on Building Sites: Part 13:** 1989 Code of Practice for above ground drainage and sanitary appliances
- **BS EN 752: 1997** Code of Practice for building drainage
- **BS EN 12056: 2000** Gravity drainage systems inside buildings: Part 3 Roof drainage, layout and calculation
- **Disposing of rainwater:** GBG 38. Watford, BRE 2000
- **Painting plastics:** IP 11/1979. Watford, BRE 1979
- **Water Regulations Guide:** London, Water Regulations Advisory Scheme, 2000

Hazards associated with PVC-U
There are no particular hazards associated with handling, cutting or working with PVC-U products, and protective clothing or equipment is not normally required.

Copies of Safety Data Sheets covering PVC-U, solvent cements and cleaners are available from Wavin Technical Design Department. *Contact Wavin Technical Enquiries.*

Abbreviations
P/E: Pipe and fittings with both ends plain or with one plain end and one special end.

S/S: Pipe and fittings with one or more ring-seal or push-fit sockets, but always one plain or special end.

D/S: Fittings with ring-seal or push-fit sockets at all ends.

S/SW: Fittings with one or more ring-seal sockets but always one solvent socket.

SW/S: Fittings with one or more solvent sockets and one plain or special end.

D/SW: Fittings with solvent sockets at all ends.

Supply
All OSMA systems are supplied through a nationwide network of merchant distributors. *For details of your nearest stockist, contact Wavin Customer Services*.

Special fabrication
A specially fabricated angle or fitting may be required for certain installations. Where possible, Wavin is happy to provide such fabrications to Customer design. However, no responsibility can be accepted for their function. *For further details of this service, contact Wavin Technical Enquiries*.

Sealing Rings
Where applicable, Sealing Rings are supplied fitted to each component and are included in the price.

Conditions of sale
The Company will not accept responsibility for the malfunction of any installation which includes components not supplied by Wavin Plastics Limited. Goods are sold subject to Company conditions of sale.

How to Order

Each product is identified by a **Part Number**, followed by (where relevant) a **colour reference** to provide the full **Catalogue Code**. Colour reference codes are as follows:

Colour	Ref. Code
Black	B
Grey	G
White	W
Brown	N

EXAMPLE:
The Part Number for a 2m length of **RoundLine Gutter is 0T072**. This is available in a choice of four colours: Black (B), Grey (G), White (W) and Brown (N).

To order 5 x 2 metre lengths of Black RoundLine gutter, simply quote:

- Quantity required *plus*
- Catalogue Code (i.e. **Part Number** with the **Colour Reference Code** added) *plus*
- Description

Thus, the order would be: **5 x 0T072B RoundLine Gutter**.

To place an order, contact the Wavin Customer Services

Tel: 0844 856 5152

Gutter Profiles

Downpipe Systems

Ancillaries

Supporting Information

Technical Advice and Assistance

OSMA Rainwater systems are backed by Wavin's comprehensive technical advisory service. This is available to provide expert assistance at every stage of a project, from planning and product selection to installation and maintenance.

Services include:

- Full technical literature, including:
  - System Product Guides
  - Design and Installation Guides
  - Trade Price Lists
- Assistance with Rainwater systems product selection
- On site advice and troubleshooting

Contact Wavin Technical Design Department for prompt assistance:

TECHNICAL DESIGN
Tel: 0844 856 5165
Email: technical.design@wavin.co.uk

Further Information

OSMA RAINWATER SYSTEMS

The following related publications are available for OSMA Rainwater systems:

- **Trade Price List**

ASSOCIATED OSMA SYSTEMS

OSMA systems are fully integrated to provide a total solution for above and below ground drainage, plumbing and heating. Visit www.wavin.co.uk for details of our full product range:

- **Soil & Waste systems**
- **Flexible Plumbing systems**
- **Underfloor Heating systems**
- **Below Ground Drainage systems**
- **Certus for Industrial and Commercial applications**

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For further information on OSMA systems and PDF verisons of our current literature, please visit our website **www.wavin.co.uk**

OSMA

Above and below ground drainage by Wavin

Rainwater Systems

Product, Design and Installation Guide

OSMA is the UK's leading name in plastics systems, your single source for all types of gravity drainage, sewer installation and pressure pipe systems in any private or public development. Our high-quality and innovative systems are fully tested and kitemarked and are supported by design and after sales service.

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