

SEPTEMBER 2010

BRETT MARTIN  
RAINWATER SYSTEMS

PRODUCT GUIDE

PRODUCT RANGE  
INSTALLATION DETAILS

RAINWATER SYSTEMS

# RAINWATER

P R O D U C T G U I D E



Plumbing & Drainage



## Plumbing & Drainage

Brett Martin is a multi-site international organisation producing not only an extensive range of plastic Underground, Rainwater and Plumbing systems but also Europe's largest range of GRP, PVC, Polycarbonate and Acrylic rooflight sheet products.

Our reputation for excellence in product quality and technical service is founded on over 50 years manufacturing experience.



BRETT MARTIN  
PLUMBING & DRAINAGE  
MANUALS

# RAINWATER

## P R O D U C T G U I D E

When selecting a rainwater system, you need to be sure of its pedigree, convinced of its ability to perform and confident of enduring quality.

The excellence of Rainwater Systems manufactured by Brett Martin Ltd is recognised by the achievement of BS EN ISO 9001:2008 registration of all of the company's four locations in the UK.

You can be confident that, as a BSI Registered Firm, our Quality Assurance programme guarantees that Brett Martin Rainwater Systems are first class products.



## PRODUCT CATALOGUE

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### TECHNICAL INFORMATION

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PRODUCT

## INTRODUCTION

Brett Martin PVC Rainwater systems, since their launch, have become established among the leading rainwater systems now available.

This is no doubt due to the effectiveness of the original design, combining aesthetics, strength, efficiency and performance.

Individual components have been given a high standard of appearance, which will enhance any new or refurbished home, or small industrial building.

All support fittings are of robust design, with considerable strength around mounting hole positions and retaining clips.

Easy and therefore efficient installation is produced through fixing lugs that allow the use of cordless power tools and by the simple snap-together assembly of components in all five systems.

Fittings have an indication of correct gutter position moulded in, ensuring that at installation proper allowance is made for thermal movement.

High quality integral seals ensure a watertight joint, with twin seals incorporated into selected fittings.

Brett Martin Rainwater systems are complemented by Brett Martin Underground drainage systems, available in diameters ranging from 110mm to 400mm.

## RAINWATER PRODUCT GUIDE

The Brett Martin Rainwater Product Guide illustrates all the components which make up Brett Martin Rainwater systems. Information relating to dimensions, performance, installation, design and fitting are provided. The Brett Martin Rainwater Product Guide is a comprehensive manual for architect, specifier and builder alike.

## AVAILABILITY

Brett Martin Rainwater systems are available from builders merchants throughout the UK & Ireland. There is a direct to site delivery service available for large quantities.

## CONDITIONS OF SALE

Brett Martin Rainwater systems are sold subject to the Conditions of Sale, copies of which are available on request.

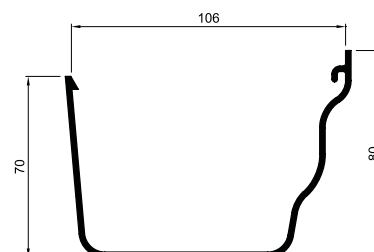
Brett Martin reserves the right to change the design of any system without prior notice.

In the event of a product claim arising and where replacement product or refund is offered by Brett Martin, no other claims for costs or consequential loss will be considered.

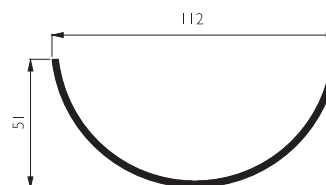
## PRODUCT & COLOUR RANGE

The following Rainwater systems are available.

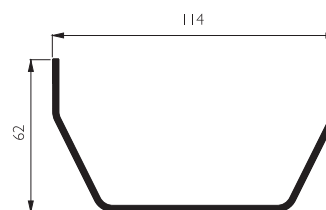
The 106mm Prostyle gutter system, compatible with both 65mm square downpipe and 68mm diameter downpipe systems is available in brown, white, arctic white, light oak and black. This gutter system is ideal where a more classic guttering solution is required.



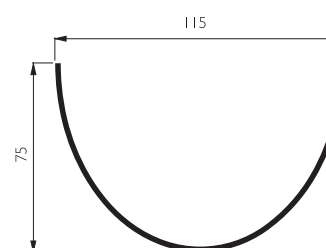
The 112mm nominal Roundstyle gutter system and 68mm diameter downpipe system, a standard in domestic rainwater systems, available in brown, white, arctic white, grey and black.



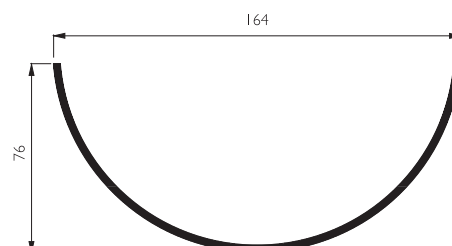
The 114mm nominal Squarestyle gutter system and 65mm square downpipe system provide a modern style for today's modern house designs, giving a greater drainage capacity than 112mm half round, available in brown, white, arctic white and black.



The 115mm x 75mm Deepstyle gutter system, and 68mm round downpipe system is available in brown, white, arctic white, grey and black. This system is extremely efficient, and can reduce the number of required downpipes in many installations, thus reducing costs dramatically.

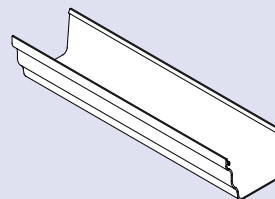
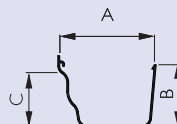


The 160mm nominal Half Round gutter system and 110mm diameter downpipe system, for use in commercial, industrial and agricultural buildings, available in grey, black and brown.



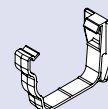
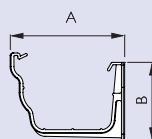
## GUTTER

CODE	LENGTH	A	B	C
<b>BR82</b>	4m	106	70	80



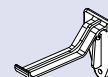
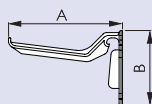
## FASCIA BRACKET

CODE	A	B
<b>BR83</b>	127	87



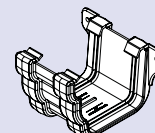
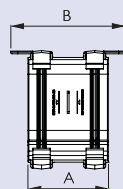
## TOP HUNG FASCIA BRACKET

CODE	A	B
<b>BR833</b>	119	78



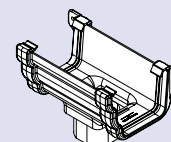
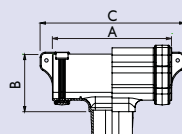
## UNION BRACKET

CODE	A	B
<b>BR84</b>	90	129



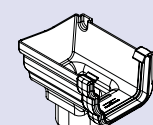
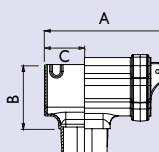
## RUNNING OUTLET

CODE	A	B	C
<b>BR85</b>	190	92	229



## LEFT HAND STOPEND OUTLET

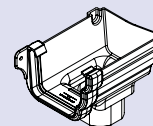
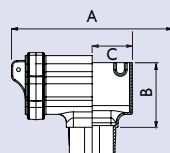
CODE	A	B	C
<b>BR856L</b>	172	92	57





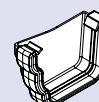
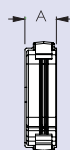
### RIGHT HAND STOPEND OUTLET

CODE	A	B	C
<b>BR856R</b>	172	92	57



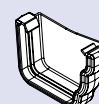
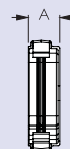
### LEFT HAND EXTERNAL STOPEND

CODE	A
<b>BR87L</b>	37



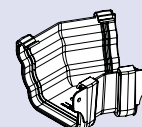
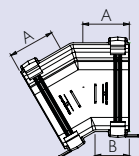
### RIGHT HAND EXTERNAL STOPEND

CODE	A
<b>BR87R</b>	37



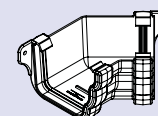
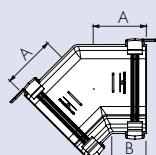
### EXTERNAL GUTTER ANGLES

CODE	ANGLE	A	B
<b>BR89E</b>	45°	70	46
<b>BR88E</b>	90°	106	47
<b>BR88/150E</b>	150°	61	46



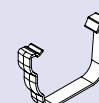
### INTERNAL GUTTER ANGLES

CODE	ANGLE	A	B
<b>BR89I</b>	45°	70	46
<b>BR88I</b>	90°	106	47



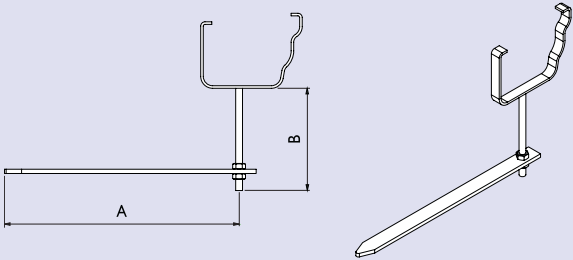
### GUTTER CLIP

CODE	A
<b>BR80</b>	20



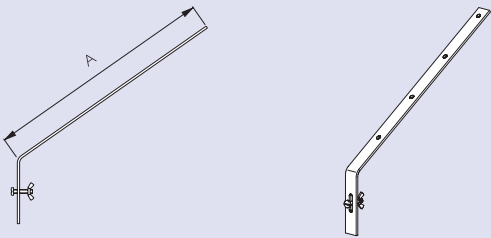
RISE AND FALL BRACKET

CODE	A	B
BRF8	275	120



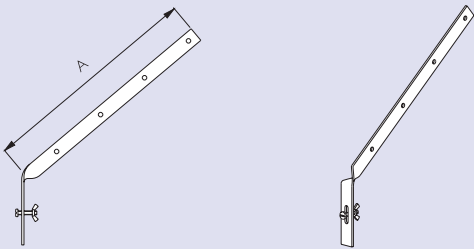
RAFTER TOP GUTTER BRACKET

CODE	A
BRT5	305



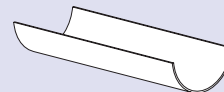
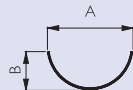
RAFTER SIDE GUTTER BRACKET

CODE	A
BRS5	293



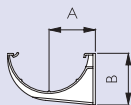
## GUTTER

CODE	LENGTH	A	B
<b>BR41</b>	2m	112	51
<b>BR42</b>	4m	112	51



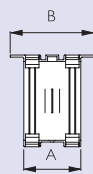
## MULTI FIX FASCIA BRACKET

CODE	A	B
<b>BR43</b>	68	75



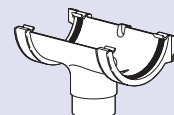
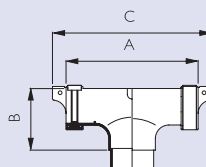
## JOINT / UNION BRACKET

CODE	A	B
<b>BR44</b>	84	124



## RUNNING OUTLET

CODE	A	B	C
<b>BR45</b>	194	91	234



## INTERNAL STOPEND

CODE	A
<b>BR46</b>	42



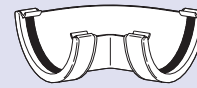
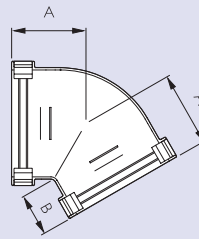
## EXTERNAL STOPEND

CODE	A
<b>BR47</b>	40



### GUTTER ANGLES

CODE	ANGLE	A	B
<b>BR48</b>	90°	116	48
<b>BR48 / 120</b>	120°	81	46
<b>BR49</b>	135°	72	46



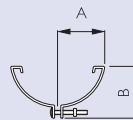
### GUTTER CLIP

CODE	A
<b>BR40</b>	20



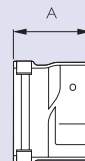
### ROUNDSTYLE TO HALF ROUND ADAPTOR

CODE	A	B
<b>BR491</b>	62	73



### \*GUTTER ADAPTOR TO OGEE

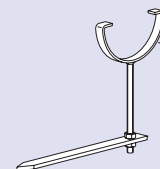
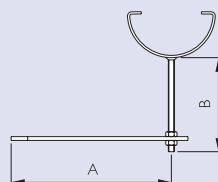
CODE		A
<b>BR492</b>	Right hand	100
<b>BR493</b>	Left hand	100



\*Natural aluminium body with coloured strap

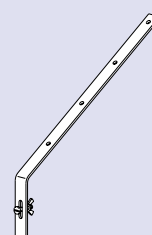
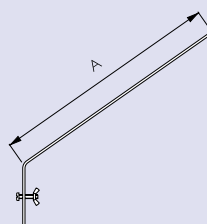
### RISE AND FALL BRACKET

CODE	A	B
<b>BRF4</b>	280	125



### RAFTER TOP BRACKET

CODE	A
<b>BRT5</b>	305



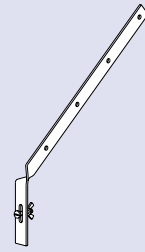
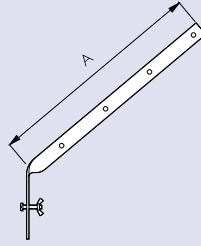
**RAFTER SIDE BRACKET**

CODE

**BR55**

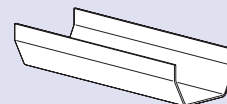
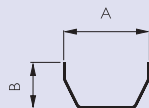
A

293



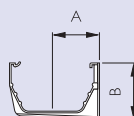
## GUTTER

CODE	LENGTH	A	B
<b>BR51</b>	2m	114	62
<b>BR52</b>	4m	114	62



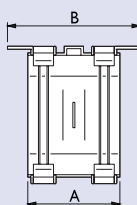
## MULTI FIX FASCIA BRACKET

CODE	A	B
<b>BR53</b>	65	78



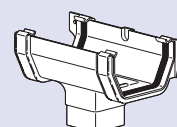
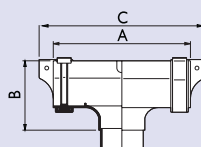
## JOINT / UNION BRACKET

CODE	A	B
<b>BR54</b>	91	131



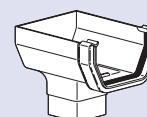
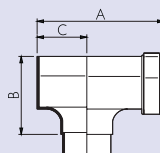
## RUNNING OUTLET

CODE	A	B	C
<b>BR55</b>	194	98	234



## STOPEND OUTLET

CODE	A	B	C
<b>BR556</b>	160	98	63



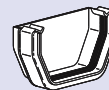
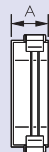
## INTERNAL STOPEND

CODE	A
<b>BR56</b>	49



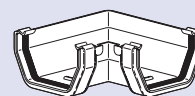
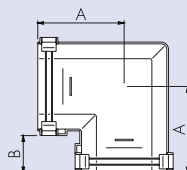
### EXTERNAL STOPEND

CODE	A
<b>BR57</b>	50



### GUTTER ANGLES

CODE	ANGLE	A	B
<b>BR58</b>	90°	119	51
<b>BR58 / 120</b>	120°	90	55
<b>BR59</b>	135°	81	55



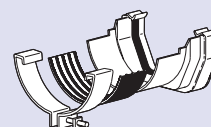
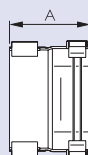
### GUTTER CLIP

CODE	A
<b>BR50</b>	20



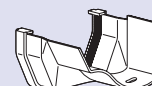
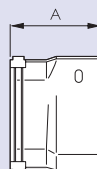
### SQUARESTYLE TO HALF ROUND GUTTER ADAPTOR

CODE	A
<b>BR591</b>	94



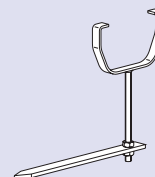
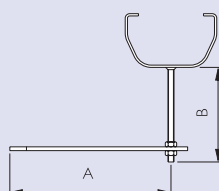
### GUTTER ADAPTOR TO OGEE

CODE	A
<b>BR592</b>	Right hand 102
<b>BR593</b>	Left hand 102



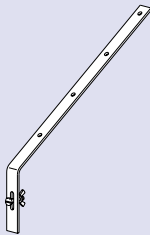
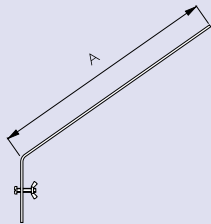
### RISE AND FALL BRACKET

CODE	A	B
<b>BRF5</b>	270	125



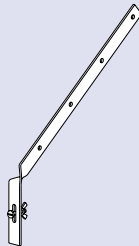
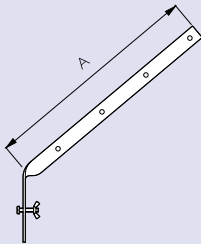
RAFTER TOP GUTTER BRACKET

CODE                    A  
BRT5                    305



RAFTER SIDE GUTTER BRACKET

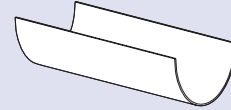
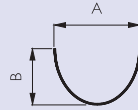
CODE                    A  
BRS5                    293





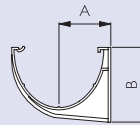
## GUTTER

CODE	LENGTH	A	B
<b>BR72</b>	4m	115	75



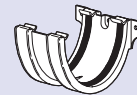
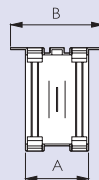
## MULTI FIX FASCIA BRACKET

CODE	A	B
<b>BR73</b>	69	99



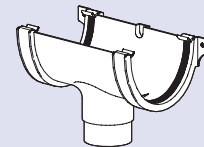
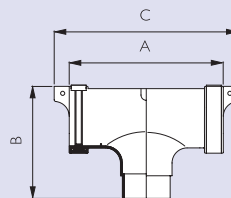
## JOINT / UNION BRACKET

CODE	A	B
<b>BR74</b>	84	124



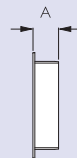
## RUNNING OUTLET

CODE	A	B	C
<b>BR75</b>	205	116	245



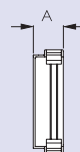
## INTERNAL STOPEND

CODE	A
<b>BR76</b>	34



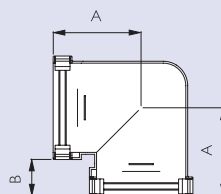
## EXTERNAL STOPEND

CODE	A
<b>BR77</b>	40



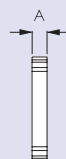
### GUTTER ANGLES

CODE	ANGLE	A	B
<b>BR78</b>	90°	117	48
<b>BR78 / 120</b>	120°	87	51
<b>BR79</b>	135°	78	52



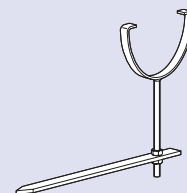
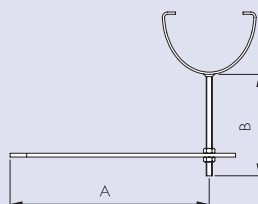
### GUTTER CLIP

CODE	A
<b>BR70</b>	20



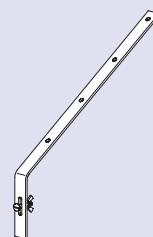
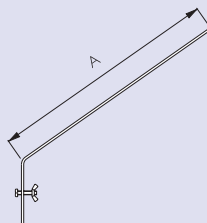
### RISE AND FALL BRACKET

CODE	A	B
<b>BRF7</b>	265	135



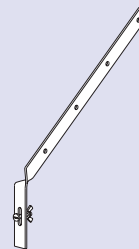
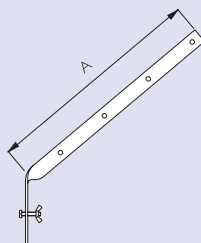
### RAFTER TOP BRACKET

CODE	A
<b>BRT5</b>	305



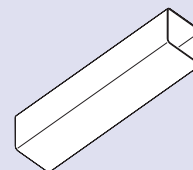
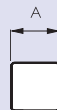
### RAFTER SIDE BRACKET

CODE	A
<b>BRS5</b>	293



### DOWNPIPE - PLAIN ENDED

CODE	LENGTH	A
<b>BR500</b>	2m	65
<b>BR501</b>	2.5m	65
<b>BR503</b>	4m	65
<b>BR504</b>	5.5m	65



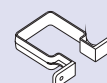
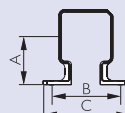
### DOWNPIPE CONNECTOR

CODE	A	B
<b>BR506</b>	49	24



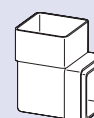
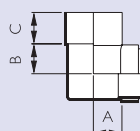
### DOWNPIPE BRACKET

CODE	A	B	C
<b>BR507</b>	63	90	112



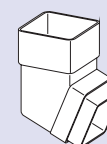
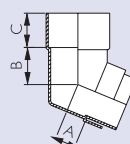
### DOWNPIPE BEND - 92 1/2°

CODE	A	B	C
<b>BR508</b>	33	34	38



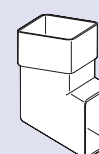
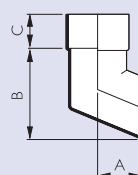
### DOWNPIPE BEND TOP & BOTTOM OFFSET - 112 1/2°

CODE	A	B	C
<b>BR509</b>	22	41	38



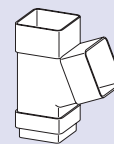
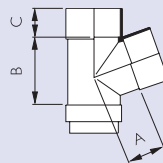
### DOWNPIPE SHOE - 112 1/2°

CODE	A	B	C
<b>BR516</b>	50	102	38



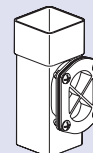
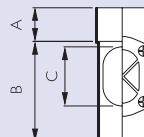
### DOWNPIPE BRANCH - 112½°

CODE	A	B	C
<b>BR518</b>	52	91	38



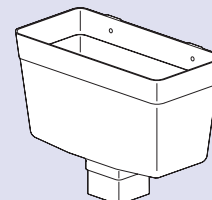
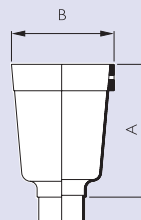
### ACCESS PIPE

CODE	A	B	C
<b>BR510</b>	45	133	78



### DOWNPIPE RAINWATER HEAD

CODE	A	B	OVERALL WIDTH
<b>BR511</b>	176	136	274



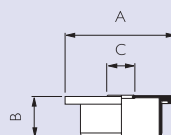
### SQUARE TO ROUND ADAPTOR

CODE	A	B
<b>BR517</b>	46	3



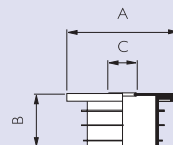
### UNIVERSAL ADAPTOR (SOCKET)

CODE	A	B	C
<b>B4901</b>	148	57	31



### UNIVERSAL ADAPTOR (PIPE)

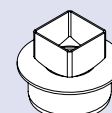
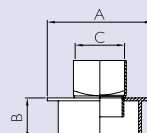
CODE	A	B	C
<b>B4801</b>	148	72	31



**NB:** Use Rainwater Adaptor BR517 to connect to Square Pipe

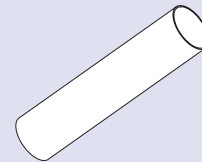
### DRAIN CONNECTOR

CODE	A	B	C
<b>BR520</b>	139	55	65



### DOWNPIPE - PLAIN ENDED

CODE	LENGTH	A
<b>BR201</b>	2.5m	68
<b>BR203</b>	4m	68
<b>BR204</b>	5.5m	68



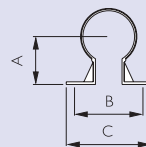
### DOWNPIPE CONNECTOR

CODE	A	B
<b>BR206</b>	38	25



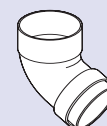
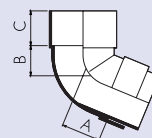
### DOWNPIPE BRACKET

CODE	A	B	C
<b>BR207</b>	63	90	112



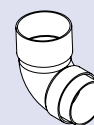
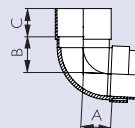
### DOWNPIPE BEND TOP & BOTTOM OFFSET - 112 1/2°

CODE	A	B	C
<b>BR209</b>	43	33	38



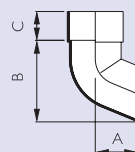
### DOWNPIPE BEND - 92 1/2°

CODE	A	B	C
<b>BR208</b>	39	47	37



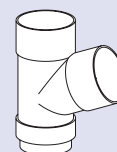
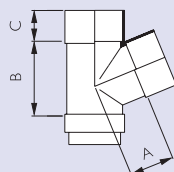
### DOWNPIPE SHOE - 112 1/2°

CODE	A	B	C
<b>BR216</b>	56	108	38



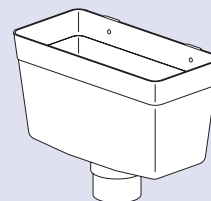
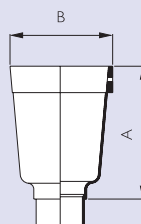
### DOWNPIPE BRANCH - 112½°

CODE	A	B	C
<b>BR218</b>	55	91	38



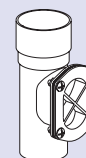
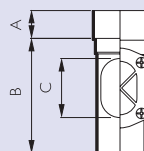
### DOWNPIPE RAINWATER HEAD

CODE	A	B	OVERALL WIDTH
<b>BR211</b>	176	136	274



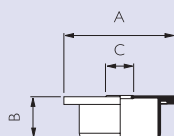
### ACCESS PIPE

CODE	A	B	C
<b>BR210</b>	37	153	78



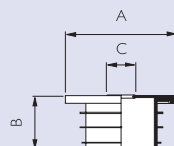
### UNIVERSAL ADAPTOR (SOCKET)

CODE	A	B	C
<b>B4901</b>	148	57	31



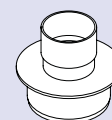
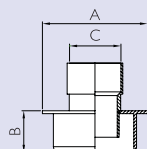
### UNIVERSAL ADAPTOR (PIPE)

CODE	A	B	C
<b>B4801</b>	148	72	31



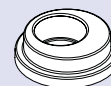
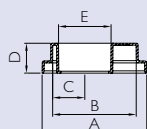
### DRAIN CONNECTOR

CODE	A	B	C
<b>BR220</b>	139	55	68



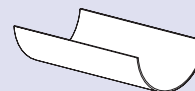
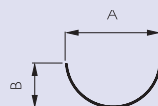
### 110mm TO 68mm RAINWATER ADAPTOR

CODE	A	B	C	D	E
<b>BR223B</b>	139	110	43	40	68



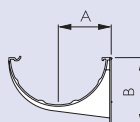
## GUTTER

CODE	LENGTH	A	B
<b>BR61</b>	2m	164	76
<b>BR62</b>	4m	164	76



## MULTI FIX FASCIA BRACKET

CODE	A	B
<b>BR60</b>	91	120



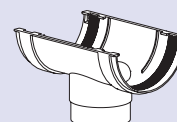
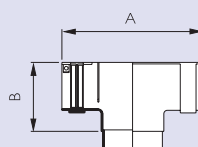
## JOINT / UNION BRACKET

CODE	A
<b>BR64</b>	126



## RUNNING OUTLET

CODE	A	B
<b>BR65</b>	244	119



## INTERNAL STOPEND

CODE	A
<b>BR66</b>	64



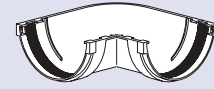
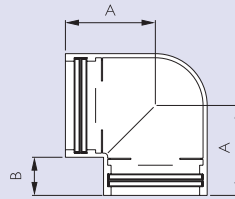
## EXTERNAL STOPEND

CODE	A
<b>BR67</b>	53



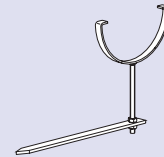
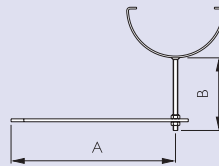
**GUTTER ANGLE 90°**

CODE	A	B
<b>BR68</b>	155	66



**RISE AND FALL BRACKET**

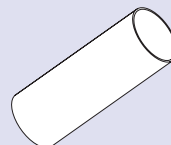
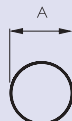
CODE	A	B
<b>BRF6</b>	265	125





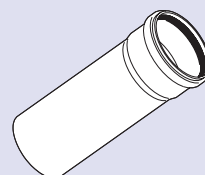
### DOWNPIPE - PLAIN ENDED

CODE	LENGTH	A
<b>BS402</b>	2.5m	110
<b>BS403</b>	3m	110
<b>BS404</b>	4m	110
<b>BS405</b>	6m	110
<b>BS603</b>	3m	160
<b>BS604</b>	4m	160
<b>BS605</b>	6m	160
<b>B20300</b>	3m	200
<b>B20600</b>	6m	200



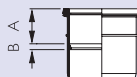
### DOWNPIPE - SINGLE SOCKET

CODE	LENGTH	A
<b>BS413</b>	2.5m	110
<b>BS414</b>	3m	110
<b>BS415</b>	4m	110
<b>BS430</b>	6m	110
<b>BS623</b>	3m	160
<b>BS624</b>	4m	160
<b>BS625</b>	6m	160
<b>B20003</b>	3m	200
<b>B20006</b>	6m	200



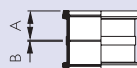
### PIPE CONNECTOR - SINGLE SOCKET

CODE	SIZE	A	B
<b>BS432</b>	110	60	10
<b>BR607</b>	160	80	13



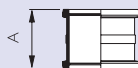
### PIPE CONNECTOR - DOUBLE SOCKET

CODE	SIZE	A	B
<b>BS406</b>	110	51	2
<b>BR627</b>	160	80	4
<b>B20021</b>	200	94	5



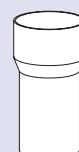
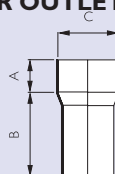
### SLIP COUPLER - DOUBLE SOCKET

CODE	SIZE	A
<b>BS478</b>	110	104
<b>B20022</b>	200	193



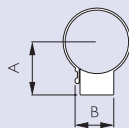
### PIPE CONNECTOR TO ASBESTOS CEMENT GUTTER OUTLET

CODE	SIZE	A	B	C (INTERNAL)
<b>BS433</b>	110	55	200	118
<b>BR628</b>	160	190	145	178



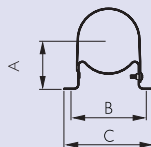
### PIPE BRACKET - SINGLE FIXING

CODE	SIZE	A	B
<b>BS438</b>	110	90	67
<b>BR619</b>	160	121	88



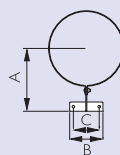
### METAL PIPE BRACKET

CODE	SIZE	A	B	C
<b>BR450</b>	110	93	150	172
<b>BR620</b>	160	116	220	240



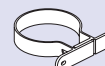
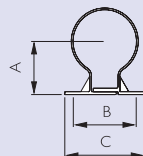
### METAL PIPE BRACKET

CODE	SIZE	A	B	C
<b>BR819</b>	200	170	90	70



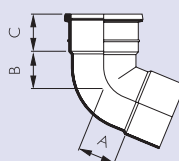
### PIPE BRACKET - DOUBLE FIXING

CODE	SIZE	A	B	C
<b>BS407</b>	110	92	109-135	139-165



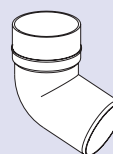
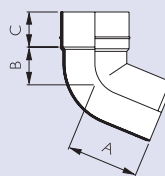
### SINGLE SOCKET BEND TOP OFFSET - 112 1/2°

CODE	SIZE	A	B	C
<b>BS408</b>	110	64	63	63
<b>BR630</b>	160	99	67	79



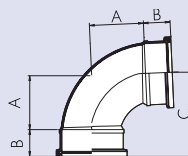
### SINGLE SOLVENT WELD SOCKET BEND BOTTOM OFFSET - 112 1/2°

CODE	SIZE	A	B	C
<b>BS409</b>	110	124	65	61
<b>BR631</b>	160	161	85	76



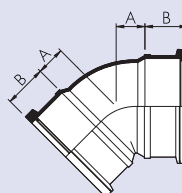
### DOUBLE SOCKET BEND - 92 1/2°

CODE	SIZE	A	B	C
<b>BS480</b>	110	101	50	168



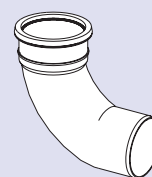
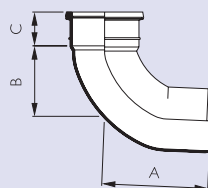
### DOUBLE SOCKET BEND - 135°

CODE	SIZE	A	B
<b>BS482</b>	110	34	50



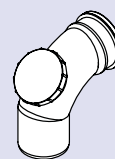
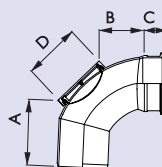
### SINGLE SOCKET BENDS

CODE	SIZE	ANGLE	A	B	C
<b>BS420</b>	110	92½°	156	100	50
<b>BS421</b>	110	112½°	125	63	63
<b>BS422</b>	110	135°	116	50	63
<b>BR608</b>	160	92½°	212	141	80
<b>BR609</b>	160	112½°	169	83	80
<b>BR610</b>	160	135°	128	59	80
<b>B20870</b>	200	92½°	475	390	102
<b>B20450</b>	200	135°	210	510	102



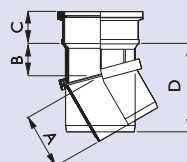
### SINGLE SOCKET ACCESS BEND - 92½°

CODE	SIZE	A	B	C	D
<b>BS436</b>	110	142	94	53	103



### ADJUSTABLE SINGLE SOCKET BEND - 0°-30°

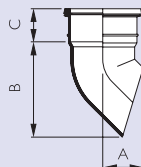
CODE	SIZE	A	B	C	D
<b>BS424</b>	110	88	51	50	140



NB. Product made from polypropylene, do not solvent weld. Available in grey only.

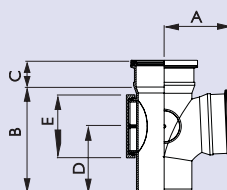
### DOWNSPIPE SHOE - 112½°

CODE	SIZE	A	B	C
<b>BS416</b>	110	70	164	57
<b>BR611</b>	160	120	205	79
<b>BR811</b>	200	140	520	102



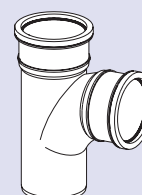
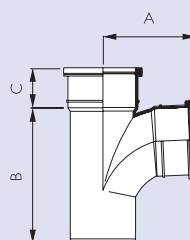
### DOUBLE SOCKET ACCESS BRANCH - 92½°

CODE	SIZE	A	B	C	D	E
<b>BS447</b>	110	135	210	53	132	103



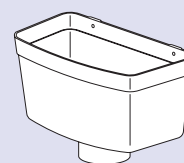
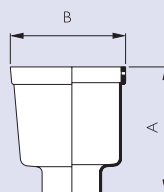
### DOUBLE SOCKET BRANCH WITHOUT BOSSES

CODE	SIZE	ANGLE	A	B	C
<b>BS417</b>	110	92½°	156	228	67
<b>BS448</b>	110	104°	147	234	67
<b>BS419</b>	110	135°	145	253	58
<b>BR615</b>	160	92½°	223	312	80
<b>BR616</b> (110 Branch)	160	135°	180	334	80
<b>BR617</b>	160	135°	205	334	80
<b>B20110</b> (110 Branch)	200	135°	270	540	95
<b>B20160</b> (160 Branch)	200	135°	300	540	95
<b>B20200</b>	200	135°	320	540	95



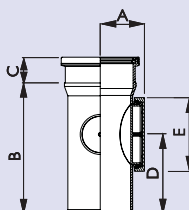
### RAINWATER HEAD

CODE	SIZE	A	B	OVERALL WIDTH
<b>BS411</b>	110	216	198	315



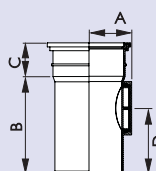
### ACCESS PIPE - SINGLE SOCKET

CODE	SIZE	A	B	C	D	E
<b>BS410</b>	110	75	213	53	135	103



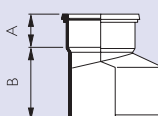
### ACCESS PIPE - SINGLE SOCKET

CODE	SIZE	A	B	C	D	E
<b>BS629</b>	160	100	230	78	155	103



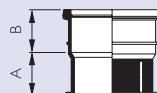
### DRAIN CONNECTOR 110mm SOIL PIPE TO 160mm DRAIN

CODE	SIZE	A	B
<b>BS423</b>	160 X 110	57	126



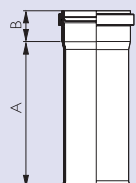
### DRAIN CONNECTOR TO PVCu CAST IRON & SALT GLAZE SOCKET

CODE	SIZE	A	B
<b>BS434</b>	110	59	58
<b>BR621</b>	160	107	95



### DRAIN CONNECTOR TO PVCu CAST IRON & SALT GLAZE SOCKET

CODE	SIZE	A	B
<b>B20108</b>	200	95	450



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TECHNICAL

INFORMATION

**FUNCTION**

Brett Martin PVC Rainwater systems comprise gutter sections and fittings, with accompanying downpipe sections and fittings to efficiently convey rainwater from the roofs of domestic, commercial and industrial buildings.

Brett Martin Rainwater systems are complemented by the Brett Martin Drain, Sewer, Surface Water, Soil and Waste systems, providing a complete solution for all drainage requirements.

**AUTHORITY**

Brett Martin Rainwater systems satisfy the requirements of the following:

- The Building Regulations 2002, as amended.
- Building Standards (Scotland) Regulations 1990, as amended.
- Building Regulations (Northern Ireland) 1990, as amended.

**EUROPEAN STANDARDS**

BS EN ISO 9001:2008

EN 12200-1:2000 Plastics rainwater piping systems for above ground external use - Unplasticized poly (vinyl chloride) (PVC-U)

EN 607:2004 Eaves, gutters and fittings made of PVC-U

EN 1462:2004 Brackets for eaves gutters - requirements and testing

EN 1329-1:2000 Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure - Unplasticized poly (vinyl chloride) (PVC-U)

**COMPOSITION**

Extruded gutter and downpipe sections and injection moulded fittings are made from PVC compounds complying with the material requirements of EN 12200-1:2000 and EN 607:2004, containing the necessary processing additives, stabilisers and pigments to give products excellent appearance, durability, and performance. Seals in the gutter and downpipe fittings are manufactured from materials complying with EN 681:1996.

**THERMAL EXPANSION**

PVC has a coefficient of linear expansion of  $6 \times 10^{-5}$ . Consequently a 2m length of gutter or downpipe will expand by 2.4mm for a 20°C temperature rise. This expansion is taken into consideration in the design of Brett Martin Rainwater fittings and must be accommodated when installing.

**BIOLOGICAL AND CHEMICAL RESISTANCE**

Polluted industrial atmospheres will not effect Brett Martin rainwater systems. PVC is vermin and rot proof and resistant to most commonly occurring chemicals: notable exceptions however are solvents, including those incorporated in most timber preservatives.

**TIMBER PRESERVATIVES**

Wood preservative, which has been applied to a timber surface, must be allowed to dry thoroughly before any Rainwater fitting is fixed to that surface.

**MAINTENANCE**

The security of gutter and downpipe brackets should be checked regularly as part of the overall building maintenance programme: check also that no components have become dislodged or loose and that the gutter extrusions have not moved beyond any of the thermal expansion allowance marks in the fittings.

Rainwater gutter systems should be cleaned out on a regular basis, at least annually, more frequently in locations where there are large amounts of wind borne debris, eg. in sandy areas or in close proximity to deciduous trees. The high gloss surface finish retains little dirt. A mild detergent solution is ideal when cleaning dirt from the external surface is necessary.

Brett Martin Rainwater systems are self coloured, painting is not normally required for several years after installation. When painting is carried out, the surfaces of all components should be lightly roughened with sandpaper and cleaned. An oil based gloss paint is the most suitable. Do not use an undercoat.

**BUILDING REGULATIONS**

Brett Martin Rainwater installations should be designed to comply with the following:

The Building Regulations 2002, Approved Document H, Section H3.

Building Standards (Scotland) Regulations 1990, Technical Standard M2.6-M2.7.

The Building Regulations (Northern Ireland) 1990, Section N7, Technical Booklet N:1990: Section 3. Comprehensive guidance on the design and installation of rainwater systems is given in BS EN 12056-3: 2000 Roof Drainage Layout and Calculation.

**UNDERGROUND DRAINAGE**

It is necessary to dispose of the runoff collected by Brett Martin Rainwater systems in an efficiently designed underground drainage system. A Local Authority may permit the runoff to be conveyed in a combined sewer and rainwater system, or in a separate rainwater only system. Complete Brett Martin Drain and Surface Water systems are available for these applications - see Brett Martin Underground Product Guide.

**SNOW LOADING**

Heavy snow falls can create hazards on steep roof pitches and/or on smooth roof surface finishes when the accumulated snow slips down and off the roof. Additional support brackets (maximum 600mm centres) can cope with some extra snow load. However, the chances of a combination of snow loading on steep and/or smooth roof surfaces, coupled with improved roofspace insulation, necessitate the recommendation for the fitting of snow boards close to eaves to prevent damage to the installation and/or other property or person(s) below. (See Page 33). Also, in some Northern areas of the UK, where heavier snow can be anticipated, snow boards should be considered on less steep roofs. Wherever fixing points are provided in any gutter fittings, these must be utilised during installation.

**RAINFALL INTENSITY**

Rainfall intensity in the UK varies with location and surrounding topography: a rainfall intensity of 75mm/hour is usually taken as the UK maximum

when calculating the discharge requirements for gutter, downpipe and underground drainage systems.

**ROOF DRAINAGE REQUIREMENTS**

The amount of rainwater collected by a given roof area largely determines the choice of gutter system to be used and the number and positioning of the outlets. It is necessary to calculate the effective area of a roof and to relate this to the draining capabilities of the Brett Martin Rainwater systems.

**GUTTER FLOW CAPACITY**

The draining capacity of a gutter system is determined by the gutter gradient and the size and positioning of the outlets.

**PROSTYLE 106mm PROFILED DOMESTIC SYSTEM**

1:600 FALL	OUTLET AT CENTRE	OUTLET AT END
FLOW CAPACITY	5.1 l/sec	2.55 l/sec
MAX ROOF AREA	242m <sup>2</sup>	121m <sup>2</sup>

**ROUNDSTYLE 112mm CLASSIC DOMESTIC SYSTEM**

1:600 FALL	OUTLET AT CENTRE	OUTLET AT END
FLOW CAPACITY	2.43 l/sec	1.3 l/sec
MAX ROOF AREA	116m <sup>2</sup>	62m <sup>2</sup>

**SQUARESTYLE 114mm MODERN DOMESTIC SYSTEM**

1:600 FALL	OUTLET AT CENTRE	OUTLET AT END
FLOW CAPACITY	3.03 l/sec	1.52 l/sec
MAX ROOF AREA	144m <sup>2</sup>	72m <sup>2</sup>

**DEEPSTYLE 115mm HIGH CAPACITY DOMESTIC SYSTEM**

1:600 FALL	OUTLET AT CENTRE	OUTLET AT END
FLOW CAPACITY	4.58 l/sec	2.3 l/sec
MAX ROOF AREA	220m <sup>2</sup>	110m <sup>2</sup>

**HIGH CAPACITY 160mm INDUSTRIAL SYSTEM**

1:600 FALL	OUTLET AT CENTRE	OUTLET AT END
FLOW CAPACITY	6.47 l/sec	3.23 l/sec
MAX ROOF AREA	310m <sup>2</sup>	155m <sup>2</sup>

**INFLUENCE OF GUTTER ANGLES**

When there is a gutter angle closer than 2m to the outlet, reduce the effective roof area that can be drained by 10%. When there is a gutter angle more than 2m from the outlet, reduce the area that can be drained by 5%.

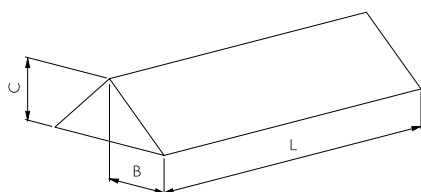
## CALCULATION OF EFFECTIVE ROOF AREA

### FLAT ROOF

For a flat roof the effective roof area is simply the plan area of the roof.

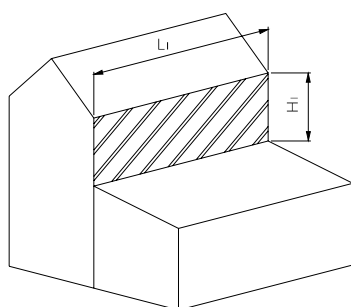
### SLOPING ROOF

For complex roof structures involving several or unequal slopes, a method of calculation is given in BS EN 12056-3: 2000. In the case of simple roof slopes, as illustrated below, the effective roof area is derived from the formula  $E = (B + C/2) \times L$  where  
 $B$  = half roof span (m)  
 $C$  = ridge to eaves height (m)  
 $L$  = slope length (m)  
 $E$  = effective roof area (sq. m)



## EFFECTIVE AREA OF WALLS

Walls above abutting roofs drain on to the roofs below, adding to the amount of water which the rainwater system fitted to the roof has to convey.



For a single wall the effective catchment area is taken to be half the area of the elevation.

$$E = \frac{1}{2} (L_1 \times H_1) \text{ m}^2$$

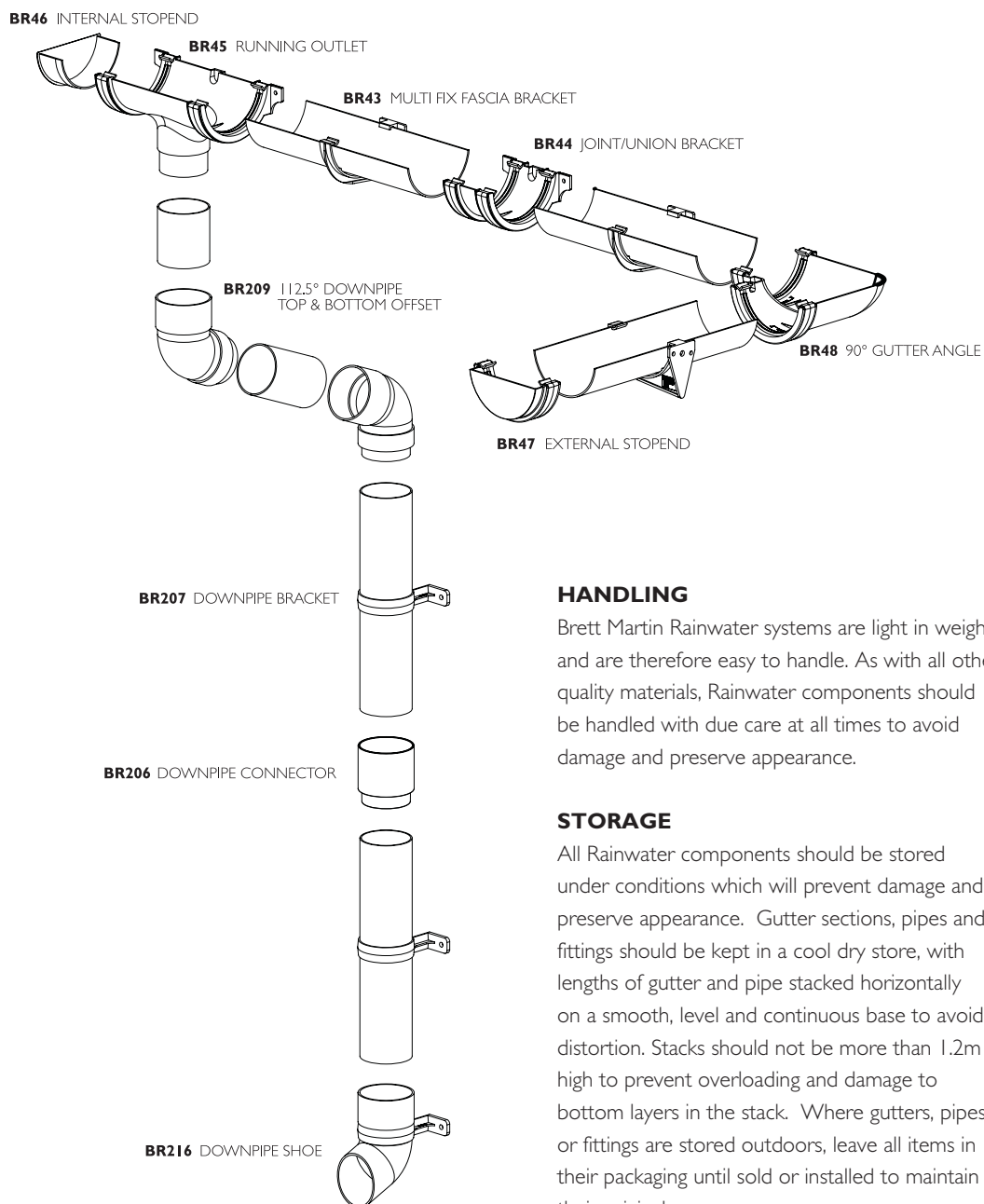
## RAINWATER RUNOFF

The amount of rainwater runoff  $R$  from a calculated effective roof area  $E$  is given by the formula:

$$R = 0.021 \times E \text{ litres / sec}$$



## AN EXPLODED VIEW OF A TYPICAL BRETT MARTIN RAINWATER INSTALLATION



### HANDLING

Brett Martin Rainwater systems are light in weight and are therefore easy to handle. As with all other quality materials, Rainwater components should be handled with due care at all times to avoid damage and preserve appearance.

### STORAGE

All Rainwater components should be stored under conditions which will prevent damage and preserve appearance. Gutter sections, pipes and fittings should be kept in a cool dry store, with lengths of gutter and pipe stacked horizontally on a smooth, level and continuous base to avoid distortion. Stacks should not be more than 1.2m high to prevent overloading and damage to bottom layers in the stack. Where gutters, pipes or fittings are stored outdoors, leave all items in their packaging until sold or installed to maintain their original appearance.

## GUTTER INSTALLATION

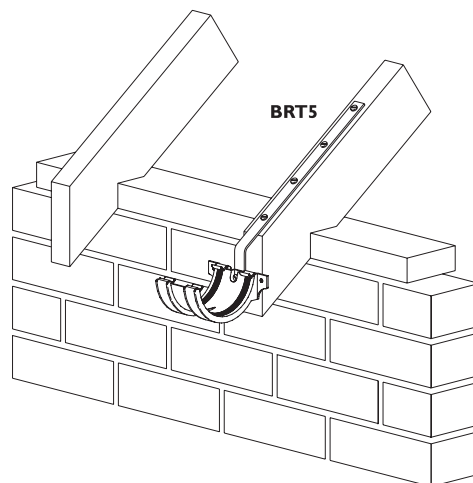
Brett Martin Rainwater gutters, in all five sizes, can be efficiently installed if the following procedures are followed.

Rainwater systems are supported by the outlet joint/union bracket and external angles as well as the gutter support brackets, all of which must be fixed, wherever possible to the fascia or support bracket, or the system securely held by rise and fall brackets, to ensure trouble-free lifetime service.

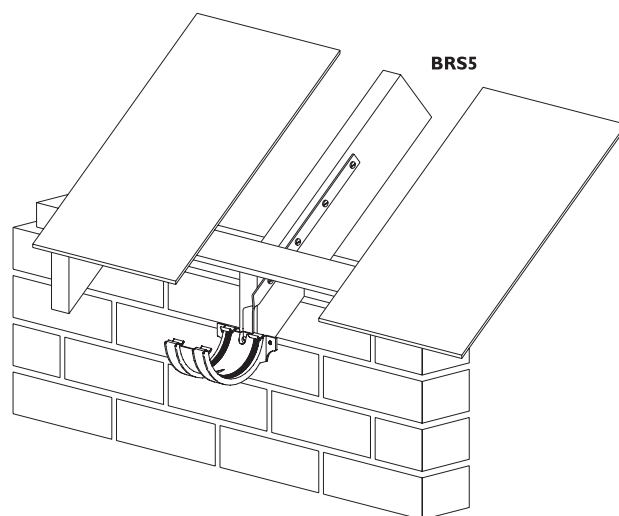
## INSTALLATION SEQUENCE

- Position the gutter outlet vertically above the drain inlet or gully from which the rainwater will be conveyed to the underground drainage system.
- Fix the outlet in position on the fascia allowing for whatever fall, if any, is required.
- Fix the gutter support bracket furthest from the outlet at a position on the fascia which will produce a run of gutter either horizontal or to the desired fall.
- Stretch a line taut between the fixed outlet and support bracket, establishing a straight gutter line.
- Fix the remainder of the fittings to the fascia following this line, a joint bracket being positioned at each junction of two gutter sections.
- Where, due to the absence of a fascia or the design of the building support fittings cannot be fixed, the rafter top bracket and side bracket provide alternatives.
- Rise and fall brackets driven into the wall will support the gutter system where there is no fascia and rafter brackets are impractical. Position these against alternate sides of joint brackets, running outlets or angles along the installation to prevent excessive thermal movement in any one direction.

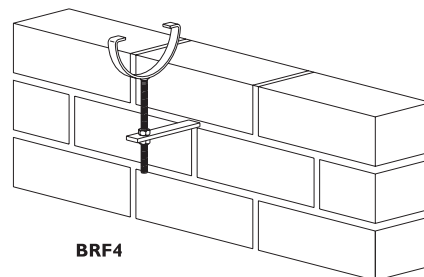
## RAFTER TOP BRACKET



## RAFTER SIDE BRACKET



## RISE & FALL BRACKET



## GUTTER SUPPORT SPACING

Gutter support spacing should normally NOT EXCEED 900mm. Roofs with a pitch of, or exceeding, 35° and/or with SMOOTH SURFACES should prompt consideration of the effects of HEAVY SNOW LOADING. Improved roofspace insulation now prevents snow from melting on impact and is more likely to accumulate to a critical amount.

In such instances, support spacing centres should NOT EXCEED 600mm and snow boards should be fitted. All gutter fittings incorporate fixing positions, which must be used during installation.

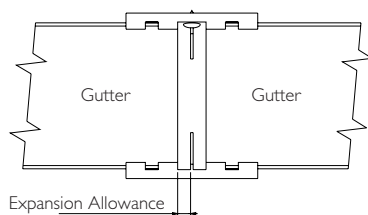
Where gutter angles are required, relevant holes should be drilled to enable fixing to the fascia board and adjacent support brackets should be no more than 900mm away. If the angle is unable to be fixed, the adjacent brackets should be no more than 150mm away.

## FITTING GUTTER

To snap the gutter section into the support fittings, first push the rear edge of the gutter up hard under the rear retaining clip of the fitting. Then pull the front edge of the gutter out and down with one hand, and the front edge of the support fitting out and down with the other hand, while pushing the front retaining clip over the front edge of the gutter with the thumbs, until the gutter snaps into place.

## THERMAL MOVEMENT ALLOWANCE

When each length of gutter has been snapped into position check that each end is not inserted into the fitting beyond the 'EXPANSION ALLOWANCE' line. This allows the gutter to move with changes in temperature without distortion.



To ensure the joint remains intact, each gutter fitting should be fixed to the fascia board or rafter bracket wherever possible.

## DOWNPIPE INSTALLATION

Downpipe installations must accommodate thermal movement. This accommodation of approximately 10mm is made at the top of each 65mm and 68mm pipe section, but at the bottom of each 110mm and 160mm pipe section.

Spigot to socket joints in the 65mm and 68mm systems require the insertion of a piece of pipe of length equal to socket depth to produce a secure fit.

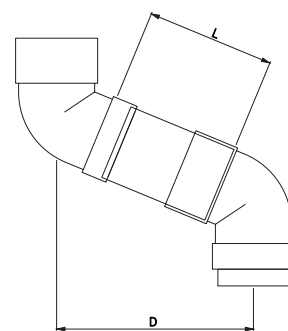
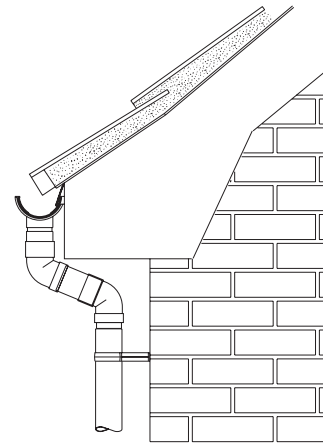


TABLE 1

MINIMUM SOFFIT DEPTHS & OFFSET PIPE LENGTHS

DOWNPIPE	MIN. SOFFIT DEPTH "D" (mm)	OFFSET PIPE LENGTH "L" (mm)
65mm	120	38
68mm	115	38
110mm	235	122
160mm	300	155

**INSTALLATION SEQUENCE**

- Commence assembly of the downpipe by fabricating an offset from the gutter outlet to the wall using a top and bottom offset bend connected by a length of pipe cut to suit the soffit depth of the building - Table 2. The 110mm and 160mm offset bend sockets must be solvent welded to the pipe.

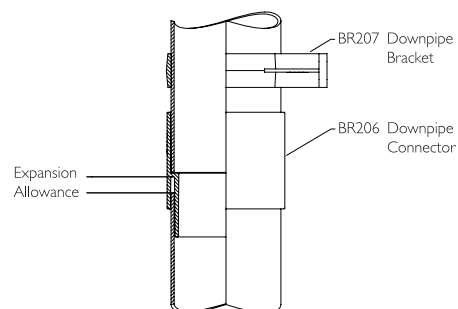


TABLE 2

**SOFFIT DEPTHS / OFFSET PIPE LENGTHS**

SOFFIT DEPTH "D"	OFFSET PIPE LENGTH "L"			
	65mm SQUARE	68mm ROUND	110mm ROUND	160mm ROUND
150	80	85		
175	107	113		
200	137	140		
225	161	167		
250	188	194	148	
275	215	221	175	
300	242	248	202	155
325	269	275	229	182
350	296	302	256	209
375	324	329	283	236
400	351	356	310	263
425	378	383	337	290
450	405	410	364	317
475	432	437	391	344
500	459	464	418	371

- Insert a piece of pipe, length at least equal to socket depth, or otherwise to suit fascia depth, into the top offset bend socket, and fit tightly underneath the running outlet. Secure the bottom offset bend to the wall with a bracket so that the entire assembly is a solid fit under the outlet.

- Fit the downpipe working from the top. When the pipe is 65mm or 68mm place the bottom end into a downpipe connector, and secure the connector to the wall using a pipe and fitting bracket, leaving a 10mm thermal movement allowance at the top. Secure 110mm and 160mm pipe at the top using a pipe and fitting bracket under the socket shoulder. The lower end of this pipe must be inserted 10mm less than the full socket depth when connecting the next pipe or fitting.
- Fit additional lengths of pipe or fittings using the same principles to achieve thermal movement allowance at the top or bottom depending on downpipe size. Secure with a bracket at each fitting or socket, and on the pipe as necessary to ensure support at centres no greater than 2m.

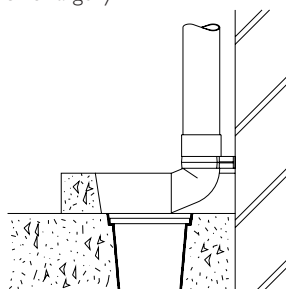
**DOWNPIPE INSTALLATION EXCEEDING  
10m IN HEIGHT**

- Galvanised metal brackets **MUST** be used to support the installed weight of 110mm and 160mm systems of height greater than 10m.

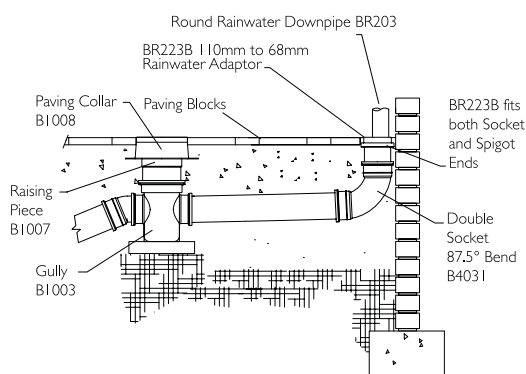
## CONNECTION TO UNDERGROUND DRAINAGE

Downpipe may be connected to the underground drainage system in a number of ways.

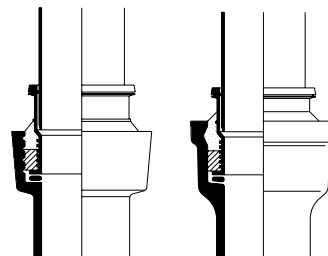
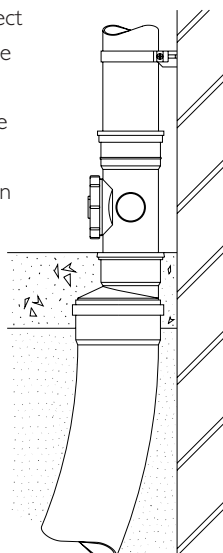
In domestic applications where the 68mm round and 65mm square downpipes are used, they commonly discharge through a shoe into the hopper of a gully.



Alternatively the rainwater can discharge into a back inlet gully through an adaptor and bend.



It is possible to connect the 110mm downpipe directly to a PVC underground drainage system: where this is of greater diameter an adaptor can be used.



Adaptors are also available to connect Rainwater downpipes to underground drainage systems of other materials.

## SCREWS

All fittings should be fixed with 25 x 5mm round head screws. These should be sherardised or otherwise protected against corrosion. **Do not use nails in any circumstances.**

## CUTTING

Gutter and downpipe sections can be cut with a hand saw having 6-8 teeth per cm, held at a shallow angle, and sawing with slow steady strokes. A file should be used to remove any swarf or burrs. Clean all cuttings and swarf from the gutter and downpipe ends to avoid damaged or ineffective seals. Lubricate all seals in gutter and downpipe fittings for ease of installation.

## TESTING

When rainwater installations are complete, gutters should be tested for watertightness under working conditions and internal downpipes should also be tested as prescribed in the relevant Building Regulations. Attention should be paid to the requirements of local authorities. Guidance is also given in BS EN 12056-3:2000.

## REFERENCES

**BS EN ISO 9001:2008:** Quality Management Systems Requirements

**BS EN 12200-1:2000:** Plastics rainwater piping systems for above ground external use. Unplasticized poly (vinyl chloride) (PVC-U). Specifications for pipes, fittings and the system

**BS EN 607:2004:** Eaves gutters and fittings made of PVC-U. Definitions, requirements and testing

**BS EN 1462:2004** Brackets for eaves gutters – Requirements and testing

**BS EN 1329-1:2000:** Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure. Unplasticized poly(vinyl chloride) (PVC-U). Specifications for pipes, fittings and the system

**BS EN 681-1:1996:** Elastomeric seals. Material requirements for pipe joint seals used in water and drainage applications. Vulcanized rubber

**The Building Regulations 2002**

**Building Standards (Scotland) Regulations 1990**

**Building Regulations (Northern Ireland) 1990**

All reasonable care has been taken in the compilation of the information contained within this literature.  
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