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.
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.
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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.

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.

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.
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 black, white, brown and arctic white. 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.

The new 170mm Deepstyle170 gutter system and 110mm diameter downpipe, for larger industrial and commercial roofs, is available in black and grey.
GUTTER

<table>
<thead>
<tr>
<th>CODE</th>
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<tbody>
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FASCIA BRACKET

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TOP HUNG FASCIA BRACKET

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UNION BRACKET

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RUNNING OUTLET

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LEFT HAND STOPEND OUTLET

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**RIGHT HAND STOPEND OUTLET**

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**LEFT HAND EXTERNAL STOPEND**

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**RIGHT HAND EXTERNAL STOPEND**

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**EXTERNAL GUTTER ANGLES**

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</tr>
<tr>
<td>BR88E</td>
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<td>106</td>
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<tr>
<td>BR88/150E</td>
<td>150°</td>
<td>61</td>
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**INTERNAL GUTTER ANGLES**

<table>
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<th>B</th>
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<tbody>
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</tr>
<tr>
<td>BR88I</td>
<td>90°</td>
<td>106</td>
<td>47</td>
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**GUTTER CLIP**

<table>
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<tr>
<td>BR80</td>
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</table>
RISE AND FALL BRACKET

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RAFTERTOP GUTTER BRACKET

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<tr>
<th>CODE</th>
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<tbody>
<tr>
<td>BRT5</td>
<td>305</td>
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RAFTERSIDE GUTTER BRACKET

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<th>CODE</th>
<th>A</th>
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<tbody>
<tr>
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<td>293</td>
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## Roundstyle 112mm Classic Domestic System

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### Multi Fix Fascia Bracket
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<tbody>
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<td>BR43</td>
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### Joint / Union Bracket
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### Running Outlet
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<th>C</th>
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### External Stopend
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<tbody>
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<td>BR47</td>
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Gutter Angles

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<td>90°</td>
<td>116</td>
<td>48</td>
</tr>
<tr>
<td>BR48 / 120</td>
<td>120°</td>
<td>81</td>
<td>46</td>
</tr>
<tr>
<td>BR49</td>
<td>135°</td>
<td>72</td>
<td>46</td>
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Gutter Clip

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<tr>
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<tbody>
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Roundstyle to Half Round Adaptor

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>BR491</td>
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<td>73</td>
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</table>

*Gutter Adaptor to Ogee

<table>
<thead>
<tr>
<th>CODE</th>
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<tbody>
<tr>
<td>BR492</td>
<td>Right hand 100</td>
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<tr>
<td>BR493</td>
<td>Left hand 100</td>
</tr>
</tbody>
</table>

*Natural aluminium body with coloured strap

Rise and Fall Bracket

<table>
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<tr>
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Rafter Top Bracket

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
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<tbody>
<tr>
<td>BRT5</td>
<td>305</td>
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</tbody>
</table>
### Gutter

<table>
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<th>B</th>
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</thead>
<tbody>
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</tr>
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<td>BR52</td>
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<td>62</td>
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</table>

### Multi Fix Fascia Bracket

<table>
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</thead>
<tbody>
<tr>
<td>BR53</td>
<td>65</td>
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### Joint / Union Bracket

<table>
<thead>
<tr>
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<tbody>
<tr>
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### Running Outlet

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<tr>
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</table>

### Stopend Outlet

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### Internal Stopend

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<tbody>
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EXTERNAL STOPEND

<table>
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</thead>
<tbody>
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</table>

GUTTER ANGLES

<table>
<thead>
<tr>
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<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR58</td>
<td>90°</td>
<td>119</td>
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</tr>
<tr>
<td>BR58 / 120</td>
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<td>90</td>
<td>55</td>
</tr>
<tr>
<td>BR59</td>
<td>135°</td>
<td>81</td>
<td>55</td>
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GUTTER CLIP

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<tbody>
<tr>
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SQUARESTYLE TO HALF ROUND GUTTER ADAPTOR

<table>
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</thead>
<tbody>
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GUTTER ADAPTOR TO Ogee

<table>
<thead>
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<tbody>
<tr>
<td>BR592</td>
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<tr>
<td>BR593</td>
<td>Left hand 102</td>
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RISE AND FALL BRACKET

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
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</thead>
<tbody>
<tr>
<td>BRFS</td>
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RAFTER TOP GUTTER BRACKET

<table>
<thead>
<tr>
<th>CODE</th>
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<tbody>
<tr>
<td>BRT5</td>
<td>305</td>
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RAFTER SIDE GUTTER BRACKET

<table>
<thead>
<tr>
<th>CODE</th>
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<tbody>
<tr>
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### Gutter

<table>
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### Multi Fix Fascia Bracket

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### Joint / Union Bracket

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### Running Outlet

<table>
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### Internal Stopend

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### External Stopend

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<tbody>
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</table>
RAINWATER PRODUCT GUIDE

DEEPSTYLE 115mm HIGH CAPACITY DOMESTIC SYSTEM

GUTTER ANGLES

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<tr>
<td>BR78 / 120</td>
<td>120°</td>
<td>87</td>
<td>51</td>
</tr>
<tr>
<td>BR79</td>
<td>135°</td>
<td>78</td>
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GUTTER CLIP

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RISE AND FALL

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RAFTERTOP BRACKET

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<th>CODE</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRT5</td>
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</table>

RAFTERSIDE BRACKET

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR55</td>
<td>293</td>
</tr>
</tbody>
</table>
### Downpipe - Plain Ended

<table>
<thead>
<tr>
<th>CODE</th>
<th>LENGTH</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR500</td>
<td>2m</td>
<td>65</td>
</tr>
<tr>
<td>BR501</td>
<td>2.5m</td>
<td>65</td>
</tr>
<tr>
<td>BR503</td>
<td>4m</td>
<td>65</td>
</tr>
<tr>
<td>BR504</td>
<td>5.5m</td>
<td>65</td>
</tr>
</tbody>
</table>

### Downpipe Connector

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR506</td>
<td>49</td>
<td>24</td>
</tr>
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</table>

### Downpipe Bracket

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR507</td>
<td>63</td>
<td>90</td>
<td>112</td>
</tr>
</tbody>
</table>

### Downpipe Bend - 92½°

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR508</td>
<td>33</td>
<td>34</td>
<td>38</td>
</tr>
</tbody>
</table>

### Downpipe Bend Top & Bottom Offset - 112½°

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR509</td>
<td>22</td>
<td>41</td>
<td>38</td>
</tr>
</tbody>
</table>

### Downpipe Shoe - 112½°

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
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<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR516</td>
<td>50</td>
<td>102</td>
<td>38</td>
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</tbody>
</table>
**65mm SQUARE DOWNPIPE SYSTEM**

**DOWNPIPE BRANCH - 112\(1/2\)^\circ**

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
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</thead>
<tbody>
<tr>
<td>BR518</td>
<td>52</td>
<td>91</td>
<td>38</td>
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</tbody>
</table>

**ACCESS PIPE**

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR510</td>
<td>45</td>
<td>133</td>
<td>78</td>
</tr>
</tbody>
</table>

**DOWNPIPE RAINWATER HEAD**

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>OVERALL WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR511</td>
<td>176</td>
<td>136</td>
<td>274</td>
</tr>
</tbody>
</table>

**SQUARE TO ROUND ADAPTOR**

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR517</td>
<td>46</td>
<td>3</td>
</tr>
</tbody>
</table>

**UNIVERSAL ADAPTOR (SOCKET)**

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>B4901</td>
<td>148</td>
<td>57</td>
<td>31</td>
</tr>
</tbody>
</table>

**UNIVERSAL ADAPTOR (PIPE)**

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>B4801</td>
<td>148</td>
<td>72</td>
<td>31</td>
</tr>
</tbody>
</table>

**DRAIN CONNECTOR**

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
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<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR520</td>
<td>139</td>
<td>55</td>
<td>65</td>
</tr>
</tbody>
</table>

**NB:** Use Rainwater Adaptor BR517 to connect to Square Pipe
DOWNPIPE - PLAIN ENDED

<table>
<thead>
<tr>
<th>CODE</th>
<th>LENGTH</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR201</td>
<td>2.5m</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>BR203</td>
<td>4m</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>BR204</td>
<td>5.5m</td>
<td>68</td>
<td></td>
</tr>
</tbody>
</table>

DOWNPIPE CONNECTOR

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR206</td>
<td>38</td>
<td>25</td>
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DOWNPIPE BRACKET

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR207</td>
<td>63</td>
<td>90</td>
<td>112</td>
</tr>
</tbody>
</table>

DOWNPIPE BEND TOP & BOTTOM OFFSET - 112\(^{1/2}\)°

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR209</td>
<td>43</td>
<td>33</td>
<td>38</td>
</tr>
</tbody>
</table>

DOWNPIPE BEND - 92\(^{1/2}\)°

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR208</td>
<td>39</td>
<td>47</td>
<td>37</td>
</tr>
</tbody>
</table>

DOWNPIPE SHOE - 112\(^{1/2}\)°

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR216</td>
<td>56</td>
<td>108</td>
<td>38</td>
</tr>
</tbody>
</table>
### 68mm ROUND DOWNPIPE SYSTEM

#### DOWNPIPE BRANCH - 112½°

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>OVERALL WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR218</td>
<td>55</td>
<td>91</td>
<td>38</td>
<td></td>
</tr>
</tbody>
</table>

#### DOWNPIPE RAINWATER HEAD

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR211</td>
<td>176</td>
<td>136</td>
<td>274</td>
</tr>
</tbody>
</table>

#### ACCESS PIPE

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR210</td>
<td>37</td>
<td>153</td>
<td>78</td>
</tr>
</tbody>
</table>

#### UNIVERSAL ADAPTOR (SOCKET)

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>B4901</td>
<td>148</td>
<td>57</td>
<td>31</td>
</tr>
</tbody>
</table>

#### UNIVERSAL ADAPTOR (PIPE)

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>B4801</td>
<td>148</td>
<td>72</td>
<td>31</td>
</tr>
</tbody>
</table>

#### DRAIN CONNECTOR

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR220</td>
<td>139</td>
<td>55</td>
<td>68</td>
</tr>
</tbody>
</table>

#### 110mm TO 68mm RAINWATER ADAPTOR

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR223B</td>
<td>139</td>
<td>110</td>
<td>43</td>
<td>40</td>
<td>68</td>
</tr>
</tbody>
</table>
GUTTER
CODE | LENGTH | A | B
BR61 | 2m  | 164 | 76
BR62 | 4m  | 164 | 76

MULTI FIX FASCIA BRACKET
CODE | A  | B
BR60 | 91  | 120

JOINT / UNION BRACKET
CODE | A  
BR64 | 126

RUNNING OUTLET
CODE | A  | B
BR65 | 244 | 119

INTERNAL STOPEND
CODE | A  
BR66 | 64

EXTERNAL STOPEND
CODE | A  
BR67 | 53
GUTTER ANGLE 90°

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR68</td>
<td>155</td>
<td>66</td>
</tr>
</tbody>
</table>

RISE AND FALL BRACKET

<table>
<thead>
<tr>
<th>CODE</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRF6</td>
<td>265</td>
<td>125</td>
</tr>
</tbody>
</table>
### Gutter Angle 90

<table>
<thead>
<tr>
<th>Code</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR098</td>
<td>170</td>
<td>80</td>
</tr>
</tbody>
</table>

*Non-standard angles available on request.*

Details of Deepstyle 170 angle and clip installation available on page 35.

### Gutter Clip

<table>
<thead>
<tr>
<th>Code</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR090</td>
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</tbody>
</table>

### Rise and Fall Bracket

<table>
<thead>
<tr>
<th>Code</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRF9</td>
<td>330</td>
<td>140</td>
</tr>
</tbody>
</table>

*Non-standard angles available on request.*
# 110mm, 160mm & 200mm INDUSTRIAL DOWNPIPE SYSTEMS

## Downpipe - Plain Ended

<table>
<thead>
<tr>
<th>Code</th>
<th>Length</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS402</td>
<td>2.5m</td>
<td>110</td>
</tr>
<tr>
<td>BS403</td>
<td>3m</td>
<td>110</td>
</tr>
<tr>
<td>BS404</td>
<td>4m</td>
<td>110</td>
</tr>
<tr>
<td>BS405</td>
<td>6m</td>
<td>110</td>
</tr>
<tr>
<td>BS603</td>
<td>3m</td>
<td>160</td>
</tr>
<tr>
<td>BS604</td>
<td>4m</td>
<td>160</td>
</tr>
<tr>
<td>BS605</td>
<td>6m</td>
<td>160</td>
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<tr>
<td>B20300</td>
<td>3m</td>
<td>200</td>
</tr>
<tr>
<td>B20600</td>
<td>6m</td>
<td>200</td>
</tr>
</tbody>
</table>

## Downpipe - Single Socket

<table>
<thead>
<tr>
<th>Code</th>
<th>Length</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS413</td>
<td>2.5m</td>
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</tr>
<tr>
<td>BS414</td>
<td>3m</td>
<td>110</td>
</tr>
<tr>
<td>BS415</td>
<td>4m</td>
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<tr>
<td>BS430</td>
<td>6m</td>
<td>110</td>
</tr>
<tr>
<td>BS623</td>
<td>3m</td>
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<tr>
<td>BS624</td>
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<td>160</td>
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<tr>
<td>BS625</td>
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<td>160</td>
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<tr>
<td>B20003</td>
<td>3m</td>
<td>200</td>
</tr>
<tr>
<td>B20006</td>
<td>6m</td>
<td>200</td>
</tr>
</tbody>
</table>

## Pipe Connector - Single Socket

<table>
<thead>
<tr>
<th>Code</th>
<th>Size</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS432</td>
<td>110</td>
<td>60</td>
<td>10</td>
</tr>
<tr>
<td>BR607</td>
<td>160</td>
<td>80</td>
<td>13</td>
</tr>
</tbody>
</table>

## Pipe Connector - Double Socket

<table>
<thead>
<tr>
<th>Code</th>
<th>Size</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS406</td>
<td>110</td>
<td>51</td>
<td>2</td>
</tr>
<tr>
<td>BR627</td>
<td>160</td>
<td>80</td>
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</tr>
<tr>
<td>B20021</td>
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<td>94</td>
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</tbody>
</table>

## Slip Coupler - Double Socket

<table>
<thead>
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<th>Size</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS478</td>
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<td>104</td>
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<td>B20022</td>
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</tbody>
</table>

## Pipe Connector to Asbestos Cement Gutter Outlet

<table>
<thead>
<tr>
<th>Code</th>
<th>Size</th>
<th>A</th>
<th>B</th>
<th>C (Internal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS433</td>
<td>110</td>
<td>55</td>
<td>200</td>
<td>118</td>
</tr>
<tr>
<td>BR628</td>
<td>160</td>
<td>190</td>
<td>145</td>
<td>178</td>
</tr>
</tbody>
</table>
**PIPE BRACKET - SINGLE FIXING**

<table>
<thead>
<tr>
<th>CODE</th>
<th>SIZE</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS438</td>
<td>110</td>
<td>90</td>
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</tr>
<tr>
<td>BR619</td>
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<td>121</td>
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</tbody>
</table>

**METAL PIPE BRACKET**

<table>
<thead>
<tr>
<th>CODE</th>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR450</td>
<td>110</td>
<td>93</td>
<td>150</td>
<td>172</td>
</tr>
<tr>
<td>BR620</td>
<td>160</td>
<td>116</td>
<td>220</td>
<td>240</td>
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**METAL PIPE BRACKET**

<table>
<thead>
<tr>
<th>CODE</th>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BR819</td>
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<td>90</td>
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**PIPE BRACKET - DOUBLE FIXING**

<table>
<thead>
<tr>
<th>CODE</th>
<th>SIZE</th>
<th>A</th>
<th>B</th>
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</thead>
<tbody>
<tr>
<td>BS407</td>
<td>110</td>
<td>92</td>
<td>109-135</td>
<td>139-165</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>CODE</th>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS408</td>
<td>110</td>
<td>64</td>
<td>63</td>
<td>63</td>
</tr>
<tr>
<td>BR630</td>
<td>160</td>
<td>67</td>
<td>67</td>
<td>79</td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>CODE</th>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS409</td>
<td>110</td>
<td>124</td>
<td>65</td>
<td>61</td>
</tr>
<tr>
<td>BR631</td>
<td>160</td>
<td>161</td>
<td>85</td>
<td>76</td>
</tr>
</tbody>
</table>

**DOUBLE SOCKET BEND - 92 1/2°**

<table>
<thead>
<tr>
<th>CODE</th>
<th>SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS480</td>
<td>110</td>
<td>101</td>
<td>50</td>
<td>168</td>
</tr>
</tbody>
</table>

**DOUBLE SOCKET BEND - 135°**

<table>
<thead>
<tr>
<th>CODE</th>
<th>SIZE</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS482</td>
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<td>50</td>
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</tbody>
</table>
SINGLE SOCKET BENDS

<table>
<thead>
<tr>
<th>CODE</th>
<th>SIZE</th>
<th>ANGLE</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS420</td>
<td>110</td>
<td>92.5°</td>
<td>156</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>BS421</td>
<td>110</td>
<td>112.5°</td>
<td>125</td>
<td>63</td>
<td>63</td>
</tr>
<tr>
<td>BS422</td>
<td>110</td>
<td>135°</td>
<td>116</td>
<td>50</td>
<td>63</td>
</tr>
<tr>
<td>BR608</td>
<td>160</td>
<td>92.5°</td>
<td>212</td>
<td>141</td>
<td>80</td>
</tr>
<tr>
<td>BR609</td>
<td>160</td>
<td>112.5°</td>
<td>169</td>
<td>83</td>
<td>80</td>
</tr>
<tr>
<td>BR610</td>
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SINGLE SOCKET ACCESS BEND - 92.5°

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ADJUSTABLE SINGLE SOCKET BEND - 0°-30°

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

DOWNPIPE SHOE - 112.5°

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DOUBLE SOCKET ACCESS BRANCH - 92.5°

<table>
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DOUBLE SOCKET BRANCH WITHOUT BOSSES

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<td>92.5°</td>
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<td>135°</td>
<td>180</td>
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<td>B20200</td>
<td>200</td>
<td>135°</td>
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RAINWATER HEAD

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ACCESS PIPE - SINGLE SOCKET

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ACCESS PIPE - SINGLE SOCKET

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DRAIN CONNECTOR 110mm SOIL PIPE TO 160mm DRAIN

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DRAIN CONNECTOR TO PVCu CAST IRON & SALT GLAZE SOCKET

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DRAIN CONNECTOR TO PVCu CAST IRON & SALT GLAZE SOCKET

<table>
<thead>
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<td>B20108</td>
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**TECHNICAL INFORMATION, DESIGN & INSTALLATION**

**TECHNICAL INFORMATION**
- Function
- Authority
- European Standards
- Composition
- Thermal Expansion
- Biological and Chemical Resistance
- Timber Preservatives
- Maintenance

**DESIGN**
- Building Regulations
- Underground Drainage
- Snow Loading
- Rainfall Intensity
- Roof Drainage Requirements
- Gutter Flow Capacity
- Influence of Gutter Angles
- Calculation of Effective Roof Area

**INSTALLATION**
- Handling
- Storage
- A Typical Rainwater System
- Gutter Installation
- Gutter Support Spacing
- Fitting Gutter
- Deepstyle 170 Angle and Clip Installation
- Downpipe Installation
- Connection to Underground Drainage
- Screws
- Cutting
- Testing

**REFERENCES**
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 2010, as amended
- Building (Scotland) Regulations 2004, as amended
- Building Regulations (Northern Ireland) 2012, as amended.
- The Building Regulations 2010 (ROI), 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 1329:2014 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:

- Building (Scotland) Regulations 2004, Technical Handbook (Domestic & Non-Domestic) Section 3: Environment
- The Building Regulations (Northern Ireland) 2012, Technical Booklet N: Section 4
- Building Regulations 2010 (ROI), Part H, Section 1.5

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.

<table>
<thead>
<tr>
<th>PROSTYLE 106mm PROFILES DOMESTIC SYSTEM</th>
<th>1:600 FALL</th>
<th>OUTLET AT CENTRE</th>
<th>OUTLET AT END</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLOW CAPACITY</td>
<td>5.1 l/sec</td>
<td>2.55 l/sec</td>
<td></td>
</tr>
<tr>
<td>MAX ROOF AREA</td>
<td>242m²</td>
<td>12.1m²</td>
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<table>
<thead>
<tr>
<th>ROUNDESTYLE 112mm CLASSIC DOMESTIC SYSTEM</th>
<th>1:600 FALL</th>
<th>OUTLET AT CENTRE</th>
<th>OUTLET AT END</th>
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<tbody>
<tr>
<td>FLOW CAPACITY</td>
<td>2.43 l/sec</td>
<td>1.3 l/sec</td>
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<tr>
<td>MAX ROOF AREA</td>
<td>116m²</td>
<td>62m²</td>
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<table>
<thead>
<tr>
<th>SQUARESTYLE 114mm MODERN DOMESTIC SYSTEM</th>
<th>1:600 FALL</th>
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<th>OUTLET AT END</th>
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<tbody>
<tr>
<td>FLOW CAPACITY</td>
<td>3.03 l/sec</td>
<td>1.52 l/sec</td>
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</tr>
<tr>
<td>MAX ROOF AREA</td>
<td>144m²</td>
<td>72m²</td>
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<table>
<thead>
<tr>
<th>DEEPSTYLE 115mm HIGH CAPACITY DOMESTIC SYSTEM</th>
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<tbody>
<tr>
<td>FLOW CAPACITY</td>
<td>4.58 l/sec</td>
<td>2.3 l/sec</td>
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<tr>
<td>MAX ROOF AREA</td>
<td>220m²</td>
<td>110m²</td>
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<table>
<thead>
<tr>
<th>DEEPSTYLE 170mm 170mm INDUSTRIAL RAINWATER SYSTEM</th>
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<th>OUTLET AT END</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLOW CAPACITY</td>
<td>10.24 l/sec</td>
<td>5.12 l/sec</td>
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<td>MAX ROOF AREA</td>
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<td>244m²</td>
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<td>1:350 FALL OUTLET AT CENTRE</td>
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<td>FLOW CAPACITY</td>
<td>11.54 l/sec</td>
<td>5.77 l/sec</td>
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<tr>
<td>MAX ROOF AREA</td>
<td>550m²</td>
<td>275m²</td>
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</table>

<table>
<thead>
<tr>
<th>HIGH CAPACITY 160mm INDUSTRIAL SYSTEM</th>
<th>1:600 FALL</th>
<th>OUTLET AT CENTRE</th>
<th>OUTLET AT END</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLOW CAPACITY</td>
<td>6.47 l/sec</td>
<td>3.23 l/sec</td>
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</tr>
<tr>
<td>MAX ROOF AREA</td>
<td>310m²</td>
<td>155m³</td>
<td></td>
</tr>
</tbody>
</table>

**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 $E = \frac{B + C}{2} \times L$ where:
- $B =$ half roof span (m)
- $C =$ ridge to eaves height (m)
- $L =$ slope length (m)
- $E =$ effective roof area (sq. m)

![Diagram of sloping roof calculation](image)

**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.

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

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

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

DEEPSTYLE 170 ANGLE & CLIP INSTALLATION
170mm Gutter Clips are asymmetrical to give the clips a better hold on the gutter. It is recommended that the overhanging side of the clip is kept closest to the wall. Fittings come preassembled however as only one 90 degree angle is provided it is preassembled for a wall on the inside of the corner. When the wall lies on the outside of the corner it is then advised that the clips are swapped around.

SWAPPING CLIPS
- Remove the seal from the seal recess.
- Take off the clip by removing the horizontal side first.
- Put the clip back on in the opposite orientation.
  - Place the overhanging side on first.
  - Then slide the other end of the clip along the outside of the seal recess until it snaps over the top of the fitting.
  - Ensure both sides of the clip are fully engaged with the fitting - you should hear a click.
- Reinsert the seal
  - The seal has a central hole into which the clip is designed to engage - this will ensure that the seal cannot rock out of place when in use.
  - Feed one end of the seal into the seal recess allowing the clips protrusion to engage with the seal. (You should feed the seal into the overhanging side of the clip first).
  - You should then feed the other end of the seal so that the opposite side of the clip is also engaged.
  - Flatten out the rest of the seal into its recess.
  - As you apply some pressure to the seal you should feel its feet engaging with the recess correctly.
  - Ensure that both sides of the seal are engaged with the clip to a similar extent.
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.

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>
<thead>
<tr>
<th>SOFFIT DEPTH</th>
<th>65mm SQUARE</th>
<th>68mm ROUND</th>
<th>110mm ROUND</th>
<th>160mm ROUND</th>
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<tbody>
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<td>150</td>
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<tr>
<td>175</td>
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<td>200</td>
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<td>371</td>
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</table>

- 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.

TABLE 1

<table>
<thead>
<tr>
<th>DOWNPIPE</th>
<th>MIN. SOFFIT DEPTH</th>
<th>OFFSET PIPE LENGTH</th>
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<tbody>
<tr>
<td>65mm</td>
<td>120</td>
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<tr>
<td>68mm</td>
<td>115</td>
<td>38</td>
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<tr>
<td>110mm</td>
<td>235</td>
<td>122</td>
</tr>
<tr>
<td>160mm</td>
<td>300</td>
<td>155</td>
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</table>
• 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 burns. 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 1329-1:2014: 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 2010

Building (Scotland) Regulations 2004

Building Regulations (Northern Ireland) 2012

The Building Regulations 2010 (ROI)
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