MARLEY
Plumbing & Drainage Solutions



DESIGN & INSTALLATION GUIDE

Rainwater



marleypd.co.uk



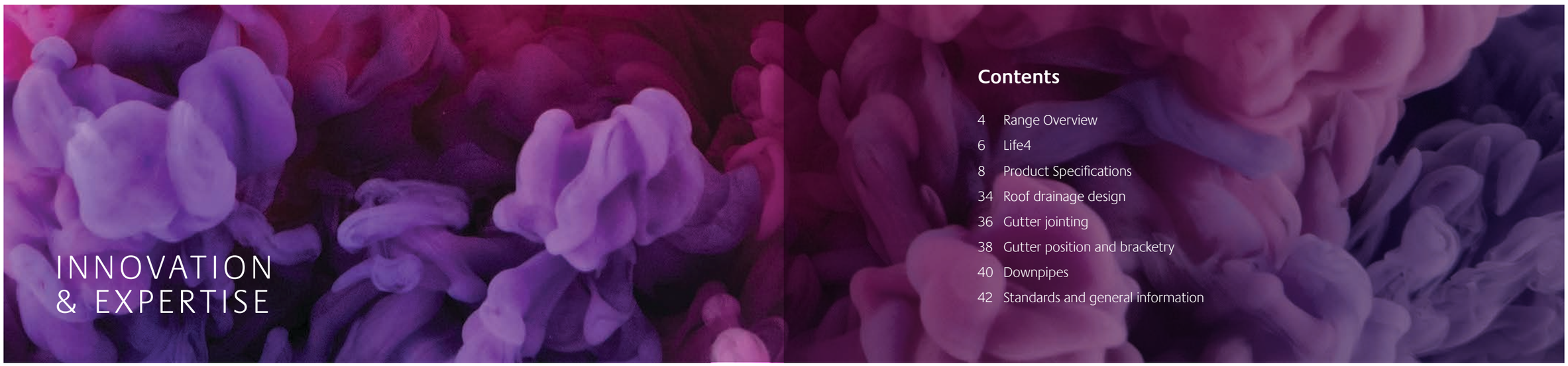
Summerfield Homes Development, Weston-super-Mare

Marley Rainwater Systems

The Marley Plumbing & Drainage rainwater range consists of nine gutter profiles and seven downpipe options. Advanced Life4 technology on five of the key profiles, coupled with the benefits of the easyclip and notching capability combine to make the Marley rainwater range the most comprehensive available.

bsi. BS EN 607 BS EN 12200-1 BS 1462 KM 511523

bsi. ISO 9001 Quality Management FM 30637 ISO 14001 Environmental Management EMS 96207



Contents

4 Range Overview
6 Life4
8 Product Specifications
34 Roof drainage design
36 Gutter jointing
38 Gutter position and bracketry
40 Downpipes
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Range Overview

Deepflow 110 x 75mm semi-elliptical system Page 8

Still the market leader, the Deepflow semi-elliptical profile produces self cleansing flow resulting in a very high capacity. Deepflow can be installed using a notched or notchless joint.

Ideal application for:
- Domestic houses
- Conservatories
- Apartments
- Commercial projects

Downpipe:
○ 68mm ○ 82mm □ 65mm

Colours available:



Clip-master 112 x 49mm nominal half round system Page 9

Clip-master is a practical, easy to install PVCu nominal half round gutter system which is compatible with most other manufacturers' half round systems. Clip-master can be installed using a notched or notchless joint.

Ideal application for:
- Conservatories
- Domestic houses

Downpipe:
○ 68mm □ 65mm

Colours available:



Flowline 112 x 60mm rectilinear system Page 12

Flowline is an attractive rectilinear profile PVCu gutter system, capable of carrying capacities in excess of standard half round gutters. Flowline is the aesthetic choice for larger roof areas. Flowline can be installed using a notched or notchless joint.

Ideal application for:
- Conservatories
- Domestic houses

Downpipe:
○ 68mm □ 65mm

Colours available:



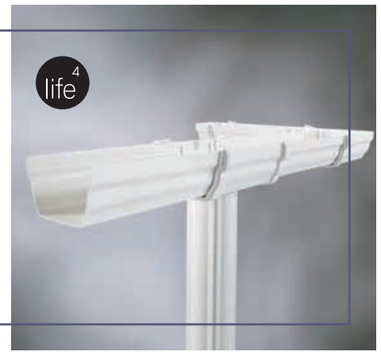
Regency 125 x 70mm profiled system Page 18

Regency is a bold, highly decorative profiled PVCu gutter system and is particularly suited to period style buildings. All Regency fittings are supplied complete with clips and seals.

Ideal application for:
- Conservatories
- Domestic houses
- Period properties
- Apartments
- Commercial projects

Downpipe
○ 68mm ▢ 74mm

Colours available:



Deepflow150 155 x 98mm semi-elliptical system Page 15

Deepflow150 is a larger version of the Deepflow profile and is ideal for small to medium commercial projects, flats and industrial applications. Capable of carrying up to 6.0 litres a second. Deepflow150 can be installed using a notched or notchless joint.

Ideal application for:
- Large domestic houses
- Apartments
- Commercial projects

Downpipe:
○ 82mm

Colours available:



Foundry Finish 112mm half round and 125mm semi-elliptical system Page 20-22

Available in 112mm half round and a 125mm semi-elliptical, the Marley PVCu Foundry Finish system gives a cast iron look without the expense. It is the ideal solution for period buildings.

Ideal application for:
- Domestic houses
- Period properties
- Apartments
- Commercial projects

Downpipe:
○ 68mm

Colours available:
■ Cast iron effect



Highflo 170 x 73mm nominal half round system Page 23-25

With a flow rate of up to 6l/s, Highflo is an ideal gutter profile for larger roofs and commercial buildings.

Ideal application for:
- Commercial projects

Downpipe:
○ 110mm

Colours available:



Stormflo 200 x 133mm semi-elliptical system Page 26-28

As one of the largest gutter profiles on the market, the Stormflo system provides superior drainage for the largest roofs and commercial buildings with a flow rate of up to 14l/s.

Ideal application for:
- Commercial projects

Downpipe:
○ 110mm ○ 160mm

Colours available:

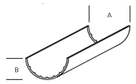


White Black Grey Brown Anthracite Grey

Product specifications

Foundry Finish, Cast iron effect rainwater 112mm half round system

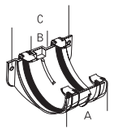
GUTTER

Size	Code	A	B	C	Colour	Qty
4m	**CBR512**	112	52		FF	5

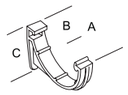
CSA: 100mm²

UNION BRACKET

	CBR008	105	20		FF	10

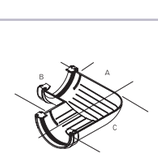
FASCIA BRACKET

	CBR010	124	64	76	FF	20

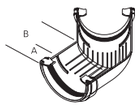
Fix at 1m centres – max
1 screw fixing

ANGLES

90°

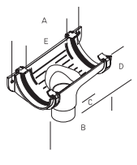
90°	**CBR005**	43	151	194	FF	5

135°

135°	**CBR007**	43	67		FF	5

RUNNING OUTLET

		A	B	C	D	E		
	CBR011	260	240	41	132	155	FF	5

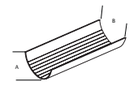
EXTERNAL STOPEND




	CBR013	37			FF	5

Foundry Finish, Cast iron effect rainwater 125x75mm semi-elliptical system

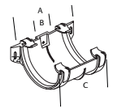
GUTTER

Size	Code	A	B	C	D	Colour	Qty
4m	**CBR640**	72	124			FF	5

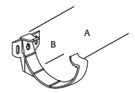
CSA: 680mm²

UNION BRACKET

CBR608	145	26	121		FF	10

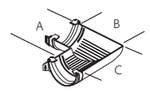
FASCIA BRACKET

CBR610	139	72			FF	20

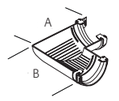
Fix at 1m centres – max
1 screw fixing

ANGLES

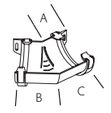
External

90°	**CBR605**	160	94	208		FF	5

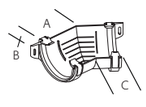
Internal

90°	**CBR615**	229	179			FF	5

External

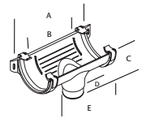
135°	**CBR607**	84	138	138		FF	5

Internal

135°	**CBR617**	86	51	60		FF	5

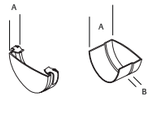
RUNNING OUTLET

CBR611	275	157	159	40	FF	5

Fits 68mm pipe

STOPEND

Internal

	CBR602	42				FF	10

External

	CBR613	86	38			FF	10

NB: Internal Stopend shown

Foundary Finish is manufactured to BS EN 607 and BS EN 12200 (downpipe)

Product specifications

Foundry Finish, Cast iron effect rainwater 68mm circular downpipe system

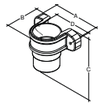
DOWNPIPE




Size	Code	A	B	C	D	Colour	Qty
2.75m	**CBR519**	2750				FF	5

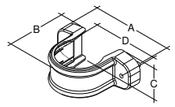
Deep Profile

EARED PIPE CONNECTOR

	CBR017	140	89	101	108	FF	10

EARED PIPE BRACKET

	CBR043	140	89	49	108	FF	10

Fix at 2m centres – max
2 screw fixing

92½° BEND




92½°	**CBR577**	119	40			FF	10

112½° BEND



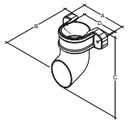

112½°	**CBR020**	134	40			FF	10

112½° BRANCH



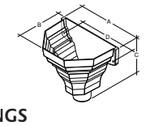

112½°	**CBR022**	190	107	40		FF	10

EARED SHOE

	CBR021	140	94	152	108	FF	5

CURVED HOPPER HEAD

	CBR044	270	190	253	244	FF	1

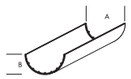
COACH BOLTS FIXINGS



	CBF001					FF	10

Highflo 170x73mm half-round system

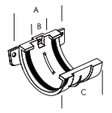
GUTTER

Size	Code	A	B	C	D	Colour	Qty
4m	**R515**	170	73			G B W	5

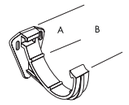
CSA: 883mm²

JOINT BRACKET

	R042	170	11	93		G B W	10

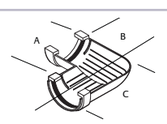
SUPPORT BRACKET

	R452	91	178			G B W	20

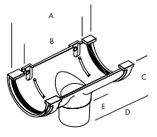
Fix at 1m centres – max
2/3 screw fixing

90° ANGLE

90°	**R451**	199	111	145		G B W	1

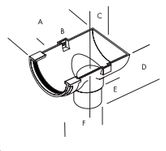
RUNNING OUTLET

	R454	115	250	203	330	G B W	1

Fits 110mm pipe

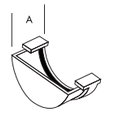
STOPEND OUTLET

	R455	257	218	90	200	G B	1

Fits 110mm pipe

EXTERNAL STOPEND

	R402	53				G B W	10

Highflo is manufactured to BS EN 607
Each Highflo product code is prefixed with a colour (Example GR515 where 'G' is grey)

Ancillary items

EXTENSION BACKPLATE



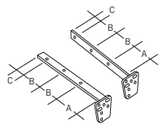


Angle	Code	A	B	C	Colour	Qty
	RT200	104	45		W B G BR	50

PVCu
For use with RC251/2, RCE2 and RC32 pipe clips

FIXED RAFTER ARMS



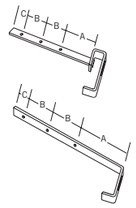


Side					
22½°	RSA1	50	75	25	50
Top					
22½°	RTA1	100	75	25	50

Electroplated mild steel
Includes 2 cadmium plated nuts and bolts

ADJUSTABLE RAFTER ARMS





Side	RSA1A	123	75	25	1
Top	RTA1A	65	75	25	1

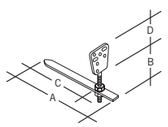
Galvanised steel
Including nut, bolt and antislip washer.

SPARE NUTS AND BOLTS

12x5mm	RNB21	10

RISE AND FALL EXTENSION ARM





RKF1	290	100	235	50

Electroplated mild steel
Including 2 cadmium plated nuts and bolts

RISE AND FALL BRACKETS



Regency

GR909

Foundry Finish 112mm half round

GR018

Foundry Finish 125mm semi-elliptical

GR601

LONG RISE AND FALL BRACKETS

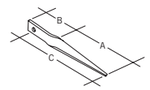


Foundry Finish 112mm half round

GR009

DRIVE-IN SPIKE

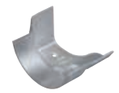


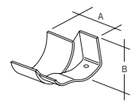


Size	Code	A	B	C	Colour	Qty
	RSS1°	115	58	154		50

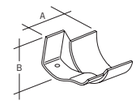
Galvanised mild steel

CLIP-MASTER TO OGEE GUTTER ADAPTORS









Right hand

RGA4	94	66	50

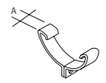
Left hand

RGA5	94	66	50

Cast aluminium

HALF ROUND TO CAST IRON GUTTER ADAPTOR





RGA1R	29	B		25

Suitable for adapting 100mm to 112mm half round

Other gutter adaptors are available to order

UNIVERSAL GUTTER NOTCHING TOOL

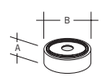


RGN1	1

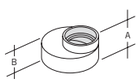
Suitable for use with Deepflow, Clip-master, Flowline, and Deepflow150 gutter systems

DRAIN ADAPTORS









RA42	31	104	B	100

Can be cut to fit all shapes and sizes of downpipe

RRM425	40	25	W B G BR	10

110mm socket to 68mm socket

Product specifications

Ancillary items

GUTTER SEAL



Size	Code	A	B	C	D	Colour	Qty
	RNG50						1

Suitable for use with Deepflow, Clip-master, Flowline, and Deepflow150 gutter systems.
Length 235mm - cut to required length

FLAT RAINWATER SEALS



	RNG60					B	5

Suitable for use with RGA1R and old (pre-1985) rainwater systems which used flat seals.
Cut to required length

RAINWATER SEALS



Regency

	3SR1122A					B	1

Foundry Finish 112mm half round

	3SSI200					B	1

Foundry Finish 125mm semi elliptical

	3SRI125					B	1

Highflo

	3SR1520					B	1

Stormflo

	3SRS355					B	1

Cut to required length

SPARE RING SEALS



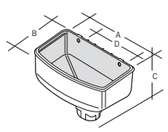
'T' ring

82	SR82T					B	1

To BS EN 681/1
82mm seal for use with RB31, RB33, RY3 and RF3 fittings

Hopper heads

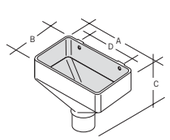




68/65	RH252	308	174	220	200	W B G BR AG		6

Dual spigot outlet
Flow rate - 5.14 L/S

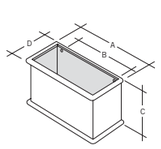




82	SH30	280	155	230	177	W B G BR		6

Circular spigot outlet
Flow rate - 4.11 L/S





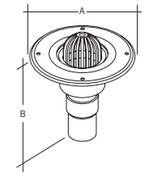
68	RH25	425	298	238	190	B		1
110	SH40	425	298	238	190	B G		1

Circular spigot outlet
Flow rate - 7.56 L/S
Flow rate - 15.12 L/S

PVCu Flat roof outlets

FLAT ROOF OUTLET



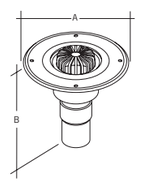


Size	Code	A	B	C	Colour	Qty
68	ROF25	343	506		G	3

Items are supplied bagged loose for site assembly

BALCONY OUTLET



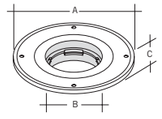


68	ROB25	343	506		G	3

Items are supplied bagged loose for site assembly

UNIVERSAL FLANGE





	SOF1	343	180	55	G	5

Flange is 3mm thick

FLAT ROOF OUTLET GRATING





SOF12				G	25

For use with SOF1

BALCONY OUTLET GRATING



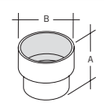


SOB1				G	35

For use with SOF1

STRAIGHT FLANGE CONNECTOR

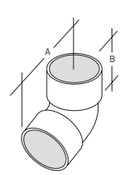




82	SGS31G	133	137		G	20
110	SGS41W	139	134		W	20

BENT FLANGE CONNECTOR





110	STS41W	104	156		W	45

Socket/socket

Roof drainage design

To assess the suitability of a gutter system to drain the roof of a building the following factors need to be taken into consideration:

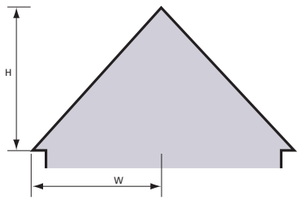
1. The effective roof area to be drained.
2. Rainfall intensity.
3. The flow characteristics of the gutter system.
4. The number and position of downpipes.

1. Effective roof area

The effective roof area can be determined by calculation in accordance with the following:

- BS EN 12056-3: Roof drainage layout and calculations.
- The Building Regulations 2002 Approved Document H, Part H3.

The formula and example shown below reflects the method used in the above standard to calculate effective roof area.



$(\frac{H}{2} + W) \times L = m^2$

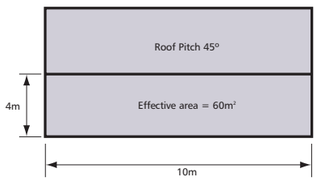
For example a roof 4m high x 4m wide x 10m long

(2 + 4) x 10 = 60m²

Multiplication factors

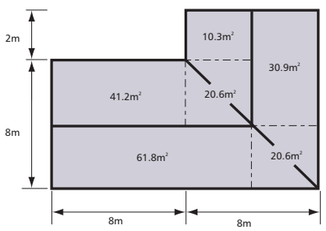
An alternative approach to that described left is the use of multiplication factors to establish effective roof area. From plan area the appropriate factor for the roof slope can be applied to determine the effective area.

This method is similar to that shown in Approved Document H of the Building Regulations. The table opposite provides a wider range of factors to enable accurate assessment of effective roof area to be determined.



Using the same roof dimensions as the example above with a 45° roof pitch.

4m wide x 10m long x 1.5 = 60m²



Roof pitch	Factor	Roof pitch	Factor
10°	1.088	**30°**	1.288
12.5°	1.111	**32.5°**	1.319
15°	1.134	**35°**	1.350
17.5°	1.158	**37.5°**	1.384
20°	1.182	**40°**	1.419
22.5°	1.207	**42.5°**	1.459
25°	1.233	**45°**	1.500
27.5°	1.260	**47.5°**	1.547

Vertical surfaces

Where pitched roofs abut vertical walls the catchment area is likely to be increased as a result of wind driven rain. To allow for this half the vertical surface area of the wall should be added to the effective area of the sloping roof.

Flat roofs

For roofs with a pitch of less than 10°, the effective area is taken as the plan area.

CAD drawings

CAD drawing are available to download from our website.

Visit **marleypd.co.uk**

2. Rainfall intensity

The Building Regulations 2002 Approved Document H and BS EN 12056-3: 2000 provide detailed information on rainfall throughout the UK by geographical location and frequency of occurrence. The flow rates shown below for Marley PVCu gutter systems have been determined from tests carried out in accordance with the test procedure in BS EN 12056-3.

Gutter selection

Although aesthetic appearance is an important aspect in the selection of a particular gutter system, the following factors also need to be taken into consideration as they could influence the final choice of system.

- The size of gutter and its flow capacity.
- Whether the gutter is fitted level or to a fall.
- If end or centre outlet position for downpipes are adopted.
- The length of gutter to an outlet/ downpipe.

3. Flow capacity

Gutter length

On long runs frictional resistance can reduce gutter capacity and efficiency. To allow for this, reduction factors can be applied or gutters sized to allow freeboard in accordance with BS EN 12056-3: recommendations.

Effect of valleys

Where valleys occur it is good practice to position an outlet adjacent to the internal angle to deal with the concentrated discharge that is likely at such points during peak flow conditions. Depending on the size of roof it may also be beneficial to fit a corner hopper where the flow is considerable.

Long roofs

The spread of water as it leaves the roof edge varies considerably depending on the roof surface and pitch. On long roofs it may be necessary to select a wider gutter than capacity calculations would normally dictate. This is particularly important with sheet metal or similar profiled roofs where there is a tendency for the discharge to follow the roof angle and overshoot the gutter.

4. Hopper Heads

The flow capacities of different size hopper heads are shown in the table below and are based on a rainfall intensity of 0.021 l/s per square metre of roof area.

Product Code	Pipe Size	Roof Area m²	Flow rate litres/ second
RH252	68mm	247m²	5.14l/s
RH25	68mm	360m²	7.56l/s
SH30	82mm	196m²	4.11l/s
SH40	110mm	720m²	15.12l/s

Flow capacity

The maximum flow capacity of different Marley gutter systems can be compared from the tables shown opposite. The capacity of each system varies depending on profile, size and whether the gutter is fitted level or to a fall. For design purposes eaves gutters are normally sized to ensure the calculated run-off does not exceed 90% of the gutter capacity. It is also recommended that gutters are fixed level as this enables the gutter to be fitted as high as possible to ensure the correct relationship is maintained at the roof edge.

	Outlet at one end				Outlet in centre				Outlet at one end with an angle within 2m of outlet**			
	level		fall 1:600		level		fall 1:600		level		fall 1:600	
Gutter system	m²	l/s	m²	l/s	m²	l/s	m²	l/s	m²	l/s	m²	l/s
Clip-master	43	0.90	48	1.00	84	1.75	92	1.92	39	0.81	43	0.95
Flowline	70	1.46	84	1.75	135	2.84	170	3.40	63	1.31	76	1.58
Deepflow	90	1.90	110	2.31	185	3.90	226	4.75	81	1.70	99	2.07
Deepflow150	133	2.80	–	–	286	6.00	–	–	–	–	–	–
Regency	101	2.10	110	2.30*	202	4.20	226	4.70*	–	–	–	–
Foundry Finish Half round	43	0.90	62	1.30*	86	1.80	125	2.60*	–	–	–	–
Foundry Finish 125	101	2.10	115	2.40*	182	3.80	221	4.60*	–	–	–	–
Highflo	136	2.80	137	2.90*	258	5.40	289	6.00*	–	–	–	–
Stormflo	318	6.70	320	6.70*	601	12.50	673	14.0*	–	–	–	–

*Gutter fixed at 1:350 **or gutters with angles further than 2m from the outlet increase the below figures by 5%

Gutter jointing



Clip-jointed gutter systems

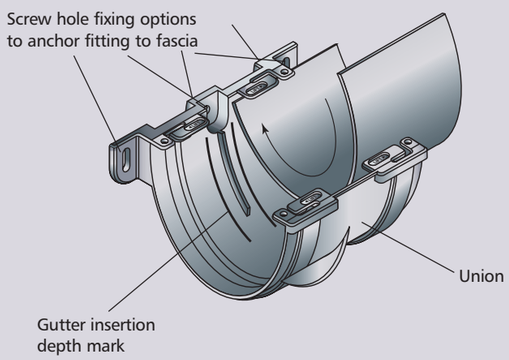
Each joint is made by inserting the plain edge of gutter into the fitting and locating under the rear clip. At the same time ease the front edge of fitting forward and up until the gutter clips under the front edge. Care must be taken to ensure that each length of gutter is fitted to the insertion mark on each fitting. This is particularly important and attention to this will ensure trouble free performance for many years.

Unions and outlets incorporate fixing holes in the rear edge which must be used to secure the fitting to the fascia board. This is essential for the control of thermal movement that occurs with temperature variations. The length of gutter to a stopend from a fitting must not exceed 300mm. Where this is exceeded a union must be fitted and secured as previously described with a short piece of gutter to the stopend.

With Deepflow, Deepflow150, Clip-master and Flowline the length of gutter to a stopend can be retained using the notch technique and adaptor RGNA1 to eliminate this particular restriction.

Easyclip

Deepflow, Deepflow150, Clip-master and Flowline systems are jointed via the innovative easyclip which makes it simple to joint the gutter and fitting, but it is also very easy to take apart if necessary.



Notched gutter systems

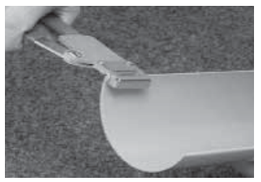
It is possible to adapt the easyclip to make fittings suitable for 'notch' jointing, by fitting a 'notch adaptor' into the centre of the easyclip. The adaptor will then fit into a notch cut into the back of the gutter.

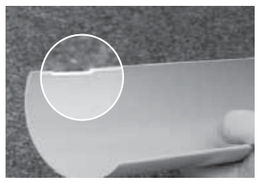
This is an effective way of allowing gutter to expand and contract due to temperature change without gutter and fitting pulling apart. There is also no need to anchor fittings to the fascia. This method is ideal to anchor the last joint of a gutter run which ends with a stopend.



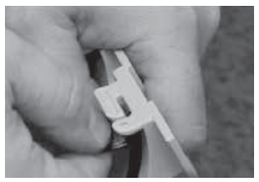


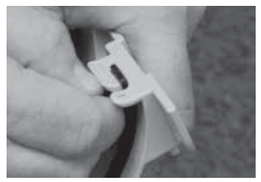
Deepflow, **Deepflow150**, **Clip-master** and **Flowline** can be installed as notched systems.





Using a notching tool, RGN1 (see page 31), notch the rear of the gutter. Notches must be made to both ends of a length of gutter.





A notch adaptor RGNA1 is then inserted into the easyclip from the underside, between the gap in the body of the fitting and the clip arm. Insert one end of the short side of the adaptor into the open end of the easyclip. Twist the other side of the adaptor into place. The adaptor is necessarily a tight fit to ensure it stays in place.





The notched gutter end is located under the notch adaptor and the joint completed by clipping the gutter under the easyclip on the front of the fitting.





When correctly assembled, a notched joint cannot pull apart and will absorb expansion and contraction associated with variations in temperature, while maintaining a watertight seal.

Gutter position & bracketry

Gutter position

The spread of water as it leaves the roof edge can vary considerably depending on the rainfall intensity, type of roof surface and the pitch of the roof. BS EN 12056-3: recommends that eaves gutters should be fitted in such a position that they intercept the flow at the roof edge and that gutters are fitted centrally under the roof tile and close beneath it.

Gutters can be installed level or with a nominated gradient of 1:600 or 1:350. If fitted to a fall, care should be taken to ensure the top of the gutter does not fall below the roof tile to such an extent that the water will pass over the front edge of the gutter. It is also important that the eaves course of the tile or slate should not project too far over the fascia board and a maximum of 50mm is recommended for 112-125mm nominal size gutters.

Fascia brackets

All Marley PVCu gutter fascia brackets have been tested to the loading requirements as detailed in BS EN 1462 and perform in excess of the highest classification, Class H heavy duty, which requires brackets to support a dead weight load of 75kg, to simulate snow load.

However, in areas where particularly high snow falls and severe icing might be expected, it is recommended that snow boards be fitted to the eaves of the pitched roofs. This precaution should also be considered wherever sliding snow might cause damage or injury to structures or persons below.

It is recommended that brackets are fixed with the aid of a string line to maintain alignment and bracket centres must not exceed 1m maximum centres (800mm for Stormflo). When fixing to cellular fascia boards the two outer most fixing holes must be used and 1¼" x 10g (32mmx5mm) pan or round head non-ferrous screws must be used. The use of countersunk screws is not recommended.

When fixing to cellular fascia boards of less than 16mm thick, a timber support batten should be fitted behind to ensure a secure fixing is obtained. To improve the loading characteristics of the gutter system, fascia bracket centres can be reduced but in areas of the country that experience frequent heavy snow fall, the use of snow boards is recommended as advised in BS EN 12056-3.

Gutter brackets

Gutter unions, outlets and stopends must have a fascia bracket fitted within 150mm of one side of the fitting for support.

Internal and external angles require supporting brackets positioned on both sides within 150mm.

The use of the gutter bracket centre fixing hole is not recommended and is provided to facilitate the adjustable rafter arm brackets RSA1A and RTA1A.

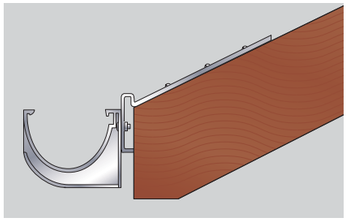




Rafter arm brackets

Rafter arm brackets can be used with all Marley gutter systems. Additional structural fixings should be provided when used with a clip-jointed gutter system, to enable key fittings to be anchored and supported for the control of thermal movement.

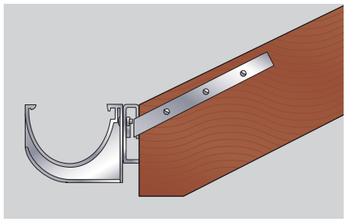
It is recommended that notched gutters are used on buildings without fascia boards as key fittings such as unions and outlets do not need to be secured and can be positioned adjacent to structural fixing points. Top rafter brackets, RTA1 or RTA1A, will need to be fitted before the roof is tiled. Side rafter brackets, RSA1 or RSTA1A, may be fitted afterwards and are easily adjusted to accommodate minor variations in line and level. Nuts and bolts are supplied to secure fascia brackets to the rafter arm. Although fixings are controlled by rafter centres it is important to meet gutter support recommendations previously described.



RTA1A adjustable top rafter arm, RTA1 also available

Rise and fall brackets

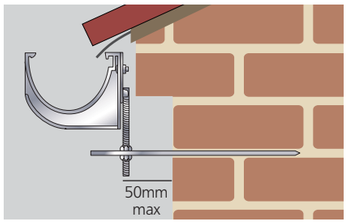
Rise and fall brackets, can be used with clip-jointed gutters although a notched system is recommended as described for rafter arm fixing above. Nuts and bolts are supplied to secure fascia brackets to the multi-fit face plate. It is recommended that pilot holes are drilled in mortar joints before the spike is driven in to avoid cracking the brickwork bond. Bracket centres should not exceed 600mm.



RSA1A adjustable side rafter arm, RSA1 also available

Angle fascia bracket

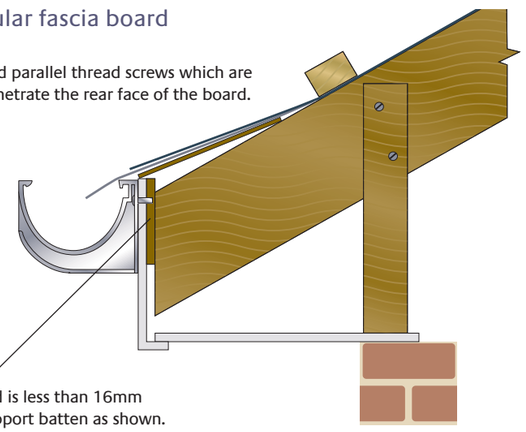
Angle fascia bracket adaptors, are required when a sloping fascia board is employed at the eaves. The galvanised mild steel adaptor is fitted behind the fascia bracket with two 1¾" x 10g (45x5mm) non-ferrous round head screws passing through both bracket and adaptor.



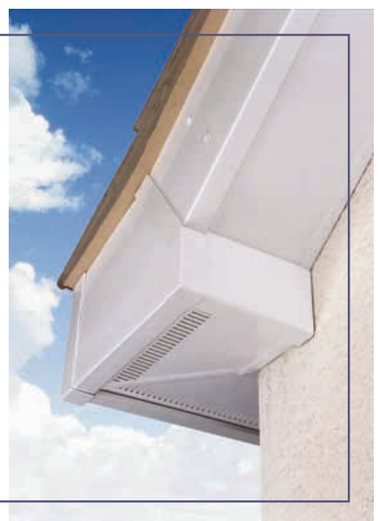
RKF1 rise and fall bracket

Fixing to cellular fascia board

Use two round head parallel thread screws which are long enough to penetrate the rear face of the board.



If the cellular board is less than 16mm thick, fit timber support batten as shown.



Installation

As rainwater pipes are generally fitted externally, joints between each spigot and socket length do not need to be sealed. However offset fittings are sized to allow for push fit or solvent weld where suitable.

Gutter outlets are normally positioned directly above drain connections but on occasions it may be necessary to rotate the offset to avoid obstructions below. However when using the square downpipe system, the gutter outlet should be positioned directly above the rainwater drain connection, as square offsets cannot be rotated.

Where a RH25 hopper head is used, the RLE3 outlet adaptor with a pipe socket are required to provide the necessary transition from circular to square.

Offset assembly

Offsets can be easily constructed on site from a range of bends depending on the roof overhang at the eaves.

Where offsets exceed 600mm it is recommended that bends are solvent welded to gutter outlet spigots to ensure a positive connection. When two 87½° bends are used to construct an offset the horizontal section of pipe should be supported with a pipe clip from the soffit.

Small offsets can be achieved using offset bends RNE252 and RNE253 where a minimum projection of 25mm is obtainable.

Location of pipe clips

Every rainwater pipe should have a clip located round the top socket to support the downpipe system. Intermediate clips should then be located at a maximum of 1.8m centres or in the middle of each length to maintain alignment. A gap of 10mm should be left between the end of each pipe and the bottom of the socket to allow for thermal movement.

Two different pipe clip fixing methods are available. A one piece clip for flush fixing or a two piece clip to fit both the downpipe and pipe socket. These are used with backplate RCB300 and allow for adjustment.

Each should be secured with two 32 x 6.5mm non-ferrous round head screws. An extension backplate RT200 can also be used for greater adjustment of the downpipe from the wall.

Drain connections

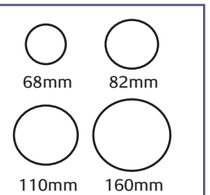
External rainwater pipes usually connect direct to the surface water drain. Where a direct connection is made a reducer and a short section of pipe is used to provide the transition between different pipe sizes. A gully trap will be required to both arrangements where the drain connects to a combined foul and surface water drainage system.

Roof and balcony outlets

Marley provide a range of roof outlets, sized to suit various applications shown on page 32. Aluminium outlets, sized 50-150mm are shown in the Alutec Roof Outlet Systems Guide.

Circular downpipe systems

Marley Deepflow, Flowline, Clip-master, Regency and Foundry Finish gutters all have outlets designed to suit 68mm circular downpipe, which has sufficient capacity to accommodate the maximum flow from the above rainwater systems. Deepflow150 (82mm downpipe), Highflo (110mm downpipe) and Stormflo (110 & 160mm downpipe) have outlets and downpipes suited to their larger profiles, making them the ideal application for commercial projects.



Square downpipe systems

For aesthetic reasons, the 65mm square system is usually paired with the Flowline gutter profile, however it can also be used with Deepflow or Clip-master. Square downpipe has sufficient capacity to accommodate the maximum flow from the systems.



Regency

Unique to the Regency gutter is a profiled 74mm downpipe to accommodate the maximum flow of the system.





Standards & General Information

British & European Standards

BS EN 12056-3: 2000
Gravity drainage inside buildings: Roof drainage, layout and calculation.

BS EN 607
Eaves gutters & fittings - PVCu. Definitions, requirements and testing.

BS EN 12200-1
Plastics rainwater piping systems for above ground external use - PVCu.

BS EN 1462
Gutter brackets. Classification, requirements & testing.

BS EN 681-1
Elastomeric seals. Material requirements for pipe joint seals used in water and drainage applications. Part 1 vulcanised rubber.

BS 4255-1
Specification for non-cellular gaskets for buildings.

BS EN ISO 9001 2008
Quality management system. Model for Quality Assurance in Design, Development, Production, Installation and Servicing.

BS EN ISO 14001 2004
Environmental management systems. Requirements with guidance for use.

Accreditations

bsi. BS EN 607 BS EN 12200-1 BS 1462
KM 511523

bsi. ISO 9001 Quality Management — FM 30637
ISO 14001 Environmental Management — EMS 96207

General Information

Inspection and testing

All newly installed gutters and pipework should be tested in accordance with the appropriate standards. These requirements may vary according to locality of installation and, for guidance, attention is drawn to BS EN 12056-3: 2000, Gravity drainage inside buildings.

Handling

PVCu gutters and pipes are strong, though lightweight, and are therefore easily handled. However reasonable care should be exercised whilst handling in extremely cold conditions.

To protect the high gloss level of Life4 gutter and downpipes, they are packed into plastic sleeving to prevent accidental damage. When removing from sleeving, ensure that the external face is uppermost and handle with care to ensure that the profiles do not rub against each other.

To preserve the appearance of the self-coloured material, when products are delivered to site, they should preferably be placed inside a storage building.

Storage

Gutters and pipes should be well supported on suitable racks. Dividing the framework or shelves into sections helps to segregate different products and prevents overloading and possible distortion of bottom layers.

Pipes and gutter bundles should be stacked no more than seven high. If it is necessary to store in the open for long periods, or if products are to be exposed to strong sunlight, they should be covered with an opaque sheet. Fittings supplied in cardboard boxes or polythene bags should be stored under cover and kept packed until required.

Solvent cement must be securely stored in a cool place out of direct sunlight and away from any heat source.

Safety

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

Refer to C.D.M. regulations (Code of Practice and Designing for Health and Safety in Construction 1995).

Maintenance

Marley PVCu Rainwater systems are corrosion resistant and self coloured, the material therefore does not require painting.
If, however, at any time painting is required, a paint specific for use with PVC is recommended.

Timber fascias that have been treated with timber preservatives.



PVCu push-fit and solvent weld systems, ideal for domestic and commercial applications. Innovative fittings include the 8-way collar boss with top and side entries which allow for multiple inlet connections.



Certified to BS EN 1519, the Marley HDPE system offers an alternative solution to cast iron. The combination of the excellent material properties of HDPE with homogenous welded joints provide greater installation flexibility with a range of jointing options.



Used in conjunction with the acoustic pipe brackets, Marley dBlue is designed to reduce noise and acoustic vibrations to a level of 16dB at 4l/s, making it perfect for multi-occupancy developments.



The Marley rainwater range comprises advanced Life4 technology, textured Foundry Finish, and profiles up to heavy industrial to make it the most comprehensive available.



Solid wall for round the house drainage with a range of adoptable inspection chambers. Quantum structured wall with smooth bore for good hydraulic performance in sewer and highway drainage applications.



Studor P.A.P.A. (Positive Air Pressure Attentuator) and Studor air admittance valves provide a complete active drainage ventilation system solution which is particularly suited to high-rise applications.



Multikwik sanitary frames and concealed cisterns deliver behind the wall reliability for wall hung toilets and basins. Glass, metal and plastic flush plates offer client choice for modern bathroom designs.



Equator is a hot & cold water system manufactured from cross-linked polyethylene (PE-X) and stainless steel. Fittings are tamperproof, but fully demountable and reusable with the use of the demounting tool.



Flowloc is a Vortex flow control unit, which is used as part of an attenuation scheme. It controls the rate at which water is discharged to a drainage system or watercourse.



MARLEY
Plumbing & Drainage Solutions

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