



# DESIGN & INSTALLATION GUIDE

Rainwater





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.



INNOVATION  
& EXPERTISE

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- 34 Roof drainage design
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## 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:



## 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:



## 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:



## 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:



## 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:



## 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:



## 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:



## 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.

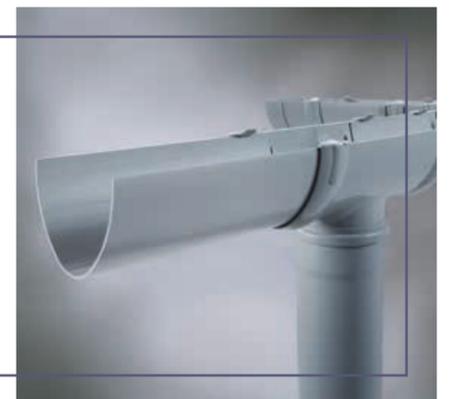
### Ideal application for:

- Commercial projects

### Downpipe:

- 110mm ○ 160mm

### Colours available:





## Rainwater systems that stay looking better for longer

We're all affected by the steady advance of time, as years of exposure affects how everything looks. To combat this Marley Plumbing & Drainage advanced their manufacturing process to create Life4.

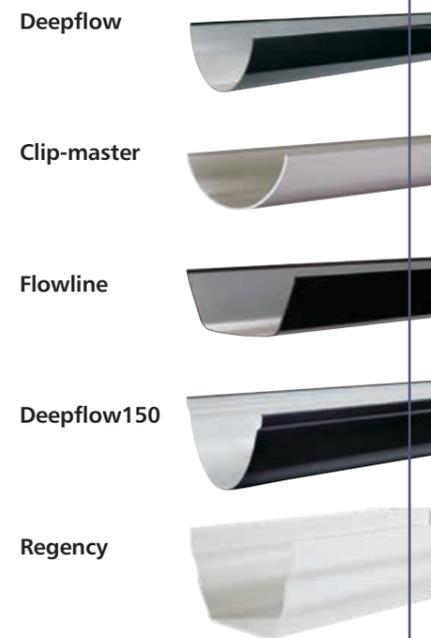
### Looks better...

Life4 rainwater systems can withstand exposure for up to four times longer than standard PVCu rainwater gutters and downpipes and have high gloss levels that are consistent with the fittings, improving the overall aesthetic of the system.

### ...for longer

Not only do Life4 products look better, they last longer retaining colour far in excess of the required standard. Life4 products have been exposed to up to four times the European weathering test duration and performed admirably (see right).

### Life4 systems



This...



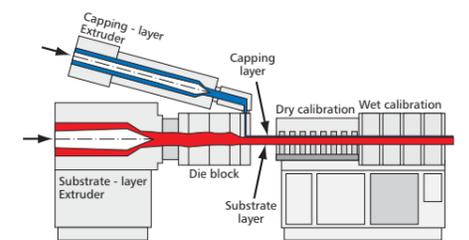
...not this

### Life4 – the performance standard

The benchmark for weathering tests for rainwater systems is set out within the European standards\*. The weathering test essentially mimics actual conditions, but also accelerates them in order that long term performance may be assessed. Life4 products have been assessed and can perform up to four times longer than standard PVCu.

### Life4 – the science of production

Life4 uses a higher specification material to form a capping layer on the outside of the gutter or pipe. This material is by its very nature more durable and has a high gloss finish. The inside layer of the product is standard PVCu. The overall system contains a minimum 15% recycled material.



\*BS EN 607: Eaves gutters and fittings – PVCu and EN 12200-1: Plastics rainwater piping systems for above ground external use – PVCu. (These standards replace the previous British Standard, BS4576.)



### Easyclip

Deepflow, Clip-master, Flowline and Deepflow150 rainwater systems benefit from the Marley easyclip, which makes jointing both easy and reliable. The easyclip has twin compression tabs, which apply downward pressure onto the gutter seal, to ensure a watertight joint. A positive 'click' is made when the gutter is in place. The easyclip also makes life easy if you need to dismantle the joint.

### Notch adaptor (RGNA1)

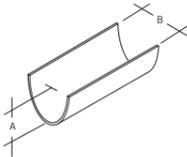
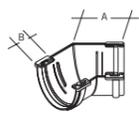
It is possible to adapt the easyclip to make fittings suitable for 'notch' jointing, by fitting a 'notch adaptor' into the centre of the easyclip. The adaptor will then fit into a notch cut into the back of the gutter.

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 unions and outlets to the fascia, an ideal solution when using rafter arm brackets.

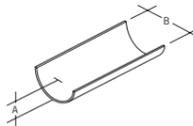
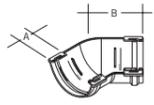
For further instructions, see page 37.



## Deepflow 110 x 75mm semi-elliptical system

GUTTER		Size	Code	A	B	C	Colour	Qty
		3m	<b>RGD3</b>	75	110		W B G BR AG	5
		4m	<b>RGD4</b>	75	110		W B G BR AG	5
		CSA: 6043mm <sup>2</sup>						
UNION BRACKET			<b>RUD10</b>	155	40		W B G BR AG	20
		Adaptors to join different gutter profiles are available to order						
FASCIA BRACKET			<b>RKD1</b>	131	100	50	W B G BR AG	80
		When used with 2 hole screw fixings, brackets meet the heavy class of BS EN 1462 Fix at 1m centres - max						
ANGLES		Angle						
		90°	<b>RAD10</b>	176	40		W B G BR AG	20
		Angle						
		45°	<b>RAD20</b>	108	80		W B G BR AG	15
		Special gutter angles are available to order. Please state angle required.						
			<b>RFB21</b>				W B G BR AG	1
		Special gutter angles are available to order. Please state angle required.						
RUNNING OUTLET			<b>ROD10</b>	275	164	153	W B G BR AG	12
		68mm circular spigot						
			<b>ROD11</b>	273	162	141	W B G BR AG	1
		82mm circular spigot						
STOPEND OUTLET			<b>ROD20</b>	227	164	107	W B G BR AG	15
		68mm circular spigot						
EXTERNAL STOPEND			<b>RED10</b>	44			W B G BR AG	40
								
NOTCH ADAPTOR			<b>RGNA1</b>	16	18		B	20
		To adapt fitting for notch jointing						

## Clip-master 112 x 49mm nominal half round system

GUTTER		Size	Code	A	B	C	Colour	Qty
		3m	<b>RGC3</b>	49	112		B G BR AG	5
		4m	<b>RGC4</b>	49	112		W B G BR AG	5
		CSA: 3997mm <sup>2</sup>						
UNION BRACKET			<b>RUC1</b>	155	40		W B G BR AG	15
								
FASCIA BRACKET			<b>RKC1</b>	132	72	48	W B G BR AG	50
		When used with 2 hole screw fixings, brackets meet the heavy class of BS EN 1462 Fix at 1m centres - max						
ANGLES		Angle						
		90°	<b>RAC1</b>	170	40		W B G BR AG	15
		Angle						
		45°	<b>RAC2</b>	110	80		W B G BR AG	10
		Special gutter angles are available to order. Please state angle required.						
			<b>RFB104</b>				W B G BR AG	1
		Special gutter angles are available to order. Please state angle required.						
RUNNING OUTLET			<b>ROC1</b>	275	138	155	W B G BR AG	15
		68mm circular spigot						
STOPEND OUTLET			<b>ROC2</b>	228	138	105	W B G BR AG	15
		68mm circular spigot						
EXTERNAL STOPEND			<b>REC1</b>	40			W B G BR AG	20
								
CLIP-MASTER TO FLOWLINE ADAPTOR			<b>RGAR2</b>	87	72		W B G BR	1
		Other gutter adaptors are available to order						
NOTCH ADAPTOR			<b>RGNA1</b>	16	18		B	20
		To adapt fitting for notch jointing						

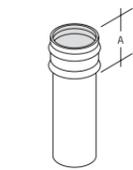
## Circular downpipe 68mm system

### PIPES

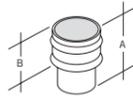
Size	Code	A	B	C	Colour	Qty
2.5m	<b>RPH2525</b>	52			B G BR AG	♥ 4
3m	<b>RPH253</b>	52			W B G BR AG	♥ 4
5.5m	<b>RPH2555</b>	52			W B G BR AG	♥ 4



4  
life

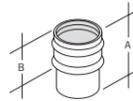


### SOCKETS



#### Loose pipe socket

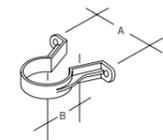
<b>RL25</b>	100	50			W B G BR AG	♥ 10
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#### Solvent weld pipe socket with push-fit seal

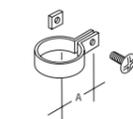
<b>RLR25</b>	92	50			W B AG	♥ 10
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### CLIPS



#### One piece 8mm screw fixing holes

<b>RCZ253</b>	94	72			W B G BR AG	♥ 30
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#### Socket clip including nut and bolt for use with RCB300 backplate

<b>RC251</b>	64				W B G BR AG	♥ 20
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#### Pipe clip including nut and bolt for use with RCB300 backplate

<b>RC252</b>	64				W B G BR AG	♥ 20
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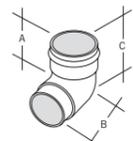
#### Backplate for use with RC251/RC252 clips

<b>RCB300</b>	48	30			W B G BR AG	♥ 20
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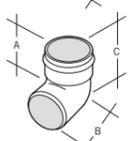
#### Spare nuts and bolts 20mm x 6mm

<b>RNB11</b>						20
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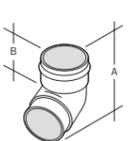
### BENDS



87 1/2°	<b>RB251</b>	48	75	81	W B G BR AG	♥ 25
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67 1/2°	<b>RB252</b>	38	60	66	W B G BR AG	♥ 25
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45°	<b>RB253</b>	48	53	63	W B G BR AG	♥ 25
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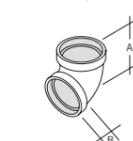
Socket/spigot

### OFFSET BENDS



Angle	Code	A	B	C	D	Colour	Qty
67 1/2°	<b>RNE255</b>	66	66	37		W B G BR AG	♥ 25

Socket/push-fit spigot



67 1/2°	<b>RNA250</b>	41	15			W B G BR AG	10
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Socket/socket. For deep fascias



20°	<b>RNE252</b>	51	15			W B G BR AG	10
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Socket/socket. For 25mm offset construction



20°	<b>RNE253</b>	56	15			W B G BR AG	10
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Socket/spigot. For 25mm offset construction

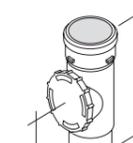
### BRANCH



67 1/2°	<b>RY252</b>	196	90			W B G BR AG	♥ 10
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Socket/spigot

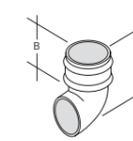
### ACCESS PIPE



	<b>RF25</b>		185	96		W B G BR AG	♥ 15
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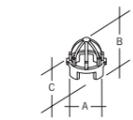
Socket/spigot

### SHOE



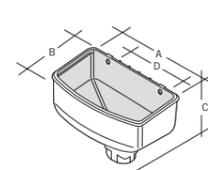
	<b>RS25</b>	137	48			W B G BR AG	♥ 15
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### LEAF GUARD



	<b>RV225</b>	64	55	18		W B G BR	30
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### HOPPER HEAD



	<b>RH252</b>	308	174	220	200	W B G BR AG	♥ 6
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Flow rate - 5.14 L/S

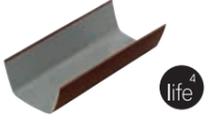
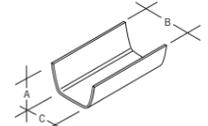
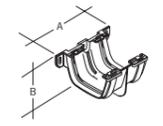
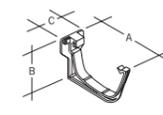
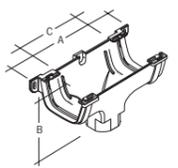
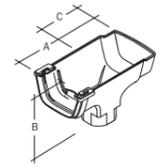
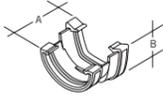
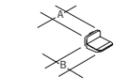
	<b>RH25</b>	425	298	238	190	B	1
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Flow rate - 7.56 L/S

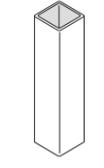
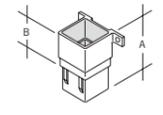
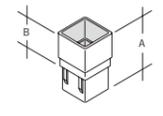
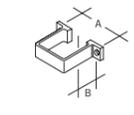
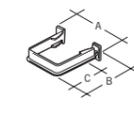
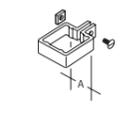
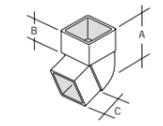
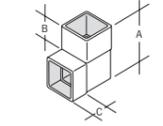
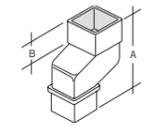
Suitable for use with 68mm circular and 65mm square downpipe, using appropriate socket

For further hopper heads please see page 32.

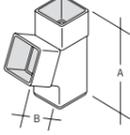
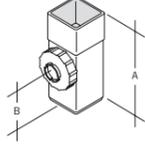
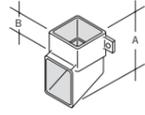
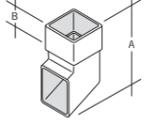
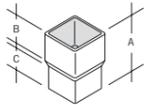
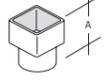
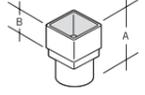
## Flowline 112 x 60mm rectilinear system

GUTTER	Size	Code	A	B	C	Colour	Qty
	4m	<b>RGF4</b>	60	112	80	W B BR AG	5
CSA: 5412mm <sup>2</sup>							
							
UNION BRACKET		<b>RUF1</b>	155	84		W B BR AG	12
							
							
FASCIA BRACKET		<b>RKF2</b>	132	85	48	W B BR AG	40
							
							
When used with 2 hole screw fixings, brackets meet the heavy class of BS EN 1462 Fix at 1m centres - max							
ANGLE							
90°		<b>RAF1</b>	188	40		W B BR AG	20
45°		<b>RAF2</b>	110	40		W B BR AG	15
							
							
							
							
Special gutter angles are available to order. Please state angle required.							
		<b>RFB102</b>				W B BR AG	1
RUNNING OUTLET		<b>ROF1</b>	275	134	155	W B BR AG	12
							
							
Suitable for both 68mm circular or 65mm square downpipe							
STOPEND OUTLET		<b>ROF11</b>	225	134	110	W B BR AG	15
							
							
Suitable for both 68mm circular or 65mm square downpipe							
EXTERNAL STOPEND		<b>REF2</b>	53			W B BR AG	20
							
							
CLIP-MASTER TO FLOWLINE ADAPTOR		<b>RGA2R</b>	87	72		W B BR AG	1
							
							
Other gutter adaptors are available to order							
NOTCH ADAPTOR		<b>RGNA1</b>	16	18		B	20
							
							
To adapt fitting for notch jointing							

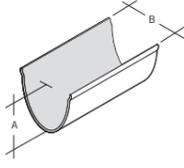
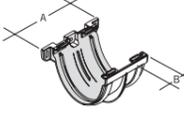
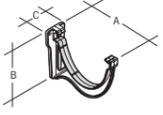
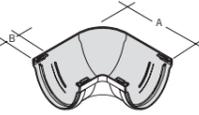
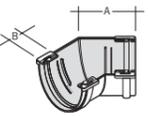
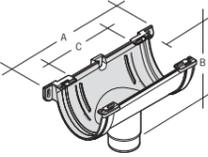
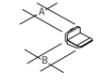
## Square downpipe 65mm system

PIPES	Size	Code	A	B	C	Colour	Qty
	3m	<b>RPE3</b>				W B BR AG	6
	5.5m	<b>RPE2555</b>				W B BR AG	2
SOCKETS							
	<b>With fixing lugs</b>						
	<b>RLE1</b>	82	42			W B BR AG	10
	<b>Plain</b>						
	<b>RLE11</b>	82	42			W B BR AG	10
CLIPS							
	<b>One piece 8mm screw fixing holes</b>						
	<b>RCE1</b>	88	40			W B BR AG	30
	<b>One piece stand off</b>						
	<b>RCE3</b>	107	96	65		W B BR AG	5
	<b>Pipe clip including nut and bolt for use with RCB300 backplate</b>						
	<b>RCE2</b>	56				W B BR AG	10
	<b>Backplate for use with RCE2 clip</b>						
	<b>RCB300</b>	48	30			W B G BR AG	20
<b>Spare nuts and bolts 20mm x 6mm</b>							
		<b>RNB11</b>					20
OFFSET BENDS							
	67½°	<b>RBE1</b>	75	42	40	W B BR AG	15
	Socket/spigot						
	87½°	<b>RBE3</b>	104	40	28	W B BR AG	15
	Socket/socket						
		<b>RNE1</b>	142	42		W B BR AG	10
	Socket/spigot 50mm projection						

## Square downpipe 65mm system

BRANCH		Angle	Code	A	B	C	Colour	Qty
		67½°	<b>RYE1</b>	158	75		W B BR AG	15
		Socket/spigot						
ACCESS PIPE			<b>RFB91</b>	222	95		W B BR AG	30
		Socket/spigot						
SHOES		<b>With fixing lugs</b>						
			<b>RSE1</b>	115	40		W B BR AG	15
		<b>Plain</b>						
			<b>RSE2</b>	140	40		W B BR AG	15
OUTLET ADAPTOR			<b>RLE3</b>	96	51	41	W B BR AG	30
		For use with RLE11 to adapt RH25 to suit 65mm square downpipe						
DRAIN ADAPTORS			<b>RLE2</b>	77			W B BR AG	1
		Adapts 65mm square socket to 68mm socketed pipe						
			<b>RLE4</b>	98	40		W B BR AG	1
		Adapts 65mm square socket to 68mm plain ended pipe						

## Deepflow150 155 x 98mm high capacity system

GUTTER		Size	Code	A	B	C	Colour	Qty
		4m	<b>RGJ4</b>	98	155		W B BR AG	4
		CSA: 10,060mm <sup>2</sup>						
UNION BRACKET			<b>RJ1</b>	166	40		W B BR AG	8
		Adaptors to join different gutter profiles are available to order						
FASCIA BRACKET			<b>RK1</b>	174	125	49	W B BR AG	20
		When used with 2 hole screw fixings, brackets meet the heavy class of BS EN 1462 Fix at 1m centres - max						
ANGLES		90°	<b>RAJ1</b>	241	40		W B BR AG	4
		45°	<b>RAJ2</b>	140	40		W B BR AG	1
		Special gutter angles are available to order. Please state angle required						
			<b>RFB150</b>				W B BR AG	1
RUNNING OUTLET			<b>ROJ1</b>	281	192	160	W B BR AG	20
		82mm circular outlet						
STOPENDS		<b>External</b>						
			<b>REJ1</b>	55			W B BR AG	4
		<b>Internal</b>						
			<b>REJ2</b>	44			W B BR AG	4
NOTCH ADAPTOR			<b>RGNA1</b>	16	18		B	20
		To adapt fitting for notch jointing						

## Circular downpipe 82mm system

DOWNPIPE	Size	Code	A	B	C	Colour	Qty
	3m	<b>RPH33</b>	61			WB BR AG	4
	5.5m	<b>RPH355</b>	61			WB BR AG	4
	5.5m length available to order						

SOCKET	Code	A	B	Colour	Qty
	<b>RL3</b>	87	103	WB BR AG	4

CLIPS	Code	A	B	Colour	Qty
	<b>RC3</b>	125	93	WB BR AG	10
	<b>RC32</b>	70		WB BR AG	20
	<b>RCB300</b>	48	30	WB BR AG	20
	<b>RNB11</b>				20

OFFSET BEND	Code	A	B	C	Colour	Qty
	<b>RNE3</b>	43	78	76	WB BR AG	4

BENDS	Code	A	B	C	Colour	Qty
	<b>RB31*</b>	49	115	138	WB BR AG	4
	<b>RB33*</b>	49	78	70	WB BR AG	4

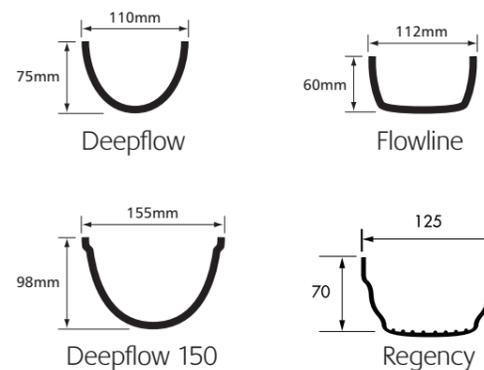
BRANCH	Code	A	B	C	Colour	Qty
	<b>RY3*</b>	229	130	55	WB BR AG	24

ACCESS PIPE	Code	A	B	C	Colour	Qty
	<b>RF3*</b>	205	101	52	WB BR AG	54

SHOE	Code	A	B	Colour	Qty	
	<b>RS3</b>	118	22		WB BR AG	4



### Profiles available in the range



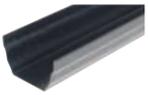
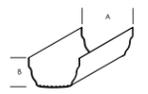
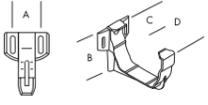
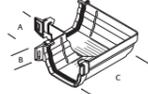
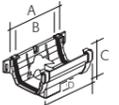
## Case Study Summerfield Homes, Weston Super Mare

"We have used Marley products on previous projects so when we saw that the new anthracite grey colour had been released, we knew that it would be a great fit for the new development we were working on. It looks different to the average guttering and particularly compliments the windows on the homes because of their unique colour. As well as looking great, the gutters are still high quality and high performing; we're delighted with how the homes have turned out."

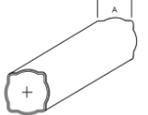
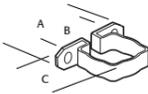
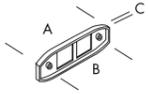
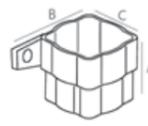
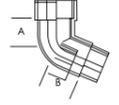
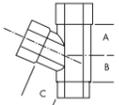
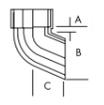
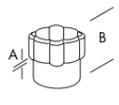
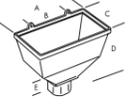
Nick Birch, Summerfield Homes



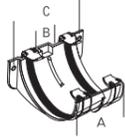
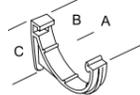
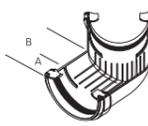
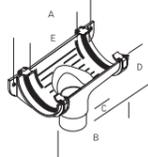
## Regency 125 x 70mm profiled system

GUTTER		Size	Code	A	B	C	D	Colour	Qty
		4m	<b>R896</b>	125	70			W B V AG	5
		CSA: 682mm <sup>2</sup>							
UNION BRACKET			<b>R908</b>	146	121			W B V AG	5
									
FASCIA BRACKET			<b>R910</b>	54	99	80	135	W B V AG	20
		Fix at 1m centres - max							
STOPENDS									
<b>External</b>			<b>R913</b>	68				W B V AG	5
									
<b>Internal</b>			<b>R902</b>	28				W B V AG	5
									
ANGLES									
<b>External</b>		90°	<b>R935</b>	97	36	205		W B V AG	5
									
<b>Internal</b>		90°	<b>R945</b>	226	100	36		W B V AG	5
									
<b>External</b>		135°	<b>R937</b>	125	85	114		W B V AG	5
									
<b>Internal</b>		135°	<b>R947</b>	136	63			W B V AG	5
									
RUNNING OUTLET			<b>R911</b>	227	116	132	38	W B V AG	5
									

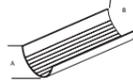
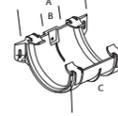
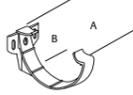
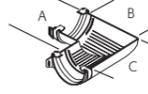
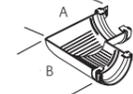
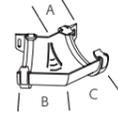
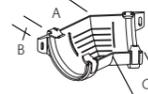
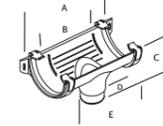
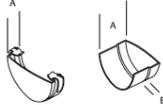
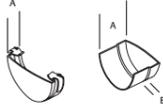
## Regency 74mm profiled system

DOWNPIPE		Size	Code	A	B	C	D	Colour	Qty
		4m	<b>R893</b>	74				W B V AG	6
BRACKET			<b>R919</b>	130	102	88		W B V AG	10
									
5MM BRACKET SPACER			<b>R927</b>	140	104	5		W B V AG	50
									
CONNECTOR			<b>R917</b>	86	135	86		W B V AG	5
									
112½° BEND		112½°	<b>R920</b>	52	53			W B V AG	5
									
112½° BRANCH		112½°	<b>R922</b>	66	59	63		W B V AG	5
									
SHOE			<b>R921</b>	10	96	56		W B V AG	5
									
REGENCY TO 68MM REDUCER			<b>R924</b>	4	82			W B V AG	5
									
HOPPER HEAD			<b>R014</b>	254	140	150	230	W B V AG	1
									

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

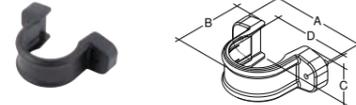
GUTTER		Size	Code	A	B	C	Colour	Qty		
		4m	<b>CBR512</b>	112	52		FF	5		
		CSA: 100mm <sup>2</sup>								
UNION BRACKET			<b>CBR008</b>	105	20		FF	10		
										
FASCIA BRACKET			<b>CBR010</b>	124	64	76	FF	20		
		Fix at 1m centres – max 1 screw fixing								
ANGLES										
		90°	<b>CBR005</b>	43	151	194	FF	5		
										
		135°	<b>CBR007</b>	43	67		FF	5		
										
RUNNING OUTLET			<b>CBR011</b>	A	B	C	D	E	Qty	
				260	240	41	132	155	FF	5
EXTERNAL STOPEND			<b>CBR013</b>	37					FF	5
										

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

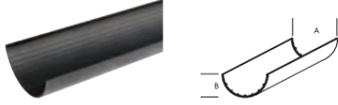
GUTTER		Size	Code	A	B	C	D	Colour	Qty
		4m	<b>CBR640</b>	72	124			FF	5
		CSA: 680mm <sup>2</sup>							
UNION BRACKET			<b>CBR608</b>	145	26	121		FF	10
									
FASCIA BRACKET			<b>CBR610</b>	139	72			FF	20
		Fix at 1m centres – max 1 screw fixing							
ANGLES									
		<b>External</b>							
		90°	<b>CBR605</b>	160	94	208		FF	5
		<b>Internal</b>							
		90°	<b>CBR615</b>	229	179			FF	5
		<b>External</b>							
		135°	<b>CBR607</b>	84	138	138		FF	5
		<b>Internal</b>							
		135°	<b>CBR617</b>	86	51	60		FF	5
RUNNING OUTLET			<b>CBR611</b>	275	157	159	40	FF	5
		Fits 68mm pipe							
STOPEND									
		<b>Internal</b>							
			<b>CBR602</b>	42				FF	10
		<b>External</b>							
			<b>CBR613</b>	86	38			FF	10

NB: Internal Stopend shown

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

DOWNPIPE	Size	Code	A	B	C	D	Colour	Qty
	2.75m	<b>CBR519</b>	2750				FF	5
Deep Profile								
EARED PIPE CONNECTOR		<b>CBR017</b>	140	89	101	108	FF	10
								
EARED PIPE BRACKET		<b>CBR043</b>	140	89	49	108	FF	10
	Fix at 2m centres – max 2 screw fixing							
92½° BEND	92½°	<b>CBR577</b>	119	40			FF	10
								
112½° BEND	112½°	<b>CBR020</b>	134	40			FF	10
								
112½° BRANCH	112½°	<b>CBR022</b>	190	107	40		FF	10
								
EARED SHOE		<b>CBR021</b>	140	94	152	108	FF	5
								
CURVED HOPPER HEAD		<b>CBR044</b>	270	190	253	244	FF	1
								
COACH BOLTS FIXINGS		<b>CBF001</b>					FF	10
								

## Highflo 170x73mm half-round system

GUTTER	Size	Code	A	B	C	D	Colour	Qty
	4m	<b>R515</b>	170	73			G B W	5
CSA: 883mm <sup>2</sup>								
JOINT BRACKET		<b>R042</b>	170	11	93		G B W	10
								
SUPPORT BRACKET		<b>R452</b>	91	178			G B W	20
	Fix at 1m centres – max 2/3 screw fixing							
90° ANGLE	90°	<b>R451</b>	199	111	145		G B W	1
								
RUNNING OUTLET		<b>R454</b>	115	250	203	330	G B W	1
	Fits 110mm pipe							
STOPEND OUTLET		<b>R455</b>	257	218	90	200	G B	1
	Fits 110mm pipe							
EXTERNAL STOPEND		<b>R402</b>	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)

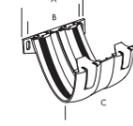
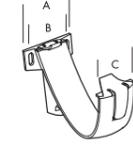
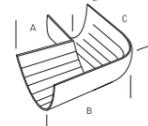
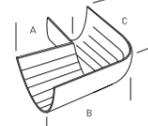
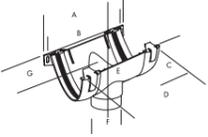
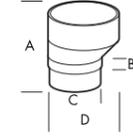
## Circular downpipe 110mm system

DOWNPIPE		Size	Code	A	B	C	Colour	Qty
	3m	<b>S505</b>		110			B G W	1
	4m	<b>S506</b>		110			B G W	1
SOCKETED DOWNPIPE		3m	<b>S508</b>	128	70		B G W	1
PIPE CONNECTOR			<b>S208</b>	109	61	48	B G W	1
DRAIN CONNECTOR			<b>S121</b>	130	65	130	B G	1
BRACKET - PIPE			<b>S217</b>	50	36	90	B G W	1
		Fix at 2m centres - max 1 screw fixing						
BRACKET - PIPE			<b>S219</b>	9	150		B G W	1
		Fix at 2m centres - max 2 screw fixing						
BRACKET - SOCKET			<b>S220</b>	158	90	31	B G W	1
		Fix at 2m centres - max 2 screw fixing						
BRACKET - PIPE/SOCKET			<b>GS570</b>	146	90	30		1
		Galvanised						

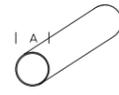
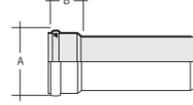
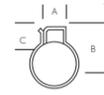
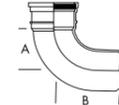
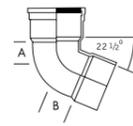
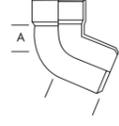
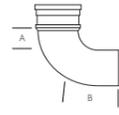
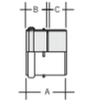
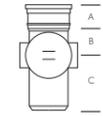
## Circular downpipe 110mm system

SHOE		Angle	Code	A	B	C	D	E	F	Colour	Qty
	90°	<b>SS41</b>		24	246	57				B G W	1
	45°										
HOPPER HEAD			<b>R465</b>	316	184	203	223	45	11	B G W	1
ACCESS PIPE			<b>S309</b>	68	80	155				B G	1
92½° BEND		92½°	<b>S322</b>	145	210					B G W	1
112½° TOP OFFSET BEND		112½°	<b>S270</b>	95	95					B G W	1
112½° BOTTOM OFFSET BEND		112½°	<b>S271</b>	89	89					B G W	1
135° BEND		135°	<b>S331</b>	38	95					B G W	1
112½° BRANCH		112½°	<b>S336</b>	105	145	95				B G	1
92½° BRANCH		112½°	<b>S334</b>	60	155	85				B G	1

## Stormflo 200x133mm semi-elliptical system

GUTTER	Size	Code	A	B	C	D	Colour	Qty
 	4m	<b>R740</b>	200	133			B G	2
CSA: 1928mm <sup>2</sup>								
UNION BRACKET		<b>R708</b>	235	211	192		B G	6
 	3 Screw Fixing							
FASCIA BRACKET		<b>R710</b>	106	84	65		B G	5
 	Fix at 800mm centres – max 3 screw fixing							
90° ANGLE		<b>R705</b>	170	362	358		B G	1
 	Two union brackets are required per angle							
135° ANGLE		<b>R707</b>	86	151	194		B G	1
 	Two union brackets are required per angle							
RUNNING OUTLET		<b>R711</b>	445	424	248	405	B G	1
 	4 Screw Fixing Spigot fits 160mm pipe							
OUTLET ADAPTOR		<b>R716</b>	202	30	102	160	B G	2
 	For use with a R711 to convert to 110mm Highflo downpipe							
EXTERNAL STOPEND		<b>R713</b>	255	80			B G	2
 	One fascia bracket is required for external stopend							

## Circular downpipe 160mm system

DOWNPIPE	Size	Code	A	B	C	Colour	Qty
 	3m	<b>S534</b>	160			B G	1
	4m	<b>GS535</b>	160			G	1
SOCKETED DOWNPIPE		<b>S533</b>	182	107		B G	1
 	3m						
BRACKET - PIPE		<b>S412</b>	83	120	38	B G	2
 	Fix at 2m centres – max 1 screw fixing						
BRACKET - PIPE/SOCKET		<b>GS571</b>	200	120	27	B	2
 	Fix at 2m centres – max 2 screw fixing Galvanised						
92½° BEND		<b>S403</b>	145	210		B G	2
 	92½°						
112½° TOP OFFSET BEND		<b>S424</b>	95	95		B G	2
 	112½°						
112½° BOTTOM OFFSET BEND		<b>S425</b>	95	165		B G	2
 	112½°						
135° BEND		<b>S404</b>	123	70		B G	1
 	135°						
PIPE CONNECTOR		<b>S406</b>	190	107	77	B G	1
 	190						
ACCESS PIPE		<b>S472</b>	105	55	140	B G	1
 	105						

## Circular downpipe 160mm system

	Angle	Code	A	B	C	D	Colour	Qty
<b>92½° BRANCH</b> 	92½°	<b>S427</b>	438	245	96	260	B G	1
<b>SHOE</b> 		<b>S436</b>	185	175	95		B G	1
<b>REDUCER</b> 		<b>S420</b>	110	160	68		B	1



### Stormflo bottom fixing

Stormflo fittings have been designed to ensure strength and stability, even in the most adverse weather conditions. The toughened bottom fixing point offers increased protection from wind updrafts on remote and exposed buildings.

For more information, visit [marleypd.co.uk](http://marleypd.co.uk)

## Large capacity comparison



## Ancillary items

	Angle	Code	A	B	C	D	Colour	Qty
<b>RAIN DIVERTER</b> 		<b>RD25R</b>	105	500			W B G BR	20
Suitable for use with 68mm circular or 65mm square PVCu downpipes								
<b>WATER BUTT CONNECTOR</b> 		<b>RDC26R</b>	500				B	10
<b>FASCIA BRACKET SPACER/HEIGHT ADJUSTER</b> 		<b>RGS1</b>	94	48	17	17	W B	45
Includes nut and bolt. Suitable for use with Deepflow, Clip-master, Flowline, Regency and Foundry Finish fascia brackets. 25mm height adjustment								
<b>ANGLED FASCIA BRACKET ADAPTOR</b> 	22½°	<b>RKA1</b>						50
	30°	<b>RKA2</b>						100
Galvanised mild steel								
<b>WEDGE SPACER</b> 		<b>GR002</b>					G	50
Not for use with Highflo or Stormflo								
<b>EXTENSION BRACKET</b> 		<b>RT250</b>	243	114			B G	20
<b>COVER PLATE</b> 		<b>RT2501</b>	111	35			B G	1
<b>PIPE CLIP</b> 		<b>RPC1</b>	137	111			B G	20
<b>SOCKET CLIP</b> 		<b>RSC1</b>	141	119			B G	1

## Ancillary items

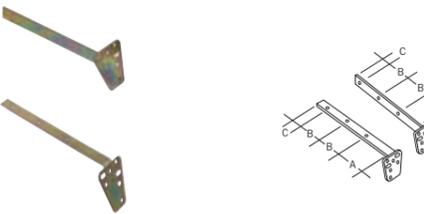
### EXTENSION BACKPLATE



Angle	Code	A	B	C	Colour	Qty
	<b>RT200</b>	104	45		W B G BR	50

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

### FIXED RAFTER ARMS

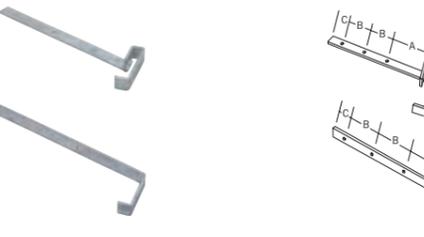


Side	Code	A	B	C	Qty
22½°	<b>RSA1</b>	50	75	25	50

Top	Code	A	B	C	Qty
22½°	<b>RTA1</b>	100	75	25	50

Electroplated mild steel  
Includes 2 cadmium plated nuts and bolts

### ADJUSTABLE RAFTER ARMS



Side	Code	A	B	C	Qty
	<b>RSA1A</b>	123	75	25	1

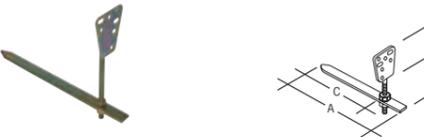
Top	Code	A	B	C	Qty
	<b>RTA1A</b>	65	75	25	1

Galvanised steel  
Including nut, bolt and antislip washer.

### SPARE NUTS AND BOLTS

12x5mm	<b>RNB21</b>				10
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### RISE AND FALL EXTENSION ARM



	<b>RKF1</b>	290	100	235	50
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Electroplated mild steel  
Including 2 cadmium plated nuts and bolts

### RISE AND FALL BRACKETS



Regency	<b>GR909</b>				
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Foundry Finish 112mm half round	<b>GR018</b>				
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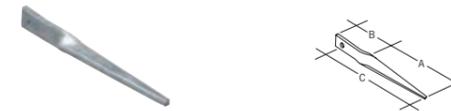
Foundry Finish 125mm semi-elliptical	<b>GR601</b>				
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### LONG RISE AND FALL BRACKETS



Foundry Finish 112mm half round	<b>GR009</b>				
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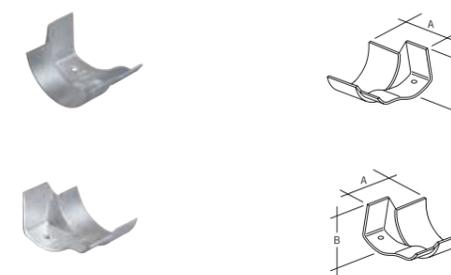
### DRIVE-IN SPIKE



Size	Code	A	B	C	Colour	Qty
	<b>RSS1°</b>	115	58	154		50

Galvanised mild steel

### CLIP-MASTER TO OGEE GUTTER ADAPTORS

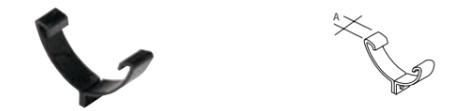


Right hand	<b>RG44</b>	94	66		50
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Left hand	<b>RG45</b>	94	66		50
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Cast aluminium

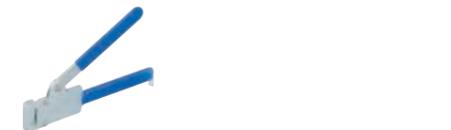
### HALF ROUND TO CAST IRON GUTTER ADAPTOR



	<b>RG41R</b>	29	B		25
--	--------------	----	---	--	----

Suitable for adapting 100mm to 112mm half round  
Other gutter adaptors are available to order

### UNIVERSAL GUTTER NOTCHING TOOL



	<b>RGN1</b>				1
--	-------------	--	--	--	---

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

### DRAIN ADAPTORS



	<b>RA42</b>	31	104	B	100
--	-------------	----	-----	---	-----

Can be cut to fit all shapes and sizes of downpipe

	<b>RRM425</b>	40	25	W B G BR	10
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110mm socket to 68mm socket

## Ancillary items

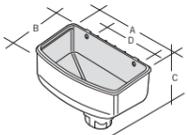
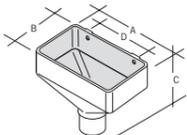
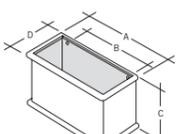
GUTTER SEAL	Size	Code	A	B	C	D	Colour	Qty
		<b>RNG50</b>						1
Suitable for use with Deepflow, Clip-master, Flowline, and Deepflow150 gutter systems. Length 235mm - cut to required length								

FLAT RAINWATER SEALS	Size	Code	A	B	C	D	Colour	Qty
		<b>RNG60</b>					B	5
Suitable for use with RGA1R and old (pre-1985) rainwater systems which used flat seals. Cut to required length								

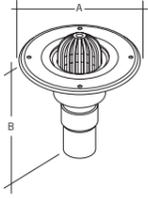
RAINWATER SEALS	Size	Code	A	B	C	D	Colour	Qty
	<b>Regency</b>							
		<b>3SR1122A</b>					B	1
	<b>Foundry Finish 112mm half round</b>							
		<b>3SSI200</b>					B	1
	<b>Foundry Finish 125mm semi elliptical</b>							
	<b>3SRI125</b>					B	1	
<b>Highflo</b>								
	<b>3SR1520</b>					B	1	
<b>Stormflo</b>								
	<b>3SR5355</b>					B	1	
Cut to required length								

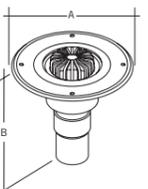
SPARE RING SEALS	Size	Code	A	B	C	D	Colour	Qty
	<b>'T' ring</b>							
	82	<b>SR82T</b>					B	1
To BS EN 681/1 82mm seal for use with RB31, RB33, RY3 and RF3 fittings								

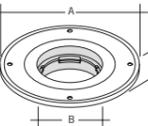
## Hopper heads

Hopper heads	Size	Code	A	B	C	D	Colour	Qty
	68/65	<b>RH252</b>	308	174	220	200	W B G BR AG	6
	Dual spigot outlet Flow rate - 5.14 L/S							
	82	<b>SH30</b>	280	155	230	177	W B G BR	6
	Circular spigot outlet Flow rate - 4.11 L/S							
	68	<b>RH25</b>	425	298	238	190	B	1
	110	<b>SH40</b>	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

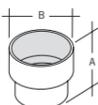
FLAT ROOF OUTLET	Size	Code	A	B	C	Colour	Qty
	68	<b>ROF25</b>	343	506		G	3
	Items are supplied bagged loose for site assembly						

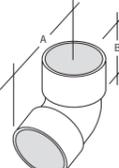
BALCONY OUTLET	Size	Code	A	B	C	Colour	Qty
	68	<b>ROB25</b>	343	506		G	3
	Items are supplied bagged loose for site assembly						

UNIVERSAL FLANGE	Size	Code	A	B	C	Colour	Qty
		<b>SOF1</b>	343	180	55	G	5
	Flange is 3mm thick						

FLAT ROOF OUTLET GRATING	Size	Code	A	B	C	Colour	Qty
		<b>SOF12</b>				G	25
	For use with SOF1						

BALCONY OUTLET GRATING	Size	Code	A	B	C	Colour	Qty
		<b>SOB1</b>				G	35
	For use with SOF1						

STRAIGHT FLANGE CONNECTOR	Size	Code	A	B	C	Colour	Qty
	82	<b>SGS31G</b>	133	137		G	20
	110	<b>SGS41W</b>	139	134		W	20

BENT FLANGE CONNECTOR	Size	Code	A	B	C	Colour	Qty
	110	<b>STS41W</b>	104	156		W	45
	Socket/socket						

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.

### 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.

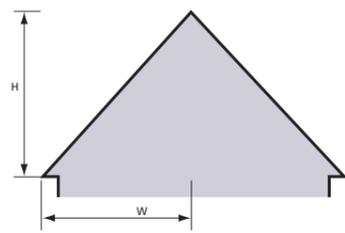
Roof pitch	Factor	Roof pitch	Factor
10°	1.088	30°	1.288
12.5°	1.111	32.5°	1.319
15°	1.134	35°	1.350
17.5°	1.158	37.5°	1.384
20°	1.182	40°	1.419
22.5°	1.207	42.5°	1.459
25°	1.233	45°	1.500
27.5°	1.260	47.5°	1.547

### 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.

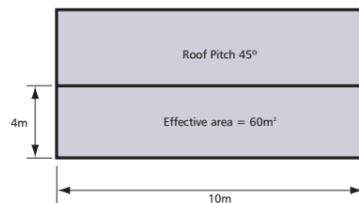
### Flat roofs

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

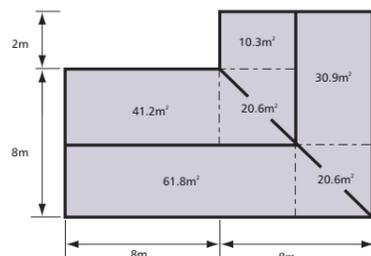


$$\left(\frac{H}{2} + W\right) \times L = m^2$$

For example a roof 4m high x 4m wide x 10m long  
 $(2 + 4) \times 10 = 60m^2$



Using the same roof dimensions as the example above with a 45° roof pitch.  
 4m wide x 10m long x 1.5 = 60m²



## CAD drawings

CAD drawing are available to download from our website.

Visit [marleypd.co.uk](http://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.

Gutter system	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						
	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%



## Clip-jointed gutter systems

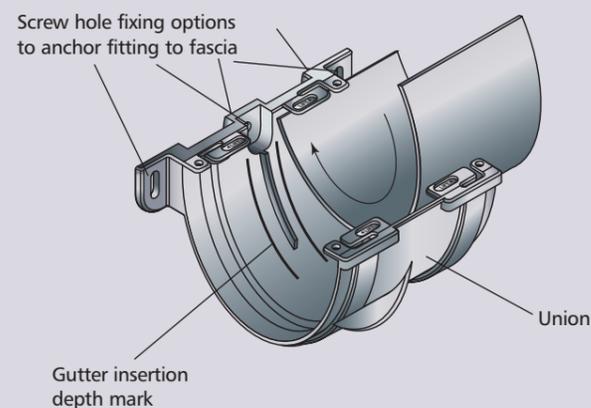
Each joint is made by inserting the plain edge of gutter into the fitting and locating under the rear clip. At the same time ease the front edge of fitting forward and up until the gutter clips under the front edge. Care must be taken to ensure that each length of gutter is fitted to the insertion mark 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 RGN1 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.



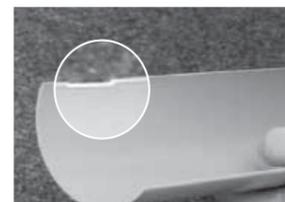
## Notched gutter systems

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 RGN1 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 1 1/4" 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.

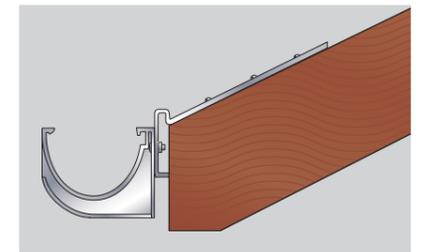
It is recommended that notched gutters are used on buildings without fascia boards as key fittings such as unions and outlets do not need to be secured and can be positioned adjacent to structural fixing points. Top rafter brackets, RTA1 or RTA1A, will need to be fitted before the roof is tiled. Side 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.

## Rise and fall brackets

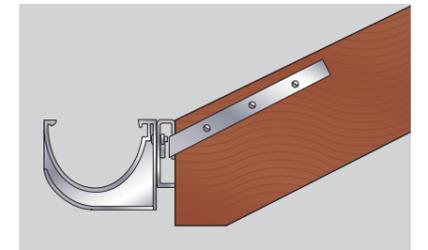
Rise and fall brackets, can be used with clip-jointed gutters although a notched system is recommended as described for rafter arm fixing above. Nuts and bolts are supplied to secure fascia brackets to the multi-fit face plate. It is recommended that pilot holes are drilled in mortar joints before the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

## Angle fascia bracket

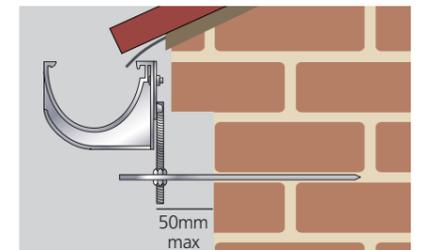
Angle fascia bracket adaptors, are required when a sloping fascia board is employed at the eaves. The galvanised mild steel adaptor is fitted behind the fascia bracket with two 1 3/4" x 10g (45x5mm) non-ferrous round head screws passing through both bracket and adaptor.



RTA1A adjustable top rafter arm, RTA1 also available



RSA1A adjustable side rafter arm, RSA1 also available

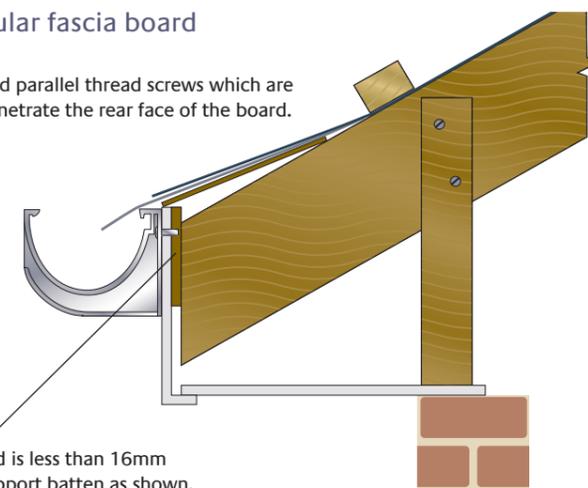


RKF1 rise and fall bracket



## 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

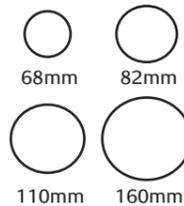
External rainwater pipes usually connect direct to the surface water drain. Where a direct connection is made a reducer and a short section of pipe is used to provide the transition between different pipe sizes. A gully trap will be required to both arrangements where the drain connects to a combined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

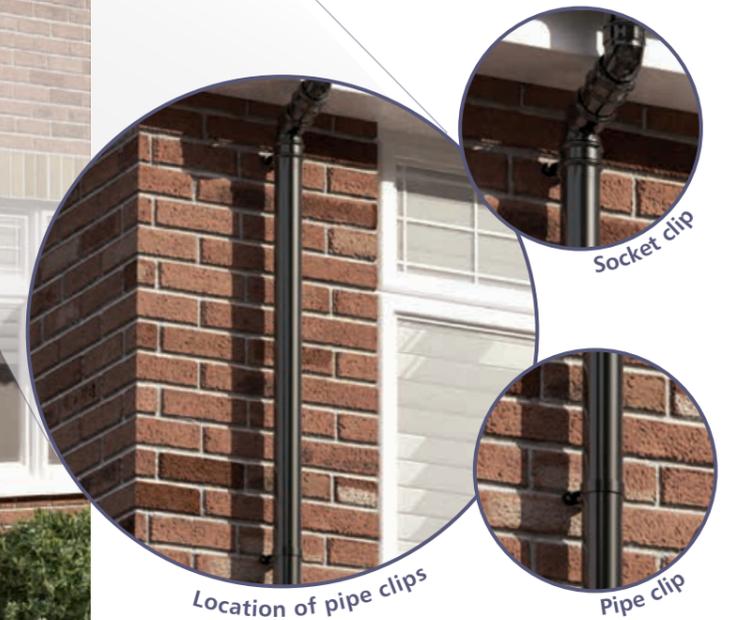


### Regency

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



Offset assembly



Socket clip

Location of pipe clips

Pipe clip

## 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.

## 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 4/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 Attenuator) 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.

## Accreditations





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