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ALUTEC EVOLVE

January 2018

ALUTEC evolve RAINWATER SYSTEMS

Product Guide

Knockroon Village,
Ayrshire

Barn conversion,
Feeringbury, Essex

Lochside Hotel,
New Cumnock, Ayrshire

Lawley Farm,
Telford, Shropshire

ALUTEC
ALUMINIUM RAINWATER SYSTEMS

Introduction

Evolve rainwater systems

Design and installation

ALUTEC
ALUMINIUM RAINWATER SYSTEMS

Alutec is part of Aliaxis, a multi-national group of plumbing & drainage companies. Present in over 40 countries, the group is known for its market leading plumbing and drainage systems.

Alutec is the UK leader in innovative aluminium rainwater and eaves drainage solutions. Alutec prides itself in providing industry leading standards in technical support, customer service and sustainable product design.

Products

Alutec offers solutions for three distinct areas:

- Gutters and rainwater systems
- Fascia, soffit and coping
- Roof outlets

Eaves rainwater systems

evolve

traditional

aligator

Fascia, soffit & coping

evoke

Outlets

roof

Life expectancy

The performance, quality and longevity of all product systems are backed by the knowledge that Alutec is a long established and financially sound company and part of a substantial international group ensuring complete peace of mind for specifiers and building owners.

Standards

All Alutec systems are manufactured to and in excess of the appropriate BS or EN Standards. For a full list, please see BS and EN Standards in the Design and Installation section.

ISO 14001: 2004

Alutec is committed to continually reducing its environmental impact across all its business activities and is accredited to ISO 14001: 2004.

Service

Alutec offers a fully integrated “turn key” project advisory service; from the initial design stages, right through to completion, ensuring deadlines and delivery dates are met.

Product availability

Alutec products are available through all major national or regional building, plumbing and roofing merchants and distributors. Call Alutec for your nearest merchant.

CPD Service

Alutec is a leading CPD provider for aluminium rainwater and soffit & fascia systems. Alutec's RIBA accredited CPD covers all aspects of eaves design, selection and correct installation. To date, it has been presented to over 5,000 construction industry professionals.

Technical support

Alutec Technical Services team has many years experience in helping specifiers with:

- Correct system choice
- Roof drainage design
- Flow rate calculations
- Installation advice

All Alutec technical or product specifications and brochures can be downloaded from the Alutec website marleyalutec.co.uk

For further technical queries, call the Technical Services Department.

Sustainable product design

Alutec is committed to designing the most sustainable, durable and high performance rainwater systems possible.

Sustainable design creates products with a lower carbon footprint, longevity and low maintenance. Alutec eaves solutions lead the market, all have a life expectancy of 50 years or more and require little or no maintenance.

Sales support

We offer a complete service from enquiry to order point and will deal with all types of enquiries, whether they are related to plans, bill of quantities, tenders or other material.

ALUTEC
ALUMINIUM RAINWATER SYSTEMS

Aluminium, a sustainable material

For a material to be considered sustainable, it must be recyclable, have a long life expectancy and a low impact on the environment. Aluminium has all these qualities and more.

Lightweight, strong and long-lasting

Aluminium is a very light metal, about 65% lighter than steel or cast iron. It has a very high strength to weight ratio and excellent corrosion resistance. One of the oldest recorded uses of aluminium is the statue of Eros in London, cast in 1893.

Highly corrosion resistant

Aluminium naturally generates a protective oxide coating. Should the painted surface be damaged, the aluminium simply oxidises to protect itself. Furthermore, marine grade aluminium, used on all Alutec systems, is better still; used in combination with architectural grade polyester powder coating it provides an attractive, durable and maintenance free finish. This is in contrast to steel, where galvanising only offers limited protection and cast iron, which requires regular repainting.

Infinitely recyclable

Aluminium can be recycled again and again without loss of quality, in fact 75% of all aluminium ever produced is still in use today.

The recycling of aluminium requires little energy. It saves up to 95% of the energy required for primary aluminium production.

Responsible sourcing

Aluminium is the world's third most abundant element. 97% of all bauxite mines in the world operate rehabilitation projects, returning the land to its original condition after mining is finished. The amount of electrical energy required to produce aluminium has dropped by 70% since the 1880's and 60% of that electricity is provided from renewable green energy.

Green production power

Hydro-electric or geo-thermal green energy accounts for 60% of global primary aluminium production, minimising aluminium's environmental impact.

For more information visit the European Aluminium Association: www.eaa.net

Main Image: Lochside Hotel, New Cumnock, Ayrshire
Inset Image: Hydro-electric power plant

Colour options

All Alutec eaves rainwater systems are available with a BS 6496 architectural grade polyester powder coat (PPC) paint finish carried out to BS EN 12206-1:2004.

Architectural grade PPC paint finishes are designed for exterior use and maintain their colour and gloss level for longer. The paint's life expectancy is enhanced further by Alutec's choice of aluminium. Alutec only uses the highest quality marine grade aluminium, which greatly increases its durability.

Alutec has 24 standard colours, including Heritage Black, with a textured surface, emulating the appearance of traditional cast gutters. For more bespoke projects an infinite number of non standard colours are available.

CAST 98 Heritage Black		**RAL 9010** White	**RAL 1013** Pearl White
		RAL 9006 Silver	**RAL 9005** Black
RAL 7035 Light Grey	**RAL 7036** Platinum Grey	**RAL 7037** Steel Grey	**RAL 7012** Basalt Grey
RAL 7015 Slate Grey	**RAL 7022** Umbra Grey	**RAL 7016** Anthracite Grey	**RAL 7021** Granite Grey
RAL 5010 Flower Blue	**RAL 5002** Ultramarine	**RAL 5003** Sapphire Blue	**RAL 6002** Leaf Green
RAL 6005 Moss Green	**RAL 1017** Saffron Yellow	**RAL 3002** Signal Red	**RAL 3003** Ruby Red
RAL 8016 Chestnut Brown	**RAL 8014** Sepia Brown	**RAL 8017** Chocolate	

Colours are approximate and for general guidance only. For exact colour and finish reference, colour plates are available on request.

Hundreds of colours are available on request. For information on these and the gloss levels of the coating, please contact Alutec.

Main Image: Wichelstowe, Swindon, Wiltshire

Evolve Half Round

Evolve Deepflow

Evolve Box

Evolve Ogee

Evolved with the environment in mind

Evolve uses the latest manufacturing technologies to reduce its carbon footprint, making the Evolve family one of the most green and sustainable ranges available in the UK today.

Features of the Evolve range

Life expectancy of 50 years or more

Near zero maintenance, only periodic aesthetic cleaning required

Marine grade aluminium – Evolve will outlast other grade aluminium systems

Concealed fascia brackets on Box and Ogee profiles for a sleek and modern aesthetic

Unique JuraJoint (pat. pending) for quick, simple and secure jointing

Durable and strong, made from heavy grade extruded aluminium and high pressure castings, making Evolve more resistant to damage than steel, roll-form or PVC systems

Fade resistant architectural grade polyester powder coat paint finish

High flow rates reducing the number of downpipes required

Available at a **lower price** in the popular Heritage Black finish, with a textured surface to emulate the appearance of traditional cast iron

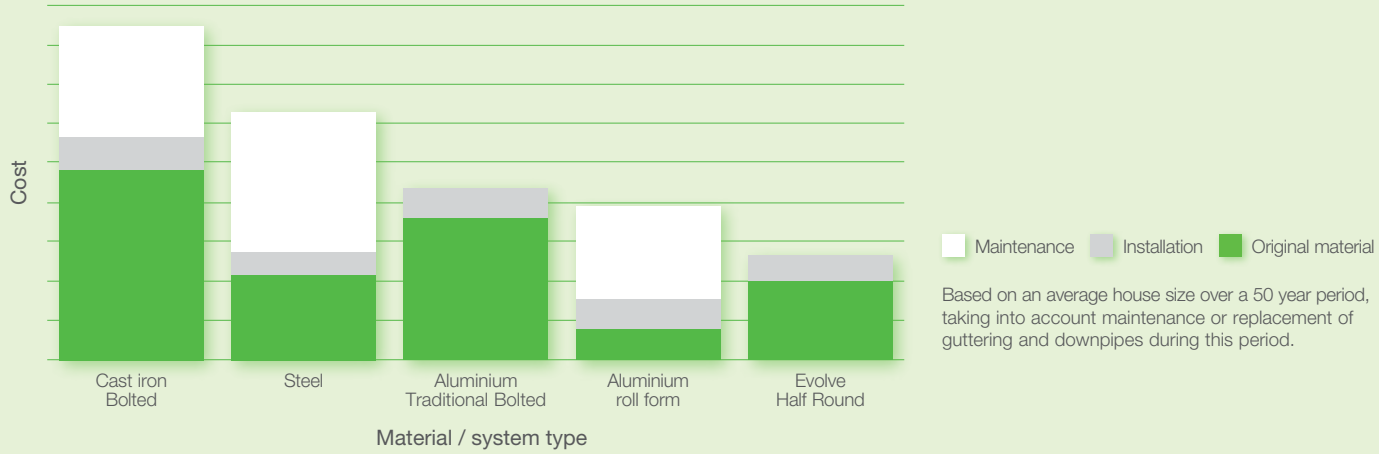
24 standard colours

Over 65% lighter than cast iron, making Evolve easier and safer to handle and install

Evolve: A low cost and sustainable solution

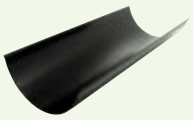
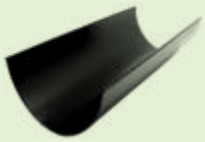
Maintenance cost estimates over 50 years show that Evolve is competitive against all materials.

50 year life-time material cost comparison: Half Round gutter systems



Based on an average house size over a 50 year period, taking into account maintenance or replacement of guttering and downpipes during this period.

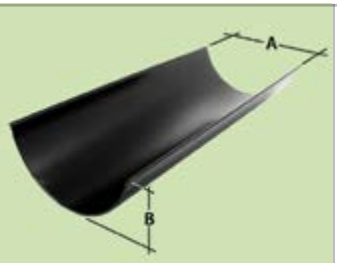
Product Selector

Profile	Size	Typical building types	Compatible downpipes	Maximum flow rate	Maximum roof area (per downpipe)[1]
Half Round 	120mm	Small – medium residential	Evolve 63mm Ø	1.8 l/s	87m²
Deepflow 	125mm	Medium to large residential and small commercial	Traditional 76mm Ø	4.9 l/s	232m²
			Flush-fit 76mm Ø	4.9 l/s	232m²
Box 	130x85mm	Medium to large residential Small to medium commercial	Flush-fit 76mm Ø	6.0 l/s	286m²
			Traditional 76mm Ø	6.0 l/s	286m²
			Flush-fit 72x72mm	7.0 l/s	333m²
			Traditional 72x72mm	7.0 l/s	333m²
Ogee 	130x95mm	Medium to large residential Small to medium commercial	Flush-fit 76mm Ø	6.0 l/s	286m²
			Traditional 76mm Ø	6.0 l/s	286m²
			Flush-fit 72x72mm	7.0 l/s	333m²
			Traditional 72x72mm	7.0 l/s	333m²

1: The above flow rates are based on physical tests carried out in accordance with BS EN 12056-3. Please refer to page 24 for more information or contact Marley Alutec Technical Services department for a full roof drainage design.

Evolve Half Round gutter

Compatible with Evolve 63mm Ø only (page 11).



Gutter 3m

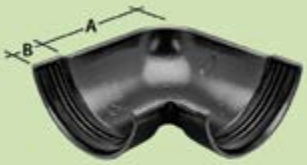
Code	A	B
GT513	123	51

Union

Code	A
GT520	60

Fascia bracket

Code	A	B	C	D
GT580	135	66	67	38



Angle 90°

Code	A	B
GT532	135	28

Angle 135°

Code	A	B
GT537	64	28

Outlet

Code	A	B	C	Fascia to outlet centre
GT522	200	140	62	67

Stop end (internal)

Code	A
GT550	25

Stop end (external)

Code	A
GT555	31

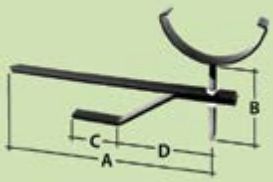
Fixed rafter arm

Code		A	B
AT73	Side	20	240
AT76	Top	20	240

Adjustable rafter arm

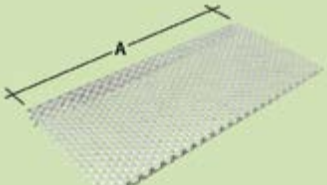
Code		A	B	C	D
AC78	Side	195	120	23	30
AC77	Top	195	120	23	30

Black Only



Rise & fall bracket

Code	A	B	C	D
AT93	360	125	80	168



Leafguard

Code	A
SL70	1220

Mill Finish

Compatible fixing screws

Roundhead fascia bracket screw

Code	Description
SC201	32mm x No. 10

Mill Finish

Sealant

Code	Description
SC101	310ml clear

Please note sealant shelf life is 12 months.
Refer to sealant usage table, page 27.

Evolve 63mm ø downpipe

Compatible with Evolve Half Round gutter only (page 10).

Downpipe 3m

Code
RT213

Pipe socket (eared)

Code	A	B	C	D	E
RT220	82	52	94	116	59

Pipe socket (uneared)

Code	A	B
RT220NE	82	52

Top bend 112.5°

Code	A	B	C
RT232	50	35	46

Bottom bend 112.5°

Code	A	B	C
RT292	40	64	40

Bend 92.5°

Code	A	B	C
RT230	37	27	46

Branch 112.5°

Code	A	B	C
RT242	95	26	115

Shoe

Code	A	B
RT250	92	104

Access pipe

Code	A	B	C
RT260	300	140	105

Pipe clip

Code	A	B	C
RT280	94	118	59

Rainwater diverter

Code	A	B	C	D
RTD25	134	500	74	30

Hopper head (standard)

Code	A	B	C	D
RH110	250	180	180	59

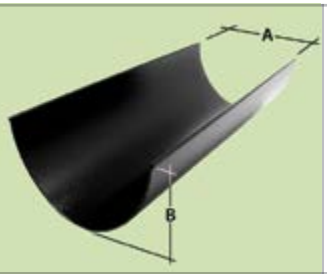
Compatible fixing screws

Roundhead fascia bracket screw

Code	Description
SC605	Domehead 50mm x No. 12 For use with downpipe
SC603	Domehead 50mm x No. 16 For use with hopper

Evolve Deepflow gutter

Compatible with Traditional and Flush-fit 76mm Ø downpipes only (pages 16 – 17).



Gutter 3m

Code	A	B
GE513	128	75

Union

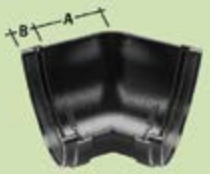
Code	A
GE520	86

Fascia bracket

Code	A	B	C	D
GE580	140	90	70	38

Angle 90°

Code	A	B
GE532	144	35

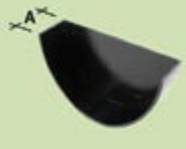


Angle 135°

Code	A	B
GE537	65	35

Outlet

Code	A	B	C	Fascia to outlet centre
GE523	214	150	85	70

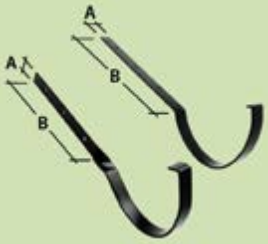


Stop end (internal)

Code	A
GE550	35

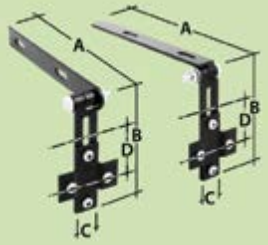
Stop end (external)

Code	A
GE555	39



Fixed rafter arm

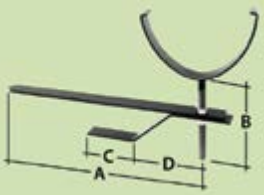
Code		A	B
AE73	Side	20	233
AE76	Top	20	233



Adjustable rafter arm

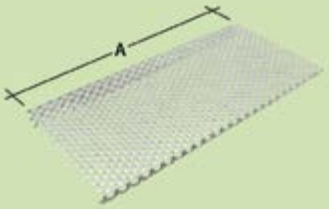
Code		A	B	C	D
AC78	Side	195	120	23	30
AC77	Top	195	120	23	30

Black Only



Rise & fall bracket

Code	A	B	C	D
AE93	360	125	80	168



Leafguard

Code	A
SL75	1220

Mill Finish

Compatible fixing screws

Roundhead fascia bracket screw

Code	Description
SC201	32mm x No. 10

Mill Finish

Sealant

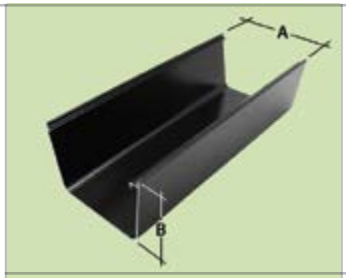
Code	Description
SC101	310ml clear

Please note sealant shelf life is 12 months.
Refer to sealant usage table, page 27.

All dimensions are in mm. For colour range and finishes, see page 7.

Evolve Box gutter

Compatible with Traditional and Flush-fit 76mm Ø and 72x72mm downpipes (pages 16 – 19).

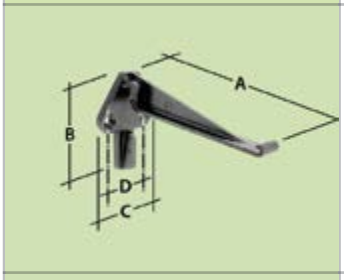


Gutter 3m

Code	A	B
GB513	131	85

Union

Code	A
GB520	72



Fascia bracket

Code	A	B	C	D
GB580	138	83	57	38

Angle 90º

Code	A	B
GB532	138	35

Angle 135º

Code	A	B
GB537	55	35

Outlet (76mm Ø)

Code	A	B	C	Fascia to outlet centre
GB523	200	133	80	76

Outlet (72x72mm)

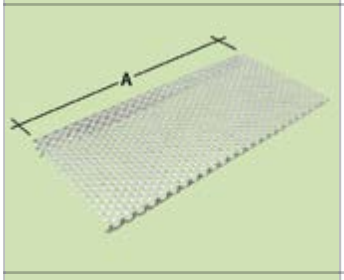
Code	A	B	C	Fascia to outlet centre
GB525	200	133	80	76

Stop end (internal)

Code	A
GB550	35

Stop end (external)

Code	A
GB555	37



Leafguard

Code	A
SL76	1220

Mill Finish

Compatible fixing screws

Roundhead fascia bracket screw

Code	Description
SC201	32mm x No. 10

Mill Finish

Sealant

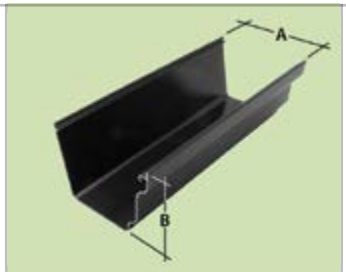
Code	Description
SC101	310ml clear

Please note sealant shelf life is 12 months.
Refer to sealant usage table, page 27.

All dimensions are in mm. For colour range and finishes, see page 7.

Evolve Ogee gutter

Compatible with Traditional and Flush-fit 76mm Ø and 72x72mm downpipes (pages 16 – 19).



Gutter 3m

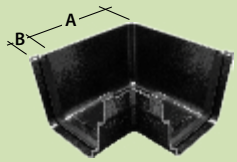
Code	A	B
GY513	131	95

Union

Code	A
GY520	72

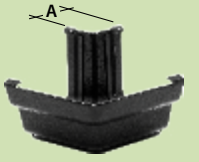
Fascia bracket

Code	A	B	C	D
GY580	138	83	57	38



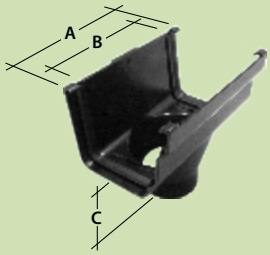
Angle 90º

Code		A	B
GY530	Internal	145	35
GY531	External	35	36



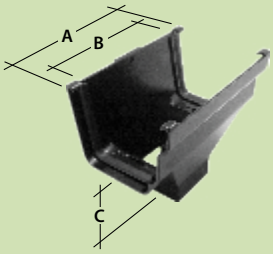
Angle 135º

Code		A	B
GY535	Internal	60	35
GY536	External	34	35



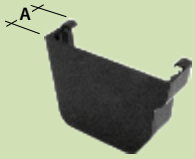
Outlet (76mm Ø)

Code	A	B	C	Fascia to outlet centre
GY523	200	130	69	69



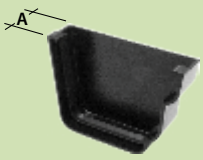
Outlet (72x72mm)

Code	A	B	C	Fascia to outlet centre
GY525	200	130	69	67



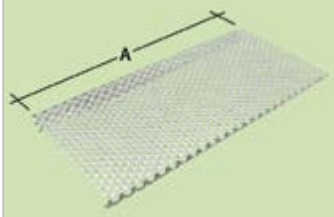
Stop end (internal)

Code		A
GY558	Right hand	35
GY557	Left hand	35



Stop end (external)

Code		A
GY555	Right hand	37
GY550	Left hand	37



Leafguard

Code	A
SL77	1220

Mill Finish

Compatible fixing screws

Roundhead fascia bracket screw

Code	Description
SC201	32mm x No.10

Mill Finish

Sealant

Code	Description
SC101	310ml clear

Please note sealant shelf life is 12 months.
Refer to sealant usage table, page 27.

Lawley Farm,
Telford, Shropshire

Wichelstowe,
Swindon, Wiltshire

Lawley Farm,
Telford, Shropshire

Lawley Farm,
Telford, Shropshire

Traditional 76mm Ø downpipe

Compatible with Evolve Deepflow, Box and Ogee gutters only (pages 12 – 14).

Downpipe 3m

Code	A	B	C
RR313	109	160	70

Pipe socket

Code	A	B	C	D
RR320	83	85	70	42

Bend

Code		A	B	C
RR330	92.5°	110	215	42
RR332	112.5°	110	230	42

Branch 112.5°

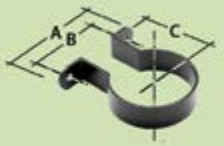
Code	A	B	C
RR342	250	119	130

Shoe

Code	A	B
RR350	103	124

Access pipe

Code	A	B	C
RR360	300	140	105



Pipe clip

Code	A	B	C
RR380	98	72	70

Fixed offset

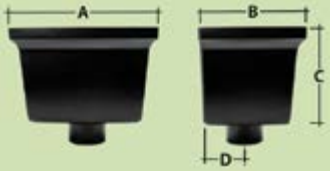
Code	A	B	C	D
RR3903	75	82	300	120
RR3904	100	80	321	133
RR3906	150	84	350	145

Adjustable offset

Code	A min	A max	B	C
RR3945	200	450	48	163
RR3990	200	900	48	163

Rainwater diverter

Code	A	B	C	D
RRD35	150	500	79	25



Hopper head (standard)

Code	A	B	C	D
RH102	250	180	180	70

Compatible fixing screws

Code	Description
SC603	50mm x No. 16 – Domehead

For use with downpipe and hopper

Pipe socket filler

Code	Description
SC911	10m roll

Foam

Sealant

Code	Description
SC101	310ml clear

Please note sealant shelf life is 12 months.
Refer to sealant usage table, page 27.

All dimensions are in mm. For colour range and finishes, see page 7.

Flush-fit 76mm Ø downpipe

Compatible with Evolve Deepflow, Box and Ogee gutters only (pages 12 – 14).

Downpipe 3m

Code	A	B
RE313	3000	50

Internal joint spigot

Code	A
RE320	69

Bend

Code		A	B
RE330	92.5°	115	81
RE332	112.5°	90	56

Branch 112.5°

Code	A	B	C
RE342	180	180	120

Shoe

Code	A	B
RE350	173	62

Access pipe

Code	A	B	C
RE360	345	138	104

Pipe clip

Code	A	B	C
RE380	112	137	69

Adjustable eaves offset

Code	A min	A max	B	C
RE3925	90	250	100	14
RE3950	90	500	100	14
RE39100	90	1000	100	14

Fixed wall offset

Fixed offsets are available to order*

Rainwater diverter

Code	A	B	C	D
RED35	125	500	45	25

Hopper head (standard)

Code	A	B	C	D
RH111	250	180	180	69

Compatible fixing screws

Code	Description
SC605	Domehead 50mm x No. 12 For use with downpipe
SC603	Domehead 50mm x No. 16 For use with hopper

* Please call 01234 359438 for a quote.
If connecting downpipe directly to outlet, call the Alutec Technical Services Department.

All dimensions are in mm. For colour range and finishes, see page 7.

Traditional 72x72mm downpipe

Compatible with Evolve Box and Ogee gutters only (pages 12 – 14).

Downpipe 3m**

Code	A	B	C
RSR313	125	151	42

Pipe socket **

Code	A	B	C	D
RSR320	80	83	83	40

Bend

Code		A	B
RSR330	92.5°	150	150
RSR332	112.5°	60	135

Branch 112.5°

Code	A	B	C
RSR342	260	127	130

Shoe**

Code	A	B
RSR350	96	100

Access pipe**

Code	A	B	C
RSR360	300	140	105

Pipe clip

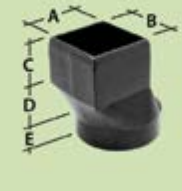
Code	A	B	C
RSR380	103	128	25

Fixed offset

Code	A	B	C	D
RSR3903	75	80	160	60
RSR3904	100	80	173	60
RSR3906	150	80	193	60

Adjustable offset

Code	A min	A max	B	C
RSR3945	75	450	80	60
RSR3990	75	900	80	60

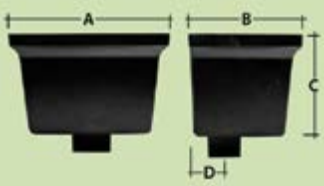


Drain connector
(slip socket)

Code	A	B	C	D	E
RSR370	85	85	65	41	30

Rainwater diverter

Code	A	B	C
RSRD35	98	30	500



Hopper head
(standard)

Code	A	B	C	D
RH104	250	180	180	42

Compatible fixing screws

Code	Description
SC603	Domehead 50mm x No. 16

For use with downpipe and hopper

Sealant

Code	Description
SC101	310ml clear

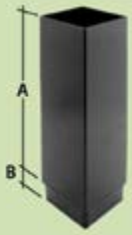
Please note sealant shelf life is 12 months.
Refer to sealant usage table, page 27.

** Non eared available on request.

All dimensions are in mm. For colour range and finishes, see page 7.

Flush-fit 72x72mm downpipe

Compatible with Evolve Box and Ogee gutters only (pages 12 – 14).



Downpipe 3m

Code	A	B
RJ313	3000	50

Internal joint spigot

Code	A
RJ320	62

Bend

Code		A	B
RJ330	92.5°	150	150
RJ332	112.5°	128	128

Branch 112.5°

Code	A	B	C
RJ342	260	127	154

Shoe

Code	A	B
RJ350	96	160

Access pipe

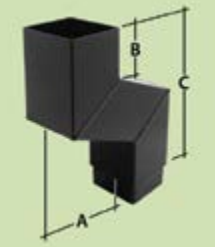
Code	A	B	C
RJ360	300	140	105

Pipe clip

Code	A	B	C
RJ380	103	128	25

Adjustable eaves offset

Code	A min	A max	B	C
RJ3925	75	250	75	60
RJ3950	75	500	75	60
RJ39100	75	1000	75	60



Fixed wall offset

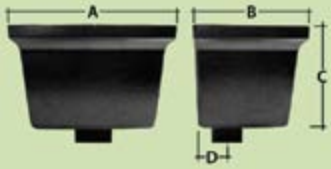
Fixed offsets are available to order*

Drain connector (slip socket)

Code	A	B	C	D	E
RJ370	85	85	65	41	30

Rainwater diverter

Code	A	B	C
RJD35	98	30	500



Hopper head (standard)

Code	A	B	C	D
RH112	250	180	180	42

Compatible fixing screws

Code	Description
SC605	Domehead 50mm x No. 12 For use with downpipe
SC603	Domehead 50mm x No. 16 For use with hopper

* Please call 01234 359438 for a quote.

All dimensions are in mm. For colour range and finishes, see page 7.

Roof drainage design

Design basis

Alutec gutter flow capacities shown on page 24 in the flow capacity table are calculated with the gutters being fixed nominally level. Most metal gutters are installed level for aesthetic purposes. However, if installed to a fall of 1:600 the flow capacity will be marginally improved.

Factors to be considered when designing an eaves drainage system.

1. Rainfall intensity design rate (l/s/m^2).
2. Effective Roof Area (ERA) to be drained (m^2).
3. Gutter flow capacity (l/s).
4. Size, number and position of outlets.
5. Frictional resistances in long gutter runs and the number of corners.

Knockroon Village, Ayrshire

Rainfall intensity design rate

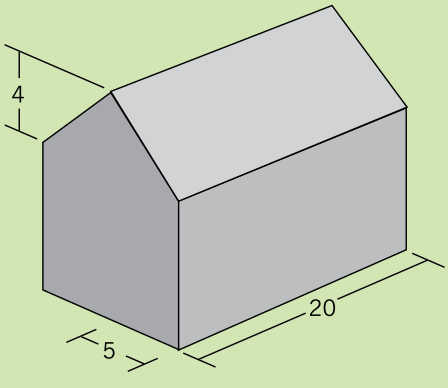
Building Regulations 2000 Document H3 recommend a general design rate of 0.021 l/s/m^2 (which is virtually the same as the traditional design rate of 75mm/hour) for eaves gutters where if overflowing occurs, water overspill will discharge clear of the building without risk of water ingress. If required, alternative rainfall intensity design rates can also be considered. Meteorological data published in the National Annex to EN12056 and Building Regulations 2000 Document H3, show varying rainfall intensities throughout the UK depending on geographical location.

The flow capacity table (page 24) indicates maximum flow, the gutter being full to the brim, however EN12056 states the design rate run-off from the roof should not exceed 90% of the gutter capacity. Also shown are the differences between outlet capacities when positioned centrally or at the end of a gutter run.

Effective roof area

Effective roof area can be determined by calculation as set out in EN12056-3.

The following example shows a basic calculation method that can be used as a guide in establishing the effective roof area (ERA).



ERA = ($\frac{4}{2}$ + 5) x 20 = 140m^2

Gutter capacity

Assuming the recommended rainfall intensity of 0.021 l/s/m^2 is acceptable, determine if the gutter outlet is to be positioned centrally, or at the end of the gutter run. Refer to the flow capacity table (page 24) and find the nearest roof area m^2 in either the ‘central’ or ‘end outlet’ options to determine the size/type of gutter/ rainwater pipes required.

Should a different rainfall intensity design rate be required, multiply the alternative design rate by the ERA to establish the required gutter capacity (l/s). Then refer to the gutter flow capacity table and select the nearest gutter flow capacity (l/s). Ensure that appropriate proportional allowances for central or end of gutter outlets are made.

Example:

Alternative design rate
0.025 l/s/m^2 x 140m^2 = 3.5 l/s

3.5 l/s into end outlet =
Evolve Box with 72mm outlet


Lawley Farm, Telford, Shropshire

Frictional resistances

Gutter Angles: EN12056-3 recommends that the gutter capacity should be reduced by a factor of 0.85 if the gutter run includes one or more angles greater than 10 degrees and that positioning of outlets adjacent to angles should be avoided.

Long Gutters: Frictional resistance in very long gutter runs will effectively reduce the flow capacity, hence reduction factors should be applied in accordance with recommendations detailed in EN12056-3.

Valley Discharges: Where a discharge from long valley occurs, it is prudent to consider a corner hopper or purpose made gutter angle with larger catchment area, to cope with the concentrated volume of rainwater during storm conditions.

Compatibility

To avoid bi-metallic corrosion, ensure electrolytically incompatible materials do not come in direct contact with un-insulated plain aluminium surfaces. In particular ensure that the recommended compatible screws and fixings are used. Polyester powder coated surfaces will give limited protection, but should not be solely relied upon. If in doubt, please contact the Technical Services Department.

Durability

Under normal UK atmospheric conditions, Alutec systems, if correctly installed, have a minimum life expectancy of 50 years or more. This may be marginally reduced in highly polluted or coastal areas.

Chemical

All products are naturally corrosion resistant under normal atmospheric conditions. Not to be used for chemical drainage or in conjunction with foul waste drainage.

Fire

In general Alutec rainwater products do not aid combustion and are rated as follows:

Finish rating	Test standard
Plain finish – non combustibility	BS 476: Part 4
PPC – 0.1 fire propagation index	BS 476: Part 6
PPC class 1, flame surface spread	BS 476: Part 7

Thermal

Coefficient for thermal expansion – 0.000026 deg C for cast aluminium and 0.000023 deg C for sheet and extruded aluminium. Melting point approximately 660 deg C.

Non standard requirements

To accommodate unusual curves or angles, roofs which intersect at different levels or any other feature of an installation not covered by the standard ranges, Alutec offer a bespoke product service to complement any non standard requirements.

An indication of the most common non standard items are shown below, however other items may be possible. For further advice, contact the Technical Services Department.

Wichelstowe,
Swindon, Wiltshire

True Radius

Segmented Radius

True radiused gutters

True radiused gutters can be sand cast to simulate all profiles in the Alutec range. Sand casting involves making a wooden pattern of the gutter profile, to the given radius, from which the sand moulds are made. In view of the pattern cost, this method can be costly for small quantities.

Due to building and foundry tolerances, it is recommended that radiused gutters are made in approximately 1m lengths.

Segmented radiused gutters

Achieved by internally welding together segments of machine mitred gutter to achieve a given radius. Dependent on the radius, the more segments introduced the better the appearance.

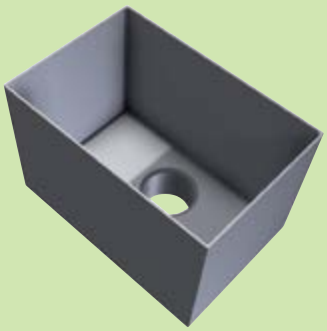
This method is less expensive than sand casting and in general the segmentation is not noticeable on two storey buildings and above.

Site dimensions

As theoretical radius dimensions are often subject to extreme building tolerances, we recommend that a rigid 1m long radiused template be cut or marked on site. The template should be offered up to the fascia at 1m intervals to check the fascia has been constructed to a uniform radius. The template should be sent to Alutec Technical Services department for use as a master template.

Bespoke hopper heads

Individually designed hoppers can be fabricated from sheet aluminium and a variety of decorative cast motifs and embellishments can be added to enhance the appearance, if required.



Rise and fall gutter angles

Any reasonable degree of angle can be fabricated. However, care must be taken in establishing accurate site dimensions and degrees of angle. Experience has proved that theoretical geometry may not be accurate, hence each angle should be site checked and location referenced.

Special gutter adaptors

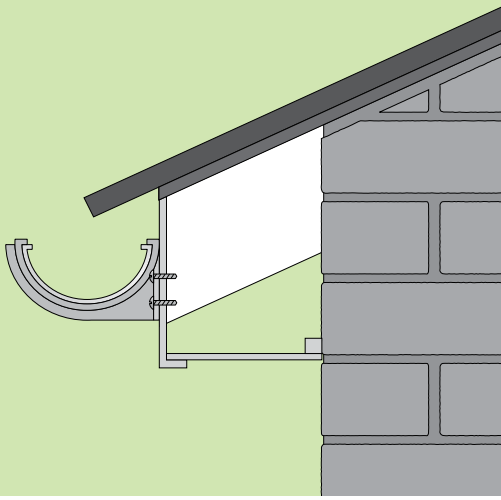
Adaptors between differing sizes and profiles of gutters, rainwater pipes or drain connections can be fabricated to customer requirements, subject to design criteria. Accurate dimensional details are required.

Special gutter outlets

Standard gutter outlets can be modified to customer requirements subject to design criteria. However it should be noted that this may be detrimental to the flow performance of that outlet

Gutter / fascia / soffit assemblies

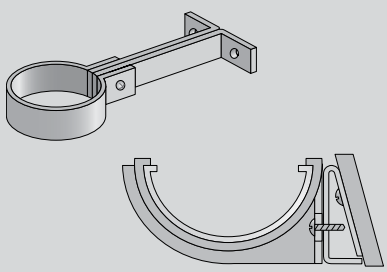
Non standard gutter profiles made from sheet aluminium are available to order. Fascia and soffit systems are made to a standard design concept which can be adapted to suit most applications; see the Alutec soffit and fascia brochure for further information. Customer designed systems will also be considered subject to design criteria.



Cockernhoe

Special pipe and gutter brackets

Special support brackets for use in conjunction with standard or bespoke products are available to order subject to design criteria.



Gutter and hopper head flow capacities

Gutter flow rates

Gutter Profile	Downpipe system	End Outlet		Centre Outlet	
		Capacity l/s	Effective Roof Area m²	Capacity l/s	Effective Roof Area m²
Half Round	Evolve 63mm	0.85	41	1.8	87
Deepflow	Traditional 76mm Ø	2.5	120	4.9	232
	Flush-fit 76mm Ø	2.5	120	4.9	232
Box	Traditional 76mm Ø	3.0	142	6.0	286
	Flush-fit 76mm Ø	3.0	142	6.0	286
	Traditional 72x72mm	3.5	167	7.0	333
	Flush-fit 72x72mm	3.5	167	7.0	333
Ogee	Traditional 76mm Ø	3.0	142	6.0	286
	Flush-fit 76mm Ø	3.0	142	6.0	286
	Traditional 72x72mm	3.5	167	7.0	333
	Flush-fit 72x72mm	3.5	167	7.0	333

Hopper head flow rates

	Outlet size mm	Capacity l/s	Effective Roof Area m²
	63mm Ø	3.0	115
	76mm Ø	4.5	214
	72x72mm	4.4	210

Figures based on a design rainfall intensity of 0.021 l/s/m²

Alutec specification clauses

Alutec have a full list of NBS clauses for rainwater gutter and downpipe systems. Below is an example of a typical specification. More detailed specifications are also available online marleyalutec.co.uk.

R10 rainwater drainage systems

Manufacturer

Marley Alutec, Unit 1 (G – H),
Hudson Road,
Elms Farm Industrial Estate,
Bedford MK41 0LZ

Tel: 01234 359438

Fax: 01234 357199

Email: enquiries@marleyalutec.co.uk

Web address: marleyalutec.co.uk

Product reference

Marley Alutec Aluminium
Gutter system

Type/Grade

Evolve Half Round

Extruded

Profile

Evolve Half Round

Nominal size

120mm for Evolve Half Round

Jointing

Evolve JuraJoint EPDM rubber seal with Alutec silicone sealant

Fixing

Evolve Half Round

Fascia brackets

Product reference

Marley Alutec Aluminium
Downpipe system

Type/Thickness

Extruded / Cast

Section

Circular

Nominal size

Evolve: 63mm Ø

Fixings

Evolve 63mm Ø: Eared pipe sockets / Pipe clips

Accessories

Hopper Rectangular

Branch

Adjustable offset

Fixed offset

Shoe

Access pipe

Rainwater diverter

Finish

Polyester Powder Coated to
BS EN 12206:2004

Colour gutter and downpipe

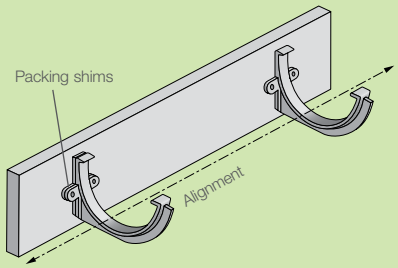
RAL 1013 Pearl White/ RAL 1017 Saffron Yellow/ RAL 3002 Signal Red/ RAL 3003 Ruby Red/ RAL 5002 Ultramarine/ RAL 5003 Sapphire Blue/ RAL 5010 Flower Blue/ RAL 6002 Leaf Green/ RAL 6005 Moss Green/ RAL 7015 Slate Grey/ RAL 7016 Anthracite Grey/ RAL 7021 Granite Grey/ RAL 7035 Light Grey/ RAL 7036 Platinum Grey/ RAL 7037 Steel Grey/ RAL 8014 Sepia Brown/ RAL 8016 Chestnut Brown/ RAL 8017 Chocolate/ RAL 9010 White/ RAL 9005 Black/ Cast 98 Heritage Black/ RAL 7022 Umbra Grey/ RAL 9006 Silver/ RAL 7012 Basalt Grey

Installation

Preparation

Fascia boards should be in good condition, level and in linear alignment. If required, lead packing shim plates can be fabricated on site and fixed behind gutter brackets to achieve good alignment. Brackets which are misaligned will cause joint fatigue resulting in eventual joint failure. Where a gutter is fixed to cellular fascia board, less than 20mm thick, it is recommended that a timber backing board is installed behind the fascia to provide a straight and secure fixing surface.

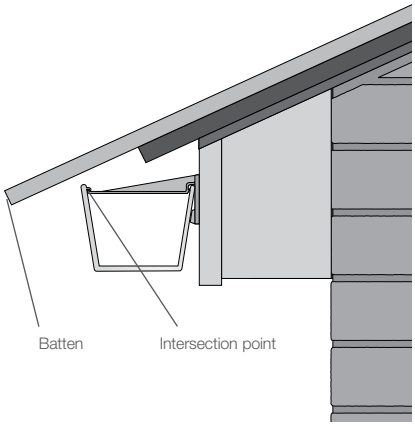
Use standard metal work tools to cut or drill aluminium gutters. Angle grinders are not recommended. Where gutter or fittings are polyester powder coated, cut edges should be deburred and repainted with touch up paint, SC880.



Gutter position

Gutters must be installed level or to a fall of 1:600. The gutter should not be positioned at a level which causes rainfall to overshoot the gutter, i.e. too low, or where it is damaged by the high velocity impact of sliding snow, i.e. too high.

To establish the recommended gutter position, place a straight batten on the lowest profile of the roof covering, overhanging the eaves. The gutter can then be offered not higher than the intersection point (where the top front edge of the gutter and the batten meet). Gutter brackets must be fixed at minimum 1m centres.



JuraJoint

A new method of jointing aluminium gutter, combining the simplicity of a rubber seal with the security of Alutec sealant. Sealant SC101 is simply applied in one bead into the central channel of the rubber seal. When the joint is snapped together it 'bonds' the rubber seal to the gutter surface achieving a durable, thermally flexible and leak free joint.

Jointing

Joint sealing must not be carried out in wet weather or in temperatures below 5ºC or above 40ºC. Joint surfaces must be perfectly clean and dry. Use a clean cloth and solvent cleaner SC108 to remove all traces of dirt or grease, which may not be visible.

Only Alutec high performance low modulus sealant SC101 must be used. Use of other sealants may result in early joint failure. Sealant over nine months old must not be used.

Fixing

To ensure the long term durability of aluminium gutter systems, it is vitally important to ensure that the fixing components are equally durable and capable of providing the necessary support. They must therefore be non corrosive, of a compatible material to ensure no electrolytic corrosion occurs and of the appropriate size. Only the recommended austenitic stainless steel screws must be used to fix gutters, whether direct, fascia or rafter bracket fixed.

SC201	32mm x No.10 Roundhead
SC603	50mm x No.16 Domehead
SC604	75mm x No.16 Hexagonal head
SC605	50mm x No.10 Roundhead
SC203	15mm x No.10 Roundhead Pozi For fixing gutter brackets to Alutec aluminium composite fascia

If fixing to fascia boards made of materials other than wood or Alutec aluminium composites, please call the Alutec Technical Services Department.

Snow loading

Heavy snow fall coupled with highly insulated roofs is causing accumulation of snow on roofs. A sudden thaw will then cause the snow to slide down the roof and rest against the gutters if they are fixed too high. Greater care must be taken to make sure the gutters will not impede sliding snow. However, for the ultimate protection, snow guards should be installed.

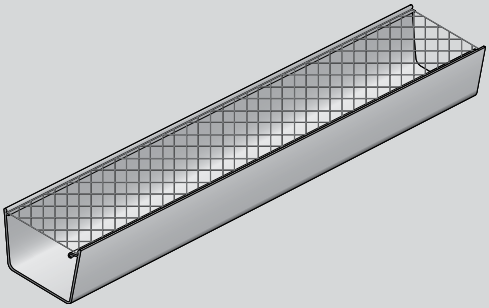
Sealant usage table

Approximate number of joints per tube of Alutec sealant.

System	Joints per tube of sealant
Evolve Half Round gutter	105
Evolve Deepflow gutter	80
Evolve Box gutter	65
Evolve Ogee gutter	65
Evolve 63mm Ø pipe socket	25
Traditional 76mm Ø pipe socket	20
Traditional 72x72mm pipe socket	17

Leafguards

Aluminium leafguard mesh is available for all profiles in 1.22m lengths. Supplied in mill finish, leafguards either require brackets (supplied) or simply sit inside the gutter.



Detailed installation instructions are supplied with every consignment of goods and are available separately on request or at marleyalutec.co.uk.

General system advice

Site painting

Evolve is only supplied in polyester powder coat paint finishes and if over-painted, it is recommended that all components are individually painted prior to installation to ensure that all surfaces are painted.

If over-painting new or aged polyester powder coated surfaces, rub down surfaces with a light abrasive scotch wool (not steel wool) to achieve a good key. Clean surfaces using a clean cloth and solvent cleaner, SC108 and apply top coat directly onto the prepared surface. No undercoats or primers are required.

Two-part synthetic or polyuerathene paints are recommended for durability. Ensure the paint is fully dry prior to contact with joint sealant. Partially dry paint may react with sealant, affecting reliability of gutter joint.

Handling & storage

Gutters and pipes should be handled with care and should preferably be stored under cover on racks to prevent scratching or denting. All gutter and pipe lengths are supplied in protective polythene sleeving and components packed in cardboard boxes.

If polyester powder coated products are stored outside, cover with a tarpaulin to guard against water ingress into the protective polythene tubing. If water becomes trapped within the polythene wrapping and left exposed to warm sunlight, it may leave permanent water stains on the paint finish.

Sealants should not be stored in temperatures below 0°C and kept away from any direct heat source. Solvent cleaners must be stored away from any direct heat or combustible source, preferably in an appropriate fire resistant storage cabinet.

Safety

The relevant safety regulations are outlined in the Health and Safety at Work Act 1974 and should be followed.

Refer to the Approved Code of Practice (ACOP) Construction Design and Management Regulations 2007.

Handling mill finished or polyester powder coated aluminium products does not pose any known health hazard, however it is recommended to wear protective gloves when handling mill finish aluminium.

Hazard instructions relating to sealant, solvent cleaner and touch up paint are printed on their respective containers and COSHH sheets are supplied with each consignment of goods and are available on request.

Maintenance

Gutters should be periodically cleaned out to maintain the design flow rate and to prevent build up of debris blocking downpipes. Check all fixings are secure and take any remedial action to rectify if necessary.

Leafguards are available as standard to fit each gutter system and are recommended for buildings close to trees, with restricted access, or areas susceptible to airborne debris.

Installed gutters and pipes with polyester powder coated finishes should be periodically washed down with water and non-toxic detergent, this will remove built up grime to reveal the true colour. Under no circumstances should abrasive cleaners be used.

Standards

All Alutec systems are manufactured in accordance with the appropriate British or European Standard, including:

BS EN ISO 9227:2006
Corrosion tests in artificial atmospheres – Salt spray tests.

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

BS EN 755-2:2008
Aluminium and aluminium alloys – Extruded rod/bar, tube and profiles.

BS EN 1706:2010
Aluminium and aluminium alloys – Castings – Chemical composition and mechanical properties.

BS EN 1559-2:2000
Founding – Technical conditions of delivery.

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

BS EN 12206-1:2004
Paints and varnishes – Coating of aluminium and aluminium alloys for architectural purposes.

Cockernhoe, Luton,
Hertfordshire

Traditional 72x72mm
downpipe

Wichelstowe,
Swindon, Wiltshire

Evolve Half Round
in Heritage Black Finish

Alutec range overview

Evolve

Specifically developed to meet the demands of both the building owner and installer. Evolve systems combine high flow rate performance with fast and easy installation. Evolve systems use the latest manufacturing technologies to reduce its carbon footprint.

Aligator®

Two distinctive design solutions:

Aligator Classic, a domestic size ogee style gutter system with external unions and brackets; ideal for community or local authority housing.

Deepflow, Ogee, Boxer and Giant profiles with internal joints and concealed brackets, offering a sleek and unobtrusive solution for modern building design.

Traditional

A range of BS 8530:2010 traditional style bolted gutter systems for replacement of cast iron on period, listed or traditional style new builds, combining aluminium's inherent benefits of longevity and low maintenance. Manufactured to original British Standard cast iron dimensions; available in Half Round, Victorian Ogee and Moulded Ogee profiles with matching round, square and rectangular downpipe options.

Soffit, fascia and coping systems

A new and innovative concept in roofline solutions, Alutec soffit, fascia and coping systems are manufactured from composite aluminium, a material used on some of the world's most prestigious developments, including high rise buildings, where exceptional durability and aesthetic appearance are key. Alutec composite aluminium systems have a life expectancy of 50 years or more.

Roof outlets

A comprehensive range of aluminium roof outlets for a wide range of applications. Each component has been engineered to achieve design flexibility and the highest performance specification to give complete confidence to the specifier.

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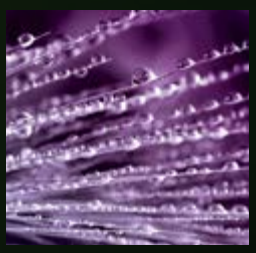

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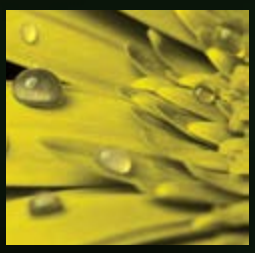

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