

ARP^{LTD} **ALUMINIUM ROOFLINE PRODUCTS**



Mustang[®] Aluminium Seamless Gutter System

Technical Product Guide 2013



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Introduction

About Us

Aluminium Roofline Products Ltd (ARP Ltd) is a privately owned, independent company based in Leicester near the M1/ M69 junction. Established in 1984 the company specialises in the manufacture and supply of aluminium eaves systems. The experience gained over the 25 years in the industry has enabled ARP with its "hands on" refreshing approach to customer service to build an extensive range of aluminium roof line products.



Product Range

ARP Ltd is a specialist manufacturer of Architectural Aluminium Roofline products. The seamless division involves supplying high quality coil and poly carbonate products for use with the Mustang® system and manufactured 'Colonnade' rainwater pipes with an extensive range of components to enable easy assembly and installation.

ARP supply both the specifier and the installer the highest standards of performance, visual appeal and durability.

ARP's Mustang® Gutters are suitable for domestic, small commercial and light industrial applications.



Technical & Estimating

ARP has its own in-house technical and estimating departments which are on hand to assist in the feasibility and design of standard or bespoke systems. Flow calculations can be provided upon request.

With short lead times and extensive material stocks, ARP can deliver even in the most demanding situations.



Introduction

Product Related Standards

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

BS EN 122026. Specification for powder coating

BBA Certificate no 91/2625 Mustang Gutter System

BBA Certificate no 93/2918 Hydro Aluminium Rolled Products AS

Hydro Aluminium Letter of Quality Assurance



“Mustang®” System Overview

Description:

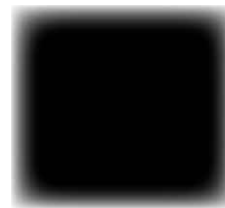
Gutter	125x97mm Seamless Ogee Gutter formed on site using a passive ‘cold roll forming’ gutter machine.
Fixing Brackets	Extruded in mill finish aluminium HE9T6 16mm wide by 2.5mm thick , secured with stainless steel fixings.
Stopends	Manufactured from polycarbonate
Outlets/Leaftraps	Low-density polyethylene
Locking Corners	Two Part fittings in polycarbonate with two fixing screws

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Colours available:

All coils are Black , wound onto the outside of the coil backed by one of the following colours;

Black	RAL 9005 Matt
Brown	BS08B29 Matt
White	RAL 9016 Satin
Grey	RAL 7037 Matt
Cream	RAL 1015 Matt



RAL 9005 MATT



RAL 9016 SATIN



BS08B29 MATT



RAL 1015 MATT



RAL 7037 MATT

Colours are reproduced for guidance only. Please contact our Sales Office for samples/swatches.



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“Mustang®” System Overview

Finish:

Hydrocoat Textured 800
Coated Aluminium Alloy Coil ,
40% Gloss (Matt)

Model Specification:

‘Mustang®’ seamless gutter and fittings
**(British Board of Agrément Certificate
No 91/2625)** in pre-coated 0.9mm thick
3105 H45 aluminium.
Profile to be 125x97mm O.G. section.
Material to be pre-coated both sides in
Hydrocoat / Textured NH 80 in Black/
Brown/White/Grey/Cream* **(British Board
of Agrément Certificate No.93/2918**
Detail sheet and Hydro Aluminium Alucoat
Letter of Quality Assurance).
Installation to be carried out only by an
approved contractor (details available
from ARP Ltd) with material supplied by
ARP Ltd. Gutter to be formed on site in
seamless lengths and secured and supported
with extruded mill finish aluminium fixing
support brackets 16mm wide x 2.5mm thick
at 450mm centres.
Corners, Stop Ends , Straight Connectors,
60mm/70mm* Leaf Traps are formed using
‘Mustang®’ Polycarbonate fittings sealed
with ‘Mustang®’ approved sealant.
The gutters are to be fixed using M4x40mm
Stainless steel countersunk screws.

*delete as appropriate



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“Mustang®” System Overview

The Facts:

- Bauxite is the worlds 3rd most abundant mineral.
- Current rates of extraction on known Bauxite resources will last more then 100 years
- Aluminium can be endlessly recycled without loss in quaity.
- Recycling aluminium uses only 5% of the energy required to produce primary aluminium
- Hydro Aluminium have 30 worldwide facilites for remelting aluminium
- ARP have supplied Hydro aluminium coil for 25 years
- The BBA quote,
“The product will perform effectively with an ultimate life of at least 30 years.”



ARP’s high quality dual coated gutter coil is solely supplied by Hydro Aluminium Alucoat in Norway.

Hydro Aluminium produce and control every stage of the coil process.

Bauxite is initially mined and through a thorough refining process the Alumina is extracted, widely using hydro electric power within the production process.

The obtained Alumina is then processed further creating a solid aluminium ingot , which is then used to produce the 0.9mm rolled aluminium coil used within the Mustang® system.

The base mill finish coil is then degreased, etched and cromated before the high quality finish coating is applied to ARP’s colour specifications.

The finished coil products are resistant to all atmospheric corrosive agencies (including marine and industrial) and will withstand considerable distortion of the metal without the coating losing adhesion.

This makes it ideal for the roll forming process used to produce seamless guttering.

The British Board of Agrément have independently tested all of ARP’s supplied gutter coil , full details can be found on certificate no 93/2918.



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“Mustang®” System Overview

ARP supplied coils are processed within our extensive factory in Leicester to produce usable gutter coils from the initial 6 tonne mother coil.

Each coil weighs approx. 100 kg* and when roll formed will produce 130 metres of finished gutter at a ratio of 1kg = 1.3m. Every mother coil processed by ARP is uniquely numbered and electronically recorded .

The subsequent gutter coils are then issued an individual coil number, it is advisable that installer maintain records of coil numbers used to provide a fully traceable record from the finished gutter back to its original source.

**Half Coils at 60 kg and smaller coil weights are available subject to stock
Please contact our sales office for availability*



Handling & Storage:

- Coil is supplied in protective cardboard lathes, these should be retained for storage where possible.
- All coils are to be kept clear of dirt , grease or debris to prevent damage to surfaces.
- Coil is ideally kept inside, although corrosion will not occur under normal conditions some weather marking may be evident if kept outside.
- Coil may produce some slippage in machines if damp.
- During transit, coil should not be fed into the gutter machine.
- In some areas it will be necessary to clean the installation periodically, both to restore its appearance and to remove potentially corrosive deposits.
- Cleaning can be done by hosing with water , using a neutral non abrasive detergent.

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“Mustang®” Installation

Installation:

General:

Mustang® Gutter and Accessories are suitable for use as eaves guttering for conveying rainwater from roofs to suitable outlets. It is important to ensure the fascia board or fixing background is in a sound condition.

Installation:

The installation must be carried out by approved installers trained by ARP Ltd. The installation must be in accordance with BS EN 12056-3: 2000 (Gravity drainage systems inside buildings, roof drainage, layout & calculation) when applicable.

Procedure:

Downpipes are positioned and marks corresponding to their centres are made on the fascia board. An exact measurement is taken of the length of gutter required, noting the marked positions of the downpipes. An initial 1m length of the gutter section is roll-formed and the process stopped for an end cap to be fitted to the open end. The gutter is crimped centrally near the edge of the rear, front and base to create raised fixing nibs. The end cap is pressed home causing the internal slotted securing clips to fully engage over the fixing nib, ensuring a non-removable fitting. The completed fitting is sealed inside the gutter with at least three beads of sealant, minimum diameter 7mm.

Roll-forming to the exact gutter length is completed. Aluminium fixing brackets are clipped into position at centres not exceeding 450mm as roll-forming is continued. The formed gutter is cut to length and a stopend fitted to the remaining open end.

Corners are formed by mitring the ends of the gutter lengths and the installation of a two-piece polycarbonate locking corner fitting, sealed with specific sealant and held together with stainless steel screws. Connector expansion joints are installed in the same manner. The corners and connectors do not require mechanical fixing and allow for thermal movement. At the downpipe positions in the gutter a hole is formed using a Qmax cutter into which a low-density polyethylene outlet/leaf trap is fitted and sealed with mastic. The gutter is positioned and fixed with 4mm diameter, 30mm long stainless steel, self tapping screws. The fixings are located in pre-drilled holes in the fixing brackets and driven through the back of the gutter into the fascia.

Maintenance:

Installed correctly the joints will be maintenance free, however, if accidentally damaged they can be replaced or slackened, resealed and reassembled. If the centre position of a long length of gutter is damaged, the damaged portion can be removed and a new length inserted by the use of the connector/expansion joints.

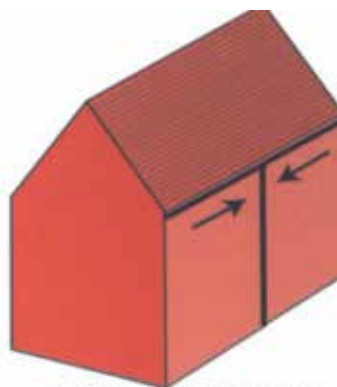
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“Mustang®” Flow Capacities

Flow Capacities:

To gauge the suitability of your gutter selection a simple calculation can be made given certain basic information which can be compared to the chart below.

Profile	Roll Formed Moulded O.G.
Size	125 x 97mm
Waterline Depth	82mm
Free Flow Litres/sec	2.67l/s
Restricted Flow 60mm dia outlet	2.08 l/s
Restricted Flow 70mm dia outlet	2.83l/s



RESTRICTED FLOW

Restricted flow represents the maximum capacity of a system (gutter + outlet) discharging from both sides to a centrally positioned outlet



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“Mustang®”

Polycarbonate Components

Material Specification:

Produced from Polycarbonate and formed using ARP's own moulds, the Mustang® component range is both durable and affordable.

UV stability is such that there are no issues within the standard UK environment.

Due to the chemical make up of the base material only ARP Mustang® approved sealants are to be used.



Locking Corner 90° External , 90° Internal , 135° External manufactured from Poly Carbonate, fitted in 2 parts, sealed and fastened together using stainless steel mitre screws.

Expansion Joint / Locking Straight Connector manufactured from Poly Carbonate, fitted in 2 parts, sealed and fastened together using stainless steel mitre screws.

Stopends Right Hand, Left Hand
Manufactured from Polycarbonate, snap fitted to gutter end and sealed

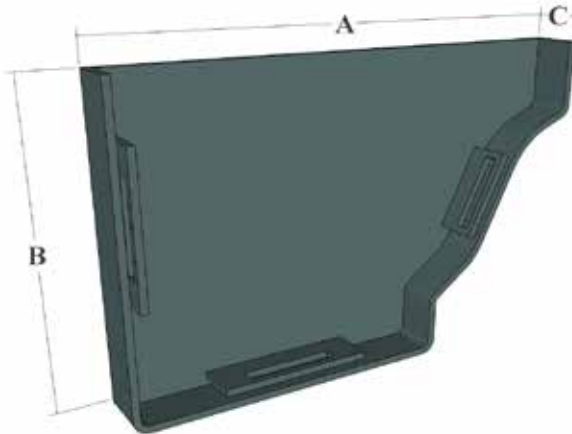


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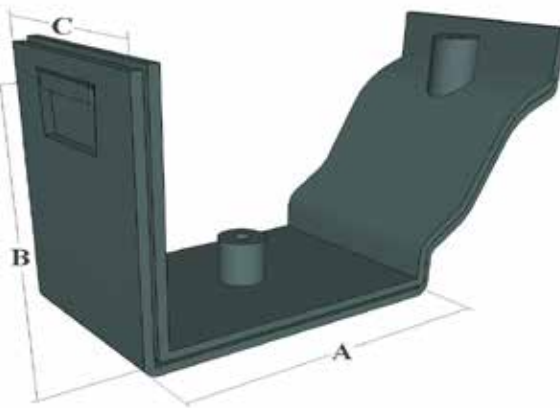
Polycarbonate Components

Endcaps



Colour	A (mm)	B (mm)	C (mm)	Code L/H	Code R/H
Black	135	85	14	PCECLBLK	PCECRBLK
White	135	85	14	PCECLW	PCECRW
Brown	135	85	14	PCECLBR3	PCECRBR3
Cream	135	85	14	PCECLCR	PCECRCR
Grey	135	85	14	PCECLGRY	PCECRGRY

**2pt Locking
Straight Connector**



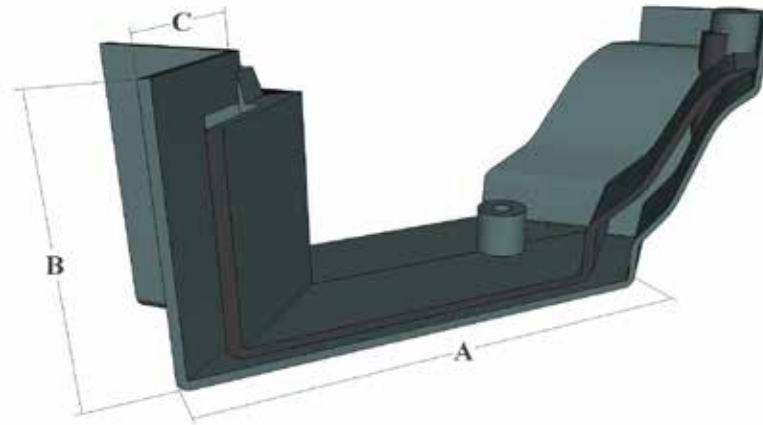
Colour	A (mm)	B (mm)	C (mm)	Code
Black	94	88	60	PCCSBLK
White	94	88	60	PCCSW
Brown	94	88	60	PCCSBR3
Cream	94	88	60	PCCSC
Grey	94	88	60	PCCSGRY

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“Mustang®”

Polycarbonate Components

**2pt 90°
Locking Corners**



90°	A	B	C	Code	Code
Colour	(mm)	(mm)	(mm)	Internal	External
Black	157	91	42	PCSMI90BLK	PCSMX90BLK
White	157	91	42	PCSMI90W	PCSMX90W
Brown	157	91	42	PCSMI90BR3	PCSMX90BR3
Cream	157	91	42	PCSMI90CR	PCSMX90CR
Grey	135	91	42	PCSMI90	PCSMX90GRY

135°	A	B	C	Code	Code
Colour	(mm)	(mm)	(mm)	Internal	External
Black	100	90	35	-	PCSMX135BLK
White	100	90	35	-	PCSMX135W
Brown	100	90	35	-	PCSMX135BR3
Cream	100	90	35	-	PCSMX135CR
Grey	100	90	35	-	PCSMX135GRY

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“Mustang[®]”

Polycarbonate Components



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“Mustang®”

Hangers & Brackets

Material Specification:

Mustang® seamless gutters are secured to a fascia board using 16mm wide x 2.5mm thick internal hidden gutter ‘Hanger’ brackets. The maximum spacing required is 450mm between brackets and 150mm from either an endcap or corner.

When secured to a sound fascia board the Mustang® Hanger brackets will withstand UK weather conditions.

Extruded ‘A’ type and ‘C’ type mill finish aluminium HE9T6 16mm wide x 2.5mm thick hanger brackets with two 4mm diameter fixing holes. Secured using M4 x 40mm stainless steel fixings.

External Brackets:

Mustang® seamless gutters can be secured where fascias are not available by using either Rise and Fall Brackets or if the rafter ends are exposed, side fix or top fix rafter brackets can be utilised.

Rise & Fall brackets are secured into the masonry using a 300mm x 4mm galvanised steel drive in spike and are set out at a maximum of 750mm centres and no further than 375mm from an endcap or corner.

Rafter Brackets are secured to the rafter using a welded 19mm x 4mm aluminium rafter arm (*roof pitch required) at a maximum of 600mm centres or where rafter spacings allow.

Standard hanger brackets can still be installed into the gutter to give better stability.

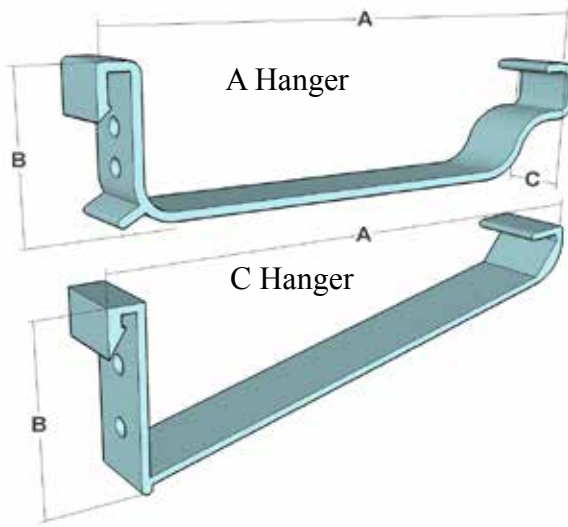


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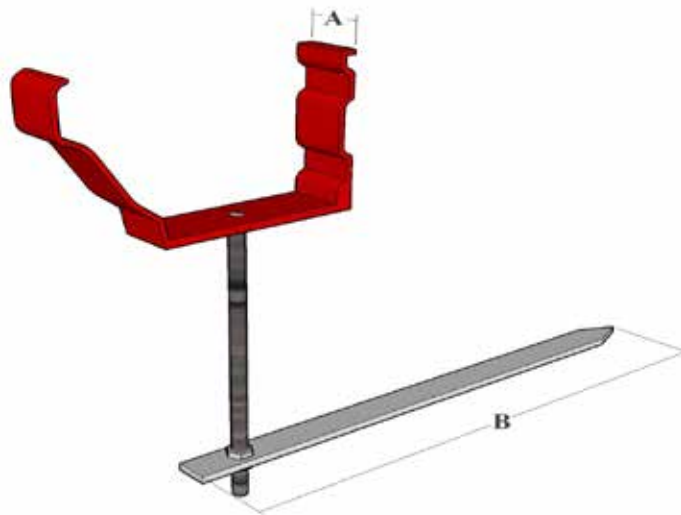
Hangers & Brackets

Hangers



HANGER TYPE	A (mm)	B (mm)	C (mm)	Code
A HANGER	127mm	47mm	16mm	HA
C HANGER	130mm	37mm	16mm	HC

Rise & Fall Brackets

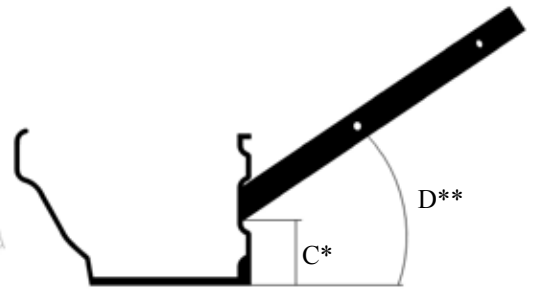
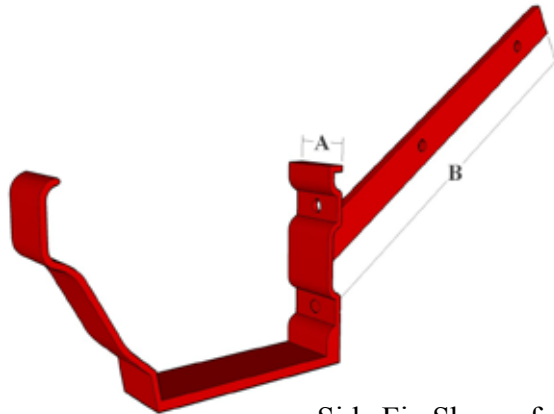


Colour	A (mm)	B (mm)
Black	30	300

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“Mustang®” Hangers & Brackets

Rafter Brackets



* C, Variable, please specify.
** D, roof pitch in degrees, measured from the horizontal.

Side Fix Shown for Illustration

Colour	A	B	C	D	Code
	(mm)	(mm)	(mm)	°	Top/Side Fix
PPC	30	230	Specify	Specify	5BIRB

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“Mustang®”
Hangers & Brackets



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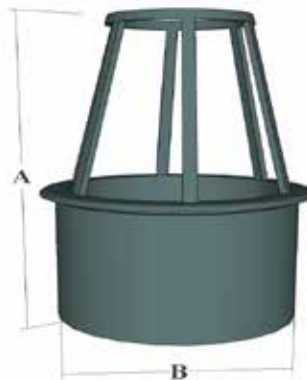
Leaftraps

Leaftraps:

Mustang® Outlets are available in either 60mm diameter or 70mm diameter. Produced from low density anti Ultra Violet Polyethylene, fixed through a pre-formed hole using a Q-Max hole cutter and sealed using a Mustang® approved sealant. It is advisable that in cold temperatures the leaf trap is warmed to ease manipulation into the hole prior to installation. Soft 60mm diameter rubber leaf traps are also available for easier installation.



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	A	B	Code
	(mm)	(mm)	
60mm	95	60	PLT6OBLK
60mm soft	10X95	60	PLT64SBLK
70mm	95	70	PLT70BLK

“Mustang®”

Optional Extras

Leaf Guards:

Falling leaves can cause blockage problems in all types of guttering. Leaf traps go some way to prevent such issues but in areas of overhanging trees it may be prudent to install a separate leaf guard system to further protect your guttering.

Mustang® approved leafguard systems are proven to prevent blockage to the gutter flow and make cleaning debris from the gutter itself easier.

Please note that leaf guards will not prevent penetration from pine needles.

Gutter Clean™ Soft Back:

Produced from aluminium and supplied in a durable anodised finish the Gutter Clean™ system is designed to fix on top of the existing hidden hangers onto installed sections of seamless guttering. The soft rubber segment at the back of the length allows the installer to ‘push fit’ the gutter clean into the existing gutter although it is advisable to fix the lengths onto the hangers using small stainless steel screws or aluminium rivets.

Leaf trap outlets should also be installed to enable connection to the rain water pipe.

Gutter Clean™ is supplied in 2.2 metre lengths.

Fixatech™ Hard Back:

Produced from aluminium and supplied in a durable anodised finish the Fixatech™ system replaces the need for internal hidden hangers. The Fixatech™ gutter guard is fitted into new installations of seamless guttering, to cover the complete length given 100% coverage.

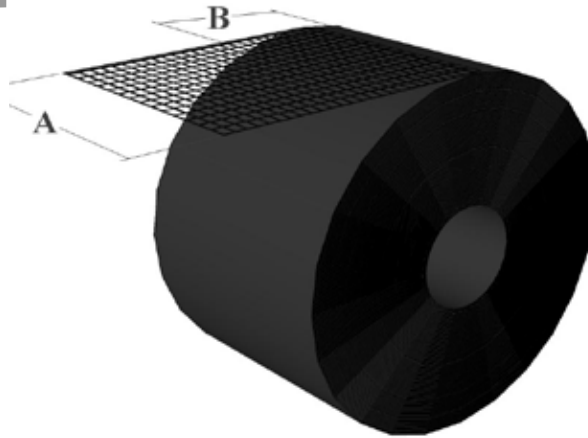
Separate corner sections can be purchased and it is advisable to install a short removable section above outlets for access. Leaf trap outlets should also be installed to enable connection to the rain water pipe. Fixatech™ is supplied in 2.2 metre lengths.



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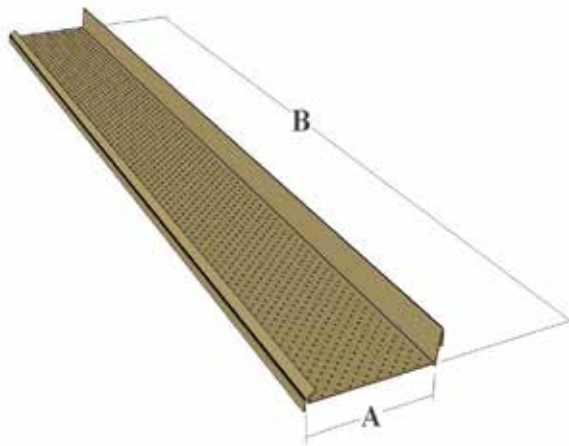
“Mustang®”
Optional Extras

Guttergrid



A (mm)	B (m)	Code
131	50	GG13
150	50	GG15

Gutterguard



	A (mm)	B (m)	Code
Soft Back	115	2.2	GGM5300
Hard Back	120	2.5	GGM5200

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“Mustang®”
Optional Extras



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Sealants

Sealants:

As with all good guttering systems, the success of the system relies heavily on the effectiveness and quality of the sealants used. In its nature, the Mustang® system reduces the amount of joints due to its seamless design but where sealant is required, at corners, end caps, outlets and expansion joints only a Mustang® approved sealant is to be used.

Arbo 1090:

Supplied in 380ml tubes, Arbo 1090 is a one part Low Modulus Cure Silicone Sealant, with good adhesion to metals.

Specification:

- Application Temperature +5°C to +50°C
- Service Temperature -50°C to 120°C
- Chemical Resistance - Resistant to most dilute acids and alkalis
- UV Resistance Very Good
- Service Life 25 years+
- Shelf Life 9 months at room temperature un-opened

Dunlop

Supplied in 310ml tubes, Dunlop DP2205 is a High Modulus Cure Silicone Sealant, with good adhesion to metals.

Specification:

- Application Temperature +5°
- Service Temperature -40°C to 180°C
- UV Resistance Very Good
- Service Life 25 years+
- Shelf Life 12 months at room temperature un-opened

Seal Once:

Supplied in 300ml tubes,

Specification:

- Application Temperature +5°C to +40°C
- Service Temperature -25°C to 100°C
- UV Resistance Very Good
- Service Life 25 years+
- Shelf Life 24 months at room temperature un-opened

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“Mustang®” Sealants

Sealant



Type	ml	Code
Arbosil 1090	380	SA90
Dunlop	310	SD05
Seal-Once	300	SO



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Maintenance of Hydrocoat pre-painted aluminium

The Hydrocoat Range of products has a highly durable paint finish providing a high level of aesthetic appearance as well as protection to the metal against attack from aggressive agents. In order to maintain this appearance and to enhance the performance of the product, simple maintenance procedures are recommended.

Cleaning

In order to remove surface dirt and associated aggressive compounds, it is advisable to wash the coated surface on a fairly regular basis. Warm water and detergent solutions are satisfactory for this purpose, but any abrasive cleaners or alkaline materials must be avoided. Sponges, soft brushes or pressurised sprayers may also be of assistance in removing ingrained dirt from the coating. Rinsing with fresh clean water is the final stage.

The use of solvent based cleaners must be avoided as softening and damage to the coating is likely to occur.

Depending on the type of end use, the suggested frequency of cleaning may vary. For rainwater guttering, for example, a minimum of twice yearly is essential. In some cases a good quality wax car polish may serve as added protection. In some applications, this may be impractical, but depending on the environmental conditions and the effectiveness of natural washing by rainwater, steps must be taken to remove corrosive agencies from the surface of the coating.

Repairing Small Scratches

During installation, fine scratches or small areas of damage to the coating can occur. Special touch up paints are generally available from ARP.

The surface to be repaired is first washed with mild detergent in water, rinsed and dried. The touch up paint is applied to the damaged area using a fine brush.

Since the resins used in these touch-up paints are less durable than Hydrocoat stoved finishes, changes in colour may appear during natural weathering. This is normal and is generally not apparent in building applications due to the natural dirtiness of the environment.

Overpainting

There are occasions when overpainting is required, for example to change the appearance or after many years in service to prolong the life of the product.

The coating is first washed with mild detergent in water, rinsed and dried. There is no need to rub the coating down or to abrade the surface in order for the new coating to adhere. Any of the normal vehicle refinishing systems has good adhesion to the coatings used in the Hydrocoat range of materials.

When seamless guttering is to be repainted, the choice of coating to be used is directly related to the performance required and the budget available. Hydro Aluminium recommendations are available via ARP's technical office.

The procedures to be followed are,

- Rub Down any areas of bare aluminium to remove corrosion products and any loose paint.
- Wash the whole area with a mild detergent solution in water, rinse thoroughly and allow to dry. It is essential to remove all dirt and debris from the surface before repainting.
- Apply a two-pack etching primer locally to any areas of exposed, bare aluminium. This should not be used on painted areas since the free acid in the etch primer will remain unreacted on the surface.
- A primer coat or sealer coat followed by a decorative top coat may be required. These may be brushed or sprayed depending on location and prevailing weather conditions and specialised contractors are available to carry out this work when necessary.

Source- Hydro Aluminium Data Sheet ALP-DS-013

Aluminium in contact with other materials

Aluminium in contact with other materials:

Aluminium and its alloys are compatible with a wide range of materials and normally no reaction occurs between them and the aluminium. However, there are some conditions in which contact with other materials should be avoided and in the case of certain metals, electromechanical corrosion of the aluminium will occur. The information given below relates to Mill Finish aluminium, but since all coatings are permeable to moisture, care should be taken to avoid direct contact between these materials and the Hydrocoat range of coated aluminium products.

Concrete

When in its wet condition, concrete is alkaline and has a mild action on bare aluminium. Once the concrete has hardened, no further action takes place.

Copper, Brass and Bronze Alloys

Aluminium is corroded by any materials containing copper and contact with them should be avoided at all times. In addition, copper treated timber can cause corrosion problems under moist conditions and water running off copper-rich materials, such as lightning conductors, should not come in to contact with aluminium.

Iron and steel

Preferential corrosion of aluminium occurs in moist conditions when in contact with unprotected conditions when in contact with unprotected iron or mild steel. If acid or alkaline conditions are also present, this reaction is increased. The aluminium should be isolated from the iron or steel using either inert materials such as plastic tapes, washers or mastics, or by a passivation treatment of the steel such as galvanisation.

Lead

In moist, aggressive conditions such as found in coastal locations, aluminium is likely to show corrosion attack. Run off water may also cause preferential corrosion of aluminium.

Stainless Steel

In most conditions aluminium show no corrosive action when in direct contact with stainless steel and stainless steel fixings and washers may be used without problems. In particularly aggressive locations, plastic washers may be used to isolate the two metals.

Zinc

Under normal conditions aluminium and zinc are fully compatible and may be used together in direct contact without problems. In severe cases, the zinc may preferentially corrode. If zinc treated steel is in contact with aluminium, in acid conditions the zinc may be removed and care must be taken to separate the steel and aluminium to avoid corrosive attack of the aluminium.

Certification



Designated by Government
to issue
European Technical
Approvals

Aluminium Roofline Products Limited

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CI/SfB

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**Agrément
Certificate
No 91/2625**
Fourth issue*

MUSTANG GUTTER AND ACCESSORIES

Systèmes de gouttière
Dachrinnensysteme

Product



• THIS CERTIFICATE RELATES TO MUSTANG⁽¹⁾ GUTTER AND ACCESSORIES: ALUMINIUM GUTTER LENGTHS AVAILABLE IN ONE SHAPE, CORNERS, STOPENDS, FIXING BRACKETS, EXPANSION JOINTS AND OUTLETS/LEAF GUARDS.


• The gutter is for use with downpipe and fittings complying with BS EN 12200-1 : 2000.

• The gutter and accessories, in conjunction with downpipe and fittings to BS EN 12200-1 : 2000, are for the collection and discharge of rainwater from roofs.

(1) Mustang is a registered trademark of Aluminium Roofline Products Limited.


Regulations

1 The Building Regulations 2000 (as amended) (England and Wales)

 The Secretary of State has agreed with the British Board of Agrément the aspects of performance used by the BBA in assessing the compliance of drainage systems with the Building Regulations. In the opinion of the BBA, Mustang Gutter and Accessories, if used in accordance with the provisions of this Certificate, will meet the relevant requirements.

Requirement:	H3	Rainwater drainage
Comment:		The gutter and accessories will contribute to carrying the flow of rainwater from the roof to an outfall and minimise the risk of blockage or leakage. See sections 7.1 and 10 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The gutter and accessories are acceptable. See sections 8, 9 and 13 of this Certificate.

2 The Building Standards (Scotland) Regulations 1990 (as amended)

 In the opinion of the BBA, Mustang Gutter and Accessories, if used in accordance with the provisions of this Certificate, will satisfy the various Regulations and Technical Standards listed below.

Regulation:	10	Fitness of materials and workmanship
Standard:	B2	Selection and use of materials, fittings, and components, and workmanship
Comment:		The gutter and accessories are acceptable. See sections 8, 9 and 13 of this Certificate.
Regulation:	24	Drainage
Standard:	M2	Drainage
Comment:		The gutter and accessories are acceptable. See sections 7.1 and 10 of this Certificate.

Readers are advised to check the validity of this Certificate by either referring to the BBA's website (www.bbacerts.co.uk) or contacting the BBA direct (Telephone Hotline 01923 665400).

Certification

3 The Building Regulations (Northern Ireland) 2000



In the opinion of the BBA, Mustang Gutter and Accessories, if used in accordance with the provisions of this Certificate, will satisfy the various Building Regulations listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The gutter and accessories are acceptable. See sections 8, 9 and 13 of this Certificate.
Regulation:	N5	Rain-water drainage
Comment:		The gutter and accessories will contribute to meeting the relevant requirements of this Regulation. See sections 7.1 and 10 of this Certificate.

4 Construction (Design and Management) Regulations 1994 (as amended)

Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

In the opinion of the BBA there is no information in this Certificate which relates to the obligations of the client, planning supervisor, designer and contractors under these Regulations.

Technical Specification

5 Description

5.1 Mustang Gutter and Accessories comprise the items listed in Table 1 and shown in Figure 1.

Table 1 Mustang gutter system components

Component	Specification
Gutter	Manufactured from 0.9 mm thick Hydrocoat 800 textured aluminium coil and available in black, brown, white, green or cream
Fixing brackets	Extruded in mill finish aluminium HE9T6 16 mm wide by 2.5 mm thick, secured with stainless steel fixings
Stopends	Manufactured from polycarbonate and available in black, brown, white, green or cream
Outlets/ leaf traps	Low density polyethylene.
Locking corners and connector/ expansion joints	Two part fittings in polycarbonate with two fixing screws
Sealant	Mustang Mustseal supplied by the Certificate holder.

5.2 The gutter is of ogee section 125 mm wide by 87 mm deep (see Figure 1).

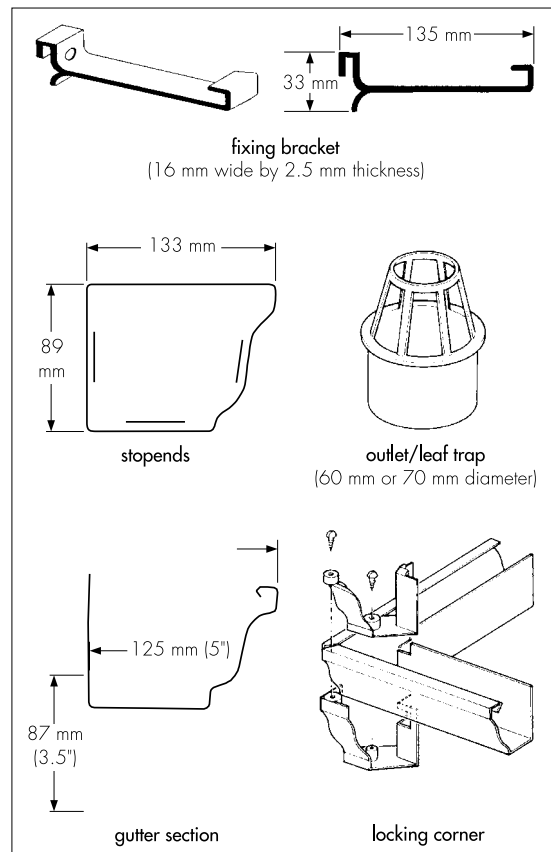
5.3 Joints between lengths of gutter and end caps outlets and corner pieces are sealed with Mustang Mustseal, supplied by Aluminium Roofline Products Limited.

6 Manufacture

6.1 The gutter is manufactured on site by roll-forming continuous lengths from Hydrocoat 800 aluminium coil pre-cut to width. Fixing brackets are factory-made using conventional metalworking techniques. Stopends, outlets/ leaf traps, locking corners and connector/ expansion joints are bought-in to an agreed specification.

6.2 The quality of the roll-formed gutter is controlled on site by visual and dimensional checks and by correct maintenance of the roll-forming equipment by trained operatives. Factory-made components are subject to visual and dimensional checks.

Figure 1 Gutter system components



Design Data

7 General



7.1 Mustang Gutter and Accessories are suitable for use as eaves guttering for conveying rainwater from roofs to suitable outlets. It is important to ensure that the fascia board or fixing background is in a sound condition.

7.2 Slight undulation in the external face of the gutter may be evident, particularly if the facing is uneven or where dark coloured gutters are exposed to direct sunlight. This will not affect the serviceability of the gutter.

Certification

8 Performance of joints



Correctly made joints between adjacent gutter sections are watertight under conditions of thermal movement in excess of those expected to occur in practice.

9 Resistance to loading



The systems have adequate resistance to impacts and snow, water and other loads likely to occur during and after installation.

10 Flow characteristics



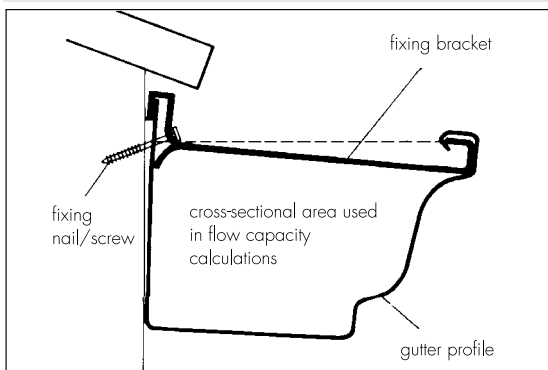
The flow capacities, when calculated in accordance with BS EN 12056-3: 2000, Clause 5 are given in Table 2.

Table 2 Freeflow capacities (based on BS EN 12056-3: 2000)

	Flow capacity (litres per second)
Gutter ⁽¹⁾	1.99
Outlet ⁽²⁾	1.05

(1) Section properties based on Figure 2
(2) Assuming 50 mm diameter outlet

Figure 2 Flow capacity



11 Practicability of installation

Installation of the gutter and accessories is achieved easily by suitably trained personnel under normal site conditions (see section 14).

12 Maintenance

12.1 Installed correctly, the joints will be maintenance free; however, if accidentally damaged they can be replaced or slackened, resealed and reassembled.

12.2 If the centre position of a long length of gutter is damaged, the damaged portion can be removed and a new length inserted by the use of the connector/expansion joints.

12.3 The gutter can be cleared easily of debris, etc.

13 Durability



The gutter will have a life expectancy of at least 30 years.

Installation

14 General

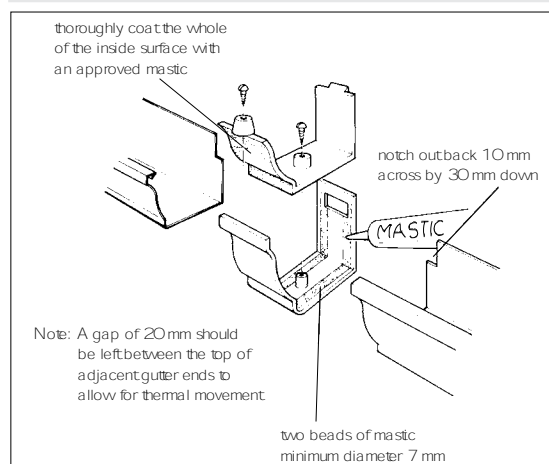
Installation must be carried out by approved installers trained by the Certificate holder. The installation must be in accordance with BS EN 12056-3: 2000 when applicable.

15 Procedure

15.1 Downpipes are positioned and marks corresponding to their centres are made on the fascia board. An exact measurement is taken of the length of gutter required, noting the marked positions of the downpipes. An initial 1 m length of the gutter section is roll formed and the process stopped for an end cap to be fitted to the open end. The gutter is crimped centrally near the edge of the rear, front and base to create raised fixing nibs. The end cap is pressed home causing the internal slotted securing clips to fully engage over the fixing nib, ensuring a non-removable fitting. The completed fitting is sealed inside the gutter with at least three beads of the sealant; minimum diameter 7 mm. Roll forming to the exact gutter length is completed.

15.2 Aluminium fixing brackets are clipped into position at centres not exceeding 450 mm as roll-forming is continued. The formed gutter is cut to length and a stop end fitted to the remaining open end. Corners are formed by miting the ends of the gutter lengths and the installation of a two piece polycarbonate locking corner fitting, sealed with mastic and held together with stainless steel screws. Connector expansion joints are installed in the same manner (see Figure 3). The corners and connectors do not require mechanical fixing and allow for thermal movement. At the downpipe positions in the gutter a hole is formed using a tank cutter, into which a low density polyethylene outlet/leaf trap is fitted and sealed with mastic. The gutter is positioned and fixed with 3.75 mm diameter, 30 mm long stainless steel ring shank nails or M4 by 40 mm stainless steel, self-tapping screws, in accordance with the recommendations of the Certificate holder. The fixings are located in pre-drilled holes in the fixing brackets and driven through the back of the gutter into the fascia.

Figure 3 Connector/expansion joint



15.3 It is necessary to make provision for expansion to take place in gutters over 30 m long. This is achieved by fitting connector/expansion joints as shown in Figure 3.

Technical Investigations

The following is a summary of the technical investigations carried out on Mustang Gutter and Accessories.

Certification

16 Tests

16.1 Tests were carried out to determine:

- watertightness of joints
- resistance of gutter to loading
- performance of expansion joints
- effect of temperature on 30 m length of gutter.

16.2 An examination was made of data in relation to the following:

- impact resistance
- dimensional accuracy
- flow capacity
- ease of cleaning
- thermal movement

17 Other investigations

17.1 The manufacturing process was examined, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

17.2 Site visits were carried out to assess the practicability of installation and the performance in use.

Bibliography

BS EN 12056-3: 2000 *Gravity Drainage Systems inside Buildings — Roof drainage, layout and calculation*

BS EN 12200-1: 2000 — *Plastics Rainwater Piping Systems for Above Ground External Use Unplasticized Poly (vinyl chloride) (PVC-U) — Specifications for Pipes, Fittings and the System*

Conditions of Certification

18 Conditions

18.1 This Certificate:

- (a) relates only to the product that is described, installed, used and maintained as set out in this Certificate;
- (b) is granted only to the company, firm or person identified on the front cover — no other company, firm or person may hold or claim any entitlement to this Certificate;
- (c) has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective;

(d) is copyright of the BBA.

18.2 References in this Certificate to any Act of Parliament, Regulation made thereunder, Directive or Regulation of the European Union, Statutory Instrument, Code of Practice, British Standard, manufacturers' instructions or similar publication, shall be construed as references to such publication in the form in which it was current at the date of this Certificate.

18.3 This Certificate will remain valid for an unlimited period provided that the product and the manufacture and/or fabricating process(es) thereof:

- (a) are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA;
- (b) continue to be checked by the BBA or its agents; and
- (c) are reviewed by the BBA as and when it considers appropriate.

18.4 In granting this Certificate, the BBA makes no representation as to:

- (a) the presence or absence of any patent or similar rights subsisting in the product or any other product;
- (b) the right of the Certificate holder to market, supply, install or maintain the product; and
- (c) the nature of individual installations of the product including methods and workmanship.

18.5 Any recommendations relating to the use or installation of this product which are contained or referred to in this Certificate are the minimum standards required to be met when the product is used. They do not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate or in the future; nor is conformity with such recommendations to be taken as satisfying the requirements of the 1974 Act or of any present or future statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the installation and use of this product.



In the opinion of the British Board of Agreement, Mustang Gutter and Accessories are fit for their intended use provided they are installed, used and maintained as set out in this Certificate. Certificate No 91 / 2625 is accordingly awarded to Aluminium Roofline Products Limited.

On behalf of the British Board of Agreement

A handwritten signature in black ink, appearing to read 'P. Q. Newson'.

Date of Fourth issue: 19th June 2002

Chief Executive

*Original Certificate issued on 27th March 1991. This amended version includes a change to the Certificate holder's name and address and reference to the revised Building Regulations and Standards.

Health & Safety

REVISION DATE: 26/10/05

**ADSHEAD
RATCLIFFE**

SAFETY DATA SHEET ARBOSIL 1090

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

PRODUCT NAME ARBOSIL 1090
APPLICATION Neutral cure building sealant.
SUPPLIER Adshead Ratcliffe & Co. Ltd.
Derby Road, Belper
Derbyshire.
DE56 1WJ
Tel. (+44) 01773 826661
Fax. (+44) 01773 821215

2 COMPOSITION/INFORMATION ON INGREDIENTS

Name	EC No.	CAS-No.	Content	Classification
BIS-(N-METHYLBENZAMIDO)-METHYLETH OXYSILANE	240-354-5	16230-35-6	1-5%	Xi;R36/38.
DIBUTYLTIN DILAURATE	201-039-8	77-58-7	< 1%	Xn;R48/22. Xi;R36/38. N;R50/53.
TITANIUMACETYLACETATE	281-161-6	83877-91-2	1-5%	R10.

The Full Text for all R-Phrases are Displayed in Section 16

COMPOSITION COMMENTS

Polydimethylsiloxane with fillers, auxiliaries. benzamidosilane crosslinking agent.

3 HAZARDS IDENTIFICATION

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

CLASSIFICATION R52/53.

4 FIRST-AID MEASURES

INHALATION

Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.

INGESTION

Immediately rinse mouth and drink plenty of water (200-300 ml). Give milk instead of water if readily available. DO NOT induce vomiting. Get medical attention immediately.

SKIN CONTACT

Remove affected person from source of contamination. Remove contaminated clothing. Wash the skin immediately with soap and water. Get medical attention if any discomfort continues.

EYE CONTACT

Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

5 FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA

Water spray. Foam, carbon dioxide or dry powder.

SPECIFIC HAZARDS

By heating and fire, harmful vapours/gases may be formed.

6 ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS

Wear appropriate protective clothing.

ENVIRONMENTAL PRECAUTIONS

Do not allow to enter drains, sewers or watercourses. Avoid discharge onto the ground.

SPILL CLEAN UP METHODS

Collect and reclaim or dispose in sealed containers in licensed waste.

Health & Safety

REVISION DATE: 26/10/05

ARBOSIL 1090

7 HANDLING AND STORAGE

USAGE PRECAUTIONS

Avoid spilling, skin and eye contact. Observe good industrial hygiene practices.

STORAGE PRECAUTIONS

Store in tightly closed original container in a cool, dry well-ventilated place.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

PROTECTIVE EQUIPMENT



ENGINEERING MEASURES

No particular ventilation requirements.

HAND PROTECTION

Use suitable protective gloves if risk of skin contact.

EYE PROTECTION

Not generally required.

HYGIENE MEASURES

DO NOT SMOKE IN WORK AREA! Wash at the end of each work shift and before eating, smoking and using the toilet. Wash promptly if skin becomes contaminated. Promptly remove any clothing that becomes contaminated. When using do not eat, drink or smoke.

9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Uncured -paste. Cured - rubber.		
COLOUR	Misc. colours		
ODOUR	Slight odour		
SOLUBILITY	Insoluble in water		
RELATIVE DENSITY	1.18 - 1.195 @ 20°C	VISCOSITY	5,000 - 7,000 Ps @ 20°C
FLASH POINT (°C)	230 (as paste)	AUTO IGNITION TEMPERATURE (°C)	50 (as paste)

10 STABILITY AND REACTIVITY

STABILITY

Stable under normal temperature conditions and recommended use.

CONDITIONS TO AVOID

Avoid excessive heat for prolonged periods of time.

11 TOXICOLOGICAL INFORMATION

TOXIC DOSE 1 - LD 50 Not determined.

INHALATION

No specific health warnings noted.

INGESTION

No harmful effects expected in amounts likely to be ingested by accident.

SKIN CONTACT

Skin irritation is not anticipated when used normally.

EYE CONTACT

May cause irritation to eyes. Will not injure eye tissue.

12 ECOLOGICAL INFORMATION

ECOTOXICITY

The product contains a substance which is very toxic to aquatic organisms and which may cause long term adverse effects in the aquatic environment.

LC 50, 96 Hrs, FISH mg/l Not determined

MOBILITY

The product is insoluble in water.

13 DISPOSAL CONSIDERATIONS

DISPOSAL METHODS

Dispose of waste and residues in accordance with local authority requirements.

Health & Safety

REVISION DATE: 26/10/05

ARBOSIL 1090

14 TRANSPORT INFORMATION

GENERAL The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

15 REGULATORY INFORMATION

RISK PHRASES
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SAFETY PHRASES
S61 Avoid release to the environment. Refer to special instructions/safety data sheets.

STATUTORY INSTRUMENTS
Chemicals (Hazard Information and Packaging) Regulations. Control of Substances Hazardous to Health.

APPROVED CODE OF PRACTICE
Classification and Labelling of Substances and Preparations Dangerous for Supply.

GUIDANCE NOTES
Workplace Exposure Limits EH40. CHIP for everyone HSG(108).

16 OTHER INFORMATION

REVISION COMMENTS

General review

REVISION DATE 26/10/05

REV. NO./REPL. SDS GENERATED 06/01/04

SDS NO. 10165

RISK PHRASES IN FULL

R10 Flammable.

R36/38 Irritating to eyes and skin.

R48/22 Harmful: danger of serious damage to health by prolonged exposure if swallowed.

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

DISCLAIMER

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

Health & Safety

Revision Date NOVEMBER 2012

Product No. DP 2205

Revision 8

ALPHA

SAFETY DATA SHEET DP 2205 ALL COLOURS

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name DP 2205 ALL COLOURS
Product No. DP 2205

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses High modulus acetoxycure silicone sealant

1.3. Details of the supplier of the safety data sheet

Supplier Alpha Adhesives & Sealants Ltd
Llewellyn Close, Sandy Lane Ind. Est.
Stourport-on-Severn
Worcestershire DY13 9RH
01299 828626
01299 828666
sales@alpha-adhesives.co.uk

1.4. Emergency telephone number

44 (0) 1299 828626 (Available 08.30 to 17.00)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (1999/45/EEC) Not classified.

Human health

The hazardous properties of the product are considered limited. May cause minor irritation on skin contact.

Environment

The product is not expected to be hazardous to the environment.

Physical and Chemical Hazards

When handled correctly, undamaged units represent no danger.

2.2. Label elements

Risk Phrases

NC

Not classified.

Safety Phrases

P13

Safety data sheet available for professional user on request.

2.3. Other hazards

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Triacetoxylethylsilane	1-5%
CAS-No.: 17689-77-9	EC No.: 241-677-4
Classification (EC 1272/2008) Not classified.	Classification (67/548/EEC) Xn;R22. C;R34. R14.



All reasonable care has been taken in the preparation of this manual , all information, recommendations and guidance notes on the use of the products are made without guarantee since the conditions of use are beyond the control of Aluminium Roofline Products Ltd (the company). The customer is responsible for ensuring that each product is fit for its intended purpose and that conditions for use are suitable.

The information contained in this brochure and advice arising there from is free of charge and accordingly on the terms that no liability nor liability for negligence will attach to the company or its servants in relation to any such service arising out of or in connection with this brochure.

The company pursues a policy of constant product development and information contained in this publication is therefore subject to change without notice.

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ARP LTD

ALUMINIUM ROOFLINE PRODUCTS

Product Range



‘Mustang’ Seamless Gutter System

‘Trueline’ Wall Coping



‘Legion’ Box Gutter

‘Colonnade’ Downpipe Range



‘Sentinel’ Extruded Gutters

‘Legacy’ Cast Gutter



‘Exitus’ Roof Outlets

‘Trueline’ Fascia & Soffit Systems



‘Britannia’ Cast Iron Gutters & Pipe

‘Vitruvius’ Cast Iron Soil & Waste

