CI / SfB

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Agrément Certificate No 86/1671
*Third issue**

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

Designated by Government to issue European Technical Approvals

ALUMASC RAINWATER SYSTEMS

Système de gouttières de rive
Dachrinne

Product

- *THIS CERTIFICATE RELATES TO ALUMASC RAINWATER SYSTEMS, THE COMPONENTS OF WHICH ARE REFERRED TO IN THE ACCOMPANYING DETAIL SHEETS.*
- *The items described in the Detail Sheets are marketed by Alumasc Exterior Building Products Ltd.*
- *Alumasc Rainwater Systems are for the collection and discharge of rainwater from roofs.*
- *In the opinion of the British Board of Agrément, the products are suitable for their purpose.*

These Front Sheets must be read in conjunction with the accompanying Detail Sheets, which provide information specific to each product.

Regulations — Detail Sheet 1

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 rainwater systems with the Building Regulations. In the opinion of the BBA, Alumasc Rainwater Systems, if used in accordance with the provisions of this Certificate, will meet the relevant requirements.

Requirement:	H3	Rainwater drainage
Comment:		See the marked sections of the *Design Data* parts in the accompanying Detail Sheets.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The systems are acceptable

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

In the opinion of the BBA, Alumasc Rainwater Systems, if used in accordance with the provisions of this Certificate, will satisfy the various Regulations listed below.

Regulation:	10	Fitness of materials and workmanship
Standards:	B2.1 and B2.2	Selection and use of materials, fittings, and components, and workmanship
Comment:		The systems are acceptable.

continued

continued

Regulation:	24	Drainage and sanitary facilities
Standard:	M2.1	Drainage systems
Standard:	M2.5	Discharges from a drainage system
Comment:		See the marked sections of the *Design Data* parts in the accompanying Detail Sheets.

3 The Building Regulations (Northern Ireland) 2000

In the opinion of the BBA, Alumasc Rainwater Systems, 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 systems are acceptable.
Regulation:	Part N5	Rainwater drainage
Comment:		See the marked sections of the *Design Data* parts in the accompanying Detail Sheets.

Conditions of Certification

4 Conditions

4.1 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.

4.2 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.

4.3 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.

4.4 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.

4.5 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.

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

In the opinion of the British Board of Agrément, Alumasc Rainwater Systems are fit for their intended use provided they are installed, used and maintained as set out in this Certificate. Certificate No 86/1671 is accordingly awarded to Alumasc Exterior Building Products Ltd.

On behalf of the British Board of Agrément

Date of Third issue: 5th July 2002

Chief Executive

**Original Front Sheets issued on 25th June 1986. This amended version includes reference to revised national Building Regulations, change of Certificate holder name and address and new* Conditions of Certification.

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BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

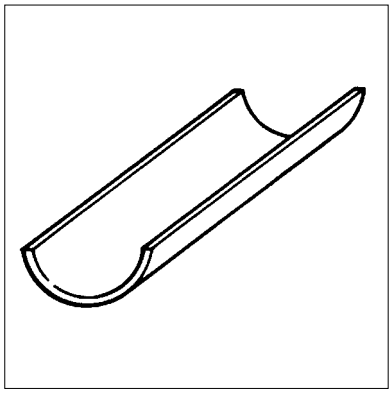
Alumasc Exterior Building Products Ltd

ALUMASC HALF ROUND GUTTER SYSTEMS

Certificate No 86/1671

DETAIL SHEET 8
*Second issue**

Product



- *THIS DETAIL SHEET REPLACES DETAIL SHEET 2 AND RELATES TO ALUMASC HALF ROUND GUTTER SYSTEMS FOR USE AS EAVES GUTTERING FOR CONVEYING RAINWATER FROM ROOFS.*
- *The systems can be installed easily and joints will be watertight. They have adequate resistance to impacts and other loads likely to occur during installation and service.*
- *Systems designed and installed in accordance with BS 6367 : 1983 will have a satisfactory flow capacity.*

This Detail Sheet must be read in conjunction with the Front Sheets which give Conditions of Certification *and the products' position regarding the Building Regulations.*

Technical Specification

1 Description

1.1 Alumasc Half Round Gutter Systems comprise the items listed in Tables 1 and 2.

1.2 The half round gutter systems are available in the profiles and sizes listed in Table 3.

Table 1 HR gutters and fittings

Description	Plain half round			Beaded half round		Bead depth
	100 mm (4") Code No	113 mm (4½") Code No	125 mm (5") Code No	113 mm (4½") Code No	125 mm (5") Code No	Code No
1830 mm length gutter	HR1 / 1	HR2 / 16	HR3 / 132	BHR5 / 300	BHR6 / 325	HR4 / 243
610 mm length gutter	HR1 / 153	HR2 / 154	HR3 / 155	BHR5 / 303	BHR6 / 328	HR4 / 246
90° angle double socket				BHR5 / 309	BHR6 / 334	HR4 / 247
90° angle right hand	HR1 / 4	HR2 / 19	HR3 / 135	BHR5 / 310	BHR6 / 335	
90° angle left hand	HR1 / 5	HR2 / 20	HR3 / 136	BHR5 / 311	BHR6 / 336	
135° angle right hand	HR1 / 6	HR2 / 21	HR3 / 137			
135° angle left hand	HR1 / 7	HR2 / 22	HR3 / 138			
135° angle double socket						HR4 / 369
105 mm diameter outlet double socket			HR3 / 139			
81 mm diameter outlet double socket	HR1 / 367	HR2 / 3 / 23	HR3 / 140			HR4 / 248
				BHR5 / 307	BHR6 / 332	
67 mm diameter outlet double socket	HR1 / 8	HR2 / 23	HR3 / 141	BHR5 / 304	BHR6 / 329	HR4 / 371
81 mm diameter outlet single socket				BHR5 / 308	BHR6 / 333	
67 mm diameter outlet single socket				BHR5 / 305	BHR6 / 330	
81 mm stopend outlet with socket			HR3 / 143			
67 mm dp stopend outlet with socket	HR1 / 9	HR2 / 24	HR3 / 144			
81 mm stopend outlet with spigot			HR3 / 146			
67 mm stopend outlet with spigot	HR1 / 10	HR2 / 25	HR3 / 147			
union clip	HR1 / 11	HR2 / 26	HR3 / 148			
stopend for socket	HR1 / 12	HR2 / 27	HR3 / 149	BHR5 / 318	BHR6 / 149	HR4 / 249
stopend for spigot	HR1 / 13	HR2 / 28	HR3 / 150	BHR5 / 306	BHR6 / 331	HR4 / 250
fascia bracket	HR1 / 14	HR2 / 29	HR3 / 151	BHR5 / 315	BHR6 / 337	HR4 / 251
universal drive-in rise and fall bracket						
rafter bracket (side fixing)						
rafter bracket (top fixing)						
universal rafter arm (to be used with appropriate fascia bracket)						
— top fix 63.29.15(26°)			63.29.16(40°)			
— side fix 63.29.17(26°)			63.29.18(40°)			

Table 2 Extruded downpipes and diecast fittings

Description	Standard 1.2 mm (18 SWG) 63 mm (2½") Code No	Standard 1.2 mm (18 SWG) 75 mm (3") Code No	Standard 1.6 mm (16 SWG) 100 mm (4") Code No
3000 mm pipe with socket	RW1/3M	RW2/3M	RW3/3M
2000 mm pipe with socket	RW1/2M	RW2/2M	RW3/2M
1000 mm pipe with socket	RW1/1M	RW2/1M	RW3/1M
2440 mm pipe with socket			
3050 mm pipe with socket			
3660 mm pipe with socket			
5490 mm pipe with socket			
7320 mm pipe with socket			
eared pipe socket	RW1/240	RW2/241	RW3/242
76 mm projecting offset	RW1/87	RW2/90	RW3/118
114 mm projecting offset	RW1/163	RW2/168	RW3/171
152 mm projecting offset	RW1/62	RW2/76	RW3/119
229 mm projecting offset	RW1/63	RW2/77	RW3/120
305 mm projecting offset	RW1/64	RW2/78	RW3/121
381 mm projecting offset	RW1/65	RW2/79	RW3/122
457 mm projecting offset	RW1/88	RW2/91	RW3/123
533 mm projecting offset	RW1/89	RW2/92	RW3/124
610 mm projecting offset	RW1/164	RW1/169	RW3/172
686 mm projecting offset	RW1/190	RW2/192	RW3/194
762 mm projecting offset	RW1/191	RW2/193	RW3/195
eared shoe	RW1/66	RW2/80	RW3/125
92½° single branch	RW1/67	RW2/81	RW3/126
112½° single branch	RW1/68	RW2/82	RW3/127
92½° bend	RW1/69	RW2/83	RW3/128
112½° bend	RW1/70	RW2/84	RW3/129
135° bend	RW1/165	RW2/327	RW3/328
head (flat back)			RW3/113
head (rectangular)	RW1/111	RW2/112	RW3/238
pipe clip	RW1/236	RW2/237	RW3/366
pipe clip with galvanized extension base	RW1/364	RW2/365	RW3/258
rodding eye	RW1/256	RW2/257	
two-part offset 228 mm projecting (maximum)	RW1/350	RW2/343	
two-part offset 381 mm projecting (maximum)	RW1/351	RW2/344	
two-part offset 457 mm projecting (maximum)	RW1/352	RW2/345	
two-part offset 685 mm projecting (maximum)	RW1/353	RW2/346	
two-part offset 914 mm projecting (maximum)	RW1/354	RW2/347	

1.3 All components are of aluminium (see Table 4). Gutter lengths are gravity cast and have a minimum wall thickness of 3.2 mm, the fittings are pressure cast, some, eg angles and outlets, have continuous seam welds. Downpipes, bought in to the required specification, are extruded and are available in nominal diameters of 63 mm, 75 mm and 100 mm or in sections of 75 mm square and 100 mm by 75 mm rectangular. Screws, nuts and washers can be supplied on request.

1.4 One end of a gutter section is recessed to receive the mating end of the adjacent section by overlapping on a spigot/socket arrangement. Slots are provided for fixing with screws, nuts and washers. Fittings also use this system of jointing.

1.5 Joints in downpipes are made using the loose sockets supplied and are normally unsealed but, if required, they can be sealed using a suitable silicone sealant (see section 10.2).

1.6 Continuous quality control is exercised during manufacture and includes visual and dimensional checks and chemical analysis on the molten material for casting and on samples of the bought-in extruded items.

2 Delivery and site handling

2.1 Gutters, downpipes and fittings are delivered to site unprotected and reasonable care in handling should be taken.

2.2 Each component bears the manufacturer's name. The packaging bears the BBA identification mark incorporating the number of this Certificate.

Table 3 Profiles and sizes

Profile	Size (mm)
plain half round	100, 113 and 125
beaded half round	113 and 125
beaded half round deep run(1)	113

(1) deep run profile 75 mm deep

Table 4 Components

Component	Type of aluminium	Standard
Gutter lengths and fittings	LM2	BS 1490 : 1988
Downpipes	6063	BS 1471 : 1972
Screws (M6 x 20) and nuts	5251	BS 1475 : 1972
Washers	1200	BS 1470 : 1987

Design Data

3 General

Alumasc Half Round Gutter Systems are suitable for use as eaves guttering for conveying rainwater from roofs.

4 Performance of joints

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

5 Resistance to loading

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

6 Flow characteristics

The flow capacities, when calculated in accordance with BS 6367 : 1983, Appendix B, are given in Table 5.

Table 5 Freeflow capacities (based on BS 6367 : 1983)

Gutter	Flow capacity (litres per second)
100 mm (4") half round	0.55
113 mm (4½") half round	0.78
125 mm (5") half round	0.96
deep run half round	1.58

7 Maintenance

7.1 The systems can be supplied uncoated or painted as required.

7.2 The gutters can be cleared easily of debris, etc.

8 Durability

In the opinion of the BBA, the gutter systems will have a minimum maintenance-free life of 40 years in rural and suburban conditions and 25 years in industrial and coastal conditions. However, when in contact with some materials corrosion may occur (see sections 9.2 and 9.3).

Installation

9 General

9.1 Installation must be carried out in accordance with the manufacturer's instructions and BS 6367 : 1983 where applicable.

9.2 The product will be corroded by contact with copper or water run-off from copper in any environment. It should not be installed on a building with a copper roof. Other contact with copper and its alloys should be avoided.

9.3 The contact areas should be coated with bitumen paint if the product is to be:

(a) embedded in concrete or mortar, or

(b) in contact with lead and stainless steel in a marine environment,

10 Procedures

10.1 The rafter arms for the gutters should be fitted using 25 mm long by 5 mm diameter fully-threaded wood screws having the same corrosion resistance as the jointing screws, and at a maximum of 900 mm centres.

10.2 To make the joint watertight, sufficient suitable silicone sealant (eg Dow Corning 797) should be applied between the spigot and socket onto clean and dry surfaces so that some of the sealant is squeezed out of the joint as the pieces are brought together.

10.3 The aluminium screws, nuts and washers are fitted using the overlapping slots in the spigot and socket of the gutter lengths; overtightening should be avoided.

10.4 If the gutter has to be trimmed to length, it can be cut with normal metalworking tools. Slots must then be formed to match the socket to which the gutter is to be fixed.

10.5 Circular downpipes are supplied with loose drive-fit sockets; square and rectangular cross-section downpipes have welded sockets. If a watertight joint is required, sealant should be applied to the lower part of the socket and the pipe pushed home. The pipe socket should then be packed with suitable caulking, eg polyethylene foam, and a small bead of sealant introduced at the top of the joint.

10.6 Two-part offsets are available which can be cut to the required length on site. Minimum projections are 94 mm for 63 mm diameter offset and 103 mm for 76.5 mm diameter offset; maximum projections are detailed in Table 2.

Technical Investigations

The following is a summary of the technical investigations carried out on Alumasc Half Round Guttering Systems.

11 Tests

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

dimensional accuracy
watertightness of joints
flow capacity
resistance to impact and loading
ease of cleaning
thermal movement.

12 Other investigations

12.1 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.

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

Bibliography

BS 1470 : 1987 *Specification for wrought aluminium and aluminium alloys for general engineering purposes: plate, sheet and strip*

BS 1471 : 1972 *Specification for wrought aluminium and aluminium alloys for general engineering purposes: drawn tube*

BS 1475 : 1972 *Specification for wrought aluminium and aluminium alloys for general engineering purposes: wire*

BS 1490 : 1988 *Specification for aluminium and aluminium alloy ingots and castings for general engineering purposes*

BS 6367 : 1983 *Code of practice for drainage of roofs and paved areas*

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

On behalf of the British Board of Agrément

Date of Second issue: 5th July 2002

Chief Executive

**Original Detail Sheet issued 22nd March 1993. This amended version includes change of Company name and change to product range.*

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BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

Alumasc Exterior Building Products Ltd

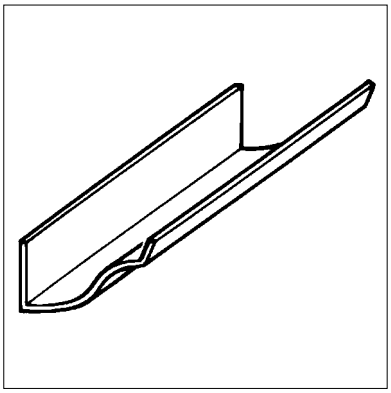
Certificate No 86/1671

DETAIL SHEET 9

*Second issue**

ALUMASC OGEE GUTTER SYSTEMS

Product



- *THIS DETAIL SHEET REPLACES DETAIL SHEET 3 AND RELATES TO ALUMASC OGEE GUTTER SYSTEMS FOR USE AS EAVES GUTTERING FOR CONVEYING RAINWATER FROM ROOFS.*
- *The systems can be installed easily and joints will be watertight. They have adequate resistance to impacts and other loads likely to occur during installation and service.*
- *Systems designed and installed in accordance with BS 6367 : 1983 will have a satisfactory flow capacity.*

This Detail Sheet must be read in conjunction with the Front Sheets which give Conditions of Certification *and the products' position regarding the Building Regulations.*

Technical Specification

1 Description

1.1 Alumasc Ogee Gutter Systems comprise the items listed in Tables 1, 2 and 3.

1.2 The ogee gutter systems are available in the profiles and sizes listed in Table 4.

1.3 All components are of aluminium (see Table 5). The gutter lengths are gravity cast and have a minimum wall thickness of 3.2 mm, the fittings are pressure cast. Downpipes, bought in to the required specification, are extruded and are available in nominal diameters of 63 mm, 75 mm and 100 mm or in sections of 75 mm square, 100 mm square and 100 mm by 75 mm rectangular. Screws, nuts and washers are supplied with the system.

1.4 One end of a gutter section is recessed to receive the mating end of the adjacent section by overlapping on a spigot / socket arrangement. Slots are provided for fixing with screws, nuts and washers. Fittings also use this system of jointing.

1.5 Joints in downpipes are made using the loose sockets supplied and are normally unsealed but, if

Table 1 Ogee gutters and fittings

Description	100 mm (4") Code No	113 mm (4½") Code No	125 mm (5") Code No
1830 mm length gutter	OG1/31	OG2/45	OG3/173
610 mm length gutter	OG1/156	OG2/157	OG3/176
90° angle external	OG1/34	OG2/48	OG3/177
90° angle internal	OG1/35	OG2/49	OG3/178
135° angle external	OG1/36	OG2/50	OG3/179
135° angle internal	OG1/37	OG2/51	OG3/180
81 mm diameter outlets	—	OG2/368	OG3/181
67 mm diameter outlets	OG1/38	OG2/52	OG3/181
81 mm outlet with socket	—	—	OG3/183
67 mm outlet with socket	OG1/39	OG2/53	OG3/182
81 mm outlet with spigot	—	—	OG3/3/183
67 mm outlet with spigot	OG1/40	OG2/54	OG3/183
union clip	OG1/41	OG2/55	OG3/184
stopend for socket	OG1/42	OG2/56	OG3/185
stopend for spigot	OG1/43	OG2/57	OG3/186
fascia bracket	OG1/44	OG2/58	OG3/187
universal drive-in bracket			
universal rafter arm (to be used with appropriate fascia bracket)			
— top fix	63.29.15(26°)	63.29.16(40°)	
— side fix	63.29.17(26°)	63.29.18(40°)	

required, they can be sealed using a suitable silicone sealant (see section 10.2).

1.6 Continuous quality control is exercised during manufacture and includes visual and dimensional checks and chemical analysis on the molten material for casting and on samples of the bought-in extruded items.

2 Delivery and site handling

2.1 Gutters, downpipes and fittings are delivered to site unprotected and reasonable care in handling should be taken.

2.2 Each component bears the manufacturer's name. The packaging bears the BBA identification mark incorporating the number of this Certificate.

Table 2 Moulded ogee No 46 gutters and fittings

Description	100 mm x 75 mm (4" x 3") left-hand spigot Code No	125 mm x 100 mm (5" x 4") left-hand spigot Code No	150 mm x 100 mm (6" x 4") right-hand spigot Code No
1830 mm length gutter	MG2/271	MG1/196	MG3/259
610 mm length gutter	MG2/220	MG1/199	MG3/262
90° angle external	MG2/221	MG1/200	MG3/263
90° angle internal	MG2/222	MG1/201	MG3/264
135° angle external	MG2/223	MG1/202	MG3/272
135° angle internal	MG2/224	MG1/203	MG3/273
108 mm diameter outlets	—	MG1/253	MG3/265
82 mm diameter outlets	MG2/370	MG1/204	MG3/266
70 mm diameter outlet	MG2/225	MG1/205	MG3/267
72 x 72 mm outlet	MG2/356	MG1/358	MG3/361
102 x 76 mm outlet	MG2/357	MG1/359	MG3/362
102 x 102 mm outlet	—	MG1/360	MG3/363
union clip	MG2/231	MG1/213	MG3/269
stopend internal	MG2/232	MG1/214	MG3/270
stopend external	MG2/233	MG1/215	MG3/271
fascia bracket	MG2/234	MG1/216	MG3/268
universal drive-in rise and fall bracket			
universal rafter arm (to be used with appropriate fascia bracket)			
— top fix	63.29.15(26°)	63.29.16(40°)	
— side fix	63.29.17(26°)	63.29.18(40°)	

Table 3 Extruded downpipes and diecast fittings

Description	Standard 1.2 mm (18 SWG) 63 mm (2½") Code No	Standard 1.2 mm (18 SWG) 75 mm (3") Code No	Standard 1.6 mm (16 SWG) 100 mm (4") Code No
3000 mm pipe with socket	RW1/3M	RW2/3M	RW3/3M
2000 mm pipe with socket	RW1/2M	RW2/2M	RW3/2M
1000 mm pipe with socket	RW1/1M	RW2/1M	RW3/1M
eared pipe socket	RW1/240	RW2/241	RW3/242
76 mm projecting offset	RW1/87	RW2/90	RW3/118
114 mm projecting offset	RW1/163	RW2/168	RW3/171
152 mm projecting offset	RW1/62	RW2/76	RW3/119
229 mm projecting offset	RW1/63	RW2/77	RW3/120
305 mm projecting offset	RW1/64	RW2/78	RW3/121
381 mm projecting offset	RW1/65	RW2/79	RW3/122
457 mm projecting offset	RW1/88	RW2/91	RW3/123
533 mm projecting offset	RW1/89	RW2/92	RW3/124
610 mm projecting offset	RW1/164	RW1/169	RW3/172
686 mm projecting offset	RW1/190	RW2/192	RW3/194
762 mm projecting offset	RW1/191	RW2/193	RW3/195
eared shoe	RW1/66	RW2/80	RW3/125
92½° single branch	RW1/67	RW2/81	RW3/126
112½° single branch	RW1/68	RW2/82	RW3/127
92½° bend	RW1/69	RW2/83	RW3/128
112½° bend	RW1/70	RW2/84	RW3/129
135° bend	RW1/165	RW2/327	RW3/328
head (flat back)			RW3/113
head (rectangular)	RW1/111	RW2/112	RW3/238
pipe clip	RW1/236	RW2/237	RW3/366
pipe clip with galvanized extension base	RW1/364	RW2/365	RW3/258
rodding eye	RW1/256	RW2/257	
two-part offset 228 mm projecting (maximum)	RW1/350	RW2/343	
two-part offset 381 mm projecting (maximum)	RW1/351	RW2/344	
two-part offset 457 mm projecting (maximum)	RW1/352	RW2/345	
two-part offset 685 mm projecting (maximum)	RW1/353	RW2/346	
two-part offset 914 mm projecting (maximum)	RW1/354	RW2/347	

Table 4 Profiles and sizes

Profile	Size (mm)
ogee	100, 113 and 125
moulded ogee	100 x 75, 125 x 100 and 150 x 100

Table 5 Components

Component	Type of aluminium	Standard
gutter lengths and fittings	LM2	BS 1490 : 1988
downpipes	6063	BS 1471 : 1972

Design Data

3 General

Alumasc Ogee Gutter Systems are suitable for use as eaves guttering for conveying rainwater from roofs.

4 Performance of joints

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

5 Resistance to loading

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

6 Flow characteristics

The flow capacities, when calculated in accordance with BS 6367 : 1983, Appendix B, are given in Table 6.

Table 6 Freeflow capacities (based on BS 6367 : 1983)

Gutter	Flow capacity (litres per second)
100 mm (4") ogee	0.46
113 mm (4½") ogee	0.62
125 mm (5") ogee	0.80
100 mm x 75 mm (4" x 3") moulded ogee	1.14
125 mm x 100 mm (5" x 4") moulded ogee	2.20
150 mm x 100 mm (6" x 4") moulded ogee	2.73

7 Maintenance

7.1 The systems can be supplied uncoated or painted as required.

7.2 The gutters can be cleared easily of debris, etc.

8 Durability

In the opinion of the BBA, the gutter systems will have a minimum maintenance-free life of 40 years in rural and suburban conditions and 25 years in industrial and coastal conditions. However, when in contact with some materials corrosion may occur (see sections 9.2 and 9.3).

Installation

9 General

9.1 Installation must be carried out in accordance with the manufacturer's instructions and BS 6367 : 1983 where applicable.

9.2 The product will be corroded by contact with copper or water run-off from copper in any environment. It should not be installed on a building with a copper roof. Other contact with copper and its alloys should be avoided.

9.3 The contact areas should be coated with bitumen paint if the product is to be:

(a) embedded in concrete or mortar, or

(b) in contact with lead and stainless steel in a marine environment,

10 Procedures

10.1 The rafter arms for the gutters should be fitted using 25 mm long by 5 mm diameter, fully-threaded wood screws having the same corrosion resistance as the jointing screws, and at a maximum of 900 mm centres.

10.2 To make the joint watertight, sufficient suitable silicone sealant (eg Dow Corning 797) should be applied between the spigot and socket onto clean and dry surfaces so that some of the sealant is squeezed out of the joint as the pieces are brought together.

10.3 The aluminium screws, nuts and washers are fitted using the overlapping slots in the spigot and socket of the gutter lengths; overtightening should be avoided.

10.4 If the gutter has to be trimmed to length, it can be cut with normal metalworking tools. Slots must then be formed to match the socket to which the gutter is to be fixed.

10.5 Circular downpipes are supplied with loose drive-fit sockets; square and rectangular cross-section downpipes have welded sockets. If a watertight joint is required, sealant should be applied to the lower part of the socket and the pipe pushed home. The pipe socket should then be packed with suitable caulking, eg polyethylene foam, and a small bead of sealant introduced at the top of the joint.

10.6 Two-part offsets are available which can be cut to the required length on site. Minimum projections are 94 mm for 65 mm diameter offset and 103 mm for 76.5 diameter offset, maximum projections are detailed in Table 5.

Technical Investigations

The following is a summary of the technical investigations carried out on Alumasc Ogee Gutter Systems.

11 Tests

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

dimensional accuracy
watertightness of joints
flow capacity
resistance to impact and loading
ease of cleaning
thermal movement.

12 Other investigations

12.1 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.

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

Bibliography

BS 1471 : 1972 *Specification for wrought aluminium and aluminium alloys for general engineering purposes: drawn tube*

BS 1490 : 1988 *Specification for aluminium and aluminium alloy ingots and castings for general engineering purposes*

BS 6367 : 1983 *Code of practice for drainage of roofs and paved areas*

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

On behalf of the British Board of Agrément

Date of Second issue: 5th July 2002

Chief Executive

**Original Detail Sheet issued 22nd March 1993. This amended version includes change of Company name, change to product range and specification.*

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BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

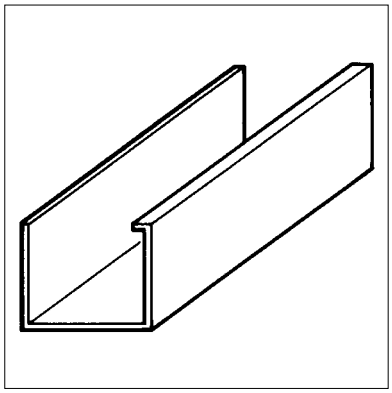
Alumasc Exterior Building Products Ltd

ALUMASC GX REGULAR, SMOOTH, MOULDED GUTTER SYSTEMS

Certificate No 86/1671

DETAIL SHEET 11
*Second issue**

Product



- *THIS DETAIL SHEET REPLACES DETAIL SHEET 6 AND RELATES TO THE ALUMASC GX REGULAR, SMOOTH, MOULDED GUTTER SYSTEMS FOR USE AS EAVES GUTTERING FOR CONVEYING RAINWATER FROM ROOFS.*
- *The system can be installed easily and joints will be watertight. It has adequate resistance to impacts and other loads likely to occur during installation and service.*
- *Systems designed and installed in accordance with BS 6367 : 1983 will have a satisfactory flow capacity.*

This Detail Sheet must be read in conjunction with the Front Sheets which give Conditions of Certification *and the products' position regarding the Building Regulations.*

Technical Specification

1 Description

1.1 Alumasc GX Regular, Smooth, Moulded Gutter Systems comprise the items listed in Tables 1 and 2.

1.2 The box gutters and fittings are available in the following nominal sizes (mm):

100 x 75	150 x 150
125 x 100	200 x 150
150 x 100	

1.3 Outlets, downpipes and fittings are available in the sections and sizes given in Table 3.

1.4 All components are of aluminium (see Table 4). The gutter lengths and the fittings are produced by shearing, bending and welding sheet aluminium. Some fittings, eg angles and outlets, have continuous seam welds.

1.5 Downpipes are extruded and are bought in to the required specification. Downpipe fittings are cast and extrupled screws, nuts, washers and other accessories are bought in to the required specification and supplied as required.

1.6 The gutter sections are butt jointed and overlapped by a 76 mm wide internal or external union clip. A gap 4 mm wide is left between each section. Slots may be provided for fixing with screws, nuts and washers. Each joint is sealed using a suitable silicone sealant.

1.7 Brackets and top straps are formed from wrought or pressed aluminium.

1.8 Continuous quality control is exercised during manufacture, including visual and dimensional checks, chemical analysis on the molten material for casting of downpipe fittings and accessories, and on off-cuts of bought-in sheet material and downpipe.

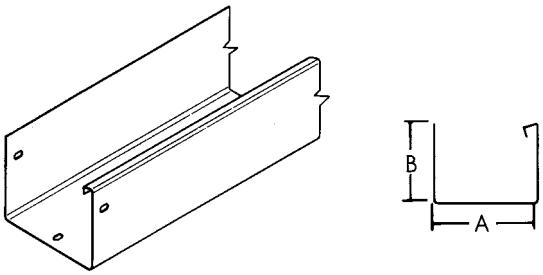
2 Delivery to site

Gutters, downpipes and fittings are delivered to site unprotected and reasonable care in handling should be taken.

Table 1 Pressed aluminium box gutters and fittings

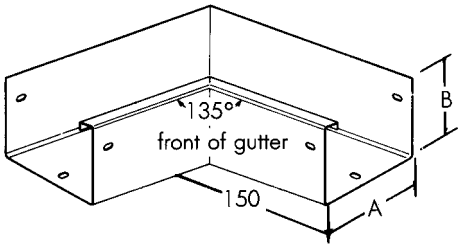
Standard gutter lengths

Reference	Length (mm)	A (mm)	B (mm)
GX43/3M	3000	102	76
GX54/3M	3000	127	102
GX64/3M	3000	152	102



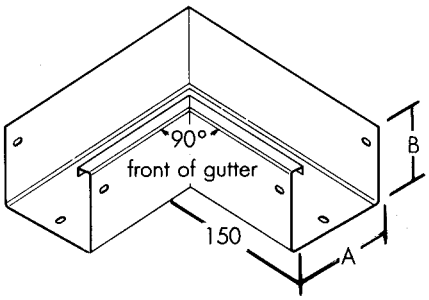
135° angle

Reference External	Reference Internal	A (mm)	B (mm)
GXEA43/135	GXIA43/135	102	76
GXEA54/135	GXIA54/135	127	102
GXEA64/135	GXIA64/135	152	102



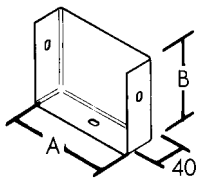
90° angles

Reference External	Internal	A (mm)	B (mm)
GXEA43/90	GXIA43/90	102	76
GXEA54/90	GXIA54/90	127	102
GXEA64/90	GXIA64/90	152	102



Stopends

Reference	A (mm)	B (mm)
GXSE43	110	80
GXSE54	135	104
GXSE64	160	104



Note: all dimensions in millimetres

Union clips

Reference	A (mm)	B (mm)
GXUC43	110	80
GXUC54	135	104
GXUC64	160	104

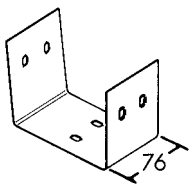
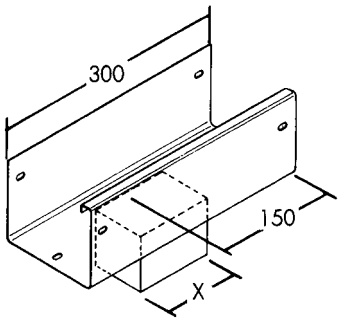
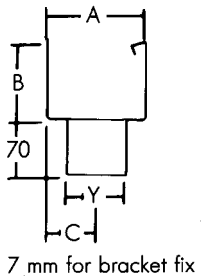


Table 2 Outlets, downpipes and brackets

outlets and square / rectangular downpipes

Reference	X (mm)	Y (mm)	C (mm)	A (mm)	B (mm)
GXSO43 / 33	72	72	51	102	76
GXSO43 / 43	102	76	51	102	76
GXSO54 / 33	72	72	64	127	102
GXSO54 / 43	102	76	64	127	102
GXSO54 / 44	102	102	64	127	102
GXSO64 / 33	72	72	76	152	102
GXSO64 / 43	102	76	76	152	102
GXEA64 / 44	102	102	76	152	102

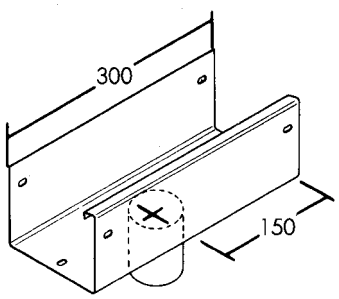


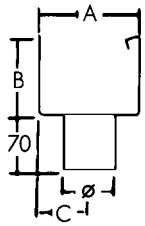


add 7 mm for bracket fix

outlets and circular downpipes

Reference	Diameter (mm)	C (mm)	A (mm)	B (mm)
GXRO43 / 25	63	51	102	76
GXRO43 / 30	76	51	102	76
GXRO54 / 25	63	64	127	102
GXRO54 / 30	76	64	127	102
GXRO54 / 40	102	64	127	102
GXRO64 / 25	63	76	152	102
GXRO64 / 30	76	76	152	102
GXRO64 / 40	102	76	152	102





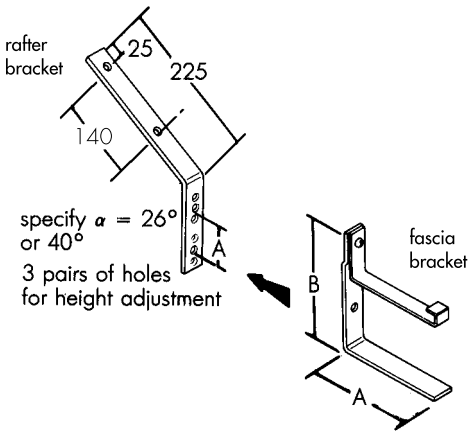
add 7 mm for bracket fix

Rafter bracket

Reference Top fix	Side fix	A (mm)
GXRT43	GXRS43	40
GXRT54	GXRS54	60
GXRT64	GXRS64	60

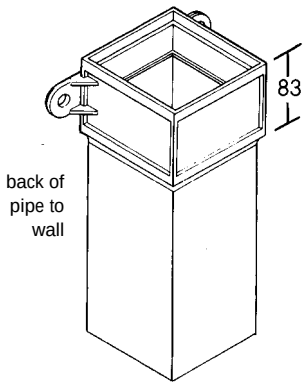
Fascia brackets (wrought aluminium strip 25 mm wide x 6.4 mm thick)

Reference	A (mm)	B (mm)
GXFB43	100	112
GXFB54	126	138
GXFB64	151	138



Standard pipe lengths (including sockets)

Effective length (mm)	72 x 72 (mm)	102 x 76 (mm)	102 x 102 (mm)
3000	RW33 / 3MA	RW43 / 3MA	RW44 / 3MA
2000	RW33 / 2MA	RW43 / 2MA	RW44 / 2MA
1000	RW33 / 1MA	RW43 / 1MA	RW44 / 1MA



Pipe sockets

Reference	A (mm)	B (mm)	C (mm)
RW33 / PS	162	52	912
RW43 / PS	191	54	121
RW44 / PS	191	67	121

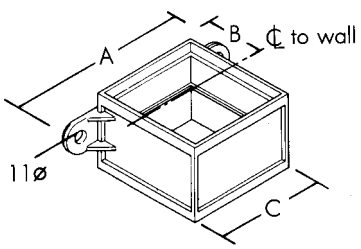
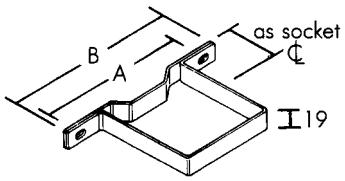


Table 2 continued

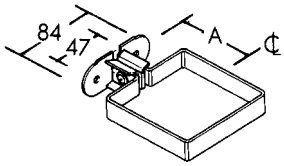
Pipe clips (wrought aluminium sections 19 x 3.2 mm)

Reference	A (mm)	B (mm)
RW33/PC	130	160
RW43/PC	160	190
RW44/PC	160	190



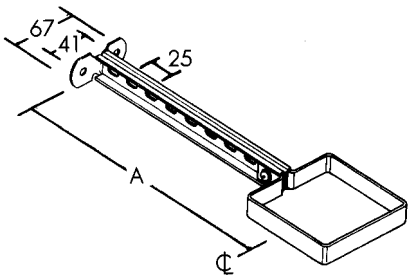
Pipe clips with small base bracket (wrought aluminium sections 19 x 3.2 mm with galvanized base)

Reference	A (mm)
RW33/SB/PC	78
RW43/SB/PC	80
RW44/SB/PC	93



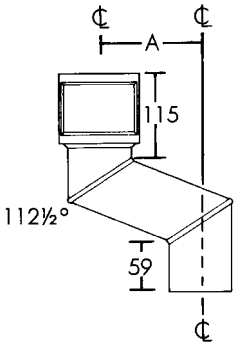
Pipe clips with extension base (wrought aluminium sections 19 x 3.2 mm with galvanized base — cut to length on site)

Reference	A (mm)
RW33/EX/PC	87 min to 290 max
RW43/EX/PC	89 min to 292 max
RW44/EX/PC	102 min to 305 max



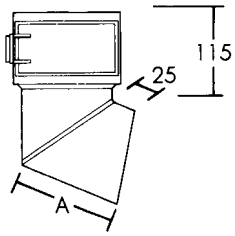
Offset projection A (max)

Sizes (mm)	72 x 72 (mm)	102 x 76 (mm)	102 x 102 (mm)
76 fixed	RW33/PO/3	RW43/PO/3	RW44/PO/3
304 (2-part)	RW33/AO/12	RW43/AO/12	RW44/AO/12
533 (2-part)	RW33/AO/21	RW43/AO/21	RW44/AO/21
762 (2-part)	RW33/AO/30	RW43/AO/30	RW44/AO/30



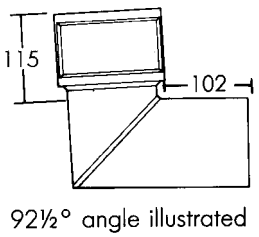
Shoes

Reference	A (mm)
RW33/SH	92
RW43/SH	92
RW44/SH	125



Bends

Reference
RW33/B/XX°
RW43/B/XX°
RW44/B/XX°



92½° angle illustrated

Rodding eyes

Reference	A (mm)	B (mm)
RW33/ACP	72	72
RW43/ACP	102	76
RW44/ACP	102	102

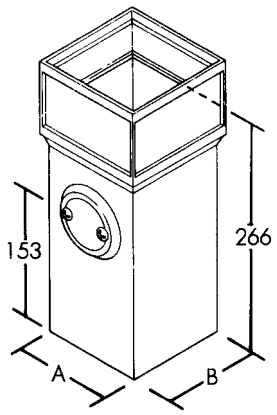


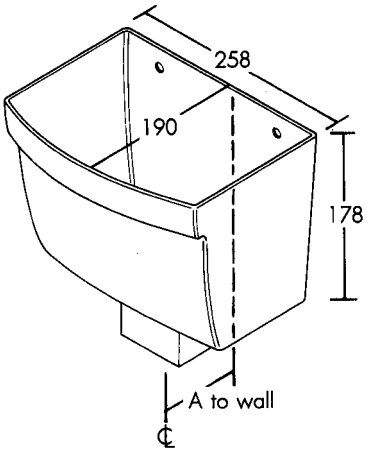
Table 2 continued

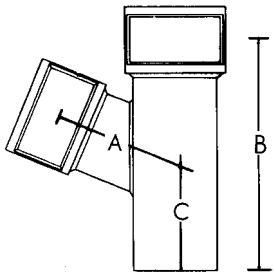
Rectangular rainwater heads

Reference	A (mm)
RW33/RH	54
RW43/RH	54
RW44/RH	67

Branches

Reference	A (mm)	B (mm)	C (mm)
RW33/BR	136	266	126
RW43/BR	159	288	130
RW44/BR	159	288	130





Note: all dimensions in millimetres

Table 3 Available sizes

Square and rectangular section (mm)	Circular — nominal diameter (mm)
72 x 72	63
102 x 76	75
102 x 102	100

Table 4 Specifications of aluminium components

Component	Type of aluminium	Standard
gutter lengths, fittings and washers	1200	BS 1470 : 1987
downpipes	6063	BS 1474 : 1972
downpipe fittings	LM2	BS 1490 : 1988
screws	5251	BS 1475 : 1975

Design Data

3 General

Alumasc GX Regular, Smooth, Moulded Gutter Systems are suitable for use as eaves guttering for conveying rainwater from roofs.

4 Performance of joints

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

5 Resistance to loading

The systems have resistance to impacts and snow, water and other loads in excess of those likely to occur during and after installation.

6 Flow characteristics

The flow capacities, when calculated in accordance with BS 6367 : 1983, Appendix B, are given in Table 5.

Table 5 Freeflow capacities

Box gutter	Flow capacity
100 x 75 mm (4" x 3")	2.18
125 x 100 mm (5" x 4")	4.28
150 x 100 mm (6" x 4")	5.16

7 Maintenance

7.1 The system can be supplied uncoated or painted as required.

7.2 The gutters can be cleared easily of debris, etc.

8 Durability

In the opinion of the BBA, the gutter system will have a minimum maintenance-free life of 40 years in rural and suburban conditions and 25 years in industrial and coastal conditions. However, when in contact with some materials corrosion may occur (see sections 9.2 and 9.3).

Installation

9 General

9.1 Installation must be carried out in accordance with the manufacturer's instructions and BS 6367 : 1983 where applicable.

9.2 The product will be corroded by contact with copper or water run-off from copper in any environment. It should not be installed on a building with a copper roof and other contacts with copper and its alloys should be avoided.

9.3 The contact areas should be coated with bitumen paint if the product is to be:

(a) embedded in concrete or mortar, or

(b) in contact with lead or stainless steel in a marine environment.

10 Procedure

10.1 The rafter and fascia bracket supports for the gutters should be fitted using No 12 by 38 mm zinc plated, cadmium plated or sherardized screws with countersunk heads at a maximum of 800 mm centres.

10.2 To make the joint watertight, sufficient suitable silicone sealant (eg Dow Corning 797) should be applied between the spigot and socket, onto clean and dry surfaces, so that some of the sealant is squeezed out of the joint as the pieces are brought together.

10.3 The aluminium screws, nuts and washers are fitted using the overlapping slots in the gutter lengths and the union clips; overtightening should be avoided.

10.4 If the gutter has to be trimmed to length, it can be cut with normal metalworking tools. Slots must then be formed to match the socket to which the gutter is to be fixed.

10.5 Circular downpipes are supplied with loose drive-fit sockets; square and rectangular cross-section downpipes have welded sockets. If a watertight joint is required, sealant should be applied to the lower part of the socket, and the pipe pushed home. The pipe socket should then be packed with suitable caulking, eg polyethylene foam, and a small bead of sealant introduced at the top of the joint.

10.6 Two-part square and rectangular section offsets are available which can be cut to the required length on site. Minimum projections are:

105 mm (72 by 72 mm and 107 by 76 mm offsets)
125 mm (102 by 102 mm offsets).

Technical Investigations

The following is a summary of the technical investigations carried out on the Alumasc GX Regular, Smooth, Moulded Gutter Systems.

11 Tests

11.1 Tests were carried out to determine:

resistance of brackets to 200 kg load
resistance of gutter to loading.

11.2 An examination was made of data in relation to:

dimensional accuracy
watertightness of joints
flow capacity
resistance to impact
ease of cleaning
thermal movement.

12 Other investigations

12.1 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.

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

Bibliography

BS 1470 : 1987 *Specification for wrought aluminium and aluminium alloys for general engineering purposes: plate, sheet and strip*

BS 1471 : 1972 *Specification for wrought aluminium and aluminium alloys for general engineering purposes: drawn tube*

BS 1475 : 1972 *Specification for wrought aluminium and aluminium alloys for general engineering purposes: wire*

BS 1490 : 1988 *Specification for aluminium and aluminium alloy ingots and castings for general engineering purposes*

BS 6367 : 1983 *Code of practice for drainage of roofs and paved areas*

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

On behalf of the British Board of Agrément

Date of Second issue: 5th July 2002

Chief Executive

**Original Detail Sheet issued 22nd March 1993. This amended version includes change of Company name, change to product range and specification.*

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BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

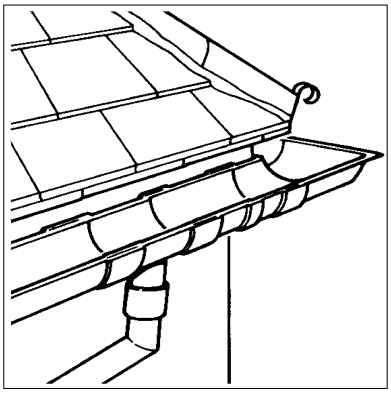
Alumasc Exterior Building Products Ltd

ALUMASC POLYESTER COATED RAINWATER SYSTEMS

Certificate No 86/1671

DETAIL SHEET 12
*Second issue**

Product



- *THIS DETAIL SHEET REPLACES DETAIL SHEET 7 AND RELATES TO ALUMASC POLYESTER COATED RAINWATER SYSTEMS, AVAILABLE IN THE DESIGNS DESCRIBED IN THE ACCOMPANYING DETAIL SHEETS.*

This Detail Sheet must be read in conjunction with the Front Sheets which give the Conditions of Certification *and the product's position regarding the Building Regulations.*

Technical Specification

1 Description

1.1 Alumasc Polyester Coated Rainwater Systems are available in the designs described in the accompanying Detail Sheets, in a maximum length of 3 m.

1.2 The decorative / protective polyester powder coatings are manufactured and applied in accordance with BS 6496 : 1984 in the standard colour range listed in Table 1.

Table 1 Colour range

Colour	RAL reference
Graphite grey	7024M
Agate grey	7038M
Chocolate brown	8017M
Grey brown	8019M
Vermilion	2002M
Ruby red	3003M
Wine red	3005M
Beige	—
Brown beige	1011M
Pearl white	1013M
White	9016M
Cadmium yellow	1021M
Sapphire blue	5003M
Flower blue	5010M
Dark blue	—
Dark green	—
Moss green	6005M
Yellow green	6018M
Black	9017M

1.3 Articles to be coated are given an appropriate pretreatment, dried, sprayed electrostatically with the polyester powder and heat cured.

1.4 The minimum coating thickness for Alumasc Polyester Coated Rainwater Systems is 50 µm.

1.5 Alumasc Ltd conduct continuous quality control checks, and visual and dimensional checks during the manufacture of the aluminium rainwater articles. Quality control checks on the finished coated product include tests for thickness, appearance, adhesion and impact resistance.

2 Delivery and site handling

2.1 Alumasc polyester coated rainwater products are delivered to site shrink wrapped in polythene. Reasonable care should be taken to avoid damage to the coating during handling and installation.

2.2 The coated products should be stored in accordance with normal good practice, away from the possibility of impact and abrasion.

Design Data

3 General

3.1 Alumasc Polyester Coated Rainwater Systems are satisfactory for use as guttering systems for conveying rainwater from roofs.

3.2 The polyester powder coating is suitable for application to the Alumasc rainwater systems described in the accompanying Detail Sheets.

3.3 The performance of joints, resistance to loading and flow characteristics of the coated products are unchanged from those described in the appropriate Detail Sheets for the uncoated products.

4 Compatibility

4.1 The polyester powder coating is an effective barrier against contact with substances which are potentially corrosive to aluminium, ie other metals, fresh mortar or sealants.

4.2 The measures described in section 9.2 of the appropriate Detail Sheets are necessary as the inside of the downpipe is uncoated.

4.3 The measures described in section 9.3 of the appropriate Detail Sheets are only necessary where there are uncoated areas, such as cut ends.

5 Location

The coating is tough and abrasion resistant, hence the downpipes are suitable for use at ground level in areas readily accessible to the public (eg alongside pedestrian thoroughfares) where accidental damage is possible.

6 Maintenance

6.1 Alumasc Polyester Coated Rainwater Systems should be cleaned by hosing with water, using a mild detergent, and rinsing.

6.2 In polluted areas it will be necessary to clean the coated system at regular intervals to maintain appearance.

6.3 If a section of coated guttering or downpipe needs replacing, the difference in colour between new and old sections should be acceptable under normal circumstances.

6.4 For on-site repair of accidental damage to the coating, treatment of cut ends and for matching colours on fasteners, etc, Alumasc Enamel touch-up paint is available.

7 Durability

7.1 In the opinion of the BBA, the polyester coating on Alumasc Polyester Coated Rainwater Systems will perform effectively and will extend the ultimate life of the product beyond the 25 to 40 years described in the appropriate Detail Sheets.

7.2 The coating will have a decorative life of at least 15 years in heavily polluted areas, and of at least 20 years in other areas.

Installation

8 General

8.1 Installation of Alumasc Polyester Coated Rainwater Systems must be carried out in accordance with the manufacturer's instructions, BS 6367 : 1983 where applicable, and section 10 of the appropriate Detail Sheet for that particular design.

8.2 Joints may be made watertight using a low modulus silicone sealant, eg Dow Corning 797.

Technical Investigations

The following is a summary of the technical investigations carried out on Alumasc Polyester Coated Rainwater Systems.

9 Tests

Tests were conducted on the coated products to determine:

abrasion resistance
impact resistance
mortar resistance
compatibility and adhesion of sealants.

10 Other investigations

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

10.2 Site visits were conducted to existing sites to assess the practicability of installation and the performance in use.

10.3 An examination was made of independent test data relating to the colour stability of the coating, and an assessment was made of the durability of the system.

Bibliography

BS 4800 : 1981 *Schedule of paint colours for building purposes*

BS 6367 : 1983 *Code of practice for drainage of roofs and paved areas*

BS 6496 : 1984 *Specification for powder organic coatings for application and stoving to aluminium alloy extrusions, sheet and preformed sections for external architectural purposes, and for the finish on aluminium alloy extrusions, sheet and pre-formed sections coated with powder organic coatings*

BBA BRITISH BOARD OF AGRÉMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

On behalf of the British Board of Agrément

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Chief Executive

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