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Agrément Certificate
86/1671
Product Sheet 1

ALUMASC RAINWATER SYSTEMS

ALUMASC HALF ROUND GUTTER SYSTEMS

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Alumasc Half Round Gutter Systems, for use as eaves guttering for conveying rainwater from roofs.

AGRÉMENT CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Performance of joints — joints between gutter sections and fittings are watertight under conditions of thermal movement in excess of those expected to occur in practice (see section 5).

Resistance to loading — gutters have adequate resistance to snow loading (see section 6).

Durability — the systems will have a life expectancy of 40 years in rural and suburban conditions and 25 years in industrial and coastal conditions (see section 9).

The BBA has awarded this Agrément Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément



Brian Chamberlain
Head of Approvals — Engineering



Greg Cooper
Chief Executive

Date of First issue: 14 March 2011

Originally certified on 25 June 1986

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, Alumasc Half Round Gutter Systems, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:



The Building Regulations 2010 (England and Wales)

Requirement:	H3	Rainwater drainage
Comment:		See sections 3, 5, 6 and 7 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The systems are acceptable. See section 9 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Fitness and durability of materials and workmanship
Comment:		The systems can contribute to a construction satisfying this Regulation. See sections 8.1, 8.2 and 9 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards – construction
Standard:	3.6	Surface water drainage
Comment:		The products meet the relevant requirements of this Standard. See sections 3, 5, 6 and 7 of this Certificate.



The Building Regulations (Northern Ireland) 2000 (as amended)

Regulation:	B2	Fitness of materials and workmanship
Comment:		The systems are acceptable. See section 9 and the <i>Installation</i> part of this Certificate.
Regulation:	B3(2)	Suitability of certain materials
Comment:		The systems are acceptable. See sections 8.1 and 8.2 of this Certificate.
Regulation:	N5	Rain-water drainage
Comment:		See sections 3, 5, 6 and 7 of this Certificate.

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

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

Non-regulatory Information

NHBC Standards 2011

NHBC accepts the use of Alumasc Half Round Gutter Systems, when installed and used in accordance with this Certificate, in relation to *NHBC Standards, Part 7 Roofs* (Chapters 7.1 – D9 and 7.2 – D15).

General

This Certificate 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 EN 12056-3 : 2000 will have a satisfactory flow capacity.

The items described in this Certificate are marketed by Alumasc Exterior Building Products Ltd.

In the opinion of the British Board of Agrément, the products are suitable for their purpose.

Technical Specification

1 Description

1.1 Alumasc Half Round Gutter Systems comprise the items listed in Tables 1 to 3.

Table 1 HR gutters and fittings⁽¹⁾

Description	Plain half round			Beaded half round		Bead depth Code No
	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	
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 internal	HR1/4	HR2/19	HR3/135	BHR5/310	BHR6/335	
90° angle external	HR1/5	HR2/20	HR3/136	BHR5/1A135	BHR6/1A135	
135° angle internal	HR1/6	HR2/21	HR3/137	BHR5/EA135	BHR6/EA135	
135° angle external	HR1/7	HR2/22	HR3/138	BHR5/1A135D	BHR6/1EA135D	
135° angle double socket						HR4/371
105 mm diameter outlet double socket			HR3/139			
81 mm diameter outlet double socket	HR1/367	HR2/3/23	HR3/140	BHR5/307	BHR6/332	HR4/369
72 mm x 72 mm outlet double socket	HR1/381	HR2/382	HR3/383	BHR5/384	BHR6/385	
102 mm x 76 mm outlet double socket						HR4/411
67 mm diameter running outlet	HR1/8	HR2/23	HR3/141	BHR5/304	BHR6/329	HR4/248
81 mm diameter running outlet				BHR5/308	BHR6/333	
67 mm diameter outlet single socket				BHR5/305	BHR6/330	
72 mm x 72 mm stop end outlet with socket				BHR5/SO33	BHR6/SO33	
81 mm stop end outlet with socket			HR3/143	BHR5/RO30SE	BHR6/RO30SE	
67 mm diameter stop end outlet with socket	HR1/9	HR2/24	HR3/144	BHR5/RO25SE	BHR6/RO25SE	
72 mm x 72 mm stop end outlet with socket				BHR5/SO33SE	BHR6/SO23SE	
81 mm stop end outlet with spigot			HR3/146			
67 mm stop end outlet with spigot	HR1/10	HR2/25	HR3/147			
Union clip	HR1/11	HR2/26	HR3/148			
Stop end for internal socket	HR1/12	HR2/27	HR3/149	BHR5/318	BHR6/149	HR4/249
Stop end for external 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	63.2919	63.2919	63.2919	63.2919	63.2919	63.2919
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°)				

(1) Brackets for different roof pitches are available.

Table 2 Extruded round downpipes and die-cast fittings

Description	Standard 1.2 mm	Standard 1.2 mm	Standard 1.6 mm	Standard 1.6 mm
	(18 SWG) 63 mm (2½") Code No	(18 SWG) 75 mm (3") Code No	(16 SWG) 100 mm (4") Code No	(16 SWG) 150 mm (6") Code No
3000 mm pipe with socket	RW1/3M	RW2/3M	RW3/3M	RW60/3M
2000 mm pipe with socket	RW1/2M	RW2/2M	RW3/2M	RW60/2M
1000 mm pipe with socket	RW1/1M	RW2/1M	RW3/1M	RW60/1M
Eared pipe socket	RW1/240	RW2/241	RW3/242	RW60/PS
76 mm one-part offset	RW1/87	RW2/90	RW3/118	RW60/PO/3
114 mm one-part offset	RW1/163	RW2/168	RW3/171	
152 mm one-part offset	RW1/62	RW2/76	RW3/119	RW60/PO/6
229 mm one-part offset	RW1/63	RW2/77	RW3/120	RW60/PO/9
305 mm one-part offset	RW1/64	RW2/78	RW3/121	RW60/PO/12
381 mm one-part offset	RW1/65	RW2/79	RW3/122	RW60/PO/15
457 mm one-part offset	RW1/88	RW2/91	RW3/123	RW60/PO/18
533 mm one-part offset	RW1/89	RW2/92	RW3/124	RW60/PO/21
610 mm one-part offset	RW1/164	RW1/169	RW3/172	RW60/PO/24
686 mm one-part offset	RW1/190	RW2/192	RW3/194	
762 mm one-part offset	RW1/191	RW2/193	RW3/195	
Access pipe	RW1/256	RW2/257	RW3/258	RW60/ACP
Eared shoe	RW1/66	RW2/80	RW3/125	RW60/SH
92½° single branch	RW1/67	RW2/81	RW3/126	RW60/BR/92
112½° single branch	RW1/68	RW2/82	RW3/127	RW60/BR/112
135° branch	RW1/BR/135	RW2/BR/135	RW3/BR/135	RW60/BR/135
92½° bend	RW1/69	RW2/83	RW3/128	RW60/BR/92
112½° bend	RW1/70	RW2/84	RW3/129	RW60/B/112
135° bend	RW1/165	RW2/327	RW3/328	RW60/B/135
Rain-water head flat back	RW1/72	RW1/86	RW3/113	
Rain-water head rectangular	RW1/111	RW2/112	RW3/238	
Rain-water head ornamental	RWOH/25	RWOH/30	RWOH/40	
Pipe clip standard base	RW1/236	RW2/237	RW3/366	RW60/PC
Pipe clip small base	RW1/SB/PC	RW2/SB/PC	RW3/SB/PC	
Pipe clip with galvanized extension base	RW1/364	RW2/365	RW3/366	
Rodding eye	RW1/256	RW2/257		
229 mm two-part offset	RW1/350	RW2/343		
381 mm two-part offset	RW1/351	RW2/344		
457 mm two-part offset	RW1/352	RW2/345		
685 mm two-part offset	RW1/353	RW2/346		
914 mm two-part offset	RW1/354	RW2/347		

Table 3 Extruded square/rectangular downpipes and die-cast fittings

Description	Standard 1.2 mm	Standard 1.2 mm	Standard 1.6 mm
	(18 SWG) 72 mm x 72 mm Code No	(18 SWG) 102 mm x 76 mm Code No	(16 SWG) 102 mm x 102 mm Code No
1000 mm pipe with socket	RW33/1M	RW43/1M	RW44/1M
2000 mm pipe with socket	RW33/2M	RW43/2M	RW44/2M
3000 mm pipe with socket	RW33/3M	RW43/3M	RW44/3M
Eared pipe socket	RW33/PS	RW43/PS	RW44/PS
92½° bend right hand	RW33/B/92R	RW43/B/92R	RW44/B/92R
112½° bend right hand	RW33/B/112R	RW43/B/112R	RW44/B/112R
135° bend right hand	RW33/B/135R	RW43/B/135R	RW44/B/135R
92½° single branch	RW33/BR/92	RW43/BR/92	RW44/BR/92
112½° single branch	RW33/BR/112	RW43/BR/112	RW44/BR/112
135° branch	RW33/BR/135	RW43/BR/135	RW44/BR/135
76 mm one-part offset	RW33/PO/3	RW43/PO/3	RW44/PO/3
305 mm two-part offset	RW33/AO/12	RW43/AO/12	RW44/AO/12
533 mm two-part offset	RW33/AO/21	RW43/AO/21	RW44/AO/21
762 mm two-part offset	RW33/AO/30	RW43/AO/30	RW44/AO/30
Access pipe	RW33/ACP	RW43/ACP	RW44/ACP
Eared shoe	RW33/SH	RW43/SH	RW44/SH
Rain-water head rectangular	RW33/RH	RW43/RH	RW44/RH
Rain-water head ornamental	RWOH/33	RWOH/43	RWOH/44
Pipe clip standard base	RW33/PC	RW43/PC	RW44/PC
Pipe clip small base	RW33/SB/PC	RW43/SB/PC	RW44/SB/PC
Pipe clip with galvanized extension base	RW33/EX/PC	RW43/EX/PC	RW44/EX/PC

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

Table 4 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.

1.3 All components are of aluminium (see Table 5) and are available mill finished or polyester coated. 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 and 102 mm square and 100 mm by 75 mm rectangular. Screws, nuts and washers can be supplied on request.

Table 5 Specifications of aluminium components

Component	Type of aluminium	Standard
Gutter lengths and fittings	IM2, IM6	BS EN 1706, BS 8530
Downpipes	6063 T6	BS EN 573, BS EN 755, BS EN 12020
Screws (M6 x 20) and nuts	5251	BS EN 1301
Washers	1200	BS EN 485, BS EN 515, BS EN 573

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 11.2).

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 Mill finished gutters, downpipes and fittings are delivered to site unprotected and coated components are wrapped in polythene. Reasonable care should be taken to avoid damage during storage, handling and installation.

2.2 In accordance with normal good practice, the components should be stored under cover and away from the risk of impact and the effects of the weather.

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

Assessment and Technical Investigations

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

Design Considerations

3 General



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

4 Practicability of installation

The systems are designed to be installed by a competent general builder, or a contractor, experienced with this type of system.

5 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.

6 Resistance to loading



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

7 Flow characteristics



The flow capacities, when calculated in accordance with BS EN 12056-3 : 2000, are given in Table 6.

Table 6 Freeflow capacities (based on BS EN 12056-3 : 2000)⁽¹⁾

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

(1) The flow capacity of downpipes can be found from BS EN 12056-3 : 2000, Table 8.

8 Maintenance



8.1 The systems can be supplied uncoated or polyester powder coated as required.

8.2 The gutters can be cleared easily of debris and this should be undertaken periodically.

9 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 10.2 and 10.3).

Installation

10 General

10.1 Installation must be carried out in accordance with the manufacturer's instructions and BS EN 12056-3 : 2000 where applicable.

10.2 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.

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

- embedded in concrete or mortar, or
- in contact with lead and stainless steel in a marine environment.

11 Procedures

11.1 The rafter arms for the gutters or fascia arms should be fitted using round-head zinc or cadmium plated or sherardized 38 mm long, No 12 fully-threaded wood screws having the same corrosion resistance as the jointing screws, and at a maximum of 915 mm and 600 mm centres respectively.

11.2 To make the joint watertight, sufficient suitable silicone sealant (eg Dow Corning 791) 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. The excess sealant should be removed and the surrounding area cleaned. Aluminium nuts and bolts should be bedded in sealant (the head covered but the nut visible).

11.3 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.

11.4 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.

11.5 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.

11.6 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.

12 Tests

An examination was made of data in relation to:

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

13 Investigations

13.1 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.

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

Bibliography

BS 8530 : 2010 *Traditional — Style half round, beaded half round, Victorian ogee and moulded ogee aluminium rainwater systems — Specification*

BS EN 485-1 : 2008 *Aluminium and aluminium alloys — Sheet, strip and plate — Technical conditions for inspection and delivery*

BS EN 485-2 : 2008 *Aluminium and aluminium alloys — Sheet, strip and plate — Mechanical properties*

BS EN 485-3 : 2003 *Aluminium and aluminium alloys — Sheet, strip and plate — Tolerances on dimensions and form for hot-rolled products*

BS EN 485-4 : 1994 *Aluminium and aluminium alloys — Sheet, strip and plate — Tolerances on shape and dimensions for cold-rolled products*

BS EN 515 : 1993 *Aluminium and aluminium alloys — Wrought products — Temper designations*

BS EN 573-1 : 2004 *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Numerical designation system*

BS EN 573-2 : 1995 *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Chemical symbol based designation system*

BS EN 573-3 : 2009 *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Chemical composition and form of products*

BS EN 573-4 : 2004 *Aluminium and aluminium alloys — Chemical composition and form of wrought products — Forms of products*

BS EN 755-1 : 2008 *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Technical conditions for inspection and delivery*

BS EN 755-2 : 2008 *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Mechanical properties*

BS EN 755-3 : 2008 *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Round bars, tolerances on dimensions and form*

BS EN 755-7 : 2008 *Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Seamless tubes, tolerances on dimensions and form*

BS EN 1301-1 : 2008 *Aluminium and aluminium alloys - Drawn wire — Technical conditions for inspection and delivery*

BS EN 1301-2 : 2008 *Aluminium and aluminium alloys — Drawn wire — Mechanical properties*

BS EN 1301-3 : 2008 *Aluminium and aluminium alloys — Drawn wire — Tolerances on dimensions*

BS EN 1706 : 2010 *Aluminium and aluminium alloys — Castings — Chemical composition and mechanical properties*

BS EN 12020-1 : 2001 *Aluminium and aluminium alloys — Extruded precision profiles in alloys EN AW-6060 and EN AW-6063 — Technical conditions for inspection and delivery*

BS EN 12020-2 : 2001 *Aluminium and aluminium alloys — Extruded precision profiles in alloys EN AW-6060 and EN AW-6063 — Tolerances on dimensions and form*

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

14 Conditions

14.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English law.

14.2 Publications and documents referred to in this Certificate are those that the BBA deems to be relevant at the date of issue or re-issue of this Certificate and include any: Act of Parliament; Statutory Instrument; Directive; Regulation; British, European or International Standard; Code of Practice; manufacturers' instructions; or any other publication or document similar or related to the aforementioned.

14.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

14.4 In granting this Certificate, the BBA is not responsible for:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual installations of the product/system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

14.5 Any information relating to the manufacture, supply, installation, use and maintenance of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used and maintained. It does 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; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any 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 manufacture, supply, installation, use and maintenance of this product/system.