



Sinclair Foundry Products

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Agrément Certificate
No 97/3434
Second issue*

Designated by Government
to issue
European Technical
Approvals

CLASSICAL RAINWATER SYSTEM

Système de gouttière de rive
Dachrinne

Product




• THIS CERTIFICATE RELATES TO THE CLASSICAL RAINWATER SYSTEM, THE COMPONENTS OF WHICH ARE REFERRED TO IN THE ACCOMPANYING DETAIL SHEETS.

• The system is for the collection and discharge of rainwater from roofs.

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


Regulations — Detail Sheet 1

1 The Building Regulations 1991 (as amended) (England and Wales)

 The Secretary of State has agreed with the British Board of Agrément the aspects of performance to be used by the BBA in assessing the compliance of drainage systems with the Building Regulations. In the opinion of the BBA, the Classical Rainwater System, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement: H3	Rainwater drainage
Comment:	The system will carry the flow of rainwater from the roof to an outfall and minimise the risk of blockage or leakage. See the marked sections of the accompanying Detail Sheets.
Requirement: Regulation 7	Materials and workmanship
Comment:	The system is acceptable.

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

 In the opinion of the BBA, the Classical Rainwater System, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Technical Standards as listed below.

Regulation: 10	Fitness of materials
Standard: B2.1	Selection and use of materials, fittings, components and other manufactured products
Comment:	The system is acceptable.

continued

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Regulation:	24	Drainage and sanitary facilities
Standard:	M2.1	Drainage system of a building
Comment:		The system can meet the relevant requirements of this Standard. See the marked sections of the accompanying Detail Sheets.

3 The Building Regulations (Northern Ireland) 1994 (as amended)



In the opinion of the BBA, the Classical Rainwater System, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Building Regulations listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The system is acceptable.
Regulation:	N7	Rain-water drainage
Comment:		The system will contribute to meeting the relevant requirements of this Regulation. See the marked sections of the accompanying Detail Sheets.

4 Construction (Design and Management) Regulations 1994

Information in this Certificate may assist the client, planning supervisor, designer and contractors to address their obligations under these Regulations.

See section: 2 *Delivery and site handling* (2.3) of each Detail Sheet.

Conditions of Certification

5 Conditions

5.1 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.

5.2 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.

5.3 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.

5.4 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.

5.5 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 Agrément, the Classical Rainwater System is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 97/3434 is accordingly awarded to Sinclair Foundry Products.

On behalf of the British Board of Agrément

A handwritten signature in black ink, appearing to read 'P. C. Hewitt', is written over a white background.

Date of Second issue:

Chief Executive

*Original Certificate issued 23rd March 1998. This revised version to include new telephone and facsimile numbers, reference to the revised national Building Regulations and revised Conditions of Certification.

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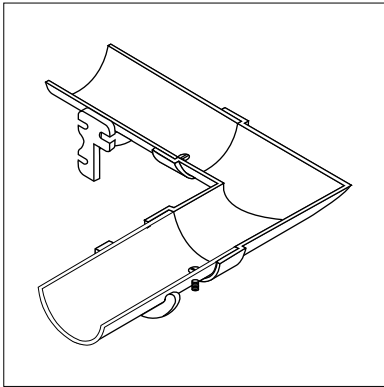
Sinclair Foundry Products

Certificate No 97/3434

CLASSICAL HALF-ROUND GUTTERS AND FITTINGS

DETAIL SHEET 2
Second issue*

Product



- THIS DETAIL SHEET RELATES TO CLASSICAL HALF-ROUND GUTTERS AND FITTINGS.
- The products are for the collection and discharge of rainwater from roofs.

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

Technical Specification

1 Description

1.1 Classical Half-round Gutters and Fittings are listed in Table 1. Selected components and nominal sizes are given in Figures 1 and 2.

1.2 The gutters and fittings are manufactured from cast iron to BS EN 1561 : 1997, Grade EN GJL 150, and are coated in black primer.

1.3 The fascia brackets are manufactured from cast iron.

1.4 Continuous quality control is exercised during manufacture to maintain product quality. Checks include dimensional accuracy and visual examination.

Table 1 Components

G800	Gutter
G801	90° Angle right hand
G801	135° Angle right hand
G802	90° Angle left hand
G802	135° Angle left hand
G802D	90° Double socket
G803	Union clip
G804	Stopend for spigot
G805	Stopend for socket
G806	Nozzle with sockets
G807	Dropend with socket
G808	Dropend with spigot
G809	Cast-iron fascia bracket
09027	Gutter jointing kit

2 Delivery and site handling

2.1 Gutters are delivered to site either on a pallet or loose.

2.2 Fittings are marked with nominal sizes and the manufacturer's symbol. The weight of the fittings is given in the manufacturer's brochure.

2.3 Due to the material characteristics of cast iron, consideration needs to be given to the safety aspects of handling the products, eg their weight or the cutting of gutters and fittings.

Design Data

3 General

Classical Half-round Gutters and Fittings are suitable for use as eaves guttering for the collection of rainwater from roofs.

4 Performance of joints

Joints between gutter sections and fittings, made correctly to the manufacturer's instructions, are watertight under conditions of thermal movement in excess of those expected to occur in practice.

5 Resistance to loading

The gutters will have adequate resistance to snow loading under normal conditions. In areas prone to high snowfall, additional bracketing is recommended (refer to manufacturer's installation guide).

6 Flow characteristics



Flow capacities associated with the Classical Half-round Gutters and Fittings, when calculated in accordance with BS 6367 : 1983, are given in Table 2.

Table 2 Flow capacities

Size (mm)	Breadth (mm)	Max gutter depth (mm)	Calculated flow capacity (litres per second)
100	100	42	0.54
115	115	47	0.70
125	125	50	0.90
150	150	60	1.35

Figure 1 Gutter dimensions

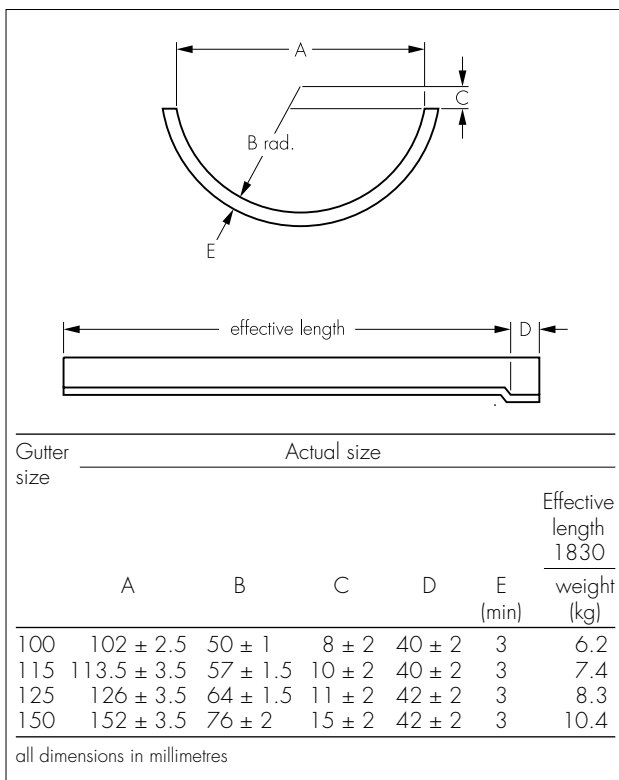
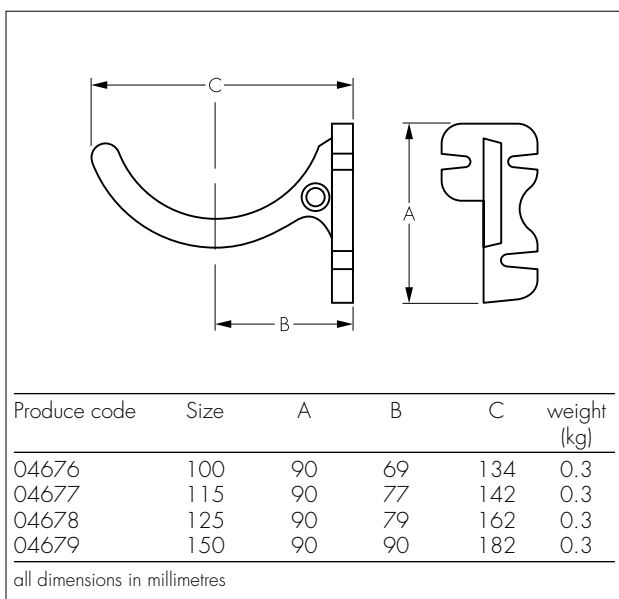


Figure 2 Bracket dimensions



7 Practicability of installation

Installation of the products can be carried out easily under normal site conditions. Consideration of the weight of the gutter lengths should be made when assessing the method of installation.

8 Maintenance

Regular inspection and routine maintenance of the system and its joints and fixings should be carried out according to the manufacturer's recommendations.

9 Durability



The gutters and accessories are made from materials to BS EN 1561 : 1997, Grade EN GJL 150. When correctly installed and maintained as described in this Certificate, the system should have a life expectancy of at least 50 years.

Installation

10 General

Installation must be in accordance with the manufacturer's instructions and BS 6367 : 1983 where relevant.

11 Preparation

If necessary the products should be wire brushed prior to painting, and the factory coatings reinstated with a metal primer. All surfaces should then be degreased with thinners and two coverings of undercoat applied, before finishing with a top coat to suit the building. Extra care is needed where the cast iron is being installed in exposed coastal areas.

12 Procedure

12.1 Brackets should be fixed using corrosion resistant round headed woodscrews 5 mm diameter and at least 25 mm long.

12.2 A bracket must be fitted approximately 75 mm to 100 mm from the end of the run, taking into account the fall down to the outlet. The remaining gutter brackets are then fixed at maximum centres of 900 mm (600 mm centres in areas prone to high snowfall) along the fall line.

12.3 Additional brackets should be fitted, at a maximum of 150 mm from angles and outlets to prevent sagging.

12.4 Two jointing methods are available for use with the Classical gutter system:

rubber gasket joint
traditional mastic joint.

12.5 For the rubber gasket joint system the M6 by 25 mm long screw should be pushed through the spigot of the gutter or fitting and through the hole in the gasket material. The screw, seal and spigot is

located onto the gutter or fitting socket and the square nut is fixed to the end of the screw. The seal must sit squarely in the socket and the nut is tightened on the screw. The excess rubber can be trimmed with a sharp-bladed knife.

12.6 Gutter sockets should be joined to spigots with a specialised rubberised bitumen gutter sealant or a low modulus silicon sealant, then fixed with a corrosion resistant round/pan head nut and bolt, M6 by 25 mm long. Adequate sealant must be applied around the fixing screw and spread evenly along the joint. The nut and bolt should be finger tightened and any excess sealant removed. The sealant is allowed to 'cure' before tightening the nut and bolt fully. Care must be taken not to over-tighten as this could damage the gutter. This procedure is repeated for all joints.

12.7 The gutter may be fixed either level on the fascia board or to a fall of 1:600. It is important that the distance between the gutter and the roof tiles is not excessive and that roofing felt is allowed to project slightly into the gutter to prevent watersplash onto the fascia board behind the gutter. Brackets should be installed to ensure the centre of the gutter is beneath the tile edge.

12.8 The correct methods for cutting the gutter are described in the manufacturer's installation instructions.

The following is a summary of the technical investigations carried out on Classical Half-round Gutters and Fittings.

13 Tests

13.1 Tests were carried out to determine:
resistance of fascia brackets to deadweight loading (BS 4576 : Part 1 : 1989, Appendix D, prEN 12095 : 1996 E and prEN 1462)
impact resistance of gutter assemblies (BS 2782 : Method 1108A subject to modification detailed in BS 4576 : Part 1 : 1989)
leaktightness of joints/thermal cycling (BS 4576 : Part 1 : 1989, Appendix C) and BS EN 607 : 1995, Annex C
dimensional accuracy
in-service impact loading to the BBA in-house method.

13.2 An examination was made of data in relation to:

flow capacity
thermal movement
efficiency of self-cleansing action
practicability of installation
durability.

14 Other investigations

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.

Bibliography

BS 2782 *Methods of testing plastics*
Part 11 *Thermoplastics pipes, fittings and valves*
Method 1108A : 1989 *True impact rate (TIR)*
boundaries of pipes

BS 4576 *Unplasticized polyvinyl chloride (PVC-U)*
rainwater goods and accessories
Part 1 : 1989 *Half-round gutters and pipes of*
circular cross-section

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

BS EN 607 : 1995 *Eaves gutters and fittings*
made of PVC-U — Definitions, requirements and
testing

BS EN 1561 : 1997 *Founding. Grey cast irons*
prEN 1462 *Brackets for eaves gutters*

prEN 12095 : 1996 *E Brackets for rainwater*
pipng systems



On behalf of the British Board of Agrément

Date of Second issue: 3rd May 2000

Chief Executive

**Original Detail Sheet issued 23rd March 1998. This revised version issued to include an extended Table 1 and section 12, and reference to updated British Standards.*



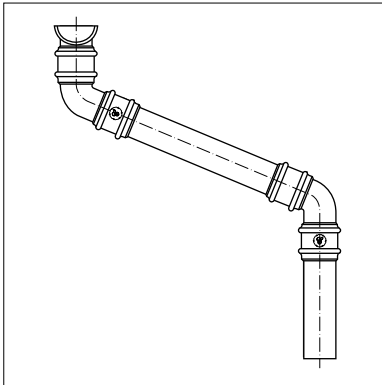
Sinclair Foundry Products

Certificate No 97/3434

CLASSICAL RAINWATER ROUND PIPE AND FITTINGS

DETAIL SHEET 3
Second issue*

Product



• THIS DETAIL SHEET RELATES TO CLASSICAL RAINWATER ROUND PIPE AND FITTINGS. THE PRODUCTS ARE EASILY INSTALLED AND PERFORM ADEQUATELY UNDER NORMAL SERVICE CONDITIONS.

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

Technical Specification

1 Description

1.1 The various Classical Rainwater Round Pipe and Fittings are listed in Table 1. The nominal dimensions are shown in Figure 1. Pipe and fittings are manufactured from cast iron by centrifugal spinning to BS EN 1561 : 1997, Grade EN GJL 150, with the pipe available in lengths of 1830 mm.

Table 1 Components

A584	Cast-iron wall spacer plates
A585	Pipe without ears
A585	Pipe with ears
A590	Access pipe with or without ears
A591	92½° bend
A591	112½° bend
A591	135° bend
A592	92½° branch
A592	112½° branch
A592	135° branch
A594	Offset

1.2 The pipe and fittings are supplied coated internally and externally with a black primer ready for on-site painting.

1.3 Continuous quality control is exercised during manufacture to maintain quality. This product is manufactured to BS EN ISO 9002 : 1994.

2 Delivery and site handling

2.1 Each pipe or fitting will be identified with either the Classical 'C' badge or the manufacturer's mark.

2.2 Normal care is required to prevent damage.

2.3 Due to the material characteristics of cast iron, consideration should be given to the safety aspects of handling the products, eg their weight or the cutting of the pipe and fittings. The weight of the fittings is given in the manufacturer's brochure.

Design Data

3 General

3.1 Classical Rainwater Round Pipe and Fittings are suitable for use to convey rainwater from guttering to the drainage system.

3.2 The pipe and fittings are supplied in a black primer coating. An appropriate finish coat should be applied to provide protection (see manufacturer's instructions for details).

4 Performance of joints

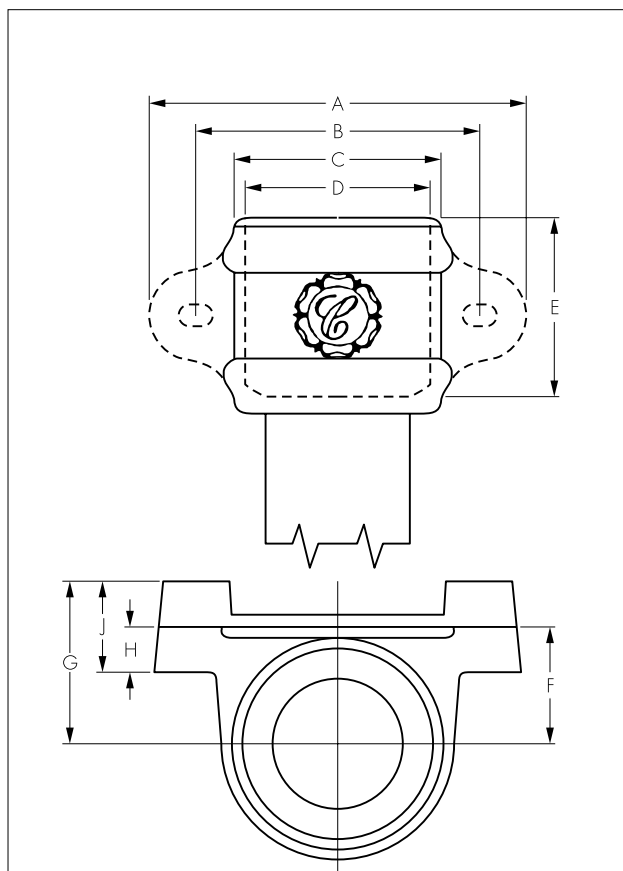
This system is not designed to be watertight under pipe blockage conditions. The socket is designed to allow water out of the joint and to flow down drip grooves. These grooves assist in keeping the water on the pipe and avoiding wall staining, but this applies solely to the pipe with ears. Sealing is

required for the joints between the gutter outlet and rainwater pipe or offset. Other joints that should be sealed are between the spigot on the gutter and outlet, the socket on the offset fitting or the pipe, and any joint which is in the horizontal position, such as 90° branch arms or bends.

5 Resistance to impact

The pipe and fittings have adequate strength to resist impact loads such as ladder impact. Care should be taken to position away from possible vehicle impacts.

Figure 1 Round pipe — dimensions



	Nominal bore		
	65	75	100
Pipe			
Internal dia	60	73	99
External dia	67	79	105
Section thickness	3	3	3
Socket			
A Ears over all	150	162	191
B Hole centres	111	130	158
C External dia	81	93	120
D Internal dia	72	86	112
E Internal depth	76	77	83
F Back of ear to centre of pipe	47	53	66
G as F — including wall spacer plate	67	73	86
H Ear thickness	20	20	20
J Ear thickness with wall spacer	40	40	40
Weight (kg)			
(effective length 1830)			
Pipe without ears	11.0	13.4	17.6
Pipe with ears	11.5	13.8	18.6

all dimensions in millimetres

6 Practicability of installation

The range of fittings and fixtures available make installation of the products easy under normal site conditions.

7 Maintenance

7.1 The paintwork should be checked annually, with any film build up being cleaned. The fixings and joints should be checked at the same time.

7.2 If the manufacturer's installation and painting instructions are adhered to, repainting should not be necessary for five years or longer.

8 Durability

When used and maintained within the conditions and recommendations given in this Detail Sheet and the manufacturer's instructions, the system will have a serviceable life in excess of 50 years.

Installation

9 Procedure

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

9.2 The pipe and fittings have many options for fixing to the wall and care should be taken to ensure the correct style of fixing is used.

9.3 In general, the pipe should be installed using a plumb-line from the nozzle or offset to the shoe or drain connection. The pipe is fixed to the wall using the appropriate device, with the plumb-line as a guide. This is repeated for all full lengths, and where necessary the last piece should be cut to fit.

Eared pipes

9.4 For the eared pipe, the position of the holes should be determined and suitable holes drilled to take either Rawlplugs or anchors for 8 mm by 50 mm fittings or 8 mm by 75 mm fittings, dependent on whether a spacer plate is fitted.

Unearred pipes

9.5 The unearred pipes are fixed by using purpose-made brackets. The brackets are secured to the wall by drilling suitable holes and inserting Rawlplugs to take 50 mm (depth) screw bolt M10 (the M10 length can be cut to suit the distance required from the wall). Alternatively, the brackets are fixed to the wall by fixing a back plate incorporating M10 thread. This wall plate should be secured by drilling two suitable holes, inserting Rawlplugs and fixing with 6 mm by 50 mm non-corrosive screws. In some areas, a drive-in spike is used in preference to the purpose-made bracket (see manufacturer's installation instructions for details).

Technical Investigations

The following is a summary of the technical investigations carried out on Classical Rainwater Round Pipe and Fittings.

10 Tests

Tests were carried out to establish:

- dimensional accuracy
- impact resistance to BS EN 877 : 1999
- rainwater pipe fixing strengths to BS EN 12095 : 1996 (modified to take account of the material change)
- effectiveness of the jointing system.

11 Other investigations

11.1 An evaluation of data was made to assess:

- effectiveness of coatings
- resistance to chemical and mechanical action
- practicability of installation
- durability in use
- flow capacity.

11.2 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.

Bibliography

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

BS EN 877 : 1999 *Cast iron pipes and fittings, their joints and accessories for the evacuation of water*

BS EN 1561 : 1997 *Founding. Grey cast irons*

BS EN 12095 : 1996 E *Brackets for rainwater piping systems — Test method for bracket strength*

BS EN ISO 9002 : 1994 *Quality systems. Model for quality assurance in production, installation and servicing*



On behalf of the British Board of Agrément

Date of Second issue: 3rd May 2000

A handwritten signature in black ink, appearing to read "P. Q. Newton".

Chief Executive

*Original Detail Sheet issued 23rd March 1998. This revised version issued to include reference to updated British Standards.

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