

Brett Martin Limited

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**Agrément
 Certificate
 No 87/1898**

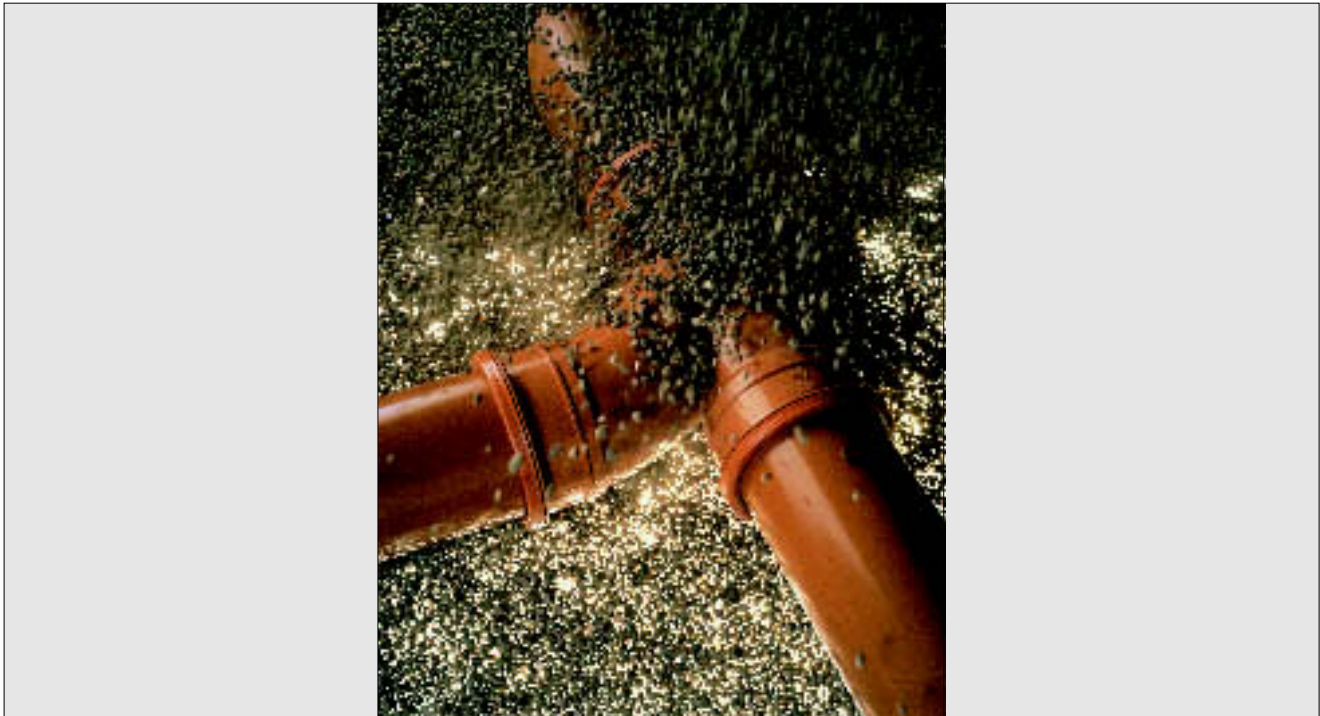
*Third issue**

Designated by Government
 to issue
 European Technical
 Approvals

THE BRETT DRAINAGE SYSTEM

Eléments de drainage souterrains
 Dränungssystem

Product




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

- The system is for use in domestic drains and public and private sewers.
- Components of the system can be used individually or in combination as described in the Detail Sheets.
- This Certificate does not cover the use of any of the products for untreated trade effluents.

These Front Sheets must be read in conjunction with the accompanying Detail Sheets, which provide information for specific systems.

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 to be used by the BBA in assessing the compliance of effluent treatment systems with the Building Regulations. In the opinion of the BBA, The Brett Drainage System, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement:	H1(1)	Foul water drainage
Comment:	The system can meet the relevant requirements of this Requirement. See the tinted areas in the <i>General, Strength, Performance of joints, Flow characteristics</i> and <i>Resistance to chemicals</i> sections of Detail Sheet 4.	
Requirement:	H3 (1)	Rainwater drainage
Comment:	The system can meet the relevant requirements of this Requirement. See the tinted areas in the <i>General, Strength, Performance of joints, Flow characteristics</i> and <i>Resistance to chemicals</i> sections of Detail Sheet 3.	
Requirement:	Regulation 7	Materials and workmanship
Comment:	The system is acceptable. See the tinted area in the <i>Durability</i> section of Detail Sheets 3 and 4.	

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



In the opinion of the BBA, the position of The Brett Drainage 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 and workmanship
Standard:	B2.1	Selection and use of materials, fittings, and components, and workmanship
Comment:		The system can contribute to a construction meeting this Standard. See the <i>Installation</i> section of Detail Sheets 3 and 4.
Standard:	B2.2	Selection and use of materials, fittings, and components, and workmanship
Comment:		The system is an acceptable material. See the tinted area in the <i>Durability</i> section of Detail Sheets 3 and 4.
Regulation:	24	Drainage
Standard:	M2.1	Drainage system — Wastewater and surface water drainage
Comment:		The system can meet the relevant requirements of this Standard. See the tinted areas in the <i>General, Strength, Performance of joints, Flow characteristics</i> and <i>Resistance to chemicals</i> of Detail Sheets 3 and 4.

3 The Building Regulations (Northern Ireland) 2000



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

Regulation:	B2	Fitness of materials and workmanship
Comment:		The system is acceptable. See the tinted area in the <i>Durability</i> section of Detail Sheets 3 and 4.
Regulation:	N4	Underground foul drainage
Comment:		The system can meet the relevant requirements of this Regulation. See the tinted areas in the <i>General, Strength, Performance of joints, Flow characteristics</i> and <i>Resistance to chemicals</i> of Detail Sheet 4.
Regulation:	N5	Rain-water drainage
Comment:		The system can meet the relevant requirements of this Regulation. See the tinted areas in the <i>General, Strength, Performance of joints, Flow characteristics</i> and <i>Resistance to chemicals</i> of Detail Sheet 3.

4 Construction (Design and Management) Regulations 1994 (as amended) Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

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* (2.1), of Detail Sheets 3, 4 and 5.

Additional information

The management systems of Brett Martin Limited have been assessed by the British Standards Institution as meeting the requirements of BS EN ISO 9001 : 2000.

Bibliography

BS EN ISO 9001 : 2000 *Quality management systems — Requirements*

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) is valid only within the UK;
- (d) has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective;
- (e) is copyright of the BBA;
- (f) is subject to English law.

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, are 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 fabrication including all related and relevant processes 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 as and when deemed appropriate by the BBA under arrangements that it will determine; and

(c) are reviewed by the BBA as and when it considers appropriate.

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

- (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 or standard of individual installations of the product or any maintenance thereto, 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 Brett Drainage System is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 87/1898 is accordingly awarded to Brett Martin Limited.

On behalf of the British Board of Agrément

Date of Third issue: 16th July 2004

A handwritten signature in black ink, appearing to read 'P. C. Newson', is written over a light grey background.

Chief Executive

**Original Certificate was issued on 11th August 1987. This amended version includes a change of Certificate holder's name and address, reference to revised Building Regulations, addition of reference to CDM Regulations and Bibliography and new Conditions of Certification.*

Electronic Copy

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For technical or additional information,
contact the Certificate holder (see
front page).
For information about the Agrément
Certificate, including validity and
scope, tel: Hotline 01923 665400,
or check the BBA website.



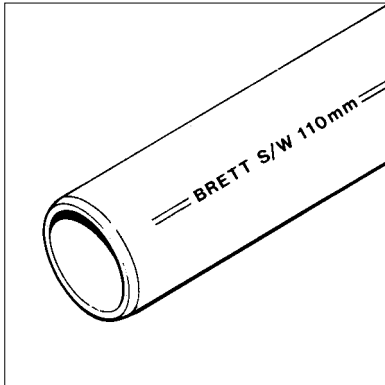
Brett Martin Limited

Certificate No 87/1898

**BRETT 110 MM DIAMETER PVC-U SURFACE
WATER DRAINAGE PIPE**
DETAIL SHEET 3

Third issue*

Product



• THIS DETAIL SHEET REPLACES CERTIFICATE No 82/1055 AND RELATES TO BRETT 110 mm DIAMETER UNPLASTICIZED POLYVINYL CHLORIDE (PVC-U) SURFACE WATER DRAINAGE PIPE.

• The pipe is red oxide in colour (colour No 446 as defined in BS 381C : 1988) to distinguish it from underground pipe conforming to BS EN 1401-1 : 1998 which is golden brown in colour.

• This Detail Sheet does not cover use of the pipe for untreated trade effluents.

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

Technical Specification

1 Description

1.1 The Brett 110 mm Diameter PVC-U Surface Water Drainage Pipe is manufactured from extruded PVC-U with a minimum wall thickness of 2.2 mm and is available plain ended in 3 m or 6 m lengths.

1.2 Quality control includes visual and dimensional checks and impact resistance and heat reversion tests.

1.3 Pipes are stamped with the legend *Brett S/W 110 mm* and the BBA identification mark incorporating the number of this Certificate.

2 Delivery and site handling

2.1 Handling, storage and transportation should be in accordance with BS 5955-6 : 1980 and the pipes should not be stacked more than six high.

2.2 When long-term storage is envisaged, the pipes and fittings must be protected from direct sunlight.

Design Data

3 General

3.1 The Brett 110 mm Diameter PVC-U Surface Water Drainage Pipe has been assessed for use underground for the conveyance of surface water, when joined using PVC-U sockets conforming to BS EN 1401-1 : 1998 or Brett polypropylene couplings.

3.2 This Detail Sheet does not cover use of the pipe for domestic sewage, combined sewerage systems or untreated trade effluent.

4 Strength

The product has adequate strength to resist loads associated with installation and with subsequent use in the situations defined in section 9 of this Detail Sheet.

5 Performance of joints

5.1 Satisfactory joints can be made using Brett polypropylene pipe couplings and will remain watertight under conditions of pipe deformation, side or vertical displacement, pipeline deflection and thermal movement.

5.2 Satisfactory joints can be made with PVC-U fittings containing sockets conforming to BS EN 1401-1 : 1998.

5.3 Brett polypropylene couplings must not be used in locations where there is a possibility of settlement or subsidence.

6 Flow characteristics

6.1 The pipes will have the normal flow characteristics associated with PVC-U underground drain pipe and fittings to BS EN 1401-1 : 1998.

6.2 Full-bore velocities are available from the *Table for the Hydraulic Design of Pipes, Sewers and Channels*, Volume 2, 7th Edition by H R Wallingford and D I H Barr.

7 Resistance to chemicals

7.1 The pipes will be unaffected by those types and quantities of chemicals which are likely to be found in surface water drainage pipes.

7.2 Details of the chemical resistance of PVC-U is given in CP 312-1 : 1973.

8 Durability

In the opinion of the BBA no significant deterioration of the system will take place when the product is installed in accordance with section 9, and installations will have a life in excess of 50 years.

Installation

9 Procedure

9.1 Installation must be in accordance with the Certificate holder's brochure *Brett Drainage Handbook*, BS 8301 : 1985 and BS 5955-6 : 1980, where appropriate.

9.2 Joints between pipes are made either by using Brett polypropylene pipe couplings or by cleaning both socket and pipe, applying the recommended lubricant to the pipe and inserting it into the socket to the correct depth.

9.3 Fittings containing sockets conforming to BS EN 1401-1 : 1998 are used at bends or junctions.

9.4 Offcuts of pipe may be used provided the ends have been chamfered.

9.5 The pipes must be laid in a firm-sided trench with a depth not less than three times the pipe diameter and a width not exceeding 700 mm.

9.6 The pipes must not be used in the following locations:

- under carriageways or in areas accessible to heavy goods vehicles, without suitable protection
- more than 2.5 m below the finished ground level
- at ground level and covered with loose soil.

9.7 They must have adequate protection against damage from site construction traffic and from agricultural or similar operations.

Technical Investigations

The following is a summary of the technical investigations carried out on the Brett 110 mm Diameter PVC-U Surface Water Drainage Pipe.

10 Tests

10.1 The following tests were carried out on the pipe:

- box loading test (with 35 kN load)
- Vicat softening point to BS 2782-1 : Method 120B : 1976
- tensile strength
- impact resistance

- heat reversion
- dimensional checks.

10.2 The following tests were carried out on pipe and coupling assemblies and connections to fittings using sockets conforming to BS 4660 : 1973:

- watertightness when the pipe was subjected to 10% distortion
- watertightness when subjected to a pipeline deflection
- watertightness when subjected to side and vertical displacements
- practicability of installation.

11 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 381C : 1988 *Specification for colours for identification, coding and special purposes*

BS 2782-1 : Method 120B : 1976 *Methods of testing plastics — Thermal properties — Determination of Vicat softening temperature of thermoplastics*

BS 4660 : 1973 *Specification for unplasticized polyvinyl chloride (PVC-U) pipes and plastics fittings of nominal sizes 110 and 160 for below ground gravity drainage and sewerage*

BS 5955-6 : 1980 *Plastics pipework (thermoplastics materials) — Code of practice for the installation of unplasticized PVC pipework for gravity drains and sewers*

BS 8301 : 1985 *Code of practice for building drainage*

BS EN 1401-1 : 1998 *Plastics piping systems for non-pressure underground drainage and sewerage. Unplasticized poly(vinylchloride) (PVC-U) — Specifications for pipes, fittings and the system*

CP 312-1 : 1973 *Code of practice for plastics pipework (thermoplastics material) — General principles and choice of material*



On behalf of the British Board of Agrément

Date of Third issue: 16th July 2004


Chief Executive

**Original Detail Sheet was issued on 11th August 1987. This amended version includes a change of Certificate holder's name and the addition of a Bibliography.*

British Board of Agrément

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Brett Martin Limited

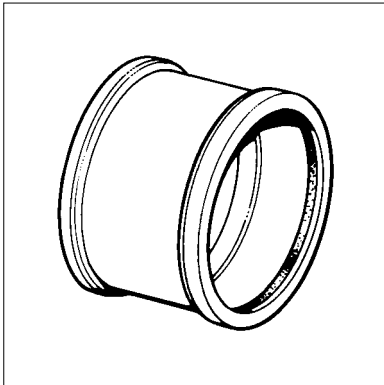
Certificate No 87/1898

**BRETT 110 mm AND 160 mm DIAMETER
POLYPROPYLENE PIPE COUPLINGS**

DETAIL SHEET 4

Third issue*

Product



• THIS DETAIL SHEET REPLACES CERTIFICATE No 82/1056 AND RELATES TO BRETT 110 mm AND 160 mm DIAMETER POLYPROPYLENE PIPE COUPLINGS.

• The couplings are for use with pipes and fittings complying with BS EN 1401-1 : 1998.

• This Detail Sheet does not cover use of the couplings for untreated effluent where their suitability will depend upon individual circumstances.

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

Technical Specification

1 Description

1.1 Brett 110 mm and 160 mm Diameter Polypropylene Pipe Couplings comprise a polypropylene body with L-shaped sealing rings retained by polyethylene snap caps at each end. The sealing rings are to BS EN 681-1 : 1996 type WC. Each coupling is supplied assembled ready for use.

1.2 The coupling body and snap caps are injection moulded, the former from polypropylene and the latter from polyethylene.

1.3 Quality control is carried out continuously during manufacture and includes visual and dimensional checks and heat reversion tests.

1.4 Each coupling is stamped with the manufacturer's name and product code number. A label bearing the BBA identification mark incorporating the number of this Certificate is affixed to each coupling.

2 Delivery and site handling

2.1 Handling, storage and transportation should be in accordance with BS 5955-6 : 1980.

2.2 Couplings are supplied in polythene bags and when long-term storage is envisaged, should be kept protected from direct sunlight.

Design Data

3 General

Brett 110 mm and 160 mm Diameter Polypropylene Pipe Couplings have been assessed for use with pipes complying with BS EN 1401-1 : 1998 in underground drains, public and private sewers, for the conveyance, by combined or separate systems, of surface water and domestic sewage as is permitted to be discharged into public sewers by the Public Health Act 1936, and surface water and sewage as is permitted and defined by the

Sewerage (Scotland) Act 1968, and the Water and Sewerage Services (Northern Ireland) Order 1973.

4 Strength



The couplings have adequate strength to resist loads associated with installation and with subsequent use in the situations defined in section 8 of this Detail Sheet.

5 Performance of joints



5.1 When used in conjunction with pipes and fittings in accordance with BS EN 1401-1 : 1998 and Brett Martin Limited's surface water pipe, the joints remain watertight when subjected to the following conditions:

- pipe deformation in excess of that expected in normal good drainage practice,
- side and vertical displacements of up to 20 mm, and
- pipeline deflections of up to 10°.

5.2 The dimensions of the sockets and sealing rings are such as to give satisfactory joints which will accept thermal movement in use.

6 Flow characteristics



6.1 A system using the couplings will have the flow characteristics of PVC-U underground drainage systems in accordance with BS EN 1401-1 : 1998.

6.2 Full-bore velocities are available from the *Table for the Hydraulic Design of Pipes, Sewers and Channels*, Volume 2, 7th Edition, by H R Wallingford and D I H Barr.

7 Resistance to chemicals



7.1 The couplings will be unaffected by those types and quantities of chemicals which are likely to be found in domestic sewage.

7.2 Details of the chemical resistance of PVC-U is given in CP 312-1 : 1973.

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8 Durability



8.1 The restrictions on types of soil and depth of burial are applied to ensure that the soil loads and movements are accommodated by the couplings without detriment.

8.2 In the opinion of the BBA no significant deterioration of the product will take place under these conditions, and installations will have a life in excess of 50 years.

Installation

9 Procedure

9.1 Installation must be in accordance with the Certificate holder's brochure *Brett Drainage Handbook* and when appropriate, BS 5955-6 : 1980 and BS 8301 : 1985.

9.2 Joints are made as follows:

- clean both socket and spigot
- ensure the ring seal is correctly seated
- apply the recommended lubricant to the spigot
- insert the pipe into the socket to the correct depth.

9.3 The couplings may be used on offcuts of pipe provided the ends are chamfered.

9.4 Drain and sewer systems utilizing the couplings should be installed in accordance with the recommendations of BS 8301 : 1985 and BS 5955-6 : 1980.

9.5 They must have adequate protection against damage from site construction traffic and from agricultural or similar operations.

Technical Investigations

The following is a summary of the technical investigations carried out on Brett 110 mm and 160 mm Diameter Polypropylene Pipe Couplings.

10 Tests

The following tests were carried out on the pipe couplings:

- a combined temperature cycling and external loading test in accordance with BS 4660 : 1973

- Vicat softening point to BS 2782-1 : Method 120B : 1976
- watertightness when subjected to 20% pipeline deformation
- watertightness when subjected to a pipeline deflection of 10°
- watertightness when subjected to side and vertical displacements of up to 20 mm
- dimensional checks
- practicability of installation.

11 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 2782-1 : Method 120B : 1976 *Methods of testing plastics — Thermal properties — Determination of Vicat softening temperature of thermoplastics*

BS 4660 : 1973 *Specification for unplasticized polyvinyl chloride (PVC-U) pipes and plastics fittings of nominal sizes 110 and 160 for below ground gravity drainage and sewerage*

BS 5955-6 : 1980 *Plastics pipework (thermoplastics materials) — Code of practice for the installation of unplasticized PVC pipework for gravity drains and sewers*

BS 8301 : 1985 *Code of practice for building drainage*

BS EN 681-1 : 1996 *Elastomeric seals — Material requirements for pipe joint seals used in water and drainage applications — Vulcanized rubber*

BS EN 1401-1 : 1998 *Plastics piping systems for non-pressure underground drainage and sewerage. Unplasticized poly(vinylchloride) (PVC-U) — Specifications for pipes, fittings and the system*

CP 312-1 : 1973 *Code of practice for plastics pipework (thermoplastics material) — General principles and choice of material*



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