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**Agrément
Certificate
No 00/3671**

Designated by Government
to issue
European Technical
Approvals

POLYCORE CELLULAR PVC-U SOIL PIPES

Système d'égouts
Abwassersystem

Product



Polypipe's manufacturing plant and offices



Typical installation

- THIS CERTIFICATE RELATES TO POLYCORE CELLULAR PVC-U SOIL PIPES FOR ABOVE GROUND DRAINAGE SYSTEMS.

- The pipe, in conjunction with Polypipe fittings Kitemarked to BS 4514 : 1983 (and EN 1329-1 : 1999), is for use in domestic, commercial and public buildings in accordance with BS 5572 : 1994 and BS 6367 : 1983 for the conveyance of rainwater, domestic drainage and sewage as is permitted to be discharged into public sewers by the Water Industry Act 1991 Chapter 56, and sewage as is permitted and defined by the Sewerage (Scotland) Act 1968 and the Water and Sewerage Services (Northern Ireland) Order 1973.

- This Certificate does not cover the use of any of the products for untreated trade effluent.

Building Regulations

1 The Building Regulations 1991 (as amended 1994) (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, Polycore Cellular PVC-U Soil Pipes, if used in accordance with the provisions of this Certificate, will meet the relevant requirements.

Requirement: B3	Internal fire spread (structure)
Comment:	See sections 13.1 and 13.2 of this Certificate.
Requirement: E1	Airborne sound (walls)
Comment:	See section 14 of this Certificate.
Requirement: H1(1)	Foul water drainage
Comment:	The pipe will convey the flow of foul or surface water and minimise the risk of blockages or leakage.
Requirement: H3	Rainwater drainage
Comment:	The pipe is acceptable.
Requirement: Regulation 7	Materials and workmanship
Comment:	The pipe is acceptable. See sections 15.1 and 15.2 of this Certificate.

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



In the opinion of the BBA, Polycore Cellular PVC-U Soil Pipes, 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 and components
Comment:		The pipe complies with the requirements of this Standard. See sections 15.1 and 15.2 of this Certificate.
Regulation:	12	Structural fire precautions
Standards:	D2.16 and D2.18	Service openings
Comment:		See sections 13.1 and 13.2 of this Certificate.
Regulations:	19 and 20	Resistance to transmission of sound
Standard:	H2.1	Airborne sound
Comment:		See section 14 of this Certificate.
Regulation:	24	Drainage and sanitary facilities
Standard:	M2.1	Drainage system
Standard:	M2.5	Discharges from a drainage system
Comment:		The pipe will contribute to satisfying these Technical Standards.

3 The Building Regulations (Northern Ireland) 1994 (as amended 1995)



In the opinion of the BBA, Polycore Cellular PVC-U Soil Pipes, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations as listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The pipe is acceptable. See sections 15.1 and 15.2 of this Certificate.
Regulation:	E6	Internal fire spread — Structure
Comment:		See sections 13.1 and 13.2 of this Certificate.
Regulation:	G2	Separating walls and separating floors
Comment:		See section 14 of this Certificate.
Regulation:	N2	Drainage systems
Comment:		The pipe is acceptable.
Regulation:	N3	Sanitary pipework
Comment:		The pipe is acceptable.

Technical Specification

4 Description

4.1 The Polycore Cellular PVC-U Soil Pipes are available in nominal diameters of 110 mm and 160 mm in four colours (grey, sol grey, dark brown and black). The pipes have solid PVC-U smooth internal and external surfaces with a foamed PVC-U core.

4.2 The pipes are extruded in PVC-U using a tri-extrusion head and the addition of processing agents to foam the core. The pipes are produced with either plain ends (spigot x spigot) or with one end socketed (socket x spigot). Ring seals manufactured to BS EN 681-1 : 1996 Type WC are provided with each socket. The socket detail is shown in Figure 1 and the pipe dimensions in Table 1.

4.3 Pipes are available in lengths of 2 m to 4 m and are for use with fittings to BS 4514 : 1983 (and EN 1329-1 : 1999).

Table 1 Dimensions

Nominal pipe size (mm)	Mean outside diameter (DN) (mm)	Mean bore (mm)	Wall thickness(t) (mm)	
			Minimum	Maximum
110	110 + 0.4 -0.0	103	3.2	3.6
160	160 + 0.6 -0.0	152	4.1	4.6

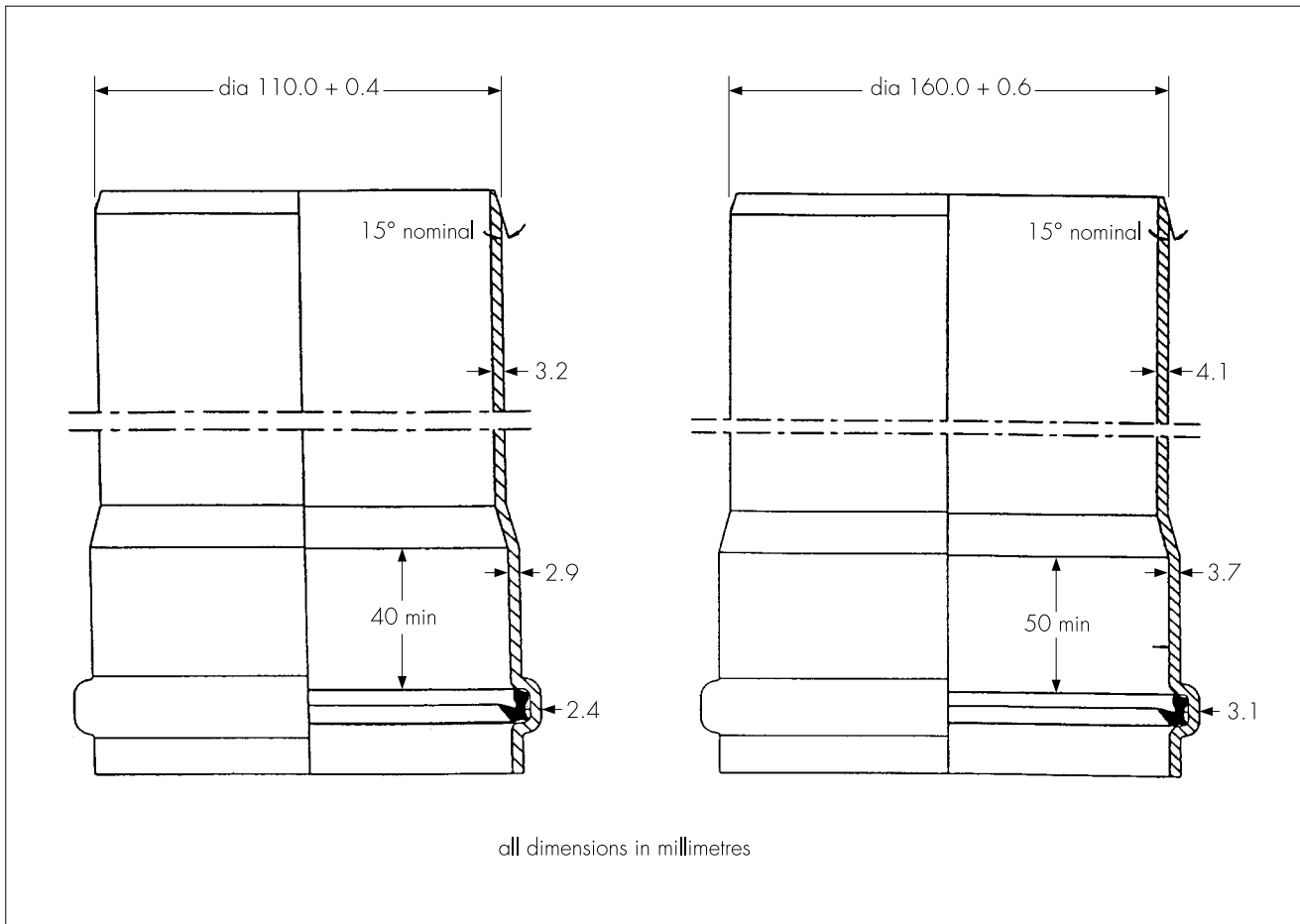
4.4 Quality control tests are carried out continuously during manufacture and include visual, dimensional, impact resistance and stress relief checks.

4.5 Each pipe length is marked with the manufacturer's name, nominal size, outside diameter, a code indicating date of manufacture, the BBA symbol and the number of this Certificate.

5 Delivery and site handling

Normal care is required in handling to prevent damage.

Figure 1 Joint details



Design Data

6 General

Polycore Cellular PVC-U Soil Pipes are satisfactory for use in domestic, commercial and public buildings in accordance with BS 5572 : 1994 for the conveyance of surface water and domestic sewage as is permitted to be discharged into public sewers by the Water Industry Act 1991 Chapter 56, 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.

7 Strength

The pipes have adequate strength for use in situations where pipe to BS 4514 : 1983 (and EN 1329-1 : 1999) is suitable. The pipes have a characteristic impact resistance value (H50) of 1 m (when tested in accordance with the method given in section 17).

8 Performance of joints

8.1 The joints will not be adversely affected by thermal movement when correctly made.

8.2 The joints will remain watertight under conditions of pipeline movement in excess of those expected to occur in normal good drainage practice.

9 Flow characteristics

The pipes will have normal flow characteristics associated with PVC-U soil systems.

10 Resistance to chemicals

10.1 The pipes are suitable for use where pipe to BS 4514 : 1983 (and EN 1329-1 : 1999) is normally used. They have adequate resistance to the type and quantity of chemicals likely to be found in domestic sewage.

10.2 Details of the chemical resistance of PVC-U are given in CP 312 : Part 1 : 1973.

11 Resistance to elevated temperatures

The pipes have adequate resistance to the temperatures likely to occur in domestic soil and waste water.

12 Maintenance

Sections of the system can be removed easily and replaced. Access must be provided in accordance with BS 5572 : 1994.

13 Properties in relation to fire



13.1 The pipes can be considered to have equivalent properties in relation to fire as pipes to BS 4514 : 1983 (and EN 1329-1 : 1999).

13.2 The regulations concerning the prevention of spread of fire must be taken into account at the design stage.

14 Noise



Where a pipe penetrates a floor or wall separating habitable rooms, it should be in an enclosure to limit sound transmission.

15 Durability



15.1 When used within the conditions and recommendations given in this Certificate, the pipes will have a serviceable life equivalent to conventional PVC-U soil systems.

15.2 When used externally, the pipes have similar colourfastness as pipe to BS 4514 : 1983 (and EN 1329-1 : 1999).

Installation

16 Procedure

16.1 Installation of Polycore Cellular PVC-U Soil Pipes should be in accordance with BS 5572 : 1994 and the manufacturer's technical guide.

Ring seal joints

16.2 Lubricant is applied evenly to the chamfered pipe end or fitting spigot. The spigot and socket are brought together in line and the spigot is pushed past the ring seal. An expansion gap of approximately 10 mm must be allowed between the end of the pipe or fitting and the bottom of the socket. Expansion gaps should be provided every 3.5 m.

16.3 All ring seal sockets must be supported by pipe brackets immediately beneath the ring seal housing and the pipework must be supported at the recommended centres of 1.8 m (vertical installations) and 0.9 m (horizontal installations).

Solvent cement joints

16.4 Both surfaces must be cleaned with cleaning fluid. An even, unbroken layer of cement is applied axially along both surfaces. The joint must be made immediately, ensuring that the spigot is pushed fully home. Excess cement must be wiped off.

Technical Investigations

The following is a summary of the technical investigations carried out on Polycore Cellular PVC-U Soil Pipes.

17 Tests

Tests were carried out to determine:

resistance to temperature cycling in accordance

with BS 4514 : 1983, Appendix 6

watertightness of joints under a hydrostatic pressure of 0.5 bar

airtightness of joints

resistance to load of pipe supported by bracket

colourfastness in comparison to pipes to BS 4514 :

1983 (2000 hours' continuous exposure to QUV)

impact resistance to ISO DIS 11173 (dated

31st July 1992), but carried out at $17 \pm 5^\circ\text{C}$

with a type d90 striker with a mass of 2.5 kg

Vicat softening temperature of material to

BS 2782 : Part 1 : Method 120B : 1990

dimensional accuracy

tensile strength.

18 Other investigations

18.1 An examination was made of data relating to:

resistance to chemicals

flow characteristics

compliance with fire regulations.

18.2 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 2782 *Methods of testing plastics*

Part 1 *Thermal properties*

Method 120B : 1990 *Determination of Vicat softening temperature of thermoplastics*

BS 4514 : 1983 *Specification for unplasticized PVC soil and ventilating pipes, fittings and accessories*

BS 5572 : 1994 *Code of practice for sanitary pipework*

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

BS EN 681-1 : 1996 *Vulcanized rubber*

CP 312 *Code of practice for plastics pipework (thermoplastics material)*

Part 1 : 1973 *General principles and choice of material*

EN 1329-1 : 1999 *Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure — Unplasticized poly (vinyl chloride) (PVC-U) — Part 1 : Specification for pipes, fittings and the system*

ISO DIS 11173 *Thermoplastics pipes — Determination of resistance to external blows — Staircase method*

Conditions of Certification

19 Conditions

19.1 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.

19.2 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.

19.3 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.

19.4 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.

19.5 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, Polycore Cellular PVC-U Soil Pipes are fit for their intended use provided they are installed, used and maintained as set out in this Certificate. Certificate No 00/3671 is accordingly awarded to Polypipe plc.

On behalf of the British Board of Agrément

Date of issue: 19th January 2000

Chief Executive

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