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**Agrément
Certificate
No 02/3920**

Designated by Government
to issue
European Technical
Approvals

WEHOLITE DRAINAGE SYSTEM

Système de canalisations d'évacuation
Abflußleitungen

Product




• THIS CERTIFICATE RELATES TO THE WEHOLITE DRAINAGE SYSTEM.

• The pipes are for use in domestic and public drainage systems and for use in gravity sewer systems in accordance with WIS 4-35-01 : 2000.

These Front Sheets must be read in conjunction with the accompanying Detail Sheet, which provides information to 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 requirements of the Building Regulations to which surface water pipe can contribute in achieving compliance. In the opinion of the BBA, the Weholite 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 Weholite Drainage System will convey the flow of foul or surface water and minimise the risk of blockages or leaks. See sections 6.1 and 6.2 of the relevant Detail Sheet.
Requirement: H3	Rainwater drainage
Comment:	The system will convey the flow of rainwater and minimise the risk of blockages or leakage. See sections 6.1 and 6.2 of the relevant Detail Sheet.
Requirement: Regulation 7	Materials and workmanship
Comment:	The system is acceptable. See section 10 of the relevant Detail Sheet.

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



In the opinion of the BBA, the Weholite 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
Standard:	B2.1	Selection and use of materials and components
Comment:		The system is acceptable. See section 10 of the relevant Detail Sheet.
Regulation:	24	Drainage and sanitary facilities
Standard:	M2.1	Drainage system
Comment:		The system will meet the relevant requirements of this Standard. See sections 6.1 and 6.2 of the relevant Detail Sheet.

3 The Building Regulations (Northern Ireland) 2000



In the opinion of the BBA, the Weholite 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 section 10 of the relevant Detail Sheet.
Regulation:	N4	Underground foul drainage
Comment:		See sections 6.1 and 6.2 of the relevant Detail Sheet.
Regulation:	N5	Rainwater drainage
Comment:		The system will meet the relevant requirements of this Regulation. See sections 6.1 and 6.2 of the relevant Detail Sheet.

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 sections: *2 Delivery and site handling, 12 General and 13 Procedure of the accompanying Detail Sheet.*

Bibliography

WIS 4-35-01, Issue 1 : 2000 *Specification for thermoplastic structured wall pipes, joints and couplers with a smooth bore for gravity sewers for the size range 150 to 900 inclusive*

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 Weholite Drainage System is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 02/3920 is accordingly awarded to Asset International Ltd.

On behalf of the British Board of Agrément

Date of issue: 29th April 2002


Chief Executive

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Asset International Ltd

Certificate No 02/3920

DETAIL SHEET 2

WEHOLITE HDPE PIPE SYSTEM

Product



• THIS DETAIL SHEET RELATES TO THE WEHOLITE HDPE PIPE SYSTEM FOR USE IN DOMESTIC AND PUBLIC DRAINAGE SYSTEMS AND FOR USE IN GRAVITY SEWER SYSTEMS IN ACCORDANCE WITH WIS 4-35-01 : 2000.

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

Technical Specification

1 Description

1.1 The Weholite HDPE Pipe System is manufactured in black polyethylene. It is formed by spirally winding a preformed profile around a heated steel mandrel and the adjacent sections welded together. The welded pipe is then reheated and trimmed to form a flat external surface.

1.2 The pipe is available in four sizes. Details and dimensions are given in Table 1 and Figure 1.

Figure 1 Details of pipe

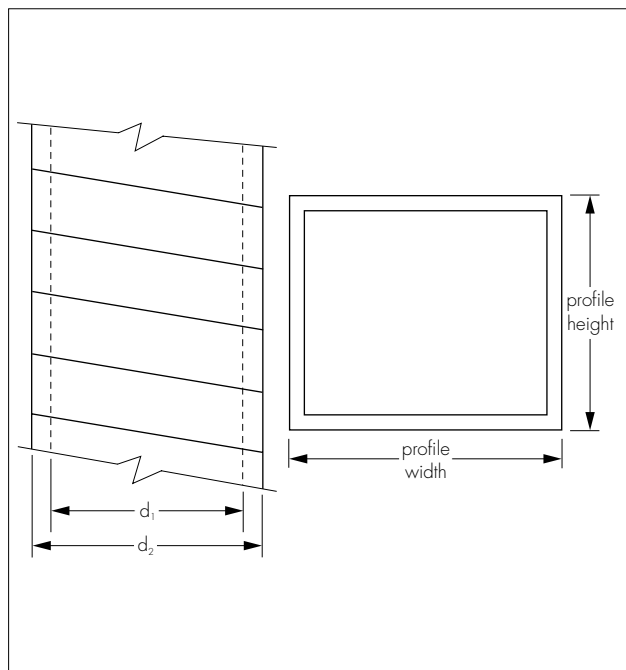


Table 1 Pipe details⁽¹⁾

Internal pipe diameter, d_1 (mm)	External pipe diameter, d_2 (mm)	Profile height (mm)	Profile width (mm)	Nominal length (m)	Weight (minimum) (kgm^{-1})
450	506	28.0	35.0	6	13
600	675	37.5	46.9	6	22
750	838	44.0	54.7	6	34
900	1013	56.5	70.3	6	46

(1) Nominal values unless otherwise stated.

1.3 The pipes are joined by fusion welding on site.

1.4 Continuous quality control is exercised during manufacture. Checks include:

Pipes

dimensional accuracy
short-term stiffness.

1.5 A label bearing the BBA identification mark incorporating the number of this Certificate is attached to each pipe length or to each pack of pipes.

2 Delivery and site handling

2.1 Handling, storage and transportation should be in accordance with BS 5955-6 : 1980 and the manufacturer's instructions.

2.2 When long-term storage is envisaged, Weholite pipes must be protected from direct sunlight. If protection cannot be provided, consideration must be given to the effects of daily exposure to direct sunlight:

Up to 3 months — negligible UV degradation but possible extreme surface temperatures of up to 80°C may cause some localised distortion

3 to 12 months — may have significant effect on the impact resistance and physical properties

Over 12 months — damage will occur unless protection provided.

2.3 Pipes should be suitably supported at a minimum of two places when being lifted. Protected slings should preferably be used, but if metal hooks or chains are used then padding should be placed between them and the pipes.

2.4 Pipes should be stored on a flat surface, free from sharp projections, stones or other protuberances. They are generally delivered as loose lengths and should not be stacked more than 4 m high. Care should be taken to avoid dropping the pipes on their ends, particularly during cold weather conditions.

3 General

The Weholite HDPE Pipe System, when installed in accordance with the recommendations given in this Certificate, is suitable for use for the collection and disposal of surface and sub-surface water.

4 Strength

4.1 The product has adequate strength to resist loads associated with installation and with subsequent use. The ring stiffness of the pipe exceeds the minimum requirement of 6 kNm^{-2} and has a creep ratio of less than 4.0 (see section 13.1).

4.2 For safe bedding depth purposes the pipes may be assumed to have a stiffness of greater than 6 kNm^{-2} .

4.3 The pipes have adequate resistance to impact loads to which they may have been subjected during installation and in service. Care should be taken during site handling and installation to avoid dropping the pipes on their ends, particularly during cold weather conditions.

5 Performance of joints

Correctly made, the welded joints remain watertight.

6 Flow characteristics



6.1 The pipes will have normal flow characteristics associated with thermoplastic pipes.

6.2 An appropriate value of roughness coefficient should be selected when designing the drainage system.

7 Practicability of installation

The pipes are installed easily using traditional drain-laying methods. The lengths in which the pipes are available and their lightness in weight are a significant advantage in handling and installation. Jointing of the pipes is achieved using fusion welding by Asset International Ltd's approved contractors.

8 Resistance of chemicals

The pipe will be unaffected by those types and quantities of chemicals likely to be found in surface water.

9 Maintenance

9.1 Access to the system for cleaning should be provided by conventional methods.

9.2 The system can be rodded easily using flexible drain rods. In common with other standard plastic drainage systems, toothed root cutters and rods with metal ferrules, as used with some

mechanical cleaning systems, could damage the pipe and joints and should not be used.

9.3 The system can be cleansed using low-pressure, high-volume flushing in accordance with WIS 4-35-01, 2000, Clause 6.10.

10 Durability



In the opinion of the BBA, when used in the context of this Certificate, the material from which the pipes are manufactured will not significantly deteriorate and the anticipated life of the system will be in excess of 50 years.

Installation

11 General

11.1 Installation must be in accordance with the recommendations of BS EN 752-4 : 1998, BS 8005-1 : 1987 and BS 5955-6 : 1980, where appropriate.

11.2 Pipe and couplings must be protected against damage from site construction traffic

11.3 In sub-zero temperatures and rain, joints should be tented off.

12 Procedure

12.1 The pipes must be prepared and fusion welded by trained operatives in accordance with Asset International Ltd's documented procedures.

12.2 The pipe can be cut easily using conventional hand tools and should be cut square.

12.3 The pipe edge to be welded should be chamfered using an abrasive disc and the oxide layer removed.

12.4 The pipes should be raised on timbers, butted together leaving a gap of between 10 mm and 20 mm and tack welded⁽¹⁾.

(1) Hand-held extruders should be allowed to warm up for between 20 mins and 30 mins prior to use, dependent on ambient temperature.

12.5 The tack welds should be allowed to set and the oxide layer removed with an abrasive disc.

12.6 Root weld should be laid around the joint with an angled weld tip. The oxide layer should be removed with an abrasive disc when the weld has set. The joint should be capped using a 'half-moon' shaped head attachment.

12.7 Joints can be welded either in the trench, depending on the depth of dig and relevant Health

and Safety Regulations, or above the trench and lifted into place after welding.

12.8 Proper equipment should be used when lifting a welded string of pipes and the pipeline should be slung so as to avoid excessive strain on the welded joints.

12.9 Care should be taken during backfill to maintain the line and level of the pipelines. If necessary, the pipe should be restricted to prevent uplift.

Technical Investigations

The following is a summary of the technical investigations carried out on the Weholite HDPE Pipe System to comply with WIS 4-35-01 : 2000.

13 Tests

13.1 The following tests were carried out to determine the characteristics of the pipe and the pipe material:

impact resistance to BS EN 1411 : 1996 using WIS values

ring flexibility to BS EN 1446 : 1996

long-term ring stiffness to BS EN ISO 9967 : 1995

resistance to internal puncture

stress rupture to BS EN 921 : 1995

high volume, low pressure flushing to WRc jetting method.

13.2 Tests were carried out on joined pipe to establish watertightness of joints to BS EN 1277 : 1996, Method 4 : Conditions A, B and C.

13.3 Tests were carried out to establish the dimensional accuracy of the pipe.

14 Other investigations

14.1 An examination was made of data in relation to the effect of the production tolerances on the performance of the products.

14.2 An evaluation of existing data was made to assess material properties, chemical resistance and durability.

14.3 Calculations were carried out to determine the slot area.

14.4 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 5955-6 : 1980 *Plastics pipework (thermoplastics materials) — Code of practice for the installation of unplasticized PVC pipework for gravity drains and sewers*

BS 8005-1 : 1987 *Sewerage — Guide to new sewerage construction*

BS EN 752-4 : 1998 *Drain and sewer systems outside buildings — Hydraulic design and environmental considerations*

BS EN 921 : 1995 *Plastics piping systems — Thermoplastics pipes — Determination of resistance to internal pressure at constant temperature*

BS EN 1277 : 1996 *Plastics piping systems — Thermoplastics piping systems for buried non-pressure applications — Test methods for leaktightness of elastomeric sealing ring type joints*

BS EN 1411 : 1996 *Plastics piping and ducting systems — Thermoplastics pipes — Determination of resistance to external blows by the staircase method*

BS EN 1446 : 1996 *Plastics piping and ducting systems — Thermoplastics pipes — Determination of ring flexibility*

BS EN ISO 9967 : 1995 *Thermoplastics pipes — Determination of creep ratio*

WIS 4-35-01 : 2000 (Issue 1) *Specification for thermoplastic structured wall pipes, joints and couplers with a smooth bore for gravity sewers for the size range 150 to 900 inclusive*



On behalf of the British Board of Agrément

Date of issue: 29th April 2002

A handwritten signature in black ink, appearing to read 'P. C. Newson'.

Chief Executive