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Agrément Certificate

09/4705

Product Sheet 1

KALSI PLASTICS UNDERGROUND DRAINAGE SYSTEMS

KALSI AQUAFLOW INSPECTION CHAMBERS

This Agrément Certificate Product Sheet⁽¹⁾ relates to Kalsi Aquaflow Inspection Chambers, for access to drains up to a depth of 1.2 m in non-roadway applications, for the purposes of testing, rodding, removal of debris, maintenance or inspection.

(1) Hereinafter referred to as 'Certificate'.

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

Mechanical properties — the chambers have adequate stiffness for depth of burial (see section 5).

Performance of joints — joints between the chamber and pipeline remain watertight under conditions where pipeline movement is in excess of that expected to occur in normal good drainage practice, and will not be adversely affected by thermal expansion or contraction (see section 6).

Watertightness — the chamber to riser connection, and correctly made connections between the chamber and the pipe, will resist water egress (see section 7).

Flow characteristics — the chambers have satisfactory flow characteristics to prevent blockage (see section 8).

Resistance to elevated temperature — the chambers have adequate resistance to the temperature ranges normal in domestic sewerage (see section 10).

Durability — under the conditions given in this Certificate, the chambers will have a service life equivalent to that of the system to which they are connected, ie in excess of 50 years (see section 12).



The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Third issue: 5 September 2019

Originally certificated on 26 January 2010

Paul Valentine

Technical Excellence Director

Claire Curtis-Thomas

Chief Executive

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.

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

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Regulations

In the opinion of the BBA, Kalsi Aquaflo Inspection Chambers, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	H1(1)	Foul water drainage
Comment:		The products will convey the flow of foul water and minimise the risk of blockages or leaks. See sections 4, 5, 6, 7 and 8 of this Certificate.
Requirement:	H3(3)	Rainwater drainage
Comment:		The products will convey the flow of surface water and minimise the risk of blockages or leaks. See sections 4, 5, 6, 7 and 8 of this Certificate.
Regulation:	7	Materials and workmanship (applicable to Wales only)
Regulation:	7(1)	Materials and workmanship (applicable to England only)
Comment:		The products are acceptable. See section 12 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:		The use of the products satisfies the requirements of this Regulation. See section 12 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	3.6(a)	Surface water drainage
Comment:		The products will satisfy the relevant requirements of this Standard, with reference to clauses 3.6.4 ⁽¹⁾⁽²⁾ to 3.6.6 ⁽¹⁾⁽²⁾ . See sections 4, 5, 6, 7 and 8 of this Certificate.
Standard:	3.7	Wasterwater drainage
Comment:		The products will satisfy the relevant requirements of this Standard with reference to clauses 3.7.3 ⁽¹⁾⁽²⁾ , 3.7.4 ⁽¹⁾⁽²⁾ , 3.7.10 ⁽¹⁾ and 3.7.11 ⁽²⁾ . See sections 4, 5, 6, 7 and 8 of this Certificate.

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation:	23(a)(i)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)	The products are acceptable. See section 12 and the <i>Installation</i> part of this Certificate.
Regulation:	81(a)(i)(b)	Underground foul drainage
Comment:		The products will provide access to facilitate the clearance of blockages and remain watertight. See sections 4, 5, 6, 7 and 8 of this Certificate.
Regulation:	82(a)(i)(b)	Rain-water drainage
Comment:		The products will convey the flow of rainwater and minimise the risk of blockages or leaks. See sections 4, 5, 6, 7 and 8 of this Certificate.

Construction (Design and Management) Regulations 2015 Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See section: 3 *Delivery and site handling* of this Certificate.

Additional Information

NHBC Standards 2019

In the opinion of the BBA, Kalsi Aquaflow Inspection Chambers, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 5.3 *Drainage below ground*.

Technical Specification

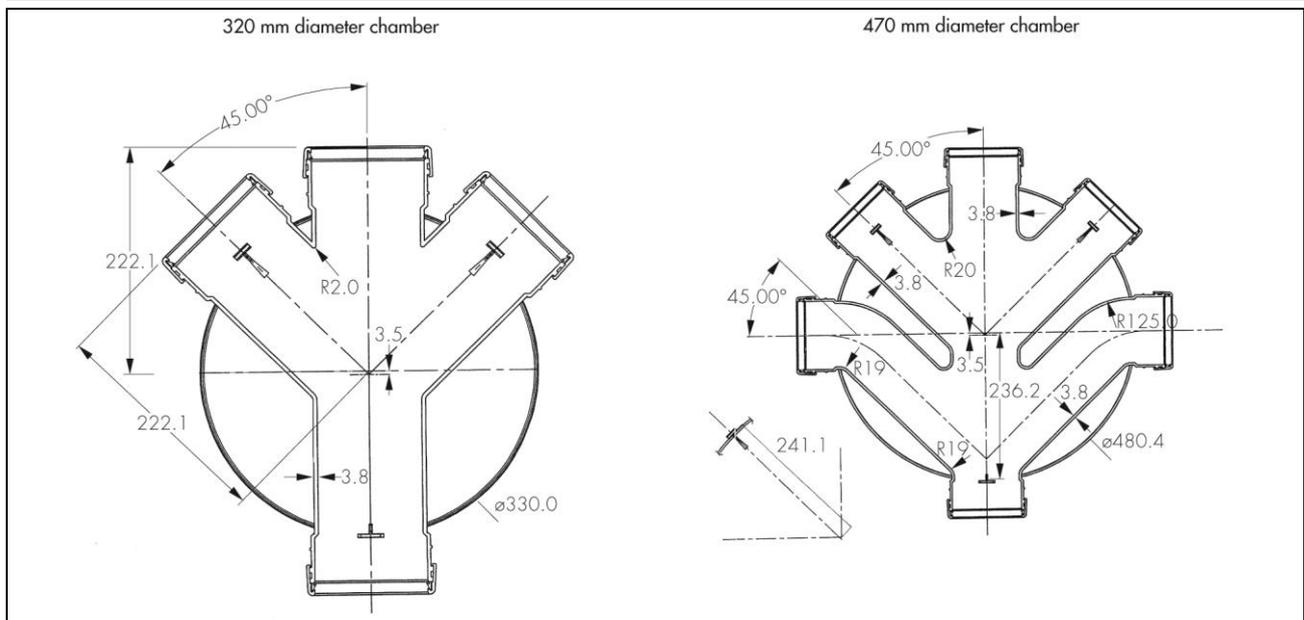
1 Description

1.1 Kalsi Aquaflow Inspection Chambers comprise a rounded base with a gradient (in which drainage channels and sockets are formed), for connection to 110 mm pipes to BS EN 1401-1 : 2009 with seals, risers, cover and frame.

1.2 Two sizes of base are available (see Figure 1):

- 320 mm diameter with four 110 mm sockets, for use up to a depth of 0.6 m
- 470 mm diameter with six 110 mm sockets, for use up to a depth of 1.2 m.

Figure 1 Kalsi Aquaflow Inspection Chambers — plan view showing connection sockets



1.3 Risers are separately available to enable site adjustments of invert depth to be made. A seal is installed into one end of the riser and push-fitted into the base. Riser heights are 185 mm for the 320 mm diameter base, and 235 mm for the 470 mm diameter base. Risers are manufactured in black polypropylene.

1.4 Items used with the base units to form the system, but outside the scope of this Certificate, include non-sealed cover and frame, screws and granular backfill material.

2 Manufacture

2.1 The chamber base and riser units are manufactured in black polypropylene by injection-moulding.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control being operated by the manufacturer are being maintained.

2.3 The management system of Kalsi Plastics (UK) Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by BSI (Certificate FM588944).

3 Delivery and site handling

Reasonable care must be taken in handling and storage to prevent damage or distortion to the products, and they must be transported in such a manner as to prevent damage prior to, and during, delivery.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Kalsi Aquaflo Inspection Chambers.

Design Considerations

4 Use



Kalsi Aquaflo Inspection Chambers are suitable for use in underground drains and public and private sewers designed in accordance with BS EN 752 : 2017 for the conveyance (by combined or separated systems) of surface water and domestic sewerage, as is permitted to be discharged into public sewers by the Water Industry Act 1991, Chapter 56, and surface water and sewerage as is permitted and defined by the Sewerage (Scotland) Act 1968, and the Water and Sewerage Services (Northern Ireland) Order 1973.

5 Mechanical properties



5.1 When installed and used in accordance with the recommendations given in this Certificate, the chambers, with proper cover and frame, will have adequate stiffness for the depth of burial.

5.2 The chambers have adequate strength to withstand the loads associated with normal site handling, installation and drain cleansing operations.

6 Performance of joints



Joints between the chamber and pipeline remain watertight under conditions where pipeline movement is in excess of that expected to occur under normal good drainage practice.

7 Watertightness



The chamber to riser shaft connection, and correctly made connections between the chamber and the pipe run, will resist water egress and not allow seepage of water.

8 Flow characteristics



The chambers have satisfactory flow characteristics to prevent blockage, provided the instructions given in sections 14 and 15 are followed.

9 Rodding and testing

9.1 The drain can be rodded through the chamber using conventional cane rods, polypropylene rods or similar flexible systems incorporating a guide roller, with or without a plunger disc. Rigid couplers between rods should not exceed 100 mm in length.

9.2 The chambers can be sealed for drain-testing purposes at the inlet and outlet connections using inflatable drain stoppers or screw-expanding plugs. This test can be carried out prior to inserting the riser shaft.

10 Resistance to elevated temperatures

The chambers have adequate resistance to the temperature ranges normally found in domestic sewage systems.

11 Maintenance

The drainage system can be rodded through the chambers using conventional cane rods, polypropylene rods or similar flexible systems in accordance with normal good practice. The use of toothed root cutters and drain rods with metal ferrules should be avoided. The chambers have adequate resistance to cleaning by water pressure jetting equipment. It is recommended that low pressure, high volume systems are utilised in accordance with the Certificate holder.

12 Durability



When used within the conditions given in this Certificate, the chambers will have a life equivalent to that of the system in which they are connected, ie in excess of 50 years.

13 Reuse and recyclability

The products are manufactured from polyethylene, which is recyclable.

Installation

14 General

14.1 Kalsi Aquaflow Inspection Chambers must be installed in accordance with the manufacturer's instructions, BS EN 752 : 2017 and BS EN 1610 : 2015, where applicable.

14.2 If the chambers are to be installed in ground where the water table may rise above the invert level of the chamber, a suitable anchorage must be provided.

14.3 Precautions must be taken to protect the chambers from damage by construction site traffic.

15 Procedure

15.1 The chambers must be installed in the vertical position and bedded on either a 100 mm layer of selected as-dug or granular material, or a 100 mm layer of concrete, so that the invert is to line and level. If concrete is used, the chamber should be bedded into position while the concrete is still wet, so that it takes the shape of the chamber base.

15.2 Connections to the chambers are made by removing the blanking off stopper from the socket to be jointed, lubricating the pipe end and pushing in the lubricated pipe end.

15.3 Before installing the risers into the base or the riser below, a ring seal should be placed in the recess at the bottom of the riser. Sufficient lubrication has to be applied before pushing the riser into place.

15.4 Backfilling is carried out using compacted, selected, as-dug or granular materials as specified in the manufacturer's instructions.

15.5 During backfilling, the cover and frame should be placed in position to prevent the ingress of foreign matter. Covers and frames are secured with screws.

Technical Investigations

16 Tests

Tests were carried out and the results assessed to determine:

- water tightness to BS EN 13598-1 : 2010
- joint tests on the pipe and chamber connection to BS EN 13598-1 : 2010
- resistance to negative pressure to BS EN 13598-1 : 2010
- dimensional accuracy to BS EN 13598-2 : 2016
- impact resistance at 20°C to BS EN 13598-2 : 2016.

17 Investigations

17.1 An evaluation of the products was made to assess:

- structural integrity
- durability
- installation detail and practicability of installation
- ease of maintenance from ground level through the opening.

17.2 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

Bibliography

BS EN 752 : 2017 *Drain and sewer systems outside buildings*

BS EN 1401-1 : 2009 *Plastic piping systems for non-pressure underground drainage and sewerage — Unplasticized Poly (vinyl chloride) (PVC-U) — Specifications for pipes, fittings and the system*

BS EN 1610 : 2015 *Construction and testing of drains and sewers*

BS EN 13598-1 : 2010 *Plastics piping systems for non-pressure underground drainage and sewerage — Unplasticized poly (vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) — Specifications for ancillary fittings including shallow inspection chambers*

BS EN 13598-2 : 2016 *Plastics piping systems for non-pressure underground drainage and sewerage — Unplasticized poly (vinyl chloride) (PVC-U), polypropylene (PP) and polyethylene (PE) — Specifications for manholes and inspection chambers in traffic areas and deep underground installations*

BS EN ISO 9001 : 2015 *Quality management systems — Requirements*

18 Conditions

18.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- 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.

18.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

18.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and 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.

18.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

18.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- 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
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

18.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal 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, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue 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.