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Agrément Certificate
21/5905
Product Sheet 2

VISQUEEN WATERSTOPS

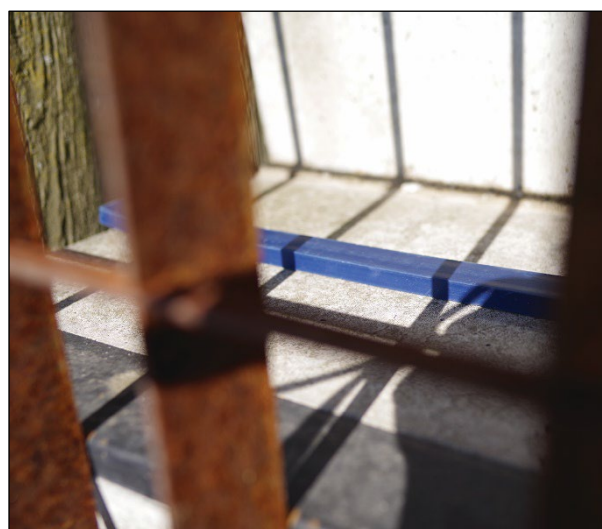
VISQUEEN IGW5 AND IGW10 WATERSTOPS

This Agrément Certificate Product Sheet⁽¹⁾ relates to Visqueen IGW5 and IGW10 Waterstops, flexible, hydrophilic waterstops for use at construction joints and penetrations in underground reinforced and waterproof concrete structures.

(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

Adhesion — the products have satisfactory adhesion to well compacted, clean and dry concrete (see section 6).


Resistance to water pressure — the products provide an effective barrier to the passage of moisture from the ground (see section 7).

Durability — when fully enclosed in a concrete structure, the products will remain effective as waterstops, for the life of the structure in which they are incorporated (see section 9).

The BBA has awarded this Certificate to the company named above for the products described herein. The 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 First issue: 25 April 2022


Hardy Giesler
Chief Executive Officer

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 MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.
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, Visqueen IGW5 and IGW10 Waterstops, 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:	C2(a)	Resistance to moisture
Comment:		The products provide an effective barrier to water under hydrostatic pressure. See section 7 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The products are acceptable. See section 9.1 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 products are acceptable. See section 9.1 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	3.4	Moisture from the ground
Comment:		The products are an effective barrier to water under hydrostatic pressure, with reference to clauses 3.4.1 ⁽¹⁾⁽²⁾ , 3.4.5 ⁽¹⁾⁽²⁾ and 3.4.7 ⁽¹⁾⁽²⁾ of this Standard. See section 7 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The products can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6 and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
Regulation:	12	Building standards applicable to conversions
Comment:		All comments given for the products under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ .

(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).



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

Regulation:	23(a)(i)(iii)	Fitness of materials and workmanship
Comment:	(iv)(b)(i)	The products are acceptable. See section 9.1 and the <i>Installation</i> part of this Certificate.
Regulation:	28(a)	Resistance to moisture and weather
Comment:		The products are an effective barrier to water under hydrostatic pressure. See section 7 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.

Additional Information

NHBC Standards 2022

In the opinion of the BBA, Visqueen IGW5 and IGW10 Waterstops, 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 5.4 *Waterproofing of basements and other below-ground structures* (requiring proprietary waterproofing materials to comply with Technical Requirement R3).

Unless it can be demonstrated that the water table is permanently below the underside of the slab, the products must be used within a Type B⁽¹⁾ waterproofing protection system, in combination with either a Type A⁽¹⁾ or C⁽¹⁾ waterproofing protection where Grade 3⁽¹⁾ protection is required and the below-ground wall retains more than 600 mm (measured from the top of the retained ground to the lowest finished floor level).

(1) As defined in BS 8102: 2009.

Technical Specification

1 Description

1.1 Visqueen IGW5 and IGW10 synthetic rubber-based hydrophilic waterstops are available in the grades, nominal dimensions and colours described in Table 1.

Table 1 Visqueen IGW5 and IGW10 Waterstop grades, dimensions and colour

Dimensions (mm)	Grades	Colour
20x5 and 20x10	Standard Salt Water, Superswell (high salinity conditions)	Blue

1.2 Ancillary items that can be used in the installation of the products and are included in this Certificate are as follows:

- Visqueen IGW Sealing UFO, a hydrophilic ring, used around formwork spacers
- Visqueen IGW Sealing Plug, a plug with a hydrophilic head for sealing tie rod holes
- Visqueen IGW Pipe Strap, a hydrophilic strap used to seal around pipe penetrations
- Visqueen Waterstop Adhesive, a silane modified polyurethane (MS)-based adhesive used to secure Visqueen IGW5 and IGW10 Waterstops to the concrete substrate. The product is grey in colour and available in 290 ml cartridges.

The above products are available in the dimensions and colours described in Table 2.

Table 2 Visqueen IGW5 and IGW10 Waterstop ancillary items

Product	Dimensions (mm)	Colour
Visqueen IGW Sealing UFO	10, 12, 17, 24, 31, 39 (nominal internal diameter)	Blue
Visqueen IGW Sealing Plug	17, 20, 22, 24, 26, 32, 34	Blue
Visqueen IGW Pipe Strap	Available for use with pipes with external diameter between 75 mm and 90 mm 110 mm and 125 mm 160 mm and 200 mm	Orange

2 Manufacture

2.1 The products are manufactured by a batch process in which the compound is extruded into strips and cut to length or moulded.

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 operated by the manufacturer are being maintained.

3 Delivery and site handling

3.1 Visqueen IGW5 and IGW10 Waterstop strip is supplied in rolls of 10 m length which are packaged in cartons, each containing 5 and 7 rolls respectively and having a gross weight of approximately 7 kg and 19 kg respectively.

3.2 Visqueen IGW Sealing UFO is supplied in bags of 100 pcs which are packed in cartons, each containing 7 bags and having a gross weight of approximately 13 kg.

3.3 Visqueen IGW Sealing Plug is supplied in bags of 100 pcs which are packed in cartons, each containing 10 bags and having a gross weight of approximately 13 kg.

3.4 Visqueen IGW Pipe Strap is supplied in bags of 5 pcs which are packed in cartons, each containing 36 bags and having a gross weight of approximately 15 kg.

3.5 The products must be stored under cover, clear of the ground and protected from moisture, frost and other sources of contamination at a temperature between 5 and 30°C.

3.6 Visqueen Waterstop Adhesive is supplied in 290 ml cartridges, packed in cardboard boxes with 12 cartridges per box.

3.7 The Certificate holder has taken the responsibility of classifying and labelling the products under the *CLP Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures*. Users must refer to the relevant Safety Data Sheet(s).

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Visqueen IGW5 and IGW10.

Design Considerations

4 Use

4.1 The products are satisfactory for use in a Type B (structurally integral) protection (as defined in BS 8102 : 2009) to waterproof construction joints and penetrations in underground waterproof reinforced concrete structures.

4.2 The products are not suitable for use in movement joints, eg expansion joints.

4.3 The products swell on contact with water and must be fully confined within the concrete structure to form an effective seal.

4.4 The unconfined Visqueen IGW5 and IGW10 Waterstop products based on standard grade will expand by approximately 500% by weight in distilled water, 300% by weight in alkaline conditions and 200% by weight in acidic conditions (pH 4.5).

4.5 The unconfined Visqueen IGW5 and IGW10 Waterstop Salt Water grade will expand by approximately 300% by weight in 1% saline water and by 200% by weight in 4% saline water.

4.6 The unconfined Visqueen IGW5 and IGW10 Waterstop Superswell grade will expand by approximately 150% by weight in 10% saline water.

4.7 The products will shrink on drying, but will re-hydrate on wetting and re-swell to provide an effective seal.

4.8 The ability of the products to expand and form an effective seal can be adversely affected by the groundwater chemistry, especially saline and acidic conditions. A detailed study of this aspect must be carried out to establish the presence of any contamination. The Certificate holder must be consulted for advice on specific applications, service conditions and groundwater chemistry.

4.9 Visqueen IGW5 and IGW10 Waterstop Salt water grade or Visqueen IGW5 and IGW10 Waterstop Superswell can be used under saline conditions. Visqueen IGW5 and IGW10 Waterstop salt water has been assessed at salt concentration of up to 4% and Visqueen IGW5 and IGW10 Waterstop Superswell at salt concentrations up to 10%. The Certificate holder must be consulted for advice on specific applications, service conditions and groundwater chemistry.

4.10 The products will develop significant pressure when confined within a concrete structure and must be covered by at least 80 mm of concrete from each edge to avoid damage to the concrete.

5 Practicability of installation

5.1 The products must only be installed by contractors who have been trained by the Certificate holder.

5.2 To avoid premature swelling, the products must be protected from contact with water until enclosed in the structure and must not be placed during rain or when rain is forecast.

6 Adhesion

6.1 The products, when used in conjunction with Visqueen Waterstop Adhesive, applied to sound and well compacted concrete substrates, have satisfactory adhesion.

6.2 Substrates must be dry and free from contamination that could affect the adhesion of the product.

7 Resistance to water pressure



7.1 When confined, the products form an effective barrier to water under hydrostatic pressure from the ground in water-resistant reinforced concrete construction joints.

7.2 Visqueen IGW5, IGW Sealing UFO and IGW Sealing Plug were tested at a maximum hydrostatic water pressure of 5.0 bar and remained watertight. Visqueen Pipe Strap was tested at a maximum hydrostatic water pressure of 2.5 bar and remained watertight.

7.3 An appropriate safety factor must be applied to the maximum water pressure given in section 7.2, and the use of additional waterproof protection should be considered depending on the specific use and risks associated with any particular structure.

8 Maintenance

As the products are confined within the structure and have suitable in-situ durability, maintenance is neither possible nor required.

9 Durability



9.1 The products will function effectively as waterstops and provide an effective barrier to water under hydrostatic pressure for the life of the structure in which they are incorporated.

9.2 The durability of the products may be affected if dislodged or damaged during or following installation, therefore care must be taken to ensure that they remain in position and not dislodged during the concrete pour, nor damaged during subsequent actions, eg vibration.

Installation

10 General

10.1 The products must be placed onto smooth and dust-free concrete surfaces. Uneven and irregular surfaces must be levelled. Advice from the Certificate Holder should be sought for suitable products.

10.2 Dust, dirt and other debris must be removed using a stiff brush and/or suitable mechanical means.

11 Procedure

Placing

Visqueen IGW5 and IGW10 Waterstops

11.1 A 10 mm bead of Visqueen Waterstop Adhesive is applied to the prepared concrete face to receive the Visqueen IGW5 or IGW10 Waterstop.

11.2 The IGW5 or IGW10 Waterstop strip is unrolled and placed onto the concrete surface to sit centrally between the inner and outer rows of reinforcing bars and pressed firmly into the adhesive bead until adhesive exudes on either side of the strip.

11.3 A minimum of 80 mm concrete coverage must be ensured around all edges.

11.4 When jointing, roll ends must overlap by ≥ 20 mm and be pressed together firmly.

Visqueen IGW Sealing UFO

11.5 Visqueen IGW Sealing UFO is placed centrally onto the middle of the formwork spacer.

11.6 Care should be taken when pouring concrete for the Visqueen IGW Sealing UFO to stay in the middle section of pipe. If required Visqueen Waterstop Adhesive can be applied for additional security.

11.7 A minimum of 80 mm concrete coverage must be ensured around the ring.

Visqueen IGW Sealing Plug

11.8 The Visqueen IGW Sealing Plug is hammered firmly in place after removing the tie bar.

Visqueen IGW Pipe Strap

11.9 Visqueen IGW Pipe Strap is secured around the plastic pipe in accordance with the Certificate holder's instructions.

11.10 Care should be taken, when pouring concrete for the strap not to be dislodged. If required Visqueen Waterstop Adhesive can be used for additional security.

11.11 A minimum of 80 mm concrete coverage must be ensured around all edges.

Enclosing

11.12 Prior to enclosing Visqueen IGW5 and IGW10 Waterstops, the placed product must be inspected for damage and premature swelling. If damaged and/or swollen, the product must be replaced at this stage.

11.13 Concrete is poured, to enclose the product, compacting well around the waterstop but taking particular care not to dislodge or damage it during the process.

Technical Investigations

12 Tests

Tests were conducted on samples of Visqueen IGW5 Waterstop Standard and/or Salt Water and Superswell grades and the results assessed to determine:

- material characteristics and properties (thermogravimetric analysis, density)
- product characteristics
- resistance to hydrostatic water pressure
- unrestrained swelling characteristics under alkali, neutral, acid and saline water conditions
- effect of wet/dry cycles on swelling characteristics
- load developed when restrained
- bond strength to concrete using Visqueen Waterstop Adhesive.

13 Investigations

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

Bibliography

BS 8102 : 2009 *Code of practice for protection of below ground structures against water from the ground*

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

14 Conditions

14.1 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.

14.2 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.

14.3 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.

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

14.5 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.

14.6 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.