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Agrément Certificate 12/4891 **Product Sheet 4**

TREMCO ILLBRUCK WINDOW AND DOOR PRODUCTS

iLLBRUCK ME500 and ME501 DUO WINDOW MEMBRANES

This Agrément Certificate Product Sheet⁽¹⁾ relates to illbruck ME500 and ME501 Duo Window Membranes, for use around windows and doors to provide an external weathertight and internal airtight seal.

(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

Weathertightness — the products will resist the passage of wind-driven rain, snow, run-off water and dust into the interior of the building (see section 6).

Air barrier continuity — the products will contribute to maintaining air barrier continuity at lintels, jambs and cills according to the Accredited Construction Details, Version 1.0 (England, Wales and Northern Ireland) and Accredited Construction Details (Scotland) (see section 7).

Risk of condensation — the products will adequately limit the risk of interstitial and surface condensation, but the risk of interstitial condensation will depend on the construction and should be assessed for each project (see section 8).

Strength — the products have suitable strength to resist the loads associated with installation (see section 9).

Durability — the products will have a serviceable life for the lifetime of the frame around which they are installed (see section 11).

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 Second issue: 19 November 2014

Originally certificated on 13 February 2012

Simon Wroe

Head of Approvals - Materials

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.

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Regulations

In the opinion of the BBA, illbruck ME500 and ME501 Duo Window Membranes, 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(b) Resistance to moisture

Comment: The products will contribute to an installation meeting this Requirement. See sections 6.1 and 6.2 of

this Certificate.

Requirement: C2(c) Resistance to moisture

Comment: The products will contribute to an installation meeting this Requirement with respect to interstitial

condensation. See section 8 of this Certificate.

Requirement: L1(a)(i) Conservation of fuel and power

Comment: The products can contribute to minimising heat loss at lintels, jambs and cills. See section 7 of this Certificate.

Regulation: 7 Materials and workmanship

Comment: The products are acceptable. See section 11 and the Installation part of this Certificate.

Regulation: 26 CO₂ emission rates for new buildings

Comment: The products can contribute to minimising heat loss at jambs and cills. See section 7 of this Certificate.

Regulation: 26A Fabric energy efficiency rates for new dwellings (applicable to England only)

Comment: The products can contribute to meeting these Regulations. See section 7 of this Certificate.

1

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 11 and the *Installation* part

of this Certificate.

Regulation: 9 Building standards applicable to construction

Standard: 3.10 Precipitation

Comment: The products will resist the effects of driving rain and enable an installation to satisfy the requirements of

this Standard, with reference to clause 3.10.1⁽¹⁾⁽²⁾. See section 6.1 and 6.2 of this Certificate.

Standard: 3.15 Condensation

Comment: The products can contribute to minimising the risk of interstitial and surface condensation, with reference to

clauses 3.15.1(1), 3.15.4(1) and 3.15.5(1). See section 8 of this Certificate.

Standard: 6.1b Carbon dioxide emissions
Standard: 6.2 Building insulation envelope

Comment: The products can contribute to minimising heat loss at lintels, jambs and cills. 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

Comments made in relation to these 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

Regulation: 23(a)(i

23(a)(i)(iii)(b) Fitness of materials and workmanship

Comment: The products are acceptable. See section 11 and the *Installation* part of this Certificate.

Regulation: 28 Resistance to moisture and weather

Comment: The products have adequate resistance to the ingress of rain and wind driven spray and so can contribute

towards the wall satisfying this Regulation. See section 6.1 and 6.2 of this Certificate.

Regulation: 29 Condensation

Comment: The products will contribute to minimising the risk of interstitial and surface condensation. See section 8 of

this Certificate.

Regulation: 39(a)(i) Conservation measures

Regulation: 40(2) Target carbon dioxide emission rate

Comment: The products can contribute to minimising heat loss at lintels, jambs and cills. See section 7 of this Certificate.

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

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

Additional Information

NHBC Standards 2014

NHBC accepts the use of illbruck ME500 and ME501 Duo Window Membranes, provided they are installed, used and maintained in accordance with this Certificate, in relation to NHBC Standards, Chapter 6.1 External masonry walls and Chapter 6.7 Doors, windows, and glazing.

Technical Specification

1 Description

- 1.1 illbruck ME500 Duo Flexible Window Membranes are polyethylene copolymer film with a non-woven fleece fabric and acrylic and butyl self-adhesive strips, used to provide an external weathertight and internal airtight seal. The membranes are available in two options:
- illbruck ME500 Duo 'W' Flexible Window Membrane acrylic and butyl self-adhesive strips pre-applied on two
 parallel edges, on opposite faces of the membrane. This option is used for application before fixing of the window
 (or door). This membrane is also available with gasket
- illbruck ME500 Duo 'E' Flexible Window Membrane acrylic and butyl self-adhesive strips pre-applied on two parallel edges on same face of the membrane. This option is used for application after fixing of the window (or door).
- 1.2 Ancillary items for use with the products include:
- illbruck ME501 Duo Window Membrane HD a polyethylene copolymer film with non-woven fleece fabric, available with a plaster mesh finish or with gasket options, used to provide an external weathertight or internal airtight seal with greater strength and extended UV stability. The membrane is attached to the window with SP525 adhesive or gasket and to the construction reveal material with SP525 adhesive
- ME901 Butyl & Bitumen Primer a brush-applied polymer solution for use with illbruck butyl and bitumen tapes and membranes
- ME902 a spray-applied polymer solution for use with illbruck butyl and bitumen tapes and membranes
- SP525 adhesive a low modulus sealant formulated using advanced SP polymer technology available in white, light grey, mid-grey, concrete grey, anthracite, black, Portland (light sandstone) and sandstone colours.
- 1.3 illbruck ME500 and ME501 Duo Window membranes are supplied in roll form to the dimensions given in Table 1.

Table 1 Dimensions ⁽¹⁾		
Membrane	Width ⁽¹⁾ (mm)	Length (m)
illbruck ME500 Duo 'W' Flexible Window Membranes	60-80 80-110 110-140	50
illbruck ME500 Duo 'E' Flexible Window Membranes	80-110 110-140 140-170	
illbruck ME501 Duo HD Window Membranes	Slit to width 150 300	25

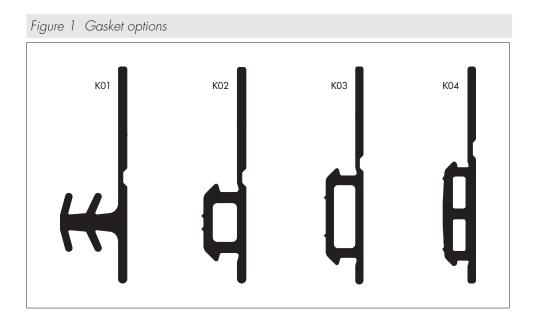
⁽¹⁾ Alternative roll widths are available on special order from the Certificate holder.

1.4 illbruck ME500 Duo Flexible 'W' and 'E' and ME501 Duo HD Window Membranes are also available with a plaster mesh finish for use in situations where a wet render or wet plaster finish is to be applied. This variation is outside the scope of this Certificate. Further advice on use and application should be sought from the Certificate holder.

Gaskets

1.5 Four gasket options are available, the use of which is dependent on a suitable groove on the frame profile (see Table 2 and Figure 1). The gasket option of illbruck ME501 Duo Window Membrane HD is fixed to the construction material using SP525 Adhesive as in the previous application details above.

Table 2 Gasket type			
Gasket type	Minimum groove depth (approx) (mm)	Groove width (approx) (mm)	
KO1	6.5	3–5	
K02	4.0	5–7	
K03	4.0	7-10	
K04	4.0	13–15	



Adhesive

1.6 Typical coverage rates for SP525 Adhesive are shown in Table 3.

Table 3 Adhesive coverage rates				
Width x depth (mm)	Linear metres per 600 ml foil	Linear metres per 400 ml foil		
6 x 6	16.7	11.1		
10 x 6	10.1	6.7		
10 x 10	3.0	2.0		
20 x 10	2.0	1.3		
Fillet joint width x depth (mm)				
6 x 6	33.3	22.2		
10 x 10	12.0	8.0		

2 Manufacture

- 2.1 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.
- 2.2 The management system of Tremco illbruck Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001: 2008 by TÜV Rheinland Industrie Service GmbH (Certificate No. 01 100 4301) for the Bodenwöhr, Germany location and by DNV (Certificate No. 129929-2013-AQ-NLD-RvA) Arkel, for the Netherlands location.

3 Delivery and site handling

- 3.1 illbruck ME500 Duo Flexible Membranes are supplied in cartons, containing 2–6 rolls depending upon the roll width, bearing the manufacturer's name and width of membrane. The membranes should be stored in their original containers in a cool, dry place and must not be exposed to sources of heat or high temperatures.
- 3.2 illbruck ME501 Duo HD Window Membrane is supplied in cartons, containing 1-2 rolls depending upon the roll width, bearing the manufacturer's name and width of membrane. The membrane should be stored in its original container in a cool, dry place and must not be exposed to sources of heat or high temperatures.
- 3.3 illbruck ME901 Primer is supplied in 1 litre (12 per carton) and 5 litre tins and illbruck ME902 Primer in 500 ml aerosol cans (12 per carton). Both primers are classified as 'flammable' under The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (CHIP4)/Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) 2009.
- 3.4 illbruck SP525 adhesive is supplied in 400 and 600 ml foils (20 per carton).

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on illbruck ME500 and ME501 Duo Window Membranes.

Design Considerations

4 Use

- 4.1 illbruck ME500 and ME501 Duo Window Membranes are satisfactory for use to provide an external weathertight and also an internal airtight seal around newly-installed window and door frames within structural units of timber, plastics, masonry, metal or concrete in new build or renovation situations.
- 4.2 When used and installed in accordance with this Certificate and the Certificates holder's instructions, the membranes can contribute towards an exterior building envelope meeting a minimum air leakage of less than 1 m³·hr⁻¹·m⁻² @ 50Pa (see section 7).

5 Practicability of installation

The products are designed to be installed by a competent general builder or contractor.

6 Weathertightness



- 🐞 6.1 The products will resist the passage of water, wind-driven rain and dust into the interior of a building.
- 6.2 When the products were tested in accordance to EN 1027: 2000, no detectable water or moisture penetration occurred up to a test pressure of 600 Pa, and therefore the products satisfy the Class 9A requirements of EN 12208: 1999.
- 6.3 The products resist penetration of liquid water and consequently may be used as temporary waterproofing prior to the installation of an external finish. The period of such use should, however, be kept to a minimum, particularly during periods of high UV exposure. Advice should be sought from the Certificate holder.

7 Air barrier continuity



The membranes are air barriers and when installed correctly can contribute to elements and junctions minimising heat loss by unplanned air infiltration. The membranes have been tested according to EN 1026: 2000 and classified according to EN 12207 : 1999, and achieve a typical air infiltration, Q_{100} of 0.1 $m^3 \cdot hr^{-1} \cdot m^{-1}$, Class 4. Guidance documents in this respect are:

England and Wales — Approved Documents to Part L and, for new thermal elements to existing buildings, Accredited Construction Details (version 1.0). See also SAP 2009 The Government's Standard Assessment Procedure for Energy Rating of Dwellings, Appendix K and the iSBEM User Manual for new-build.

Scotland — Accredited Construction Details (Scotland)

Northern Ireland — Accredited Construction Details (Version 1.0).

8 Risk of condensation



🗶 Under normal domestic conditions, the level of interstitial condensation associated with the products will be low and the risk of any resultant damage minimal.

9 Strength

The products will resist the normal loads associated with their installation.

10 Maintenance

As the products are confined within the final construction and have suitable durability (see section 11), maintenance is not required. However, any damage occurring before enclosure must be repaired (see section 18).

11 Durability



👚 The products will be virtually unaffected by the normal conditions found during installation and will have a life comparable with that of the installed window or door frame, provided they are not exposed to sunlight for long periods (see section 12.3). Advice regarding exposure can be obtained from the Certificate holder.

12 General

- 12.1 Installation of illbruck ME500 and ME501 Duo Window Membranes must be carried out in accordance with the Certificate holder's instructions.
- 12.2 The choice of illbruck ME500 Duo 'W' or 'E' Flexible Window Membranes depends on whether the frame is already fitted or is to be fitted into a reveal or a projecting window detail. Any of the illbruck ME500 Duo 'W' and Duo 'E' Flexible Window Membranes or ME501 Duo Window Membrane HD may be used in conjunction when installing a frame. In case of doubt, advice should be sought from the Certificate holder.
- 12.3 The exposed side of the external membrane of illbruck ME500 Duo Flexible Window Membrane must be covered as soon as possible to protect it from UV, normally by an insulated cladding system. Alternatively illbruck ME501 Duo HD Window Membrane may be used externally to provide greater strength and UV stability. Advice can be sought from the Certificate holder.

13 Application of illbruck ME500 Duo 'W' Flexible Window Membrane

13.1 For internal applications illbruck ME500 Duo 'W' Flexible Window Membrane is installed before fitting the frame into the reveal. The membrane is bonded to the inner edge of the window frame using the acrylic self-adhesive strip, starting from the bottom centre of the frame, ensuring that the expansion pleat fold line is in line with the inner edge/face junction of the frame (see Figure 2).

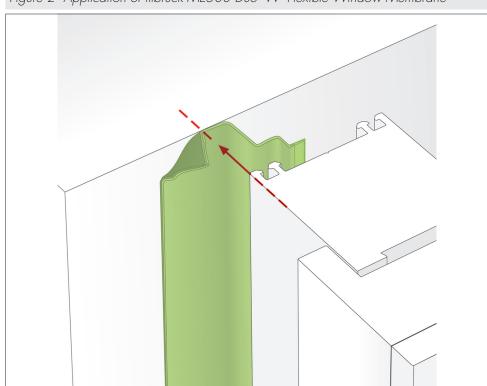


Figure 2 Application of illbruck ME500 Duo 'W' Flexible Window Membrane

- 13.2 At each corner the membrane is bent and folded to ensure that the acrylic self-adhesive strip is back-to-back, leaving an extra 20 mm length (40 mm of membrane) at all corners.
- 13.3 Application is continued around the frame with the acrylic self-adhesive strip applied to all sides with an overlap of 50 mm at the bottom centre of the frame before attaching the fixing brackets to the edge of the frame over the membrane.
- 13.4 External application of illbruck ME500 Duo 'W' Flexible Window Membrane is then repeated for the outer edge junction of the frame as described in sections 13.1 to 13.3, before attachment of the fixing brackets to the edge of the frame over the membranes and fitment of the frame into the reveal ensuring that the membranes protrude across the internal and external reveals.
- 13.5 On damp, dusty or undulating surfaces, or if the ambient temperature is below 5°C, illbruck ME901 or illbruck ME902 Butyl and Bitumen Primer is applied where the butyl strip is to be located to the substrate of the reveal or blockwork.

- 13.6 The membrane is bonded to the substrate of the reveal or blockwork with the butyl strip and a seam roller used to consolidate the bond.
- 13.7 All membrane lap joints and areas of potential water ingress or air leakage (corners, around fixing brackets etc) must be further sealed with Tremco SP525.

14 Application of illbruck ME500 Duo 'E' Flexible Window Membrane

14.1 illbruck Duo 'E' Membrane is bonded to the installed frames internal and/or external frame face using the acrylic self-adhesive strip, with a minimum 10–15 mm contact area (see Figure 3), ensuring that this will be subsequently covered by finishes, eg dry lining, cladding, render etc.

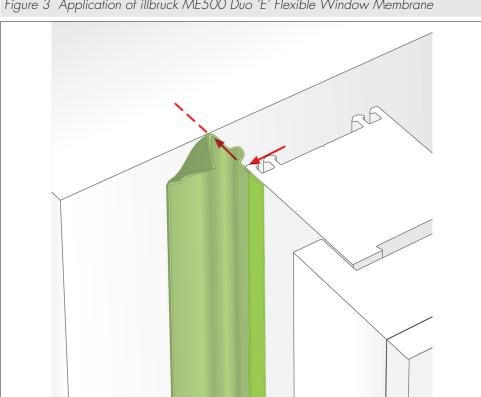
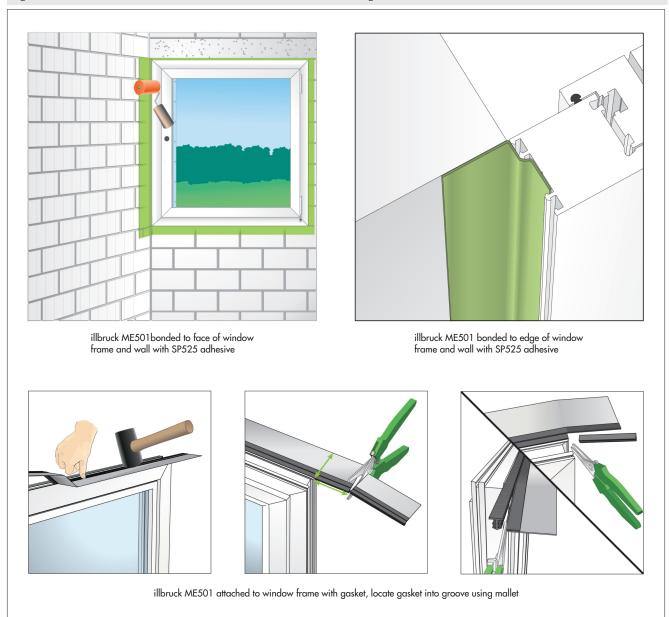


Figure 3 Application of illbruck ME500 Duo 'E' Flexible Window Membrane

- 14.2 Application is continued around corners, carefully folding to ensure continuity of the membrane, ensuring that no radii are present at the corner interface with the internal blockwork or other construction material.
- 14.3 The membrane may also be applied as individual strips to each side of the frame allowing a 50 mm overlap of the membrane at the corners.
- 14.4 On damp, dusty or undulating surfaces, or if the ambient temperature is below 5°C, use of illbruck ME901 or illbruck ME902 Butyl and Bitumen Primer is required where the butyl strip is to be located to the construction material of the reveal or blockwork.
- 14.5 The membrane is bonded to the substrate of the reveal with the butyl strip and a seam roller is used to consolidate the bond.
- 14.6 All lap joints and areas of potential water ingress or air leakage (corners, around fixing brackets etc) must be sealed with Tremco SP525.

15 Application of illbruck ME501 Duo Window Membrane HD

15.1 illbruck ME501 Duo Window Membrane HD is attached to the window with SP525 adhesive or gasket and to the construction reveal material with SP525 adhesive (see Figure 4).



Bonding with SP525 Adhesive after frame installation (suitable for single windows and curtain walling/multiple coupled windows) (see Figure 5)

- 15.2 A 10 mm diameter bead of Tremco SP525 adhesive is applied approximately 15 mm from one edge of the back (shiny) face of the membrane and bonded to the window frame face or edge by compressing with a seam roller to consolidate the bond.
- 15.3 A similar bead of adhesive is applied to the opposite edge of the membrane and bonded to the substrate by compressing with seam roller to consolidate bond.

Gasket option

- 15.4 The membrane with gasket is fixed to the substrate using Tremco SP525 Adhesive as in previous applications above.
- 15.5 When using the gasket fixing option, if the frame is being installed into a reveal, the membrane must be applied prior to installation. If installing where the frame projects forward of the opening, the membrane can be applied after installation.
- 15.6 If a wet render system is to be used, this must be applied to the non-shiny face of the membrane. For large areas and improved adhesion of the wet finish, a plaster mesh version of illbruck ME501 Duo Window Membrane HD must be used. Further details are available from the Certificate holder.

16 Application of illbruck ME901 and ME902 Butyl & Bitumen Primers

- 16.1 The primers must be used above -5° C
- 16.2 The primers must be applied evenly and carefully on dry, dust-free and grease-free surfaces. Adjoining surfaces must be masked if not to be primed.

16.3 Coverage will depend on the porosity of the substrate.

17 Application of SP525 adhesive

- 17.1 The sealant must be applied between 5°C and 40°C using a conventional applicator gun.
- 17.2 Joint faces must be clean, dry and free from dust, oil, grease, old sealant and any traces of contaminant which may affect adhesion. Any previously-applied sealant must be mechanically removed.
- 17.3 All beads must be consolidated by applying pressure along the length of the membrane using a seam roller to ensure firm, full contact with the joint faces.

18 Repair

Any damage to the membranes must be repaired as soon as possible and before the application of the finishing layer(s) of the construction detail. The membranes may be repaired by applying a patch of the membrane over the damaged area and sealing it with Tremco SP525. In case of doubt, advice on a suitable repair method should be sought from the Certificate holder.

Technical Investigations

19 Tests

Tests were conducted on illbruck ME500 Duo Flexible Window Membrane and the results assessed to determine:

- peel strength
- tear strength
- water vapour permeability
- dimensional stability
- foldability.

20 Investigations

20.1 An evaluation was made of independent test data carried out on illbruck ME500 Duo Flexible Window Membrane relating to:

- adhesive tensile strength
- resistance to fire.

20.2 An evaluation was made of independent test data relating to:

- air permeability
- resistance to driving rain
- simulated short-term loading
- sound reduction.

20.3 An evaluation was made of independent test data carried out on illbruck ME501 Duo HD Window Membrane relating to:

- air permeability
- adhesive tensile strength
- resistance to fire.

20.4 An evaluation was made of independent test data carried out on illbruck SP525 Adhesive relating to adhesive tensile strength.

- 20.5 Using computer modelling, window and door frame jambs were analysed for risk of condensation.
- 20.6 Visits were made to a site in progress to assess the practicability of installation.
- 20.7 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 1026 : 2000 Windows and doors — Air permeability — Test method
BS EN 1027 : 2000 Windows and doors — Watertightness — Test method
BS EN 12207 : 1999 Windows and doors — Air permeability — Classification
BS EN 12208 : 1999 Windows and doors — Watertightness — Classification
BS EN ISO 9001 : 2008 Quality management systems — Requirements

Conditions of Certification

21 Conditions

- 21.1 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.
- 21.2 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.
- 21.3 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.
- 21.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.
- 21.5 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.
- 21.6 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.