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BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

Agrément Certificate
95/3133
Product Sheet 3

IKO DAMP-PROOF COURSES

HYLOAD TRADE DAMP-PROOF COURSE FOR WALLS

This Agrément Certificate Product Sheet(1) relates to the Hyload Trade Damp-proof Course for Walls, for use in providing horizontal, vertical or stepped damp-proof courses, including cavity trays, in either solid or cavity walls of brick, block, stone or concrete.

(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

Behaviour under load — the product will not extrude under load, up to the point of compressive failure of the wall (see section 6).

Resistance to water and water vapour — the product will provide an effective barrier against liquid water and water vapour (see section 7)

Compatibility with other materials — within normal construction, the product is compatible with all materials with which it will be in contact, with the exception of timber preservatives based on creosote or tar oils (see section 8).

Durability — when properly specified and installed, the product, in normal circumstances, will remain effective during the lifetime of the building (see section 10).

The BBA has awarded this Certificate to the company named above for the product described herein. The product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Second issue: 11 June 2014
Originally certificated on 11 March 2008

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, the Hyload Trade Damp-proof Course for Walls, if installed, used and maintained in accordance with this Certificate, will meet or contribute to meeting 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 (as amended) (England and Wales)

Requirement:	A1	Loading
Comment:		The product will not extrude under load, up to the point of failure of the wall, and will not adversely affect the ability of a properly designed and built wall to sustain and transmit compression loads. The presence of a dpc can reduce the shear and tensile strength of a wall at that point, and the design may need to take account of this. See section 6.1 of this Certificate.
Requirement:	C2(a)(b)	Resistance to moisture
Comment:		Properly installed in a correctly designed structure, the product forms an effective barrier to the movement of water within the wall, enabling compliance with this Requirement. See section 7 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The product is acceptable. See section 10 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:		The product can contribute to a construction satisfying this Regulation. See section 10 and the *Installation* part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	1.1(a)(b)	Structure
Comment:		The product will not extrude under load, up to the point of failure of the wall, and will not adversely affect the ability of a properly designed and built wall to sustain and transmit compression loads, with reference to clauses 1.1.1[(1)(2)] and 1.1.3[(1)(2)]. See section 6.1 of this Certificate.
Standard:	3.4	Moisture from the ground
Standard:	3.10	Precipitation
Comment:		Properly installed in a correctly designed structure, the product forms an effective barrier to the movement of water within the wall, enabling compliance with these Standards, with reference to clauses 3.4.1[(1)(2)] and 3.10.1[(1)(2)]. See section 7 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The product 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 this product 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)(b)(i)	Fitness of materials and workmanship
Comment:		The product is acceptable. See section 10 and the *Installation* part of this Certificate.
Regulation:	28(a)	Resistance to moisture and weather
Comment:		Properly installed in a correctly designed structure, the product forms an effective barrier to the movement of water within the wall, enabling compliance with this Regulation. See section 7 of this Certificate.
Regulation:	30	Stability
Comment:		The product will not extrude under load, up to the point of failure of the wall, and will not adversely affect the ability of a properly designed and built wall to sustain and transmit compression loads. See section 6.1 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 obligation under these Regulations.

See sections: 1 *Description* (1.2) and 3 *Delivery and site handling* (3.5) of this Certificate.

Additional Information

NHBC Standards 2014

NHBC accepts the use of the Hyload Trade Damp-proof Course for Walls, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 6.1 *External masonry walls*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 14967 : 2006. An asterisk (*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

1.1 The Hyload Trade Damp-proof Course for Walls is a black sheet material with slightly grained surfaces. It consists of a mixture of pitch, PVC, synthetic fibres and other additives.

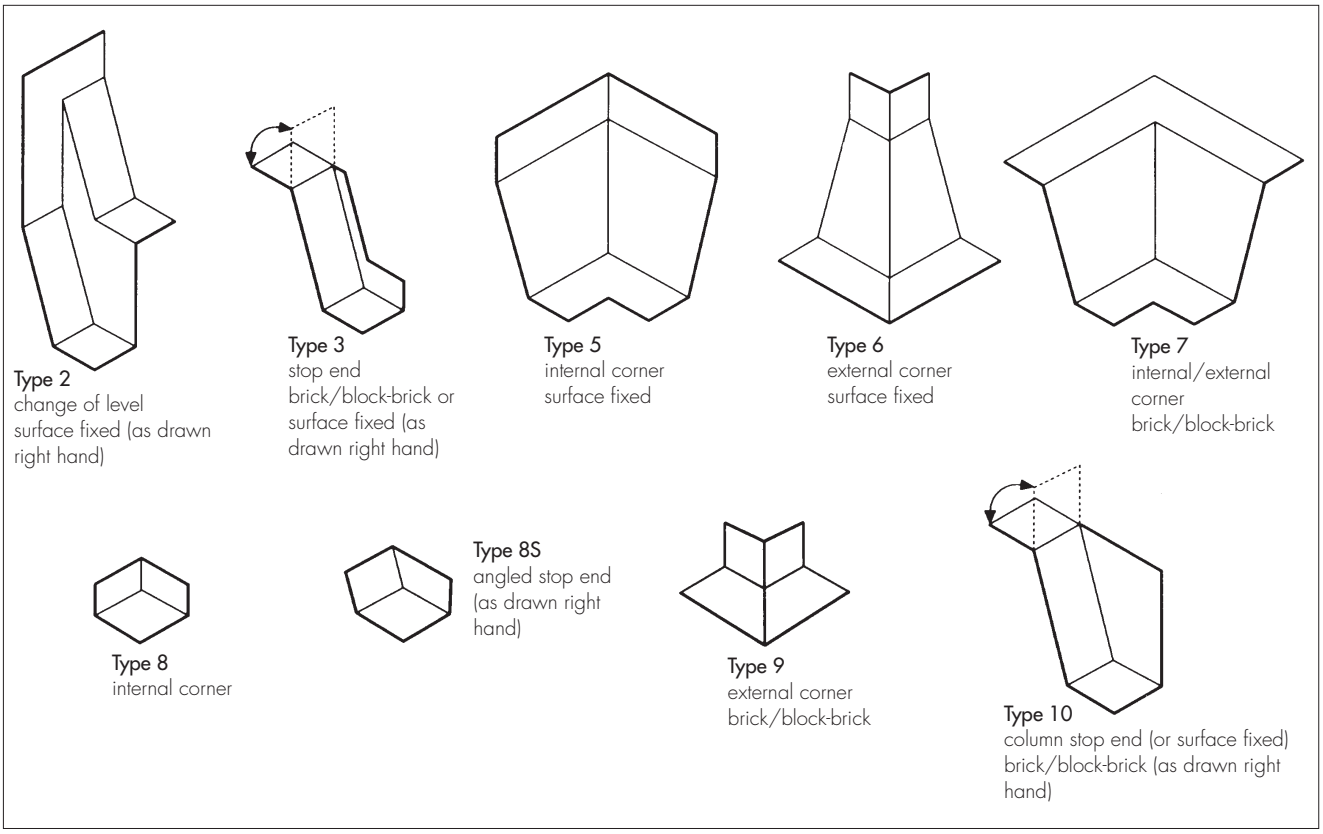
1.2 The sheets are manufactured to the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Value
Thickness* (mm)	0.9
Weight (kg·m^{-2})	1.13
Roll length (m)	20
Roll width (mm)	100, 112.5, 125, 150, 225, 300, 375 and 450
Watertightness* (2 kPa)	Pass
Durability (artificial ageing)*	Pass
Durability (alkali)*	Pass
Resistance to low temperature* (°C)	−15
Resistance to impact* (mm)	500
Resistance to static loading* (kg)	20

1.3 Details are made from 1.5 mm thick polymer sheet and are preformed, flexible units for angles in stepped or horizontal damp-proof coursing. Typical examples are shown in Figure 1.

Figure 1 Hyload preformed cloak units



1.4 Joints are formed with 100 mm wide self-adhesive tape, protected on both sides by silicone release paper, or Hyload PDC Lap Adhesive or Hyload Mastic.

1.5 IKOpro SA Primer is used where required on concrete, brickwork, blockwork and steel.

1.6 Hyload DPC Lap Adhesive is a medium-viscosity, instant contact synthetic rubber/resin adhesive (see section 14.1).

1.7 Hyload DPC Mastic is a thick, synthetic rubber mastic with gap-filling properties and is suitable for bonding Hyload to Hyload and to a range of common building materials (see section 14.1).

1.8 Hyload DPC fixing strip is a semi-rigid plastic strip, 25 mm by 3 mm by 2 m, pre-drilled at 150 mm centres.

1.9 Hyload DPC fixing pins are for use with Hyload DPC fixing strip for fixing to solid internal substrates such as blockwork, stone and concrete.

2 Manufacture

2.1 The sheets are manufactured by compounding and calendering processes.

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.

2.3 The management system of IKO PLC has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by BSI (Certificate FM 45901).

3 Delivery and site handling

3.1 The dpc material is delivered in rolls secured with a paper wrapper bearing the Certificate holder's name and the BBA logo incorporating the number of this Certificate. The product name is stamped across the sheet at intervals along the length of the roll.

3.2 Rolls must be stored on end and under cover. Contact with organic solvents must be avoided.

3.3 Hyload preformed cavity tray units are delivered in cardboard boxes. A label bearing a description of the contents and the BBA logo incorporating the number of this Certificate is affixed to each box.

3.5 IKOpro SA Primer is classified as 'flammable' and 'harmful' under *The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009* (CHIP4)/*Classification, Labelling and Packaging of Substances and Mixture (CLP Regulation) 2009* and bears the appropriate hazard warning label. The flashpoint is 24°C.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the Hyload Trade Damp-proof Course for Walls.

Design Considerations

4 Use

4.1 The Hyload Trade Damp-proof Course for Walls, when correctly specified and installed in accordance with this Certificate, provides satisfactory horizontal, vertical or stepped damp-proof coursing (including cavity trays) in either solid or cavity walls of brick, block, stone or concrete. General standards of good design practice are given in BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006, BS EN 1996-3 : 2006 and their respective UK Annexes, and PD 6697 : 2010.

4.2 Dpc cloak units are preformed in the factory (see Figure 1).

4.3 The Hyload DPC Jointing Tape provides an effective method of joining Hyload DPC to itself.

4.4 The system components may be used separately or in combination.

5 Practicability of installation

Installation is designed to be carried out by a bricklayer experienced with this type of product.

6 Behaviour under load

6.1 Hyload Trade DPC will not extrude under load, up to the point of compressive failure of the wall, and will not adversely affect the ability of a properly designed and built wall to sustain and transmit compression. The presence of Hyload, however, can reduce the shear and tensile (and, therefore, bending) strengths of a wall at that point, and designs may need to take account of this. Allowable stresses on the dpc are detailed in the product literature and further guidelines are available from the Certificate holder.

6.2 Hyload Trade DPC will withstand considerable movement of the wall, and is unlikely to be impaired by normally occurring movements up to the point where the wall itself is deemed to have failed.

7 Resistance to water and water vapour

When correctly specified and installed, the product will provide an effective barrier against liquid water and water vapour, either from a source external to the structure, or from one part of the structure to another.

8 Compatibility with other materials

The product is compatible with all materials with which it will be in contact within normal construction, with the exception of timber preservatives based on creosote or tar oils. It is unaffected by timber preservatives of water-based solutions of salts. Where doubt exists as to the compatibility of materials in contact, the advice of the Certificate holder must be sought.

9 Maintenance

As the system is confined within the structure and has satisfactory durability (see section 10), maintenance is not required. However, any damage occurring before enclosure must be repaired (see section 16).

10 Durability

Results of artificial ageing tests and assessment of constituent materials indicate that satisfactory performance in use and retention of physical properties are achieved. When properly specified and installed, the product, in normal circumstances, will remain effective for the lifetime of the building.

Installation

11 General

11.1 Installation of the Hyload Trade Damp-proof Course for Walls must follow normal good practice for the detailing of damp-proof courses, as set out in PD 6697 : 2010, and be in accordance with the relevant clauses of BS 8000-3 : 2001, BS 8215 : 1991, BRE Digest 380 *Damp-proof courses*, and the Certificate holder's instructions.

11.2 As with all flexible damp-proof courses, care should be taken to avoid impact damage from sharp objects (eg chisels) during installation.

12 Handling

12.1 Hyload Trade DPC is handled and cut as for conventional flexible damp-proof courses. It retains sufficient flexibility to be used at the lowest temperature at which walls are normally built and does not become tacky in warm, ambient weather conditions.

12.2 Certain details are difficult to form from the dpc, particularly when bending the material through two angles at the same time. In such cases, care must be taken to achieve a satisfactory seal and, where necessary, preformed details should be used (typical examples of which are shown in Figures 2 and 3). Joints should be formed on site using Hyload DPC Jointing Tape, Hyload DPC Lap Adhesive or Hyload DPC Mastic. Care should be taken at temperatures below 5°C to avoid the risk of condensation on jointed surfaces, which may affect the efficiency of the self-adhesive tape.

Figure 2 Detail with concrete beam

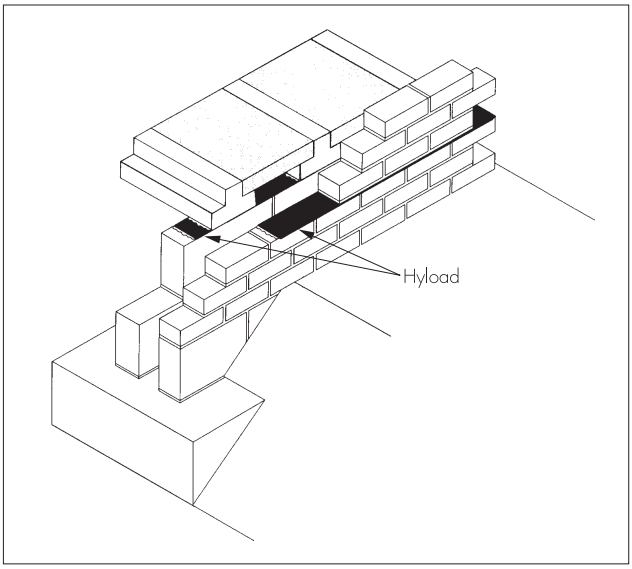
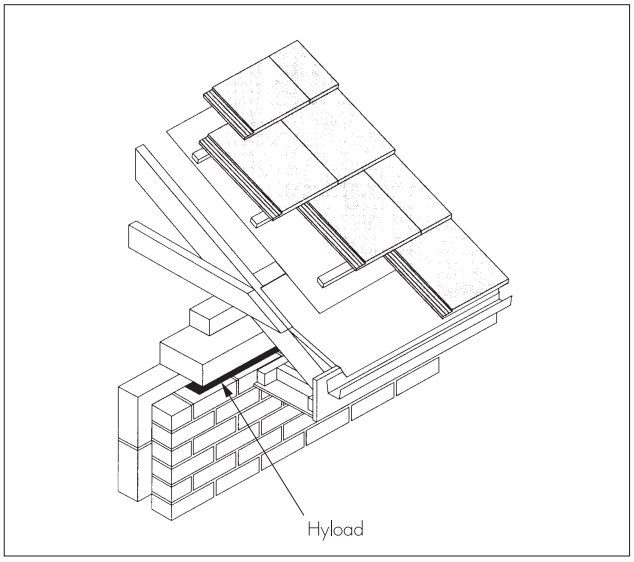


Figure 3 Eaves details



13 Installation practice

13.1 The following installation practices are essential:

- the dpc must extend through the full thickness of the wall or wall-leaf, including pointing, applied rendering or other facing material
- the dpc must be laid on a wet, even bed of mortar (perforations in adjacent courses of brickwork must be closed with mortar) and be laid flush or project beyond the finished face of the external leaf
- the dpc must always be sandwiched between wet mortar and not laid dry
- all lap joints in the dpc must have at least a 100 mm overlap and be completely sealed (see section 14)
- preformed detail units must be used at stop ends and at all corners.

13.2 When using Hyload with boot lintels or similar constructions, it is recommended that the material is installed to follow the lintel profile, where appropriate.

Beam and block flooring

13.3 When used with beam and block flooring, the product may be laid dry on a brick or block wall provided the following conditions are met:

- the minimum bearing of the beams recommended by the flooring system manufacturer is achieved
- the dead and applied loads upon the dpc via the beam do not exceed 2.5 $N{\cdot}mm^{-2}$
- the surface of the wall onto which the dpc and beam are to be installed is clean, smooth and free from projections or perforations. Failure to comply with this requirement could lead to perforation of the dpc. If the requirement cannot be met, the dpc should be laid in an even bed of mortar
- any loose aggregate is swept from the wall prior to the installation of the dpc and from the dpc prior to the installation of the beam.

14 Jointing procedure

14.1 Lap joints must be bonded using one of the following methods:

- Hyload DPC Jointing Tape is applied to one surface (the silicone tapes having been removed immediately beforehand) and even pressure applied to the joint
- Hyload DPC Lap Adhesive is applied to each surface to be bonded and, when dry, the two surfaces are pressed firmly together.

14.2 All surfaces to be jointed must be clean and dry. Release paper protecting the self-adhesive strips should not be removed until the joint is ready to be formed. The support unit and tape should not be left exposed overnight or during periods of low temperature.

14.3 When forming a lap joint using the self-adhesive tape, the manufacturer's instructions must be followed.

14.4 A strip of self-adhesive tape is applied to the upper surface of the dpc or preformed unit.

14.5 The layer of dpc to be lapped to the first is placed in the usual way, the upper silicone release paper removed and the joint formed, ensuring that a full seal is achieved.

14.6 Where the dpc or preformed detail is required to be bonded to a brick, block or concrete substrate, it can be held in place temporarily with self-adhesive tape bonded to the substrate, which must be primed with IKOpro SA Primer. A permanent mechanical fixing should be installed using Hyload DPC Fixing Strip.

14.7 Hyload DPC Mastic can be used to bond the dpc or cavity tray to brick, block or concrete substrates. If a shearing force is expected within 72 hours of bonding, precautions against slippage must be taken.

15 Cleaning cavities

As with most other damp-proof course materials, damage can occur during cleaning of mortar droppings from the damp-proof course unless care is taken. Recommendations to prevent damage are:

- the use of cavity battens to prevent excessive amounts of mortar reaching the damp-proof course
- removal of mortar droppings before hardening
- that implements such as steel rods are not used for cleaning
- that damp-proof courses are regularly inspected for damage as work proceeds.

16 Repair

Damaged areas of the dpc can be repaired prior to installation cutting and/or replacing the damaged section, ensuring joints are made in accordance with section 14. Once covered, the system cannot be repaired.

Technical Investigations

17 Tests

17.1 Tests were conducted on the damp-proof course system samples supplied by the manufacturer and the results assessed to determine:

- thickness
- tensile strength and elongation at break
- flexibility at low temperatures
- resistance to water transmission under pressure
- water absorption
- resistance to compression at high temperatures
- weight per unit area
- handling characteristics
- water vapour permeability
- effect of ageing at high temperatures
- dimensional stability
- resistance to puncturing and point-loading splitting under simulated service conditions.

17.2 Tests were conducted on the preformed detail samples supplied by the manufacturer and the results assessed to determine:

- tensile strength/elongation of sheets and welds
- joint strength
- tear strength of sheet and welds
- low temperature flexibility of sheets and welds.

18 Investigations

18.1 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.

18.2 An evaluation was made of reports on shear and flexure tests.

Bibliography

BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*

BS 8215 : 1991 *Code of practice for design and installation of damp-proof courses in masonry construction*

BS EN 1996-1-1 : 2005 *Eurocode 6: Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

UK Annex to BS EN 1996-1-1 : 2005 *UK National Annex to Eurocode 6: Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

BS EN 1996-1-2 : 2005 *Eurocode 6: Design of masonry structures — General rules — Structural fire design*

UK Annex to BS EN 1996-1-2 : 2005 *National Annex to Eurocode 6: Design of masonry structures — General rules — Structural fire design*

BS EN 1996-2 : 2006 *Eurocode 6: Design of masonry structures — Design considerations, selection of materials and execution of masonry*

UK Annex to BS EN 1996-2 : 2006 *National Annex to Eurocode 6: Design of masonry structures — Design considerations, selection of materials and execution of masonry*

BS EN 1996-3 : 2006 *Eurocode 6: Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*

UK Annex to BS EN 1996-3 : 2006 *National Annex to Eurocode 6: Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*

BS EN 14967 : 2006 *Flexible sheets for waterproofing — Bitumen damp proof courses — Definitions and characteristics*

BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

PD 6697 : 2010 *Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2*

Conditions of Certification

19 Conditions

19.1 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.

19.2 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.

19.3 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.

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

19.5 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.

19.6 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.

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