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BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

Agrément Certificate
02/3921
Product Sheet 1

FATRA ROOF COVERING SYSTEMS

FATRAFOL FF 810 AND FATRAFOL FF 810/V ROOF COVERING SYSTEMS

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Fatrafol FF810 and Fatrafol FF810/V Roof Covering Systems, a range of waterproof coverings for use on limited access flat or pitched roofs in mechanically fastened, loose-laid and ballasted, protected, roof garden and green roof specifications.

AGRÉMENT 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 membranes will resist the passage of moisture into the building (see section 6).
Behaviour in relation to fire — the membranes will enable a roof to be unrestricted under the Building Regulations (see section 7).
Resistance to wind uplift — the systems will resist the effects of any likely wind suction acting on the roof (see section 8).
Resistance to foot traffic — the membranes will accept the limited foot traffic and loads associated with installation and maintenance (see section 9).
Resistance to penetration of roots — the membranes will adequately resist plant root penetration (see section 10).
Durability — under normal service conditions the systems will provide a durable roof waterproofing with a service life in excess of 30 years (see section 12).

The BBA has awarded this Agrément Certificate to the company named above for the systems described herein. These systems 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 Fourth issue: 8 June 2012
Originally certificated on 28 May 2002

Simon Wroe
Head of Approvals — Materials

Greg Cooper
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, Fatrafol FF 810 and Fatrafol FF 810/V Roof Covering Systems, if used in accordance with the provisions of 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 (England and Wales)

Requirement:	B4(2)	External fire spread
Comment:		On suitable substructures the use of the systems will enable a roof to be unrestricted under the requirements of this Regulation. See sections 7.1 to 7.4 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The membranes, including joints, will enable a roof to meet this Requirement. See section 6.1 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The systems are acceptable. See section 12 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Fitness and durability of materials and workmanship
Comment:		The use of the systems satisfies the requirements of this Regulation. See sections 11, 12 and the *Installation* part of this Certificate.
Regulation:	9	Building standards — construction
Standard:	2.8	Spread from neighbouring buildings
Comment:		The membranes, when applied to a suitable substructure, are regarded as having low vulnerability under clause 2.8.1[(1)(2)] of this Standard. See sections 7.1 to 7.4 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The membranes, including joints, will enable a roof to satisfy the requirements of this Standard, with reference to clauses 3.10.1[(1)(2)] and 3.10.7[(1)(2)]. See section 6.1 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The systems 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 — conversions
Comment:		Comments made in relation to the membranes 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) 2000 (as amended)

Regulation:	B2	Fitness of materials and workmanship
Comment:		The systems are acceptable. See section 12 and the *Installation* part of this Certificate.
Regulation:	B3(2)	Suitability of certain materials
Comment:		The systems are of acceptable materials. See section 11 of this Certificate.
Regulation:	C4(b)	Resistance to ground moisture and weather
Comment:		The membranes, including joints, will enable a roof to meet the requirements of this Regulation. See section 6.1 of this Certificate.
Regulation:	E5(b)	External fire spread
Comment:		On suitable substructures the use of the systems will be unrestricted by the requirements of this Regulation. See sections 7.1 to 7.4 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 sections: 1 *Description* (1.1) and 3 *Delivery and site handling* (3.3) of this Certificate.

Additional Information

NHBC Standards 2011

NHBC accepts the use of Fatrafol FF 810 and Fatrafol FF 810/V Roof Covering Systems, when installed and used in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 7.1 *Flat roofs and balconies*.

CE marking

The manufacturer has taken the responsibility of CE marking the systems in association with harmonised standard EN 13956 : 2005. An asterisk (*) appearing in this Certificate indicates that data shown is given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

1.1 Fatrafol FF 810 and Fatrafol FF 810/V Roof Covering Systems consist of polyester-mesh reinforced PVC roofing membranes, with solvent or hot-air welded lap joints. The membranes have the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (units)	Fatrafol FF 810	Fatrafol FF 810/V
Thickness (mm)	1.5	1.5
Roll length* (m)	20	20
Roll width* (m)	1.30	2.05
Mass per unit area (kg·m^{-2})	1.90	2.0
Tensile strength* (N per 50 mm)	≥1000/950	≥1000/1100
Elongation at break* (%)	≥15/15	≥15/20
Tear resistance* (N)	≥180/180	≥200/220
Dimensional stability* (%)	≤0.3	≤0.3
Impact resistance* (mm)		
substrate A	1250	1250
substrate B	2000	2000
Static load* (kg)		
substrate B	20	20
Low temperature foldability* (°C)	≤–25	≤–25
Colours	grey, red, orange, green and blue	

1.2 Other materials used with the systems include:

- Fatrafol FF 800 — a polyester fleece used as a separating layer
- Fatrafol FF 818 and FF 822 — Polythene Vapour Control Layers
- Fatrafol FF membrane adhesive — used to weld the membrane to the fixing discs
- Fatrafol FF PVC liquid sealant — used to seal laps and seams
- PVC-coated, galvanized steel profiles — for parapets, edge details and upstands
- shaped PVC reinforcements — for internal and external corners
- Fatrafol FF 812 — slip-resistant walkway membrane in 650 mm widths
- Fatrafol FO Rainwater Outlets — a range of outlets compatible with Fatrafol FF PVC membranes
- FF 800 Protection/Filtration Fleece — a non-woven, geotextile fleece for use as a separation layer, protection layer or filtration layer
- FF 815 Technoderm Drainage Layer — a 20 mm deep, durable, polypropylene perforated drainage sheet with water reservoirs for use as a drainage/reservoir layer in Fatra Sedum roof applications
- FF 914 Stafol Protection Membrane — a recycled PE membrane designed for use as a protective/sacrificial layer in Fatra Sedum or ballasted roof applications.

2 Manufacture

2.1 Fatrafol FF 810 membrane comprises upper, middle and lower layers manufactured by the calendering and lamination process. The layers are thermoplastically fused together, sandwiching the polyester mesh (of weight 80 g·m^{-2} to 110 g·m^{-2}) between them. Fatrafol FF 810/V membrane is manufactured by a multi-extrusion process.

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 Fatra a.s. has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 and BS EN ISO 14001 : 2004 by Bureau Veritas (Certificates 10000447 and 10000448).

2.4 The products are manufactured by Fatra a.s. in the Czech Republic and marketed in the UK by the Certificate holder.

3 Delivery and site handling

3.1 The membranes are delivered to site in rolls wrapped in paper bearing the Certificate holder's name, batch number, product name, surface colour, and the BBA identification mark incorporating the number of this Certificate.

3.2 Rolls should be stored horizontally on a clean, dry, level surface and kept under cover until required.

3.3 Materials classified under *The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009* (CHIP4)/*Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) 2009*, along with their flashpoints, are given in Table 2. These products bear the appropriate hazard warning.

Table 2 Flashpoint and hazard classification

Material	Flashpoint (°C)	Classification
Fatrafol FF membrane adhesive(1)	–7	Highly flammable, Irritant
Fatra PVC liquid sealant(1)	–24	Highly flammable

(1) Stored in accordance with The Dangerous Substances and Explosive Atmospheres Regulations 2002.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Fatrafol FF 810 and Fatrafol FF 810/V Roof Covering Systems.

Design Considerations

4 Use

4.1 Fatrafol FF 810 and Fatrafol FF 810/V Roof Covering Systems are satisfactory for use as mechanically-fixed waterproof layers in the following specifications:

- exposed pitched or flat roofs with limited access
- protected
- inverted
- green roofs on pitched or flat roofs with limited access
- roof gardens on flat roofs.

4.2 The membranes may also be used in loose-laid roof waterproofing layers in the following specifications:

- ballasted
- inverted
- green roofs on pitched or flat roofs with limited access
- roof gardens on flat roofs.

4.3 Limited access roofs are defined for the purpose of this Certificate as those roofs subjected only to pedestrian traffic for maintenance of the roof covering and cleaning of gutters, etc. Where traffic in excess of this is envisaged, additional protection to the membrane must be provided (see section 9).

4.4 Flat roofs are defined for the purpose of this Certificate as those roofs having a minimum finished fall of 1:80. For design purposes, twice the minimum finished fall should be assumed, unless a detailed analysis of the roof is available, including overall and local deflection, direction of falls, etc. Pitched roofs are defined for the purpose of this Certificate as those having a fall greater than 1:6.

4.5 Decks to which the systems are to be applied must comply with the relevant requirements of BS 6229 : 2003, BS 8217 : 2005 and, where appropriate, *NHBC Standards*, Chapter 7.1.

4.6 Insulation materials to be used in conjunction with the membranes must be in accordance with the Certificate holder's instructions and be either:

- as described in the relevant Clauses of BS 8217 : 2005, or
- the subject of a current BBA Certificate and be used in accordance with the scope of that Certificate.

4.7 Contact with bituminous, coal tar and oil-based products must be avoided as the membrane is not compatible with lower grades of bitumen. If contact with such products is likely, a separating layer must be interposed before installing the waterproofing sheet. When doubt arises, the advice of the Certificate holder should be sought.

4.8 Imposed load, dead loading and wind load specifications are calculated in accordance with BS EN 1991-1-1 : 2002, BS EN 1991-1-3 : 2003, BS EN 1991-1-4 : 2005 and their National Annexes.

4.9 Recommendations for the design of green roofs and roof garden specifications are available within the Green Roof Organisation's *The GRO Green Roof Code; Green Roof Code of Best Practice for the UK 2011*.

4.10 For green and inverted roofs and roof gardens, structural decks to which the system is to be applied must be suitable to transmit the dead and imposed loads experienced in service.

4.11 The drainage system for green roofs or roof gardens must be correctly designed, and provision made for access for maintenance purposes. Dead loads for green roofs and roof gardens can increase if the drains become partially or completely blocked causing waterlogging of the drainage layer.

5 Practicability of installation

Installation of the systems must be carried out only by installers trained and approved by the Certificate holder.

6 Weathertightness

6.1 The membranes, including joints, when completely sealed and consolidated will adequately resist the passage of moisture into the building and enable a roof to comply with the requirements of the national Building Regulations:

England and Wales — Approved Document C, Requirement C2(b), Section 6

Scotland — Mandatory Standard 3.10, clauses 3.10.1 and 3.10.7

Northern Ireland — Regulation C4(b).

6.2 The membranes are impervious to water and will provide a weathertight roof capable of accepting minor structural movement.

7 Behaviour in relation to fire

7.1 In the opinion of the BBA, a system comprising one layer of loose-laid polyethylene vapour barrier on a 18 mm thick plywood deck with a 70 mm mineral fibre board and a 15 mm thick fibre board, mechanically fixed through the vapour barrier using Buildex HRG screws incorporating PVC Structura fixing discs to which the Fatrafol FF 810 membrane had been bonded using Fatrafol FF membrane adhesive, is designated as unrestricted.

7.2 The designation of other specifications should be confirmed by:

England and Wales — Test or assessment in accordance with Approved Document B, Appendix A, Clause 1

Scotland — Test to conform to Mandatory Standard 2.8, clause 2.8.1

Northern Ireland — Test or assessment by a UKAS accredited laboratory, or an independent consultant with appropriate experience.

7.3 The membranes, when used in protected or loose-laid and ballasted specifications, including an inorganic covering listed in the Annex of Commission Decision 2000/553/EC, can be considered to be unrestricted under the national Requirements.

7.4 In the opinion of the BBA, when used in irrigated roof gardens or green roofs, the use of the membrane will be unrestricted under the national Requirements:

England and Wales — Requirement B4(2)

Scotland — Mandatory Standard 2.8, clause 2.8.1

Northern Ireland — Regulation E5(b).

7.5 The product has been tested to ENV 1187 : 2002, Test 1, Test 2 and Test 3 and classified to EN 13501-5 as B_{ROOF} (t1), B_{ROOF} (t2) and B_{ROOF} (t3).

7.6 If allowed to dry, plants used in a roof garden may allow flame spread across the roof. This should be taken into consideration when selecting suitable plants for the roof. Appropriate planting irrigation and/or protection should be applied to ensure the overall fire-rating of the roof is not compromised.

8 Resistance to wind uplift

8.1 The resistance to wind uplift of a mechanically-fastened waterproofing layer is provided by the fasteners passing through the membrane into the substrate. The number and position of fixings will depend on a number of factors including:

- wind uplift forces to be restrained
- pull-out strength of the fasteners
- tensile properties of the membrane
- appropriate calculation of safety factors.

8.2 The wind uplift forces are calculated in accordance with BS EN 1991-1-4 : 2005 and the UK National Annex. On this basis, the number of fixings required should be established using a maximum permissible load of 0.45 kN per fixing.

8.3 The ballast requirements for loose-laid systems should be calculated in accordance with the relevant parts of BS EN 1991-1-4 : 2005 and the UK National Annex. The membrane should always be ballasted with a minimum depth of 50 mm of aggregate. In areas of high wind exposure, the Certificate holder's advice should be sought. Alternatively, concrete slabs on suitable supports can be used.

8.4 The soil used in roof gardens and ballast on inverted/protected roofs must not be of a type that will be removed or become delocalised due to wind scour experienced on the roof.

8.5 It should be recognised that the type of plants used in roof gardens could significantly affect the expected wind loads experienced in service.

9 Resistance to foot traffic

Results of tests indicate that the systems can accept the limited foot traffic and light concentrated loads associated with installation and maintenance. Reasonable care should be taken to avoid puncture by sharp objects or concentrated loads. Where traffic in excess of this is envisaged, such as maintenance of lift equipment, a walkway should be provided using concrete slabs supported on bearing pads or a protective layer (in addition some types of bearing pads will require the use of a protective sheet laid between the roof covering and the pads). The Certificate holder can provide a Fatra 812 slip-resistant walkway membrane with an embossed finish.

10 Resistance to penetration of roots

Results of tests on the membrane and their joints confirm that they are resistant to root penetration and can be used in a roof waterproofing system for roof gardens and green roofs.

11 Maintenance

11.1 Systems must be the subject of annual inspections and maintenance to ensure continued performance.

11.2 Where damage has occurred it should be repaired in accordance with section 18 and the Certificate holder's instructions.

11.3 Green roofs and roof gardens must be the subject of regular inspections, particularly in autumn after leaf fall and in the spring, to ensure unwanted vegetation and other debris is cleared from the roof and drainage outlets. Guidance is available within the latest edition of *The GRO Green Roof Code; Green Roof Code of Best Practice for the UK 2011*.

12 Durability

The systems have been in use in the Czech Republic since 1985. Accelerated weathering tests and performance in service confirm that satisfactory retention of physical properties is achieved. All available evidence indicates that the systems will provide durable roof waterproofing with a service life in excess of 30 years.

13 Reuse and recyclability

The products are comprised of polyethylene vinyl chloride that can be recycled.

Installation

14 General

14.1 Installation of Fatrafol FF 810 and Fatrafol FF 810/V Roof Covering Systems must be carried out by installers trained and approved by the Certificate holder in accordance with the relevant Clauses of BS 8000-4 : 1989 and BS 8217 : 2005, the Certificate holder's instructions and this Certificate.

14.2 In all cases, a vapour control layer must be used directly over the deck.

14.3 The membranes may be applied over foil-faced insulation materials and fixed to the substructure in such a way as not to impair the performance of the waterproofing membranes. Polystyrene-based insulation products may also be used in conjunction with a suitable isolation layer to separate the insulation from the roof covering, to reduce the risk of plasticiser migration.

14.4 The membranes must not be mechanically fixed over foam-glass insulation. Restrictions do not apply when mechanically fixing over mineral fibre board insulation.

14.5 Deck surfaces must be clean, dry and free from sharp projections such as nail heads and concrete nibs. Where necessary a separation layer should be interposed between the substrate and the membranes.

14.6 Installation must not be carried out during inclement weather (eg rain, fog or snow). When the temperature is below 5°C suitable precautions against surface condensation must be taken.

15 Procedure

Mechanically fastened

15.1 A vapour control layer is installed over the deck and turned up over the insulation at perimeters ensuring 100 mm end and side laps.

15.2 Insulation boards are laid with staggered end joints and fixed in accordance with the Certificate holder's instructions.

15.3 Structural fixing discs are applied to an average of five per square metre.

15.4 The Fatrafol FF 810/810/V membrane is then laid over the installed discs which are covered with Fatrafol FF 885 membrane adhesive.

15.5 Fatra FF 812 membrane can be used by fully bonding over the finished membranes with hot-air welded side laps to provide a slip-resistant walkway.

Loose-laid and ballasted

15.6 When using the membrane over a rough substrate, a layer of FF 800 fleece is loose-laid over the deck prior to the installation of the membrane.

15.7 The membrane should be unrolled over the substrate, on top of any protective or isolating layer, taking care not to stretch the material and ensuring adequate overlaps for jointing (see 16.1 to 16.4).

15.8 A suitable protection layer should be laid over the membrane prior to the application of the insulation or ballast.

15.9 Loose-laid applications should be covered with at least a 50 mm depth of well-rounded gravel. In areas of high wind exposure, paving slabs set on a suitable support (eg pads) may be considered.

15.10 When using a loose-laid application, normal account should be taken in the design of the deck of the extra dead loading due to the weight of the aggregate and/or paving.

Green roofs and roof gardens

15.11 In green roof and roof garden specifications, subsequent layers such as separation layers, drainage layers and growing medium are installed in accordance with the Certificate holder's instructions. Guidance is also available within *The GRO Green Roof Code; Green Roof Code of Best Practice for the UK 2011*.

16 Jointing

16.1 To ensure a watertight bond, lap joints in the membranes must be a minimum of 50 mm wide at sheet ends and details. Edge overlaps with adjacent sheets must be a minimum of 50 mm, welded over the last 50 mm as described in sections 16.2 and 16.3.

16.2 When hot-air welding a lap joint, a minimum of 50 mm of the lap width must be welded. During this process, a continuous bead of molten material must exude as a visible indication of a satisfactory weld.

16.3 The finished laps are sealed using Fatrafol FF PVC liquid sealant.

16.4 After completion of the jointing process the lap is tested for complete weathertightness.

17 Details

The Certificate holder supplies a range of prefabricated external or internal PVC corners for the treatment of details.

18 Repair

In the event of damage, repair is carried out by applying a patch of the membrane extending at least 50 mm beyond the defect. The joint is cleaned back to unweathered material and solvent or hot-air welded and finally sealed using Fatrafol FF PVC liquid sealant.

Technical Investigations

19 Tests

19.1 An assessment was made of data to EN 13956 : 2006 relating to:

- tensile strength and elongation*
- low temperature foldability*
- dimensional stability*
- static indentation*
- dynamic indentation*
- watertightness*
- tear resistance*
- joint peel and shear resistance*
- root resistance*.

19.2 Tests were carried out to determine:

- water vapour transmission
- water absorption
- wind uplift
- dimensional stability
- nail tear strength
- plasticiser content
- heat ageing (168 days at 80°C)
- water immersion (168 days at 23°C)
- UV ageing (5000 light hours UVB)

and to assess:

- performance under typical service conditions
- robustness during installation
- properties when installed
- durability of membranes.

20 Investigations

20.1 Existing data on the fire performance of the membrane were assessed.

20.2 A reassessment of the *Durability* statement was based on a visit to an existing site in the Czech Republic and on results of tests conducted on unaged and naturally-aged material.

Bibliography

BS 476-3 : 1958 *Fire tests on building materials and structures — External fire exposure roof test*

BS 6229 : 2003 *Flat roofs with continuously supported coverings — Code of practice*

BS 8000-4 : 1989 *Workmanship on building sites — Code of practice for waterproofing*

BS 8217 : 2005 *Reinforced bitumen membranes for roofing — Code of practice*

BS EN 1991-1-1 : 2002 *Eurocode 1 — Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*
NA to BS EN 1991-1-1 : 2002 *UK National Annex to Eurocode 1 — Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*
BS EN 1991-1-3 : 2003 *Eurocode 1 — Actions on structures — General actions — Snow loads*
NA to BS EN 1991-1-3 : 2003 *UK National Annex to Eurocode 1 — Actions on structures — General actions — Snow loads*
BS EN 1991-1-4 : 2005 + Amendment 1 : 2010 *Eurocode 1 — Actions on structures — General actions — Wind actions*
NA to BS EN 1991-1-4 : 2005 + Amendment 1 : 2010 *UK National Annex to Eurocode 1 — Actions on structures — General actions — Wind actions*
EN 13956 : 2005 *Flexible sheet for waterproofing — Plastic and rubber sheets for roof waterproofing — Definitions and characteristics*
BS EN ISO 9001 : 2008 *Quality management systems — Requirements*
BS EN ISO 14001 : 2005 *Environmental management systems — Requirements with guidance for use*
EN 13501-5 : 2005 *Fire classification of construction products and building elements — Classification using data from external fire exposure to roof tests*
ENV 1187 : 2002 *Test methods for external fire exposure to roofs*

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
- individual 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.

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