

Knauf Insulation Ltd

PO Box 10
Stafford Road
St Helens
Merseyside WA10 3NS
Tel: 01744 24022 Fax: 01744 612007
e-mail: tech@knaufinsulation.com
website: www.knaufinsulation.co.uk



Agrément Certificate
08/4526
Product Sheet 1

KNAUF INSULATION

ROCKSILK KRIMPACT FLAT ROOF SLAB RANGE

This Agrément Certificate Product Sheet⁽¹⁾ relates to the Rocksilk Krimpack Flat Roof Slab Range, comprising rock mineral wool roof insulation slabs with or without a glass-tissue layer on one or both faces. The product is for use as a thermal insulation layer on limited access flat roofs with concrete, timber or metal decks and is compatible with a wide range of waterproofing systems.

(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

Thermal performance — the product has declared thermal conductivities (λ_D) of $0.038 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ for the Rocksilk Krimpack Flat Roof Slab and $0.039 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ for the Rocksilk Krimpack Flat Roof Slab Extra (see section 6).

Condensation risk — the product can contribute to limiting the risk of surface condensation (see section 7).

Strength and stability — when installed on suitable substrates using appropriate fixings, the product can adequately transfer maintenance traffic loads and wind loads to the roof deck (see section 8).

Behaviour in relation to fire — the product has a reaction to fire classification of class A1 in accordance with BS EN 13501-1 : 2007 (see section 9).

Durability — the product, when used as thermal insulation in the roof system described in this Certificate, will have a life at least as long as that of a roof waterproofing covering (see section 11).



The BBA has awarded this Certificate to the company named above for the product described herein. This 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

John Albon — Head of Approvals
Construction Products

Claire Curtis-Thomas
Chief Executive

Date of Second issue: 12 May 2017

Originally certificated on 10 March 2008

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.

British Board of Agrément
Bucknalls Lane
Watford
Herts WD25 9BA

©2017

tel: 01923 665300
fax: 01923 665301
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

Regulations

In the opinion of the BBA, the Rocksilk Krimpack Flat Roof Slab Range, 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: A1	Loading
Comment:	The product can contribute to satisfying this Requirement. See section 8.1 of this Certificate.
Requirement: B4(2)	External fire spread
Comment:	Roofs incorporating the product can satisfy this Requirement. See section 9 of this Certificate.
Requirement: C2(c)	Resistance to moisture
Comment:	The product can contribute to satisfying this Requirement. See sections 7.1 and 7.3 of this Certificate.
Requirement: L1(a)(i)	Conservation of fuel and power
Comment:	The product can contribute to satisfying this Requirement. See section 6 of this Certificate.
Regulation: 7	Materials and workmanship
Comment:	The product is an acceptable material. It should be specified and installed in accordance with section 11 and the <i>Installation</i> part of this Certificate.
Regulation: 26	CO₂ emission rates for new buildings
Regulation: 26A	Fabric energy efficiency rates for new dwellings (applicable to England only)
Regulation: 26A	Primary energy consumption rates for new buildings (applicable to Wales only)
Regulation: 26B	Fabric performance values for new dwellings (applicable to Wales only)
Comment:	The product can contribute to satisfying these Regulations; however, compensating fabric/services measures may be required. See section 6 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation: 8(1)	Durability, workmanship and fitness of materials
Comment:	The product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation: 9	Building standards applicable to construction
Standard: 1.1	Structure
Comment:	The product can contribute to satisfying this Standard, with reference to clauses 1.1.2 ⁽¹⁾⁽²⁾ and 1.1.3 ⁽¹⁾⁽²⁾ . See section 8.1 of this Certificate.
Standard: 2.8	Spread from neighbouring buildings
Comment:	Roofs incorporating the product can satisfy this Standard, with reference to clause 2.8.1 ⁽¹⁾⁽²⁾ . See section 9 of this Certificate.
Standard: 3.15	Condensation
Comment:	The product can contribute to satisfying this Standard, with reference to clauses 3.15.1 ⁽¹⁾⁽²⁾ , 3.15.4 ⁽¹⁾ and 3.15.5 ⁽¹⁾⁽²⁾ . See sections 7.1 and 7.4 of this Certificate.
Standard: 6.1(b)	Carbon dioxide emissions
Standard: 6.2	Building insulation envelope
Comment:	The product can contribute to satisfying these Standards. See section 6 of this Certificate.
Standard: 7.1(a)(b)	Statement of sustainability
Comment:	The product can contribute to satisfying 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. In addition, the product can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 ⁽¹⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾], 7.1.6 ⁽¹⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾] and 7.1.7 ⁽¹⁾⁽²⁾ [Aspect 1 ⁽¹⁾⁽²⁾]. See section 6.1 of this Certificate.
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	Fitness of materials and workmanship
Comment:	The product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation: 29	Condensation
Comment:	The product can contribute to satisfying this Regulation. See section 7.1 of this Certificate.
Regulation: 30	Stability
Comment:	The product can contribute to satisfying this Regulation. See section 8.1 of this Certificate.
Regulation: 36(b)	External fire spread
Comment:	Roofs incorporating the product can satisfy this Regulation. See section 9 of this Certificate.
Regulation: 39(a)(i)	Conservation measures
Regulation: 40(2)	Target carbon dioxide emission rate
Comment:	The product can contribute to satisfying these Regulations. See section 6 of this Certificate.

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

See section: 3 *Delivery and site handling* (3.3) of this Certificate.

Additional Information

NHBC Standards 2017

NHBC accepts the use of the Rocksilk Krimpack Flat Roof Slab Range, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 7.1 *Flat roof and balconies*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product, in accordance with harmonised European Standard BS EN 13162 : 2012. 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 Rocksilk Krimpack Flat Roof Slab Range comprises slabs of rigid rock wool treated with a water-repellent additive, supplied either unfaced or with a layer of glass-tissue on one or both faces.

1.2 The unfaced product is used with mechanically fixed systems only. The faced product is installed glass-tissue side upwards, to assist the adhesive bonding between the insulation and the hot bitumen.

1.3 The slabs are available with the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Product	Width (mm)	Length (mm)	Thickness (mm)
Rocksilk Krimpack Flat Roof Slab	900, 1000	1200	100, 120, 145 and 180
Rocksilk Krimpack Flat Roof Slab Extra	900, 1000	1200	95, 105, 125 and 150

1.4 Additionally, slabs are also available in a large format (2000 x 1200 mm).

1.5 Slabs are also available in a tapered version for falls of 1:120, 1:80 and 1:60 (1200 mm by 600 mm).

1.6 The product can be installed as part of a roof system in conjunction (but not exclusively) with the following items:

- mechanically fixed single-ply roof waterproofing membrane
- vapour control layer (VCL)
- fixings — incorporating a countersunk washer.

2 Manufacture

2.1 The slabs are manufactured from molten rock which is spun into rock mineral wool. A thermosetting binder is added and the material is collected in the form of a blanket which is folded back (upon itself) to give the required product density. The blanket is then cured in a heated oven to form the required product, which is cut, trimmed and packaged.

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 Knauf Insulation Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008, BS EN 14001 : 2007, BS EN ISO 50001 : 2011 and OHSAS 18001 : 2007 by Bureau Veritas Certification (Certificates BE008875-2, BE008876-3, BEL 130711 and BE009276-3 respectively).

3 Delivery and site handling

- 3.1 The slabs are delivered to site in polythene-wrapped packs. Each pack contains a label bearing the manufacturer's name, board dimensions and the BBA logo incorporating the number of this Certificate.
- 3.2 The slabs should be stored clear of the ground, on a clean level surface and preferably under cover to protect them from prolonged exposure to moisture or mechanical damage.
- 3.3 Dust masks, gloves and long-sleeved clothing should be worn during cutting and handling of the slabs.
- 3.4 Damaged, contaminated or wet products must not be used.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Rocksilk Krimpact Flat Roof Slab Range.

Design Considerations

4 General

- 4.1 Rocksilk Krimpact Flat Roof Slab Range is suitable for use as a thermal insulation layer on warm-deck flat roofs with limited access with concrete, timber or metal decks.
- 4.2 Decks should be designed in accordance with the relevant clauses of either BS 6229 : 2003 or BS 8217 : 2005 and, where appropriate, *NHBC Standards 2014*, Chapter 7.1, Section 4.
- 4.3 The roofs should incorporate an effective vapour control layer (VCL) below the insulation.
- 4.4 The slabs are suitable for use with systems complying with one of the following waterproofing specifications:
- (a) fully-bonded, built-up bitumen felt Type 3 and/or Type 5 to BS 8747 : 2007 laid in accordance with BS 8217 : 2005
 - (b) mastic asphalt laid in accordance with BS 8218 : 1998
 - (c) other waterproofing systems which are the subject of a current Agrément Certificate and laid in accordance with that Certificate.
- 4.5 Limited access roofs are defined for the purpose of this Certificate as those subject only to pedestrian traffic for maintenance, for example, covering and cleaning of gutters. Where traffic in excess of this is envisaged, special precautions such as additional protection to the membrane must be taken.
- 4.6 Flat roofs are defined for the purpose of this Certificate as those having a minimum finished fall of 1:80. Pitched roofs are defined as those having falls in excess of 1:6.
- 4.7 When designing flat roofs, twice the minimum finished fall should be assumed unless a detailed analysis of the roof is available including, for example, overall and local deflection and direction of falls.
- 4.8 Tapered slabs may be used where appropriate, to achieve the minimum finished falls required.

5 Practicability of installation

The product is designed to be installed by a competent general builder, or a contractor, experienced with this type of product.

6 Thermal Performance


-  6.1 Calculations of thermal transmittance (U value) should be carried out in accordance with BS EN ISO 6946 : 2007 and BRE Report 443 : 2006, using the thermal conductivity* (λ_D) value as shown in Table 2.

Table 2 Declared thermal conductivity (λ_D) values

Product	λ_D (W·m·K)
Rocksilk Krimpact Flat Roof Slabs	0.038
Rocksilk Krimpact Flat Roof Slabs Extra	0.039

Table 3 Thermal performance ($W \cdot m^{-2} \cdot K^{-1}$)

U value ($W \cdot m^{-2} \cdot K^{-1}$)	Insulation thickness ⁽¹⁾ (mm)					
	Concrete ⁽²⁾		Timber ⁽³⁾		Metal ⁽⁴⁾	
	Rocksilk Krimpact Flat Roof Slab	Rocksilk Krimpact Flat Roof Slab Extra	Rocksilk Krimpact Flat Roof Slab	Rocksilk Krimpact Flat Roof Slab Extra	Rocksilk Krimpact Flat Roof Slab	Rocksilk Krimpact Flat Roof Slab Extra
0.13	— ⁽⁵⁾	— ⁽⁵⁾	— ⁽⁵⁾	— ⁽⁵⁾	— ⁽⁵⁾	— ⁽⁵⁾
0.15	— ⁽⁵⁾	— ⁽⁵⁾	— ⁽⁵⁾	— ⁽⁵⁾	— ⁽⁵⁾	— ⁽⁵⁾
0.16	— ⁽⁵⁾	— ⁽⁵⁾	— ⁽⁵⁾	— ⁽⁵⁾	— ⁽⁵⁾	— ⁽⁵⁾
0.18	— ⁽⁵⁾	— ⁽⁵⁾	— ⁽⁵⁾	— ⁽⁵⁾	— ⁽⁵⁾	— ⁽⁵⁾
0.20	180	— ⁽⁵⁾	180	— ⁽⁵⁾	180	— ⁽⁵⁾
0.25	145	150	145	150	145	150


(1) Nearest available thickness. Includes one stainless steel insulation fixing per m^2 , with a 4.8 mm cross-sectional diameter.

(2) 150 mm concrete deck — $1.33 W \cdot m^{-1} \cdot K^{-1}$, VCL, 8 mm built-up waterproofing membrane.

(3) 12.5 mm plasterboard, 150 mm timber joists (12.5%)/air cavity (87.5%), 18 mm plywood decking, VCL, 8 mm built-up waterproofing membrane.


(4) Metal deck (not included in calculation), VCL, 8 mm built-up waterproofing membrane.

(5) For improved thermal/carbon emission performance, additional insulation thicknesses should be considered. For project-specific U value calculations, more information can be provided by the Certificate holder.

 6.2 Care must be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration. Detailed guidance can be found in the documents supporting the national Building Regulations.


7 Condensation risk


Interstitial condensation

 7.1 Roofs will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2011, Section 8.4, and Appendix D and BRE Report BR 262 : 2002 in England and Wales.


7.2 For the purposes of assessing the risk of interstitial condensation, the insulation vapour resistivity (μ) may be taken as 1.

Surface condensation

 7.3 Roofs will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed $0.35 W \cdot m^{-2} \cdot K^{-1}$ at any point and the junctions with other elements are designed in accordance with section 8.2 of this Certificate.

 7.4 Roofs will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed $1.2 W \cdot m^{-2} \cdot K^{-1}$ at any point. Guidance may be obtained from BS 5250 : 2011, Annex H, or section 6.3 of this Certificate. Additional information can be found in BRE Report BR 262 : 2002.

8 Strength and stability

 8.1 When installed on suitable flat roof decks, using appropriate fixings, the product can adequately transfer maintenance traffic loads and negative and positive (suction and pressure) wind loads to the roof deck.

8.2 The roof construction or immediate substrate to which the slabs are fixed must be structurally sound and have sufficient strength and stability to resist all dead, imposed and wind loads. It must also have adequate resistance to the pull-out forces created by the wind forces acting on the specified fixings used.

8.3 The suitability of the roof construction, and in particular the immediate substrate, for any specified mechanical fixings must be checked before installation by carrying out in-situ pull-out or pull-through testing to determine the minimum safe working load the fixings can resist. The advice of the Certificate holder should also be sought in respect of suitable mechanical fixings.

8.4 The type and number of fixings will depend on the roof construction and location; the Certificate holder's advice should be sought in this respect. The Certificate holder recommends a minimum of one fixing per slab size, minimum washer/stress plate of 70 by 70 mm or 75 mm diameter (based on minimum surface area of $4400 mm^2$).

8.5 All design analysis must be in accordance with British or European Standards relevant to the construction. The need for fixings to suit the wind uplift requirements for the particular site should be assessed in accordance with BS EN 1991-1-4 : 2005. All calculations should be carried out by a suitably experienced and qualified individual.

8.6 Fixings installed along the edges or at corners of slabs should be between 50 mm and 150 mm from the slab edge (210 mm for tapered slabs).

8.7 Roof waterproof covering systems (see section 4.4 for suitable types) must be applied in accordance with the relevant Agrément Certificates or manufacturer's guidance.

8.8 For design purposes, the slabs may be assumed to have an allowable compressive strength of 60 kPa at 10% compression.

8.9 Slabs have not been assessed for use with permanent distributed or concentrated loads, such as air conditioning units, mechanical plants, water tanks, etc. Such loads should be supported directly on the roof construction. The product is not suitable for use when permanent roof access is required.

9 Behaviour in relation to fire



9.1 The product has a Class A1* reaction-to-fire classification in accordance with BS EN 13501-1 : 2007 and so is classified as non-combustible by the National Building Regulations.

9.2 The fire rating of any roof containing the product will depend on the type of deck and the nature of the roof waterproof covering.

10 Maintenance

The product, once installed, does not require any regular maintenance and has suitable durability provided the roof waterproof layers are inspected and maintained at regular intervals (see section 11).

11 Durability



The product is rot-resistant and durable, and will have a life at least as long as that of the roof waterproof covering.

Installation

12 General

12.1 Rocksilk Krimpack Flat Roof Slab Range must be installed in accordance with the Certificate holder's instructions and BS 8217 : 2005 or BS 8218 : 1998, or the relevant Agrément Certificate, depending on the waterproofing to be applied.

12.2 Slabs can be cut and handled easily, although additional care may be required with the larger/heavier slabs.

12.3 It is important to seal any exposed edges of the slabs, eg at roof vents and upstands, with waterproofing or hot bitumen in accordance with normal practice. Tapered slabs should be laid in accordance with the Certificate holder's layout drawing provided.

12.4 The VCL must be installed in accordance with the manufacturer's instructions for each deck type.

12.5 To prevent moisture entrapment on or in the insulation, it is essential to protect the slabs during laying prior to the application of the roof waterproofing, or to lay the roof covering at the same time as the slabs.

12.6 Once installed, access to the roof should be restricted in accordance with section 8 of this Certificate.

13 Procedure

General (bitumen-bonded roof waterproofing)

13.1 Concrete deck joints and decks must be coated with bitumen primer to BS 3416 : 1991, when the VCL is bitumen-bonded to the deck.

13.2 The bitumen felt VCL must be fully bonded with hot bitumen as described in the appropriate part of BS 8217 : 2005. Care should be taken to ensure continuity at joints, upstands and roof penetrations.

13.3 On timber decks the VCL is nailed to the deck, in accordance with BS 8217 : 2005, or bitumen-bonded using traditional techniques.

13.4 The slabs are laid with the glass-tissue layer uppermost, and provide surfaces suitable for effective bitumen bonding [see section 4.4(a) and 4.4(b)]. In particular, surfaces must be dry and clean, and the ambient temperature above 5°C, unless suitable precautions are taken against condensation.

13.5 Hot bitumen is mopped over the VCL and the slabs are bedded into it as work proceeds. The slabs should be laid broken bond (ie staggered). On metal roofs, slabs will span trough widths given in Table 4. The deck profiles should give a bonding area of at least 33% of the total projected surface area.

Table 4 Trough widths

Insulation thickness (mm)	Maximum span (mm)	
	Slab ends supported on profile tops	Slab ends unsupported over troughs
100	220	200
120	240	220
145	260	240
180	300	280

13.6 Only sufficient slabs should be laid that can be waterproofed in the same working period using the methods described in section 4.4.

13.7 On metal decks of tall buildings or in areas subject to high wind loads, additional mechanical fixings may be required, using appropriate fixings at the ratio per slab specified in the manufacturer's instructions.

Mechanically fixed systems (non-bitumen bonded)

13.8 Advice from the manufacturer of single-ply membranes should be sought to confirm compatibility with the unfaced product.

13.9 Slabs should be held in place initially, with one fixing per slab in the centre of the slab. Further fixing will depend upon the guidance of the membrane manufacturer.

13.10 Where more than one fixing per slab is required (dependent upon the design wind load), advice should be sought from the fixing manufacturer for the number of fixings for the application concerned.

13.11 The roof waterproofing is then applied in accordance with section 4.4(c).

Tapered slabs — all decks

13.12 Pre-cut slabs, tapered to the required falls, are labelled in accordance with the Certificate holder's layout drawing for the building concerned.

13.13 To provide a uniform fall, it is essential that the deck is even and true. Features such as hollows, back falls and depressions must be rectified prior to laying the slabs.

13.14 Slabs are laid sequentially in accordance with the position code on the layout drawing. Laying for the main area should commence at the apex line(s) of the roof. To avoid error, it is advisable to temporarily position each slab prior to bonding.

13.15 Installation of tapered slabs is otherwise as described for the standard slabs.

Technical Investigations

The following is a summary of the technical investigations carried out on the Rocksilk Krimpack Flat Roof Slab Range.

14 Investigations

14.1 Tests were carried out by the BBA on:

- density
- compressive strength
- behaviour under distributed static loading (80°C)
- behaviour under concentrated static loading
- bowing under a thermal gradient
- ash content.

14.2 An examination was made of independent data relating to thermal conductivity, and behaviour under compression was examined.

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

Bibliography

BS 3416 : 1991 *Specification for bitumen-based coatings for cold application, suitable for use in contact with potable water*

BS 5250 : 2011 *Code of practice for control of condensation in buildings*

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

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

BS 8218 : 1998 *Code of practice for mastic asphalt roofing*

BS 8747 : 2007 *Reinforced bitumen membranes (RBMs) for roofing — Guide to selection and specification*

BS EN 1991-1-4 : 2005 *Loading for buildings — Code of practice for wind loads*

BS EN 13162 : 2012 *Thermal insulation products for buildings — Factory made mineral wool (MW) products - Specification*

BS EN 13501-1 : 2007 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*

BS EN ISO 6946 : 2007 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

Conditions of Certification

15 Conditions

15.1 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.

15.2 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.

15.3 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.

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

15.5 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.

15.6 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.