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**Agrément Certificate**

**18/5539**

Product Sheet 1

**STORMKING CHIMNEYS**

**SMARTSTACK GRP CHIMNEY**

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to SmartStack GRP Chimney, a decorative false chimney for use on tiled or slated pitched roofs in new constructions.

(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**

**Loading** — the product will resist the effects of any likely wind suction acting on the roof and, in a suitably designed structure, will not affect the stability of the building (see section 6).

**Behaviour in relation to fire** — the product will not affect the overall fire classification of the roof (see section 7).

**Weathertightness** — the product, when properly installed, will not affect the weathertightness of the roof (see section 8).

**Durability** — the product will have a service life in excess of 25 years (see section 10).



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

Date of First issue: 5 June 2018

John Albon — Head of Approvals  
Construction Products

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](http://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.

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

**British Board of Agrément**

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## Regulations

In the opinion of the BBA, SmartStack GRP Chimney, 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)

<b>Requirement:</b>	<b>A1</b>	<b>Loading</b>
Comment:	The incorporation of the product into a suitably designed roof structure will not affect the structure's stability. See sections 6.1 and 6.2 of this Certificate.	
<b>Requirement:</b>	<b>B4(2)</b>	<b>External fire spread</b>
Comment:	The incorporation of the product into a roof will not affect the roof's classification under this Requirement. See section 7.1 of this Certificate.	
<b>Requirement:</b>	<b>C2(b)</b>	<b>Resistance to moisture</b>
Comment:	When detailed correctly, the product will contribute towards a roof satisfying this Requirement. See section 8 of this Certificate.	
<b>Regulation:</b>	<b>7</b>	<b>Materials and workmanship</b>
Comment:	The product is acceptable. See section 10.1 and the <i>Installation</i> part of this Certificate.	



### The Building (Scotland) Regulations 2004 (as amended)

<b>Regulation:</b>	<b>8(1)(2)</b>	<b>Durability, workmanship and fitness of materials</b>
Comment:	The use of the product satisfies the requirements of this Regulation. See sections 9 and 10.1 and the <i>Installation</i> part of this Certificate.	
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
Standard:	<b>1.1(a)</b>	<b>Structure</b>
Comment:	The incorporation of the product into a suitably designed roof structure will not affect the structure's stability, with reference to clause 1.1.1 <sup>(1)(2)</sup> of this Standard. See sections 6.1 and 6.2 of this Certificate.	
Standard:	<b>2.8</b>	<b>Spread from neighbouring buildings</b>
Comment:	The incorporation of the product into a roof will not affect the roof's classification under this Standard, with reference to clause 2.8.1 <sup>(1)(2)</sup> . See section 7.1 of this Certificate.	
Standard:	<b>3.10</b>	<b>Precipitation</b>
Comment:	When detailed correctly the product will contribute towards a roof satisfying the requirements of this Standard, with reference to clauses 3.10.1 <sup>(1)(2)</sup> and 3.10.8 <sup>(1)(2)</sup> . See section 8 of this Certificate.	
Standard:	<b>7.1(a)(b)</b>	<b>Statement of sustainability</b>
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.	
<b>Regulation:</b>	<b>12</b>	<b>Building standards applicable to conversions</b>
Comment:	All comments given for the product under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> .	

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).



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

<b>Regulation:</b>	<b>23(a)(i)</b>	<b>Fitness of materials and workmanship</b>
<b>Comment:</b>	<b>(iii)(b)(i)</b>	The product is acceptable. See section 10.1 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>28(b)</b>	<b>Resistance to moisture and weather</b>
<b>Comment:</b>		When detailed correctly, the product will contribute towards a roof to satisfying the requirements of this Regulation. See section 8 of this Certificate.
<b>Regulation:</b>	<b>30(a)(b)</b>	<b>Stability</b>
<b>Comment:</b>		The incorporation of the product into a suitably designed roof structure will not affect the structure's stability. See sections 6.1 and 6.2 of this Certificate.
<b>Regulation:</b>	<b>36(b)</b>	<b>External fire spread</b>
<b>Comment:</b>		The incorporation of the product into a roof will not affect the roof's classification under the requirements of this Regulation. See section 7.1 of this Certificate.

## Construction (Design and Management) Regulations 2015

## Construction (Design and Management) Regulations (Northern Ireland) 2016

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

See sections: 3 *Delivery and site handling* (3.2), 11 *General* (11.3) and 12 *Procedure* (12.3) of this Certificate.

## Additional Information

### NHBC Standards 2018

In the opinion of the BBA, SmartStack GRP Chimney, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 2.1 *The Standards and Technical Requirements*, Technical Requirement R3.

## Technical Specification

### 1 Description

1.1 SmartStack GRP Chimney consists of a GRP chimney stack including a base plinth, flaunching with ventilation, chimney pot, side gutters, expanding foam strip and lead apron flashing, for use on roof ridges and slopes. The chimney is available in one and two pot versions, and in three brick colours (buff, standard red and burnt red) and two render colours (white and cream). The brick and render colours can be colour-matched to the bricks/render of the building.

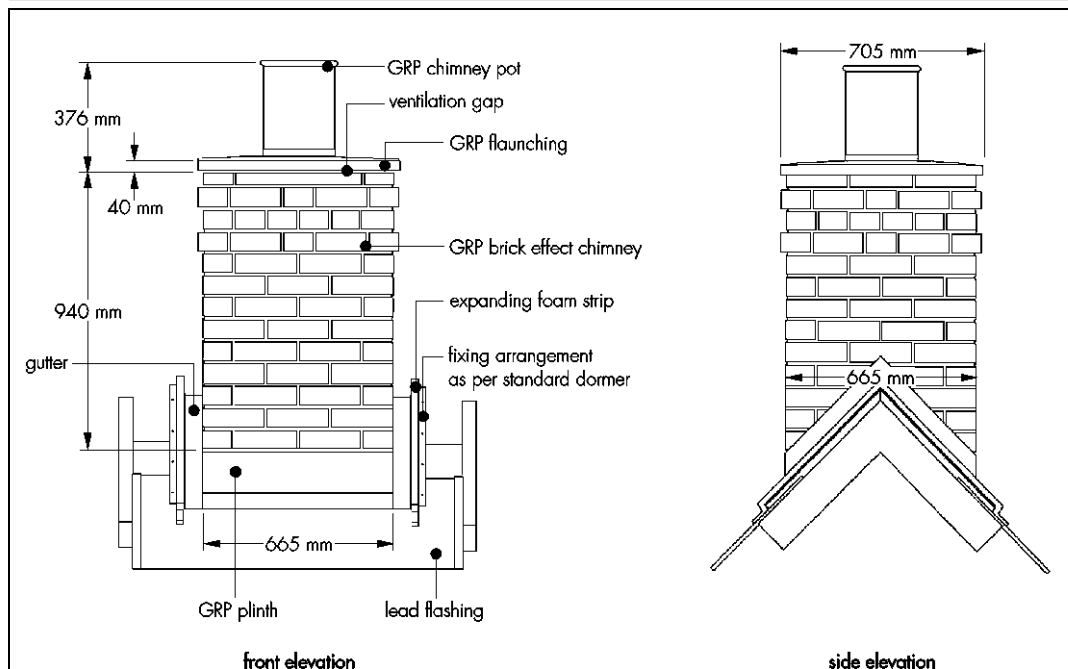
1.2 SmartStack GRP Chimney is installed to the roof structure using stainless steel 5 x 50 mm pan head wood-screws supplied with the product.

1.3 The product is available in the following styles, width x depth (see Figure 1):

- 665 x 890 Ridge Cut Chimney — single/double pot
- 665 x 890 Rafter Cut Chimney — single/double pot
- 890 x 890 Ridge Cut Chimney — single/double pot
- 890 x 890 Rafter Cut Chimney — single/double pot
- 553 x 778 Ridge Cut Chimney — single/double pot
- 553 x 778 Rafter Cut Chimney — single/double pot
- 665 x 665 Ridge Cut Chimney — single pot
- 665 x 665 Rafter Cut Chimney — single pot

- 440 x 553 Ridge Cut Chimney — single pot
- 440 x 553 Rafter Cut Chimney — single pot.

**Figure 1 StormStack GRP Chimney dimensions (665 Ridge Cut Chimney/single pot)**



## 2 Manufacture

2.1 The chimney core, base plinth, flaunching and chimney pot(s) are moulded from GRP and bonded with GRP laminates. The internal structural framework, fittings and ventilation strips are then installed within the chimney, cut and bonded to the chimney core. The lead apron flashings are fitted, and expanding foam strip is fixed to the predrilled gutter flanges. Finally, the lifting eye is installed and the GRP pot(s), with an internal screwed fixing adaptor, is packed loose with the chimney.

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 Stormking Plastics has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by the BBA (Certificate 09/Q015).

## 3 Delivery and site handling

3.1 The product is delivered to site wrapped in plastic film, with corner protectors. Each chimney bears a label with the product description, customer identification, job number, drawing number and the BBA logo incorporating the number of this Certificate.

3.2 Chimneys are lifted onto the roof using a crane and must be suitably secured before lifting.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on SmartStack GRP Chimney.

### 4 Use

4.1 SmartStack GRP Chimney is a decorative false chimney and is satisfactory for use on pitched slated or tiled roofs with a minimum pitch of 30 degrees, either at the ridge or on the slope of the roof, in new constructions.

4.2 The use of the product with a flue has not been assessed and is outside the scope of this Certificate.

4.3 Roof structures incorporating the product must be designed and constructed in accordance with the relevant clauses of BS EN 1995-1-1 : 2004 and its UK National Annex, and BS 5534 : 2014.

4.4 Roof fixtures such as satellite dishes and television aerials must not be fastened to the product.

4.5 The expanding foam strip on the base plinth is used to exclude insects and birds from the roof space.

### 5 Practicability of installation

Installation must be carried out by competent carpenters, roofers and slaters/tilers, experienced with this type of product.

### 6 Loading



6.1 The roof structure must be designed by a suitably qualified and experienced individual, in order to allow the safe transfer of dead and imposed loads to the ground.

6.2 Dead and imposed loads should be calculated in accordance with BS EN 1991-1-1 : 2002 and BS EN 1991-1-3 : 2003 and their UK National Annexes.

6.3 The wind uplift forces acting on the chimney are calculated by a suitably qualified and experienced individual in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex, and the installation design confirmed as appropriate on a case by case basis.

6.4 Fixings (see section 1.2) are installed perpendicular to the roof slope at 150 mm centres through the GRP side gutters (using factory drilled holes) and into the roof structure (see section 12.). The quantity of fixings is dependent on the style of chimney as shown in Table 1.

<i>Table 1 Quantity of fixings on the chimney</i>	
Depth (mm)	Number of fixings
553	6 per side (a total of 12)
665 and 778	8 per side (a total of 16)
890	10 per side (a total of 20)

### 7 Behaviour in relation to fire



7.1 The incorporation of the product into a roof will not affect the fire classification of the roof.

7.2 The polyester resin used in manufacturing the product has been tested to BS 476-3 : 2004 and achieved an EXT.F.AC rating in a system comprising a 12.5 mm thick plasterboard deck, a 50 mm thick polyurethane insulation board, two layers of 450 g·m<sup>-2</sup> chopped strand mat (CSM) glassfibre reinforcement and one layer of 600 g·m<sup>-2</sup> CSM glassfibre reinforcement embedded in the polyester resin and the polyester resin gel coat.

## 8 Weathertightness



When installed in accordance with the Certificate holder's instructions and correctly detailed, the product will be weathertight and will not affect the compliance of a roof with the requirements of the national Building Regulations.

## 9 Maintenance



The product and surrounding roof area must be regularly inspected and maintained to ensure continued performance. Particular attention should be given to the flashing details to ensure that weathertightness is maintained.

## 10 Durability



10.1 When correctly installed and maintained, the product will have a service life in excess of 25 years.

10.2 The colourfastness of the GRP is satisfactory with a uniform discoloration of the materials.

## Installation

### 11 General

11.1 Installation of SmartStack GRP Chimney must be in accordance with the Certificate holder's installation instructions and this Certificate.

11.2 Slating and tiling should be installed in accordance with the relevant clauses of BS 5534 : 2014 and BS 8000-6 : 2013. The lead apron flashing should be installed, where applicable, in accordance with BS 6915 : 2001.

11.3 When installing the lead apron flashing, the conventional precautions for handling lead defined in the *Control of Lead at Work Regulations 2002*, the *Control of Lead at Work Regulations (Northern Ireland) 2003* and the HSE Approved Code of Practice and Guidance *Control of Lead at Work* must be observed.

### 12 Procedure (see Figure 2)

12.1 Timber noggings, 38 mm wide and 50 mm deep, are installed to the inside of the rafters at a depth of 18 mm from the top of the rafters using four 8 x 75 mm screws. 18 mm thick exterior grade plywood boards are fitted between the rafters ensuring that the plywood is level with the top of the rafters. The plywood is securely fastened at both ends to the noggings using four 8 x 50 mm screws per nogging.

12.2 A suitable BBA-approved or third party approved roof tile underlay should be installed on the roof, including over the plywood.

12.3 The chimney is placed over the area of roof with the plywood support. For the rafter cut style of chimney, the chimney stack must be held securely in place until the fastenings are installed. The lifting eye is then removed from the chimney assembly.

12.4 The chimney pot is bolted to the capping and sealed with a sealant recommended by the Certificate holder.

12.5 Tiling battens are cut to length and placed under the SmartStack side gutter. The chimney is secured to the roof structure by fastening through the factory drilled holes in the side gutter and batten, at 150 mm centres, into the plywood using the supplied screws.

12.6 Tiling battens are installed over the roof area.

12.7 A lead support fillet is installed at the base of the plinth to ensure that the lead apron flashing is fully supported and on an uninterrupted downward fall. The lead apron flashing is dressed in accordance with normal practice over the row of slates/tiles immediately below the chimney.

12.8 Slates/tiles are dressed to the sides of the chimney (for rafter applications these are also cut at the top of the plinth) with a maximum gap of 15 mm from the chimney stack, and covering the expanding foam strip on the plinth.

*Figure 2 Method of installation*



### 13 Repair

In the event of major damage, the chimney unit must be replaced.

### 14 Tests

Tests were carried out on SmartStack GRP Chimney, and the results assessed to determine:

- dimensions
- cross break strength — control
- cross break strength — after 100 days heat ageing at 80°C
- cross break strength — after UV ageing using an exposure of 1000 MJ·m<sup>-2</sup> at 50°C
- cross break strength — after two hours water boil
- resistance to nail pull-through
- colour change after UV ageing using an exposure of 400 and 1000 MJ·m<sup>-2</sup> at 50°C.

### 15 Investigations

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

15.2 Calculations on wind loading of the chimney were carried out.

15.3 Visits to existing chimney installations were carried out.

15.4 Fire data to BS 476-3 : 2004 for the GRP resin used in the chimney was assessed.

## Bibliography

BS 476-3 : 2004 *Fire tests on building materials and structures — Classification and method of test for external fire exposure to roofs*

BS 5534 : 2014 + A1 : 2015 *Slating and tiling for pitched roofs and vertical cladding — Code of practice*

BS 6915 : 2001 + A1 : 2014 *Design and construction of fully supported lead sheet roof and wall coverings — Code of practice*

BS 8000-6 : 2013 *Workmanship on building sites — Code of practice for slating and tiling of roofs and claddings*

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 + A1 : 2015 *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 + A1 : 2010 *Eurocode 1 — Actions on structures — General actions — Wind actions*

NA to BS EN 1991-1-4 : 2005 + A1 : 2010 UK National Annex to *Eurocode 1 — Actions on structures — General actions — Wind actions*

BS EN 1995-1-1 : 2004 + A2 : 2014 *Eurocode 5 — Design of timber structures — General — Common rules and rules for buildings*

NA to BS EN 1995-1-1 : 2004 + A1 : 2008 UK National Annex to *Eurocode 5 — Design of timber structures — General — Common rules and rules for buildings*

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

### 16 Conditions

#### 16.1 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 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.

16.2 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.

16.3 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.

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

16.5 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.

16.6 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.