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## Agrément Certificate

12/4928

Product Sheet 1

### KLOBER GRP VALLEY TROUGH AND FLASHINGS RANGE

### KLOBER GRP VALLEY TROUGHS FOR TILES (400 AND 360) - BATTEN FIX

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to Klober GRP Valley Troughs for Tiles (400 and 360) - Batten Fix, for use in tiled roofs constructed in accordance with the relevant requirements of BS 5534 : 2014. The products provide a weatherproof junction where there are changes in direction or material in a tiled roof structure.

(1) Hereinafter referred to as 'Certificate'.

#### CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



#### KEY FACTORS ASSESSED

**Weathertightness** — as part of a complete roof, the products will resist the passage of moisture into the interior of the building (see section 6).

**Properties in relation to fire** — the products, when used as part of a complete roof, will be unrestricted under the Building Regulations (see section 7).

**Strength** — the products have adequate strength to resist the normal loads and impacts associated with installation of the roof (see section 8).

**Durability** — under normal service conditions, the products will have a service life in excess of 20 years (see section 10).



The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Second issue: 9 July 2018

John Albon – Head of Approvals  
Construction Products

Originally certificated on 8 November 2012

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.

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## Regulations

In the opinion of the BBA, Klober GRP Valley Troughs for Tiles (400 and 360) – Batten Fix, 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>B4(2)</b>	<b>External fire spread</b>
Comment:		The products, when used as part of a complete roof, will not affect the fire rating of the roof construction. See section 7 of this Certificate.
<b>Requirement:</b>	<b>C2(b)</b>	<b>Resistance to moisture</b>
Comment:		The products will contribute to a roof satisfying this Requirement. See section 6 of this Certificate.
<b>Regulation:</b>	<b>7</b>	<b>Materials and workmanship</b>
Comment:		The products are acceptable. See section 10 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 products satisfies the requirements of this Regulation. See sections 9 and 10 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
Standard:	2.8	Spread from neighbouring buildings
Comment:		The products can be regarded as having low vulnerability with reference to clause 2.8.1 <sup>(1)(2)</sup> , and will not affect the fire rating of the roof construction. See section 7 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The products will contribute to a roof satisfying clauses 3.10.1 <sup>(1)(2)</sup> and 3.10.8 <sup>(1)(2)</sup> of this Standard. See section 6 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The products can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6 and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
<b>Regulation:</b>	<b>12</b>	<b>Building standards applicable to conversions</b>
Comment:		Comments in relation to the products 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>
Comment:	<b>(iii)(b)(i)</b>	The products are acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>28(b)</b>	<b>Resistance to moisture and weather</b>
Comment:		The products will contribute to a roof satisfying this Regulation. See section 6 of this Certificate.

<b>Regulation:</b>	<b>36(b)</b>	<b>External fire spread</b>
<b>Comment:</b>		The products, when used as part of a complete roof construction, will not affect the fire rating of the roof construction. See section 7 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: 1 *Description* (1.2) and 3 *Delivery and site handling* (3.1) of this Certificate.

### **Additional Information**

#### **NHBC Standards 2018**

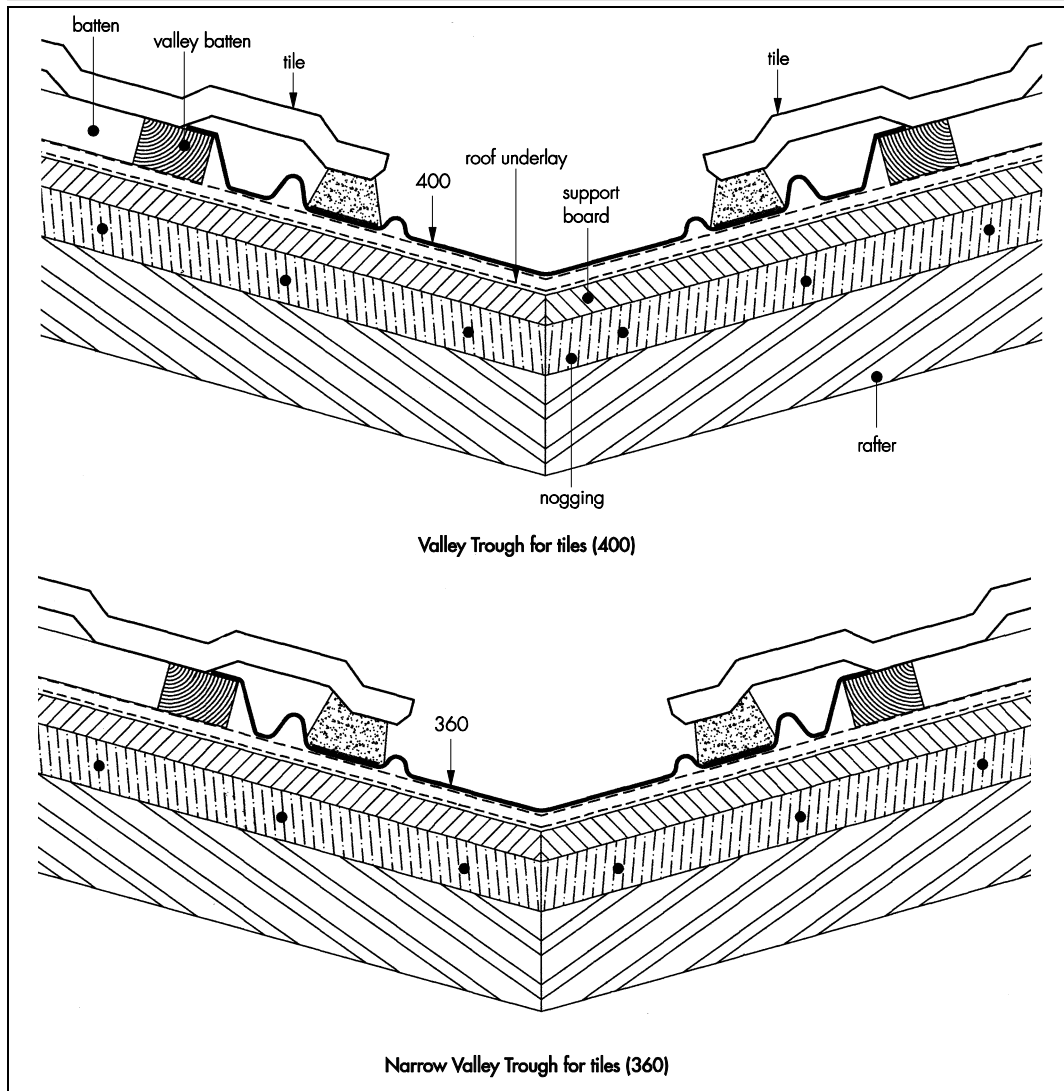
In the opinion of the BBA, Klober GRP Valley Troughs for Tiles (400 and 360) – Batten Fix, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying to relevant requirements in relation to *NHBC Standards*, Chapter 7.2 *Pitched roofs*.

### **Technical Specification**

#### **1 Description**

1.1 Klober GRP Valley Troughs for Tiles (400 and 360) – Batten Fix are glassfibre/polyester laminates with a UV-resistant polyester film on the upper face (see Figure 1) and sanded strips bonded along the upper surface of each edge to provide a key for bedding the roof tiles in mortar.

Figure 1 Klober GRP Valley Troughs for Tiles (400 and 360) – Batten Fix



1.2 The profiles are supplied in lengths of 3 m, with widths of 360 and 400 mm. The valley trough is flexible and will suit roof pitches ranging from 17.5° to 60°, with a recommended maximum difference between roof pitches of 20°.

1.3 The products are finished in a standard lead grey colour.

## 2 Manufacture

2.1 Glassfibre strands are impregnated with resin and formed into a laminate with a polyester carrier film and a weather protection film. The required profile is shaped by wooden formers and allowed to cure.

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.

### 3 Delivery and site handling

3.1 The products are distributed in packs of 10 units, each unit marked with the application and the BBA logo incorporating the number of this Certificate.

3.2 The packs should be stored flat or on end, on a smooth, clean, dry surface, under cover and protected from sunlight.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Klober GRP Valley Troughs for Tiles (400 and 360) – Batten Fix.

### Design Considerations

#### 4 Use

Klober GRP Valley Troughs for Tiles (400 and 360) – Batten Fix, when designed and installed in accordance with the relevant parts of BS 5534 : 2014, BS 8000-0 : 2014 and BS 8000-6 : 2013, are satisfactory for use as valley troughs in tiled pitched roofs to provide a weatherproof finish.

#### 5 Practicability of installation

The products are designed to be installed by roofers experienced with these types of products.

#### 6 Weathertightness



The products will adequately resist the passage of moisture to the interior of the building and so meet the requirements of the national Building Regulations.

#### 7 Properties in relation to fire



Samples of GRP, representative of that used in the manufacture of the products, when tested in accordance with BS 476-3: 2004, achieved an EXT.S.AA rating.

#### 8 Strength

The products will resist the normal loads and impacts associated with installation and use.

#### 9 Maintenance



Minimal maintenance is necessary and the smooth finish will restrict and inhibit mould and fungal growth.

#### 10 Durability



The products, when subjected to normal conditions of exposure and use, will have a service life in excess of 20 years.

### 11 General

Installation of Klover GRP Valley Troughs for Tiles (400 and 360) – Batten Fix, must be in accordance with the Certificate holder's instructions and the relevant recommendations of BS 5534 : 2014, BS 8000-0 : 2014, BS 8000-6 : 2013 and the NFRC Technical Bulletin 28.

### 12 Procedure

12.1 The valley trough must be fitted over timber valley boards of sufficient width to provide end support for the tiling battens, outside the counter battens. Where rafters are positioned at up to 600 mm centres, valley boards must be flush-fitting with the top of the rafters, and must be either a minimum of 19 mm softwood (or 12 mm ply) set between the rafters and supported on timber noggins, or 6 mm continuous ply boards laid over the rafters.

12.2 The valley is first lined longitudinally with a single strip of 1 m wide BS 8747 : 2007 Type 1F roofing underlay. An alternative underlay which has been assessed by a third party, ideally a UKAS-accredited and approved body such as the BBA, may be used. A length of the tile valley trough is pressed to a snug fit into the valley and marked with a chalk line longitudinally along either side to indicate the required counter batten position.

12.3 Counter battens of the same depth as the tiling battens are fixed along the marked lines to support the edges of the valley troughs, using nails of a quality acceptable in good roofing practice.

12.4 The main roofing underlay is laid, dressed over the counter batten. Tiling battens are fitted with the ends firmly located onto the valley boards, positioned close to the counter batten, with care taken to avoid damaging the underlay.

12.5 The main roofing underlay can be laid either under or over the GRP valley trough. If laid over the GRP valley trough, it must not extend beyond the outer water channel.

12.6 Commencing at the foot of the valley, the troughs are fixed using 25 mm clout-headed nails at maximum 500 mm centres onto the counter battens.

12.7 Consecutive lengths of valley troughs are laid dressed to shed water down the slope, allowing a minimum 150 mm overlap (measured in the vertical) at the joints. At the top of adjoining troughs, the units are mitred and dressed with a Code 4 lead saddle or other flashing materials recommended by the Certificate holder, providing the aforementioned overlap length.

12.8 Trimming of the fascia board may be required to ensure full water flow to the gutter.

12.9 Sanded strips running longitudinally along the lengths of the troughs are keys into which mortar and, subsequently, tiles are bedded. Dentil slips should be used if excessive mortar is required, to reduce the risk of shrinkage. Care must also be taken not to block the water channel with the mortar.

### 13 Finishing

The roof slating/tiling must be carried out in accordance with the relevant parts of BS 5534 : 2014, BS 8000-0 : 2014 and BS 8000-6 : 2013.

### 14 Repair

Damaged lengths can be replaced without having to remove adjacent lengths.

### 15 Tests

Tests were carried out and the results assessed to determine:

- density
- glass/resin ratio
- dimensional checks
- hardness
- cross-breaking strength
- tensile strength/elongation
- impact resistance
- effect of elevated temperatures
- effect of water soak
- effect of UV exposure.

### 16 Investigations

16.1 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.

16.2 An assessment was made of the results of a fire test in accordance with BS 476-3 : 2004.

## 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 + A2 : 2018 *Slating and tiling for pitched roofs and vertical cladding — Code of practice*

BS 8000-0 : 2014 *Workmanship on construction sites — Part 0 : Introduction and general principles*

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

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

NFRC Technical Bulletin 28 : 2002 *Inclined preformed GRP valley troughs.*

### 17 Conditions

#### 17.1 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.

17.2 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.

17.3 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.

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

17.5 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.

17.6 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.