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Agrément Certificate  
**89/2153**  
Product Sheet 1

## HARCON GRP VALLEY TROUGH AND FLASHING RANGE

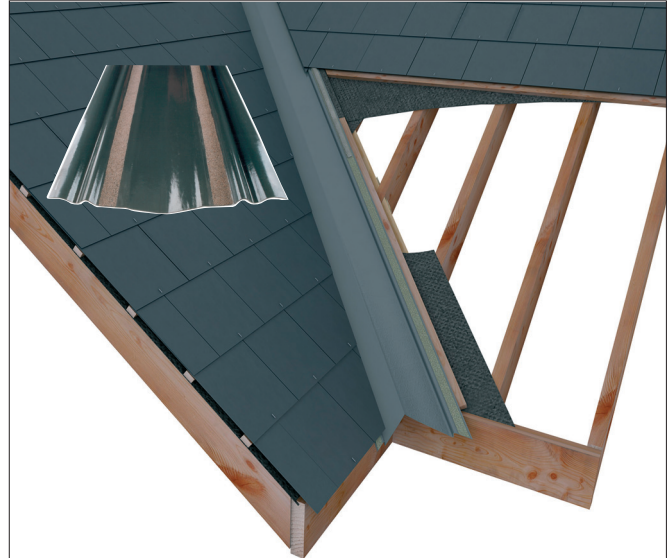
### HARCON GRP VALLEY TROUGHS TYPES A, D AND E

#### PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Harcon GRP Valley Troughs Types A, D and E, for use in tiled roofs to provide a weatherproof junction at features such as changes of direction and materials.

#### 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** — as part of a complete roof, the products will resist the passage of moisture into the interior of the building (see section 5).

**Properties in relation to fire** — tests indicate that the products when used as part of a complete roof will be unrestricted under the Building Regulations (see section 6).

**Strength** — the products have adequate strength to resist the loads associated with the installation of the roof (see section 7).

**Durability** — under normal service conditions the products will have a service life of at least 20 years (see section 9).

The BBA has awarded this Agrément 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

Simon Wroe  
Head of Approvals — Materials

Greg Cooper  
Chief Executive

Date of First issue: 28 October 2009

Originally certificated on 2 February 1989

*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.*

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# Regulations

In the opinion of the BBA, Harcon GRP Valley Troughs Types A, D and E 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 Building Regulations 2000 (as amended) (England and Wales)

Requirement:	B4(2)	External fire spread
Comment:		Data to BS 476-3 : 1958 indicate that the products when used as part of a complete roof, will not effect the fire rating of the roof construction. See sections 6.1 and 6.2 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The products will contribute to a roof meeting this Requirement. See section 5 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The products are acceptable. See section 9 and the <i>Installation</i> 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 products satisfies the requirements of this Regulation. See sections 8 and 9 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards – construction
Standard:	2.8	Spread from neighbouring buildings
Comment:		Data to BS 476-3 : 1958 indicate that the products can be regarded as having a low vulnerability, with reference to clause 2.8.1 <sup>(1)(2)</sup> , and will not effect the fire rating of the roof construction. See sections 6.1 and 6.2 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 5 of this Certificate.
Regulation:	12	Building standards – conversions
Comment:		All comments given for these products under Regulation 9, 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) 2000 (as amended)

Regulation:	B2	Fitness of materials and workmanship
Comment:		The products are acceptable. See section 9 and the <i>Installation</i> part of this Certificate.
Regulation:	B3(2)	Suitability of certain materials
Comment:		The products are acceptable. See section 8 of this Certificate.
Regulation:	C4(b)	Resistance to ground moisture and weather
Comment:		The products will contribute to a roof satisfying this Regulation. See section 5 of this Certificate.
Regulation:	E5(b)	External fire spread
Comment:		Data to BS 476-3 : 1958 indicate that the products when used as part of a complete roof construction will not effect the fire rating of the roof construction. See sections 6.1 and 6.2 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 section: 1 *Description* (1.2).

# Non-regulatory Information

## NHBC Standards 2008

NHBC accepts the use of Harcon GRP Valley Troughs Types A, D and E when installed and used in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 7.2 *Pitched roofs*.

## Zurich Building Guarantee Technical Manual 2007

In the opinion of the BBA, Harcon GRP Valley Troughs Types A, D and E, when installed and used in accordance with this Certificate, satisfies the requirements of the *Zurich Building Guarantee Technical Manual*, Section 4 *Superstructure*, Sub-section *Pitched roofs*.

## 1 Description

1.1 Harcon GRP Valley Troughs Types A, D and E are manufactured from glassfibre/polyester laminate, in a continuous process to the profile illustrated (see Figure 1 and 2). Sanded strips are bonded along the upper surface of each edge to provide a key for bedding the roof tiles into mortar.

Figure 1 Harcon GRP Valley Troughs Types A or E and D

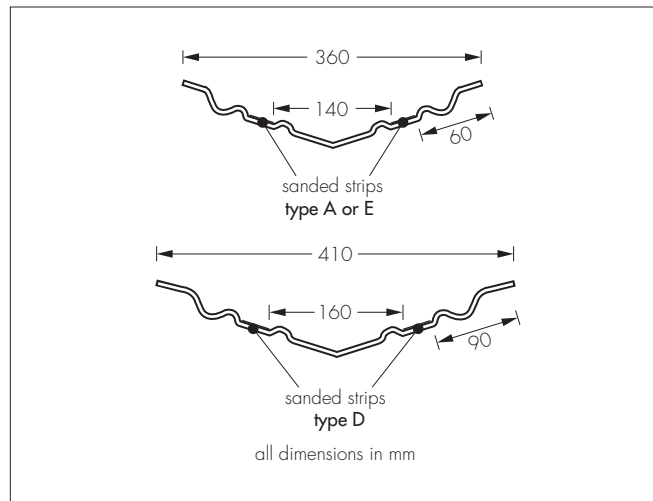
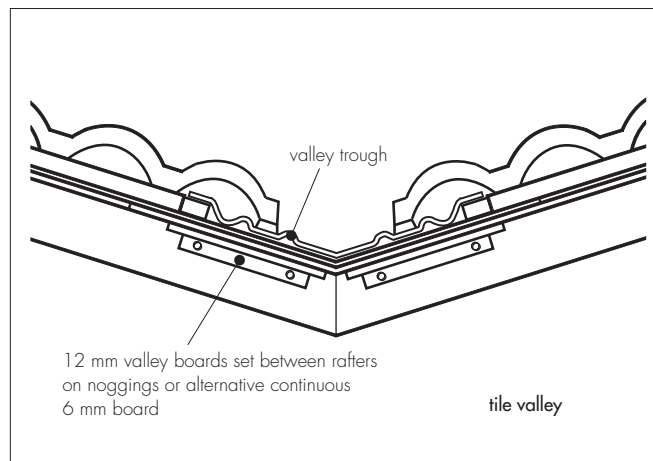


Figure 2 Tile Valley Trough



1.2 The troughs are manufactured to the nominal specification:

width (mm)	360 (Type A or E)
	410 (Type D)
length (m)	1.8, 2.4, 3.0
sanded strip width (mm)	40
standard colour <sup>(1)</sup>	grey/blue

(1) Other colours are available to order.

1.3 The valley troughs are produced with an angle between the two sides of 17° and can be readily adapted by bending to accommodate roof pitches from 5° to 60°.

1.4 Quality control checks are performed on incoming materials, during production and on the final product. Checks on the final product include:

- visual inspection
- hardness
- weight
- dimensions.

## 2 Delivery and site handling

The valley troughs are delivered to site in packs of 10. Each item bears the BBA identification mark incorporating the number of this Certificate. Packs should be stored flat on a clean, level surface.

# Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Harcon GRP Valley Troughs Types A, D and E.

## Design Considerations

### 3 Use

Harcon GRP Valley Troughs Types A, D and E are satisfactory for use in tiled pitched roofs constructed in accordance with the relevant Clauses of BS 5534 : 2003.

### 4 Practicability of installation

The products are designed to be installed by a roofing contractor, experienced with these type of products.

### 5 Weathertightness



Tests indicate that the products will adequately resist the passage of moisture to the interior of a building and so meet 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 3.10.8

*Northern Ireland* — Regulation C4(b).

### 6 Properties in relation to fire



6.1 Samples of GRP, representative of that used in the manufacture of the products, when tested in accordance with BS 476-3 : 1958, achieved an EXT.S.AA rating.

6.2 Samples of GRP, representative of that used in the manufacture of the products, when tested in accordance with BS 476-7 : 1987, achieved a Class 3 surface spread of flame.

### 7 Strength

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

### 8 Maintenance



Minimum maintenance is necessary and the smooth surface finish will inhibit the build up of foreign matter.

### 9 Durability



Available test data and knowledge of the material suggest that the products, when installed in accordance with this Certificate, should have a life of at least 20 years.

## Installation

### 10 General

10.1 Installation of Harcon GRP Valley Troughs Types A, D and E must be in accordance with the Certificate holder's instructions and the relevant recommendations of BS 5534 : 2003 and BS 8000-6 : 1990.

10.2 The sections must be cut to size with a fine-toothed saw and can accept holes being drilled using a sharp drill bit.

### 11 Procedure

11.1 It is recommended that valley boards, 12 mm boards supported on noggings between rafters or, alternatively, 6 mm boards laid over rafters are used. Valley troughs can be installed without the use of valley boards provided the trough is pushed down tightly against the rafters and is drilled and nailed correctly. However, there is a greater risk of mortar bedding being loosened, and foot traffic must be avoided. Alternatively, a heavier 'X' grade valley trough weighing 2.4 kg·m<sup>-2</sup> is also available, reducing the need for valley boards.

11.2 The valley must be lined longitudinally with reinforced underlay one metre wide. A length of the trough must be pressed to a tight fit into the valley and the line of the outer edges marked. The pitch angle of the valley trough, originally 17°, will adapt to suit pitches from 5° to 60°.

11.3 Counter battens of similar size to the roofing battens must be fixed along the marked line to support the edges of the trough, using nails of a quality acceptable in good roofing practice.

11.4 Commencing at the foot of the valley, troughs should be nailed at 400 mm spacings to the counter battens through drilled holes.

11.5 Consecutive lengths of valley trough must be laid allowing a 150 mm overlap at the joints, finally trimming at the head and foot of the valley.

11.6 The tiles must be bedded onto mortar laid on the sanded strips, keeping the water channels clear.

## 12 Repair

Damaged areas can be repaired by following the Certificate holder's instructions prior to completing the roof covering.

## 13 Finishing

The tiling must be carried out in accordance with the relevant Clauses of BS 5534 : 2003, and BS 8000-6 : 1990.

# Technical Investigations

## 14 Tests

Samples of the slate valley trough sections and representative samples of the material were supplied by the Certificate holder for testing. Tests were carried out in accordance with MOAT No 9 : 1973 to determine:

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

## 15 Investigations

15.1 The results of fire tests on samples of GRP used in the manufacture of the product, carried out in accordance with BS 476-3 : 1958 and BS 476-7 : 1987 by an independent test authority, were assessed.

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

15.3 A visit was made to a site in progress to assess the practicability of installation.

15.4 A visit was made to an existing site to examine the performance of the product.

# Bibliography

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

BS 476-7 : 1987 *Fire tests on building materials and structures — Method for classification of the surface spread of flame of products*

BS 5534 : 2003 *Code of practice for slating and tiling (including shingles)*

BS 8000-6 : 1990 *Workmanship on building sites — Code of practice for slating and tiling of roofs and claddings*

MOAT No 9 : 1973 *Directive for the Assessment of Products in Glass-Reinforced Polyester for use in Building*

## 16 Conditions

16.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- 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 and documents referred to in this Certificate are those that the BBA deems to be relevant at the date of issue or re-issue of this Certificate and include any: Act of Parliament; Statutory Instrument; Directive; Regulation; British, European or International Standard; Code of Practice; manufacturers' instructions; or any other publication or document similar or related to the aforementioned.

16.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant 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 In granting this Certificate, the BBA is not responsible for:

- 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 the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

16.5 Any information relating to the manufacture, supply, installation, use and maintenance 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 and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date 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. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.