

Filon Products Limited

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Agrément Certificate
07/4492
Product Sheet 1

FILON GRP VALLEY TROUGH AND FLASHINGS RANGE

FILON GRP VALLEY TROUGHS FOR TILES (GTB 13 AND GTB 14) — BATTEN FIX

This Agrément Certificate Product Sheet⁽¹⁾ relates to Filon GRP Valley Troughs for Tiles (GTB 13 and GTB 14) — Batten Fix, for use in tiled roofs constructed in accordance with the relevant requirements of BS 5534 : 2003 + A1 : 2010. 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 — tests indicate that 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 the 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

Simon Wroe
Head of Approvals — Materials

Greg Cooper
Chief Executive

Date of Second issue: 1 November 2012

Originally certificated on 18 February 2008

The BBA is a UKAS accredited certification body — Number 1113. 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, Filon GRP Valley Troughs for Tiles (GTB 13 and GTB 14) – Batten Fix, if installed, used and maintained in accordance with 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:		Data to BS 476-3 : 2004 indicate that 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.
Requirement:	C2(b)	Resistance to moisture
Comment:		The products will contribute to a roof meeting this Requirement. See section 6 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The products are acceptable. See section 10 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 9 and 10 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 : 2004 indicate that the products can be regarded as having a low vulnerability with reference to clause 2.8.1 ⁽¹⁾⁽²⁾ , 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 ⁽¹⁾⁽²⁾ and 3.10.8 ⁽¹⁾⁽²⁾ of this Standard. See section 6 of this Certificate.
Standard:	7.1(a)	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.
Regulation:	12	Building standards – conversions
Comment:		Comments made in relation to the products 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

Regulation:	23(a)(i)(iii)(b)(i)	Fitness of materials and workmanship
Comment:		The products are acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:		The products will contribute to a roof satisfying this Regulation. See section 6 of this Certificate.
Regulation:	36(b)	External fire spread
Comment:		Data to BS 476-3 : 2004 indicate that 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 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* (1.2) and 3 *Delivery and site handling* (3.1) of this Certificate.

Additional Information

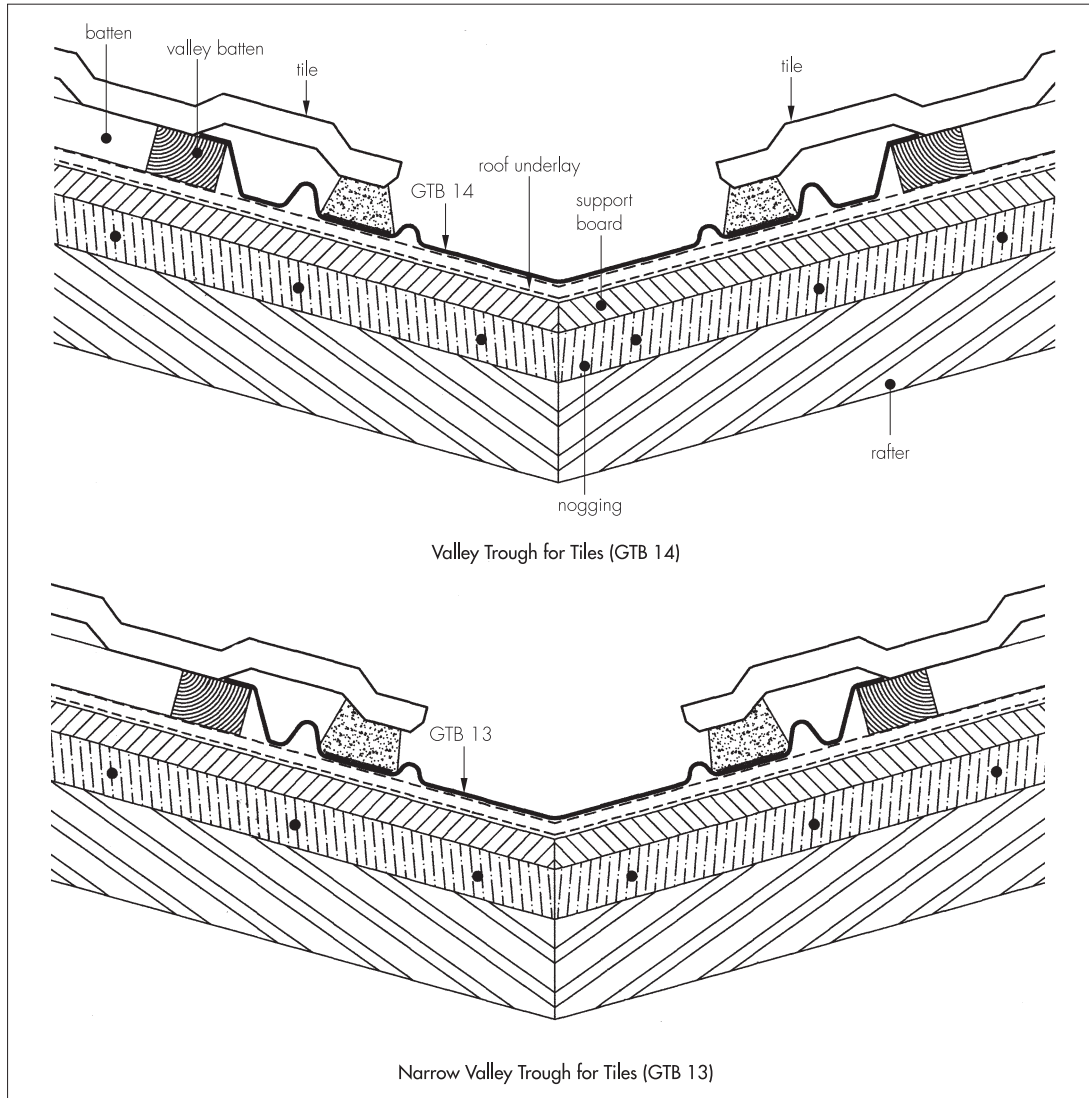
NHBC Standards 2011

NHBC accepts the use of Filon GRP Valley Troughs for Tiles (GTB 13 and GTB 14) – Batten Fix, provided they are installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards, Part 7 Roofs, Chapter 7.2 Pitched roofs*.

1 Description

1.1 Filon GRP Valley Troughs for Tiles (GTB 13 and GTB 14) — Batten Fix are manufactured from glassfibre/polyester laminate with a UV-resistant polyester film on the upper face, in a continuous process to the profile illustrated (see Figure 1). Sanded strips are bonded along the upper surface of each edge to provide a key for bedding the roof tiles into mortar.

Figure 1 Filon GRP Valley Trough for Tiles (GTB 13 and GTB 14) — Batten Fix



1.2 The profiles are supplied in lengths of 3 m with widths of either 360 mm or 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.

2.3 The management system of Filon Products Limited has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 and BS EN ISO 14001 : 2004 by ISOQAR (Certificate 10146).

3 Delivery and site handling

3.1 The products are distributed in packs of 10 units, each unit marked with size, the application and the BBA identification mark including 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 Filon GRP Valley Troughs for Tiles (GTB 13 and GTB 14) — Batten Fix.

Design Considerations

4 Use

Filon GRP Valley Troughs for Tiles (GTB 13 and GTB 14) — Batten Fix are satisfactory for use in tiled pitched roofs constructed in accordance with the relevant clauses of BS 5534 : 2003 + A1 : 2010.

5 Practicability of installation

Installation can be carried out readily by roofers experienced with this type of product.

6 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⁽¹⁾⁽²⁾ and 3.10.8⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Regulation 28(b).

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 inhibit the build up of foreign matter.

10 Durability



Available test data and knowledge of the material indicate that the products should have a service life in excess of 20 years.

Installation

11 General

Installation of Filon GRP Valley Troughs for Tiles (GTB 13 and GTB 14) — Batten Fix should be in accordance with the manufacturer's instructions and the relevant recommendations of BS 5534 : 2003 + A1 : 2010 and BS 8000-6 : 1990.

12 Procedure

12.1 The valley should first be lined longitudinally with reinforced underlay 1 m wide. A length of the tile valley trough should be pressed to a snug fit into the valley and marked with a chalk line longitudinally along either side.

12.2 Counter battens of similar size to the roofing battens should be fixed along the marked lines to support the edges of the valley troughs, using nails of a quality acceptable in good roofing practice.

12.3 Commencing at the foot of the valley, the troughs should be nailed onto the battens using clout-headed nails fixed at approximately 500mm centres.

12.4 Consecutive lengths of valley troughs should be laid dressed to shed water down the slope, allowing a minimum 150 mm overlap at the joints. At the top of adjoining troughs, the unit should be mitred and dressed with a Code 4 lead saddle.

12.5 The fascia board may need to be trimmed to ensure full water flow to the gutter.

12.6 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 should also be taken not to block the water channel with the mortar.

12.7 It is recommended that valley boards/noggings should be flush-fitted with the top of the rafters to fully support the valley troughs.

13 Finishing

The tiling must be carried out in accordance with the relevant clauses of BS 5534 : 2003 + A1 : 2010 and BS 8000-6 : 1990.

14 Repair

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

Technical Investigations

15 Tests

Tests were carried out by the BBA to examine the following properties:

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

16 Investigations

An assessment was made of the results of a fire test in accordance with BS 476-3 : 2004 carried out by an independent test authority.

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 : 2003 + A1 : 2010 *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*

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

BS EN ISO 14001 : 2004 *Environmental management systems — Requirements with guidance for use*

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 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.

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.

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Agrément Certificate
07/4492
Product Sheet 2

FILON GRP VALLEY TROUGH AND FLASHINGS RANGE

FILON GRP VALLEY TROUGH FOR TILES (GTF 14) — FLAT FIX

This Agrément Certificate Product Sheet⁽¹⁾ relates to Filon GRP Valley Trough for Tiles (GTF 14) — Flat Fix, for use in tiled roofs constructed in accordance with the relevant requirements of BS 5534 : 2003 + A1 : 2010. The product provides 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 product will resist the passage of moisture into the interior of the building (see section 6).

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

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

Durability — under normal service conditions, the product 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 product described herein. The 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

A handwritten signature in black ink, appearing to be 'Simon Wroe'.

Simon Wroe
Head of Approvals — Materials

A handwritten signature in black ink, appearing to be 'Greg Cooper'.

Greg Cooper
Chief Executive

Date of Second issue: 1 November 2012

Originally certificated on 18 February 2008

The BBA is a UKAS accredited certification body — Number 1113. 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, Filon GRP Valley Trough for Tiles (GTF 14) — Flat Fix, if installed, used and maintained in accordance with 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:	Data to BS 476-3 : 2004 indicate that the product, when used as part of a complete roof, will not affect the fire rating of the roof construction. See section 7 of this Certificate.
Requirement: C2(b)	Resistance to moisture
Comment:	The product will contribute to a roof meeting this Requirement. See section 6 of this Certificate.
Requirement: Regulation 7	Materials and workmanship
Comment:	The product is acceptable. See section 10 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 product satisfies the requirements of this Regulation. See sections 9 and 10 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 : 2004 indicate that the product can be regarded as having a low vulnerability with reference to clause 2.8.1 ⁽¹⁾⁽²⁾ , and will not affect the fire rating of the roof construction. See section 7 of this Certificate.
Standard: 3.10	Precipitation
Comment:	The product will contribute to a roof satisfying clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.8 ⁽¹⁾⁽²⁾ of this Standard. See section 6 of this Certificate.
Standard: 7.1(a)	Statement of sustainability
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.
Regulation: 12	Building standards — conversions
Comment:	Comments made in relation to the 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

Regulation: 23(a)(i)(iii)(b)(i)	Fitness of material and workmanship
Comment:	The product is acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation: 28(b)	Resistance to moisture and weather
Comment:	The product will contribute to a roof satisfying this Regulation. See section 6 of this Certificate.
Regulation: 36(b)	External fire spread
Comment:	Data to BS 476-3 : 2004 indicate that the product, 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 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* (1.2) and 3 *Delivery and site handling* (3.1) of this Certificate.

Additional Information

NHBC Standards 2011

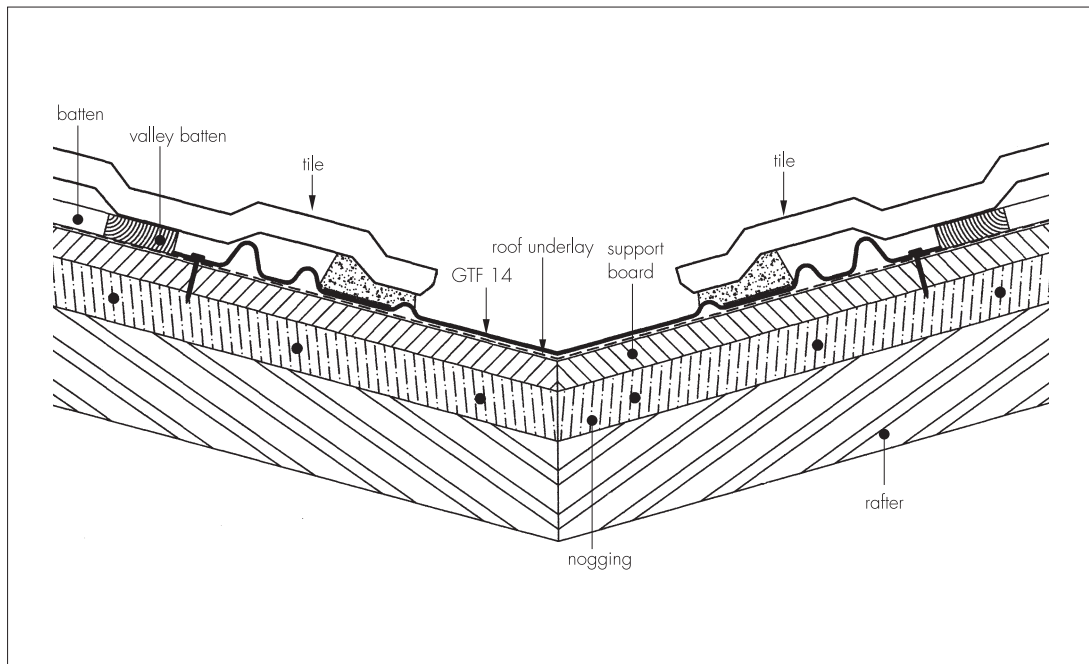
NHBC accepts the use of Filon GRP Valley Trough for Tiles (GTF 14) — Flat Fix, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards, Part 7 Roofs, Chapter 7.2 Pitched roofs*.

Technical Specification

1 Description

1.1 Filon GRP Valley Trough for Tiles (GTF 14) — Flat Fix is manufactured from glassfibre/polyester laminate with a UV-resistant polyester film on the upper face, in a continuous process to the profile illustrated (see Figure 1). Sanded strips are bonded along the upper surface of each edge to provide a key for bedding the roof tiles into mortar.

Figure 1 Filon GRP Valley Trough for Tiles (GTF 14) — Flat Fix



1.2 The profile is supplied in lengths of 3 m with a width of 400 mm.

1.3 The product is 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.

2.3 The management system of Filon Products Limited has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 and BS EN ISO 14001 : 2004 by ISOQAR (Certificate 10146).

3 Delivery and site handling

3.1 The product is distributed in packs of 10 units, each unit marked with size, the application and the BBA identification mark including 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 Filon GRP Valley Trough for Tiles (GTF 14) — Flat Fix.

Design Considerations

4 Use

Filon GRP Valley Trough for Tiles (GTF 14) — Flat Fix is satisfactory for use in tiled pitched roofs constructed in accordance with the relevant clauses of BS 5534 : 2003 + A1 : 2010.

5 Practicability of installation

Installation can be carried out readily by roofers experienced with this type of product.

6 Weathertightness



Tests indicate that the product 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⁽¹⁾⁽²⁾ and 3.10.8⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Regulation 28(b).

7 Properties in relation to fire



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

8 Strength

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

9 Maintenance



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

10 Durability



Available test data and knowledge of the material indicate that the product should have a service life in excess of 20 years.

Installation

11 General

Installation of Filon GRP Valley Trough for Tiles (GTF 14) — Flat Fix should be in accordance with the manufacturer's instructions and the relevant recommendations of BS 5534 : 2003 + A1 : 2010 and BS 8000-6 : 1990.

12 Procedure

12.1 It is recommended that the valley should be fitted with either a flush fit valley board or with a valley board nailed directly on top of the rafters prior to the roof being underlaid in the usual manner.

12.2 When fitting a valley board by nailing directly to the rafters, the combined height of the board and the valley trough should not exceed the height of the tile battens.

12.3 The valley is fitted in the normal manner and pushed down onto the valley board and nailed at approximately 500 mm centres.

12.4 Sanded strips running longitudinally along the length of the trough are keys into which mortar and subsequent tiles should be bedded. If excessive mortar is required, dentil strips should be used to reduce the risk of shrinkage. Care should also be taken not to block the water channel with mortar.

12.5 Consecutive lengths of valley troughs should have a minimum 150 mm overlap at any join, and at the top of adjoining troughs the units should be mitred and dressed with a Code 4 lead saddle.

12.6 It may be necessary to trim the fascia board to ensure full water flow to the gutter.

13 Finishing

The tiling must be carried out in accordance with the relevant clauses of BS 5534 : 2003 + A1 : 2010 and BS 8000-6 : 1990.

14 Repair

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

Technical Investigations

15 Tests

Tests were carried out by the BBA to examine the following properties:

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

16 Investigations

An assessment was made of the results of a fire test in accordance with BS 476-3 : 2004 carried out by an independent test authority.

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 : 2003 + A1 : 2010 *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*

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

BS EN ISO 14001 : 2004 *Environmental management systems — Requirements with guidance for use*

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 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.

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.

Filon Products Limited

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Agrément Certificate
07/4492
Product Sheet 3

FILON GRP VALLEY TROUGH AND FLASHINGS RANGE

FILON GRP SLATE VALLEY TROUGH (GSVT 1)

This Agrément Certificate Product Sheet⁽¹⁾ relates to Filon GRP Slate Valley Trough (GSVT 1), for use in slated roofs constructed in accordance with the relevant requirements of BS 5534 : 2003 + A1 : 2010. The product provides a weatherproof junction where there are changes in direction or material in a slated 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 product will resist the passage of moisture into the interior of the building (see section 6).

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

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

Durability — under normal service conditions, the product 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 product described herein. The 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

Simon Wroe
Head of Approvals — Materials

Greg Cooper
Chief Executive

Date of Second issue: 1 November 2012

Originally certificated on 18 February 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.

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Regulations

In the opinion of the BBA, Filon GRP Slate Valley Trough (GSVT 1), if installed, used and maintained in accordance with 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:	Data to BS 476-3 : 2004 indicate that the product, when used as part of a complete roof, will not affect the fire rating of the roof construction. See section 7 of this Certificate.
Requirement: C2(b)	Resistance to moisture
Comment:	The product will contribute to a roof meeting this Requirement. See section 6 of this Certificate.
Requirement: Regulation 7	Materials and workmanship
Comment:	The product is acceptable. See section 10 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 product satisfies the requirements of this Regulation. See sections 9 and 10 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 : 2004 indicate that the product can be regarded as having a low vulnerability with reference to clause 2.8.1 ⁽¹⁾⁽²⁾ , and will not affect the fire rating of the roof construction. See section 7 of this Certificate.
Standard: 3.10	Precipitation
Comment:	The product will contribute to a roof satisfying clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.8 ⁽¹⁾⁽²⁾ of this Standard. See section 6 of this Certificate.
Standard: 7.1(a)	Statement of sustainability
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.
Regulation: 12	Building standards — conversions
Comment:	Comments made in relation to the 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

Regulation: 23(a)(i)(iii)(b)(i)	Fitness of material and workmanship
Comment:	The product is acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation: 28(b)	Resistance to moisture and weather
Comment:	The product will contribute to a roof satisfying this Regulation. See section 6 of this Certificate.
Regulation: 36(b)	External fire spread
Comment:	Data to BS 476-3 : 2004 indicate that the product, 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 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* (1.2) and 3 *Delivery and site handling* (3.1) of this Certificate.

Additional Information

NHBC Standards 2011

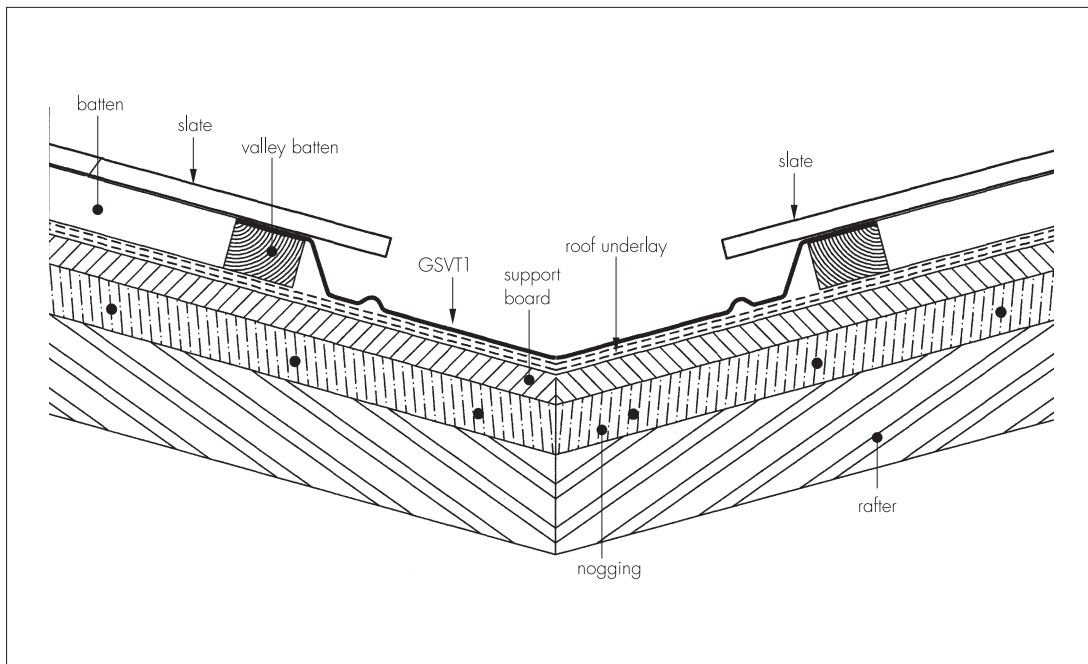
NHBC accepts the use of Filon GRP Slate Valley Trough (GSVT 1), provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards, Part 7 Roofs, Chapter 7.2 Pitched roofs*.

Technical Specification

1 Description

1.1 Filon GRP Slate Valley Trough (GSVT 1) is manufactured from glassfibre/polyester laminate with a UV-resistant polyester film on the upper face, in a continuous process to the profile illustrated (see Figure 1).

Figure 1 Filon GRP Slate Valley Trough (GSVT 1)



1.2 The profile is supplied in lengths of 3 m with a width of 330 mm.

1.3 The product is 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.

2.3 The management system of Filon Products Limited has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 and BS EN ISO 14001 : 2004 by ISOQAR (Certificate 10146).

3 Delivery and site handling

3.1 The product is distributed in packs of 10 units, each unit marked with size, the application and the BBA identification mark including 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 Filon GRP Slate Valley Trough (GSVT 1).

Design Considerations

4 Use

Filon GRP Slate Valley Trough (GSVT 1) is satisfactory for use in slated pitched roofs constructed in accordance with the relevant clauses of BS 5534 : 2003 + A1 : 2010.

5 Practicability of installation

Installation can be carried out readily by roofers experienced with this type of product.

6 Weathertightness



Tests indicate that the product 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⁽¹⁾⁽²⁾ and 3.10.8⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Regulation 28(b).

7 Properties in relation to fire



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

8 Strength

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

9 Maintenance



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

10 Durability



Available test data and knowledge of the material indicate that the product should have a service life in excess of 20 years.

Installation

11 General

Installation of Filon GRP Slate Valley Trough (GSVT 1) should be in accordance with the manufacturer's instructions and the relevant recommendations of BS 5534 : 2003 + A1 : 2010 and BS 8000-6 : 1990.

12 Procedure

12.1 The valley should first be lined longitudinally with reinforced underlay 1 m wide. A length of the valley trough should be pressed to a snug fit into the valley and marked with a chalk line longitudinally along either side.

12.2 Counter battens of similar size to the roofing battens should be fixed along the marked lines to support the edges of the valley troughs, using nails of a quality acceptable in good roofing practice.

12.3 Commencing at the foot of the valley, the troughs should be nailed onto the battens using large clout-headed nails fixed at approximately 500 mm centres.

12.4 Consecutive lengths of valley troughs should be laid dressed to shed water down the slope, allowing a minimum 150 mm overlap at the joints. At the top of adjoining troughs, the unit should be mitred and dressed with a Code 4 lead saddle.

12.5 The fascia board may need to be trimmed to ensure full water flow to the gutter.

12.6 It is recommended that valley boards/noggings should be flush-fitted with the top of the rafters to fully support the valley troughs.

13 Finishing

The slating must be carried out in accordance with the relevant clauses of BS 5534 : 2003 + A1 : 2010 and BS 8000-6 : 1990.

14 Repair

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

Technical Investigations

15 Tests

Tests were carried out by the BBA to examine the following properties:

- 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

An assessment was made of the results of a fire test in accordance with BS 476-3 : 2004 carried out by an independent test authority.

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 : 2003 + A1 : 2010 *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*

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

BS EN ISO 14001 : 2004 *Environmental management systems — Requirements with guidance for use*

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 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.

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.

Filon Products Limited

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Agrément Certificate
07/4492
Product Sheet 4

FILON GRP VALLEY TROUGH AND FLASHINGS RANGE

FILON GRP SECRET JOINING STRIP (GJS 1)

This Agrément Certificate Product Sheet⁽¹⁾ relates to Filon GRP Secret Joining Strip (GJS 1), for use in slated or tiled roofs constructed in accordance with the relevant requirements of BS 5534 : 2003 + A1 : 2010. The product provides a weatherproof junction where there are changes in direction or material in a tiled or slated 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 product will resist the passage of moisture into the interior of the building (see section 6).

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

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

Durability — under normal service conditions, the product 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 product described herein. The 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

A handwritten signature in black ink, appearing to read 'Simon Wroe'.

Simon Wroe
Head of Approvals — Materials

A handwritten signature in black ink, appearing to read 'Greg Cooper'.

Greg Cooper
Chief Executive

Date of Second issue: 1 November 2012

Originally certificated on 18 February 2008

The BBA is a UKAS accredited certification body — Number 1113. 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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website: www.bbacerts.co.uk

Regulations

In the opinion of the BBA, Filon GRP Secret Joining Strip (GJS 1), if installed, used and maintained in accordance with 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:	Data to BS 476-3 : 2004 indicate that the product, when used as part of a complete roof, will not affect the fire rating of the roof construction. See section 7 of this Certificate.
Requirement: C2(b)	Resistance to moisture
Comment:	The product will contribute to a roof meeting this Requirement. See section 6 of this Certificate.
Requirement: Regulation 7	Materials and workmanship
Comment:	The product is acceptable. See section 10 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 product satisfies the requirements of this Regulation. See sections 9 and 10 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 : 2004 indicate that the product can be regarded as having a low vulnerability with reference to clause 2.8.1 ⁽¹⁾⁽²⁾ , and will not affect the fire rating of the roof construction. See section 7 of this Certificate.
Standard: 3.10	Precipitation
Comment:	The product will contribute to a roof satisfying clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.8 ⁽¹⁾⁽²⁾ of this Standard. See section 6 of this Certificate.
Standard: 7.1(a)	Statement of sustainability
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.
Regulation: 12	Building standards — conversions
Comment:	Comments made in relation to the 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

Regulation: 23(a)(i)(iii)(b)(i)	Fitness of material and workmanship
Comment:	The product is acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation: 28(b)	Resistance to moisture and weather
Comment:	The product will contribute to a roof satisfying this Regulation. See section 6 of this Certificate.
Regulation: 36(b)	External fire spread
Comment:	Data to BS 476-3 : 2004 indicate that the product, 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 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* (1.2) and 3 *Delivery and site handling* (3.1) of this Certificate.

Additional Information

NHBC Standards 2011

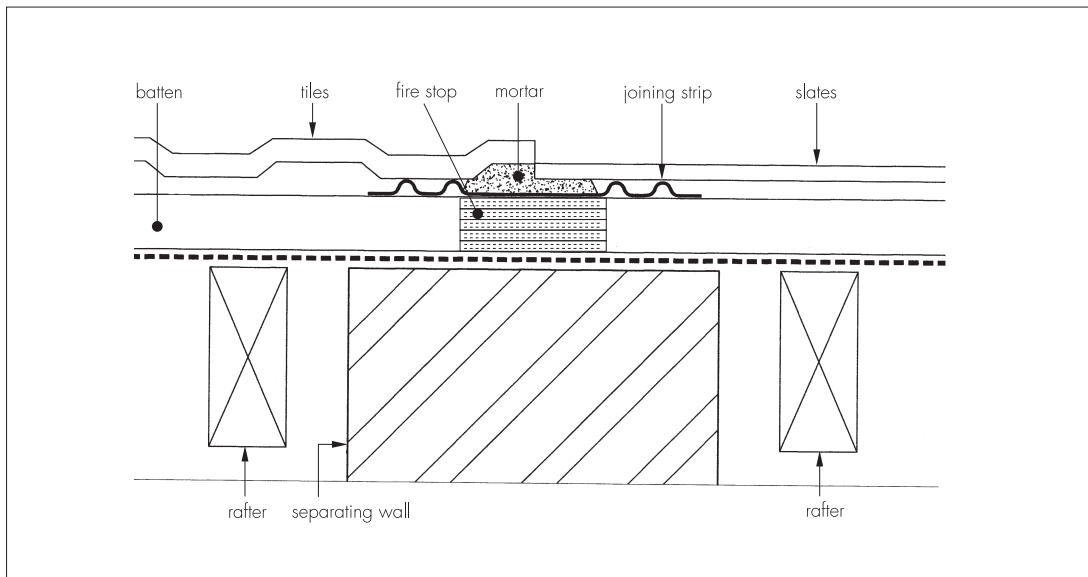
NHBC accepts the use of Filon GRP Secret Joining Strip (GJS 1), provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards, Part 7 Roofs, Chapter 7.2 Pitched roofs*.

Technical Specification

1 Description

1.1 Filon GRP Secret Joining Strip (GJS 1) is manufactured from glassfibre/polyester laminate with a UV-resistant polyester film on the upper face, in a continuous process to the profile illustrated (see Figure 1). A sanded strip is bonded along the upper surface to provide a key for bedding the roof tiles into mortar.

Figure 1 Filon GRP Secret Joining Strip (GJS 1)



1.2 The profile is supplied in lengths of 3 m with a width of 216 mm.

1.3 The products is 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.

2.3 The management system of Filon Products Limited has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 and BS EN ISO 14001 : 2004 by ISOQAR (Certificate 10146).

3 Delivery and site handling

3.1 The product is distributed in packs of 10 units, each unit marked with size, the application and the BBA identification mark including 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 Filon GRP Secret Joining Strip (GJS 1).

Design Considerations

4 Use

Filon GRP Secret Joining Strip (GJS 1) is satisfactory for use when joining two separate roof coverings during refurbishment of existing roofs, enabling slates and tiles to be laid adjacently.

5 Practicability of installation

Installation can be carried out readily by roofers experienced with this type of product.

6 Weathertightness



Tests indicate that the product 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⁽¹⁾⁽²⁾ and 3.10.8⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Regulation 28(b).

7 Properties in relation to fire



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

8 Strength

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

9 Maintenance



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

10 Durability



Available test data and knowledge of the material indicate that the product should have a service life in excess of 20 years.

Installation

11 General

Installation of Filon GRP Secret Joining Strip (GJS 1) should be in accordance with the manufacturer's instructions and the relevant recommendations of BS 5534 : 2003 + A1 : 2010 and BS 8000-6 : 1990.

12 Procedure

12.1 The end tiles/slates on both roofs should be removed to expose the construction over the separating wall. Fire stopping must be provided to the top of the separating wall to ensure that fire cannot spread to the adjoining building in the event of a fire.

12.2 The underlay and battens over the joint area of the separating wall should be made good. New underlay should be inserted into the old, ensuring a sufficient overlap is achieved in accordance with BS 5534 : 2003 + A1 : 2010.

12.3 The secret joining strip should be positioned centrally over the separating wall on top of the battens, with consecutive lengths dressed to shed water down the slope with a minimum 150 mm overlap. This should then be nailed through pre-drilled holes using large clout-headed nails at approximately 500 mm centres to the battens.

12.4 It is advisable to use double slates/tiles to eliminate the possibility of small sections requiring fixing.

12.5 The tiles or slates should be bedded with mortar onto the sanded strip, ensuring that the mortar does not enter the water channel of the tile or slate.

12.6 It may be necessary to trim the fascia board to allow the joining strip to sit on the board and discharge water into the gutter.

13 Finishing

The slating/tiling must be carried out in accordance with the relevant clauses of BS 5534 : 2003 + A1 : 2010 and BS 8000-6 : 1990.

14 Repair

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

Technical Investigations

15 Tests

Tests were carried out by the BBA to examine the following properties:

- 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

An assessment was made of the results of a fire test in accordance with BS 476-3 : 2004 carried out by an independent test authority.

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 : 2003 + A1 : 2010 *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*

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

BS EN ISO 14001 : 2004 *Environmental management systems — Requirements with guidance for use*

17 Conditions

17.1 This Certificate:

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- 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.

Filon Products Limited

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Agrément Certificate
07/4492
Product Sheet 5

FILON GRP VALLEY TROUGH AND FLASHINGS RANGE

FILON GRP ABUTMENT SECRET GUTTER (GAS 1)

This Agrément Certificate Product Sheet⁽¹⁾ relates to Filon GRP Abutment Secret Gutter (GAS 1), for use in slated or tiled roofs constructed in accordance with the relevant requirements of BS 5534 : 2003 + A1 : 2010. The product is for use as an abutment secret gutter on tiled or slated roofs.

(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 product will resist the passage of moisture into the interior of the building (see section 6).

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

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

Durability — under normal service conditions, the product 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 product described herein. The 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

A handwritten signature in black ink, appearing to read 'Simon Wroe'.

Simon Wroe
Head of Approvals — Materials

A handwritten signature in black ink, appearing to read 'Greg Cooper'.

Greg Cooper
Chief Executive

Date of Second issue: 1 November 2012

Originally certificated on 18 February 2008

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website: www.bbacerts.co.uk

Regulations

In the opinion of the BBA, Filon GRP Abutment Secret Gutter (GAS 1), if installed, used and maintained in accordance with 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:	Data to BS 476-3 : 2004 indicate that the product, when used as part of a complete roof, will not affect the fire rating of the roof construction. See section 7 of this Certificate.
Requirement: C2(b)	Resistance to moisture
Comment:	The product will contribute to a roof meeting this Requirement. See section 6 of this Certificate.
Requirement: Regulation 7	Materials and workmanship
Comment:	The product is acceptable. See section 10 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 product satisfies the requirements of this Regulation. See sections 9 and 10 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 : 2004 indicate that the product can be regarded as having a low vulnerability with reference to clause 2.8.1 ⁽¹⁾⁽²⁾ , and will not affect the fire rating of the roof construction. See section 7 of this Certificate.
Standard: 3.10	Precipitation
Comment:	The product will contribute to a roof satisfying clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.8 ⁽¹⁾⁽²⁾ of this Standard. See section 6 of this Certificate.
Standard: 7.1(a)	Statement of sustainability
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.
Regulation: 12	Building standards — conversions
Comment:	Comments made in relation to the 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

Regulation: 23(a)(i)(iii)(b)(i)	Fitness of material and workmanship
Comment:	The product is acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation: 28(b)	Resistance to moisture and weather
Comment:	The product will contribute to a roof satisfying this Regulation. See section 6 of this Certificate.
Regulation: 36(b)	External fire spread
Comment:	Data to BS 476-3 : 2004 indicate that the product, 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 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* (1.2) and 3 *Delivery and site handling* (3.1) of this Certificate.

Additional Information

NHBC Standards 2011

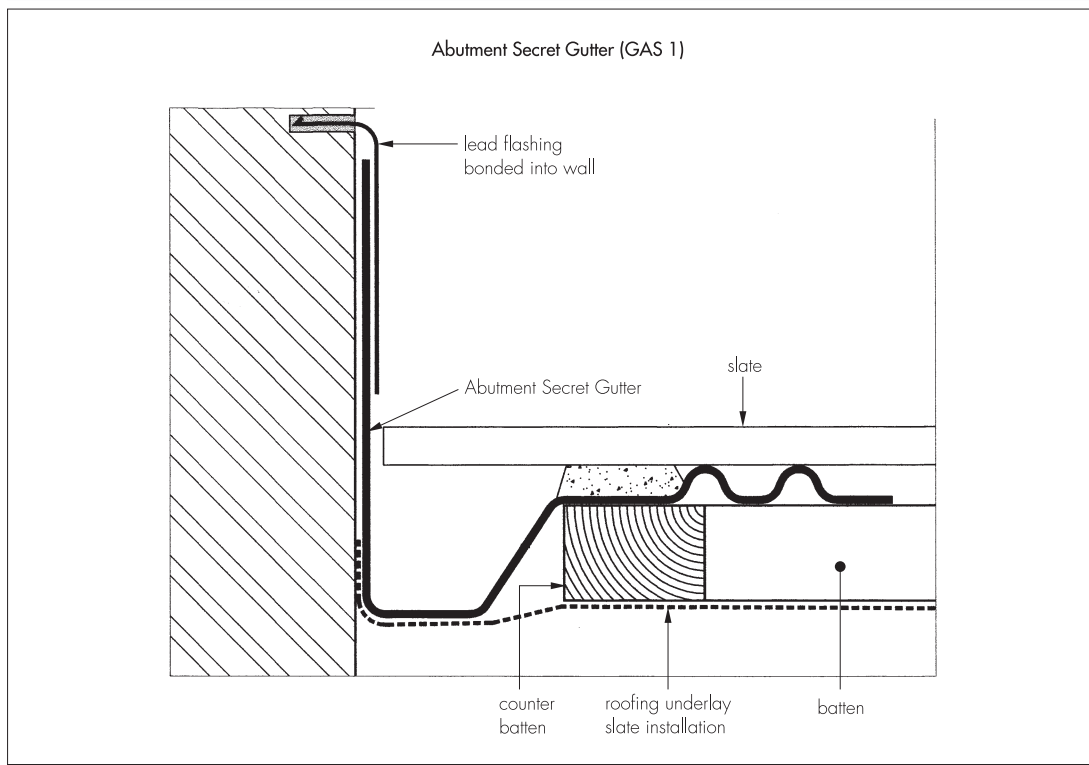
NHBC accepts the use of Filon GRP Abutment Secret Gutter (GAS 1), provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards, Part 7 Roofs, Chapter 7.2 Pitched roofs*.

Technical Specification

1 Description

1.1 Filon GRP Abutment Secret Gutter (GAS 1) is manufactured from glassfibre/polyester laminate with a UV-resistant polyester film on the upper face, in a continuous process to the profile illustrated (see Figure 1). A sanded strip is bonded along the upper surface to provide a key for bedding the roof tiles into mortar.

Figure 1 Filon GRP Abutment Secret Gutter (GAS 1)



1.2 The profile is supplied in lengths of 3 m with a width of 140 mm.

1.3 The product is 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.

2.3 The management system of Filon Products Limited has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 and BS EN ISO 14001 : 2004 by ISOQAR (Certificate 10146).

3 Delivery and site handling

3.1 The product is distributed in packs of 10 units, each unit marked with size, the application and the BBA identification mark including 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 Filon GRP Abutment Secret Gutter (GAS 1).

Design Considerations

4 Use

Filon GRP Abutment Secret Gutter (GAS 1) is satisfactory for use as a wall abutment secret gutter on tiled or slated roofs.

5 Practicability of installation

Installation can be carried out readily by roofers experienced with this type of product.

6 Weathertightness



Tests indicate that the product 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⁽¹⁾⁽²⁾ and 3.10.8⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Regulation 28(b).

7 Properties in relation to fire



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

8 Strength

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

9 Maintenance



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

10 Durability



Available test data and knowledge of the material indicate that the product should have a service life in excess of 20 years.

Installation

11 General

Installation of Filon GRP Abutment Secret Gutter (GAS 1) should be in accordance with the manufacturer's instructions and the relevant recommendations of BS 5534 : 2003 + A1 : 2010 and BS 8000-6 : 1990.

12 Procedure

12.1 The roof should be covered with underlay as in normal practice, with the underlay finished and turned approximately 100 mm up the abutting walls.

12.2 Battens should be cut 50 mm short of the abutment wall and nailed to the rafter, using clout-headed nails.

12.3 Noggings may need to be fixed flush to the top of the rafters to anchor the battens.

12.4 The flashing is nailed at approximately 500 mm centres to the roof battens.

12.5 At the ridge the abutment flashing should be mitred and dressed with a Code 4 lead saddle.

12.6 It is advisable to use double slates/tiles to eliminate the possibility of small sections requiring fixing.

12.7 The slates are laid in the normal manner, ensuring they are flush to the abutment flashing.

12.8 Where tiles are used, these should be bedded onto mortar which is applied onto the sanded strip running longitudinally along the length of the product. It may be necessary to break off the nibs of concrete tiles to eliminate kick-up.

12.9 Code 4 lead stepped flashing is used to dress over the abutment flashing upstand.

12.10 It may be necessary to trim the fascia board to allow water to be discharged into the gutter. Alternatively, a tilt fillet and lead saddle/outlet may be incorporated.

13 Finishing

The slating/tiling must be carried out in accordance with the relevant clauses of BS 5534 : 2003 + A1 : 2010 and BS 8000-6 : 1990.

14 Repair

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

Technical Investigations

15 Tests

Tests were carried out by the BBA to examine the following properties:

- 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

An assessment was made of the results of a fire test in accordance with BS 476-3 : 2004 carried out by an independent test authority.

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 : 2003 + A1 : 2010 *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*

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

BS EN ISO 14001 : 2004 *Environmental management systems — Requirements with guidance for use*

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 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.

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.

Filon Products Limited

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Agrément Certificate
07/4492
Product Sheet 7

FILON GRP VALLEY TROUGH AND FLASHINGS RANGE

FILON GRP DRY FIX VALLEY TROUGHS (GDFVT 70 AND GDFVT 110)

This Agrément Certificate Product Sheet⁽¹⁾ relates to Filon GRP Dry Fix Valley Troughs (GDFVT 70 and GDFVT 110), for use in slated or tiled roofs constructed in accordance with the relevant requirements of BS 5534 : 2003 + A1 : 2010. The products provide a weatherproof junction where there are changes in direction or material in the 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 — tests indicate that 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 the 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

Simon Wroe
Head of Approvals — Materials

Greg Cooper
Chief Executive

Date of First issue: 1 November 2012

The BBA is a UKAS accredited certification body — Number 1113. 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, Filon GRP Dry Fix Valley Troughs (GDFVT 70 and GDFVT 110), if installed, used and maintained in accordance with 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:	Data to BS 476-3 : 2004 indicate that 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.
Requirement: C2(b)	Resistance to moisture
Comment:	The products will contribute to a roof meeting this Requirement. See section 6 of this Certificate.
Requirement: Regulation 7	Materials and workmanship
Comment:	The products are acceptable. See section 10 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 9 and 10 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 : 2004 indicate that the products can be regarded as having a low vulnerability with reference to clause 2.8.1 ⁽¹⁾⁽²⁾ , 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 ⁽¹⁾⁽²⁾ and 3.10.8 ⁽¹⁾⁽²⁾ of this Standard. See section 6 of this Certificate.
Standard: 7.1(a)	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.
Regulation: 12	Building standards – conversions
Comment:	Comments made in relation to the products 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

Regulation: 23(a)(i)(iii)(b)(i)	Fitness of materials and workmanship
Comment:	The products are acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation: 28(b)	Resistance to moisture and weather
Comment:	The products will contribute to a roof satisfying this Regulation. See section 6 of this Certificate.
Regulation: 36(b)	External fire spread
Comment:	Data to BS 476-3 : 2004 indicate that 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 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* (1.2) and 3 *Delivery and site handling* (3.1) of this Certificate.

Additional Information

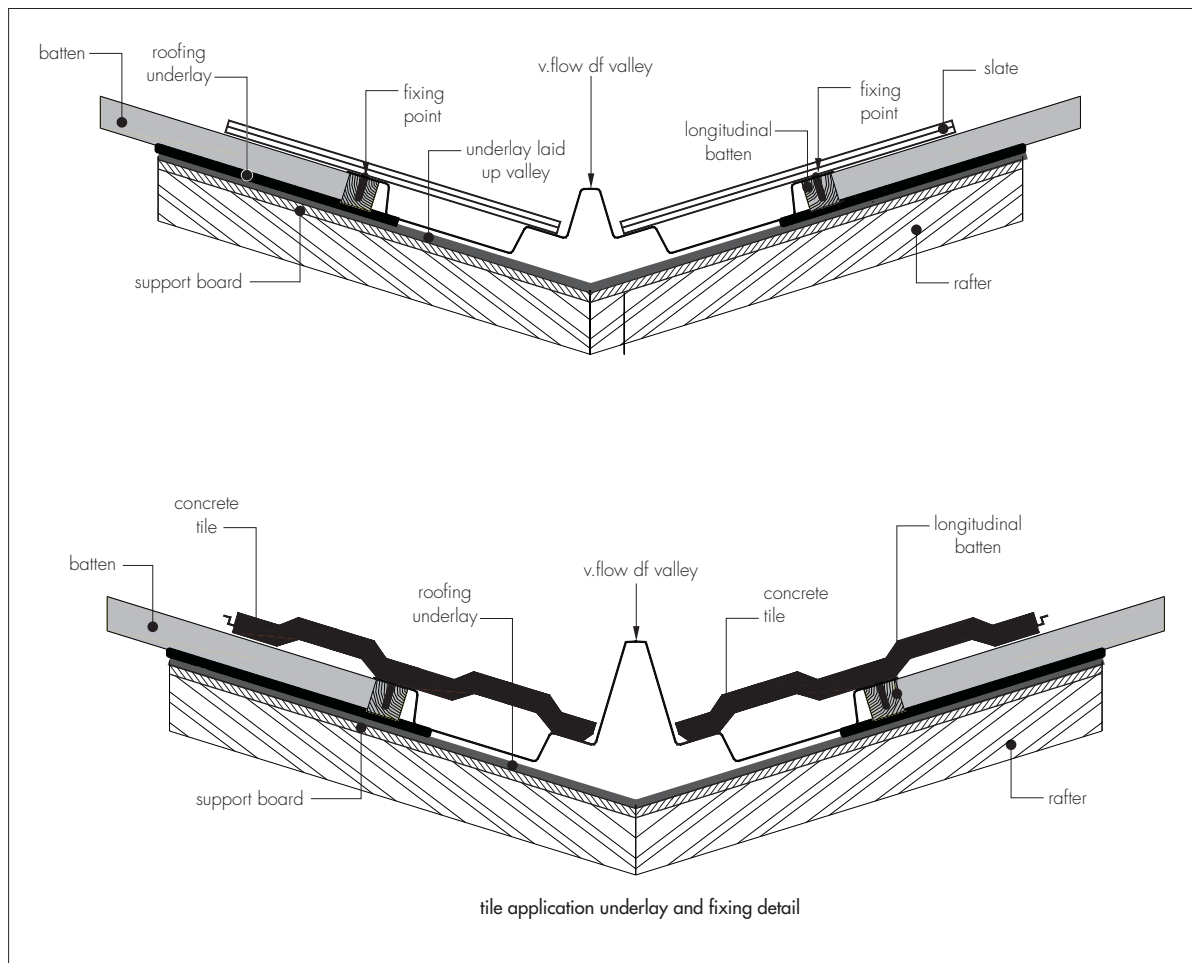
NHBC Standards 2011

NHBC accepts the use of Filon GRP Dry Fix Valley Troughs (GDFVT 70 and GDFVT 110), provided they are installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards, Part 7 Roofs, Chapter 7.2 Pitched roofs*.

1 Description

1.1 Filon GRP Dry Fix Valley Troughs (GDFVT 70 and GDFVT 110) are manufactured from glassfibre/polyester laminate with a UV-resistant polyester film on the upper face, in a continuous process to the profile illustrated (see Figure 1).

Figure 1 Filon GRP Dry Fix Valley Troughs (GDFVT 70 and GDFVT 110)



1.2 The profiles are supplied in lengths of 3 m with a width of 400 mm and depths of either 70 mm (GDFVT 70) or 110 mm (GDFVT 110).

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

1.4 Other items or components which may be used with the products, but which are outside the scope of this Certificate are:

- Eaves closure piece and 90°/75° top closure piece — flexible polyurethane closure pieces for overlaying on ends of GRP valley troughs

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.

2.3 The management system of Filon Products Limited has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 and BS EN ISO 14001 : 2004 by ISOQAR (Certificate 10146).

3 Delivery and site handling

3.1 The products are distributed in packs of 10 units, each unit marked with size, the application and the BBA identification mark including 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 Filon GRP Dry Fix Valley Troughs (GDFVT 70 and GDFVT 110).

Design Considerations

4 Use

Filon GRP Dry Fix Valley Troughs (GDFVT 70 and GDFVT 110) are satisfactory for use in slated pitched roofs (GDFVT 70) and tiled pitched roofs (GDFVT 110) constructed in accordance with the relevant clauses of BS 5534 : 2003 + A1 : 2010.

5 Practicability of installation

Installation can be carried out readily by roofers experienced with this type of product.

6 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⁽¹⁾⁽²⁾ and 3.10.8⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Regulation 28(b).

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 inhibit the build up of foreign matter.

10 Durability



Available test data and knowledge of the material indicate that the products should have a service life in excess of 20 years.

Installation

11 General

Installation of Filon GRP Dry Fix Valley Troughs (GDFVT 70 and GDFVT 110) should be in accordance with the manufacturer's instructions, the NFRC Technical Bulletin 28 and the relevant recommendations of BS 5534 : 2003 + A1 : 2010 and BS 8000-6 : 1990.

12 Procedure

12.1 The valley troughs should be supported in all instances by a plywood board (6 mm minimum) that can be laid over the rafters. Alternatively, a plywood board (12 mm minimum) can be set between the rafters and supported on suitable timber noggings.

12.2 The valleys should first be lined longitudinally with reinforced underlay. A length of the valley trough should be pressed to form a snug fit into the valley and marked with a chalk line longitudinally along either side.

12.3 Battens of the same size as the roofing batten should be fixed along the marked lines using suitable nails, so as to define the edge of the valley trough.

12.4 Commencing at the foot of the valley, valley troughs should be pressed into position and large clout-headed nails fixed on the outside face of the valley trough at approximately 500 mm centres on either side of the valley trough.

12.5 Consecutive lengths of valley troughs should be laid so as to allow a minimum 150 mm overlap at the joints when measured vertically. At the top of the adjoining valley, the valley trough units should be cut to form a mitre and dressed with a minimum Code 4 lead saddle.

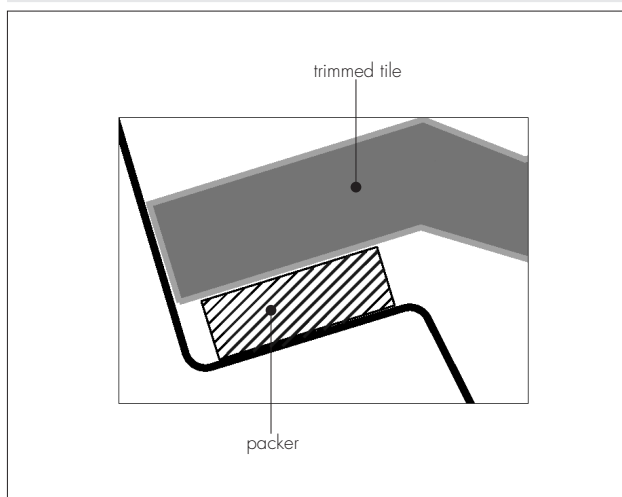
12.6 If the fascia board cannot be trimmed/cut out to allow the valley trough to be fixed without deforming, it may be necessary to form an overlap at the sprocketed eaves section in accordance with the Certificate holder's instructions.

12.7 Slates or tiles should all be laid in accordance with the slate or tile manufacturer's recommendations. The slates/tiles should be cut to the rake of the valley so as to be close fitted to the central elevated section of the valley trough. The slates or tiles should not be forced against the valley trough central elevation.

12.8 In some instances, small cut tiles will not be supported by the internal support channel. In these instances a packer section should be used (supplied with the valley troughs) by removing the sealed tape from the underside of the packing piece, adhering it to the support channel so that it carries the cut tile⁽¹⁾ (see Figure 2). Alternatively, the tile adjacent to this cut tile must be nailed fixed as per the tile manufacturer's recommendations.

(1) It should be noted that small cut tiles should be fixed by traditional methods if possible.

Figure 2 Packer installation detail



13 Finishing

The slating/tiling must be carried out in accordance with the relevant clauses of BS 5534 : 2003 + A1 : 2010 and BS 8000-6 : 1990.

14 Repair

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

Technical Investigations

15 Tests

Tests were carried out by the BBA to examine the following properties:

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

16 Investigations

An assessment was made of the results of a fire test in accordance with BS 476-3 : 2004 carried out by an independent test authority.

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 : 2003 + A1 : 2010 *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*

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

BS EN ISO 14001 : 2004 *Environmental management systems — Requirements with guidance for use*

NFRC Technical Bulletin 28 *Inclined preformed GRP valley troughs*

Conditions of Certification

17 Conditions

17.1 This Certificate:

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- are reviewed by the BBA as and when it considers appropriate.

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- 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.