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Agrément Certificate
17/5462
Product Sheet 1

VISTA WALL PRODUCTS

VISTA RANGE OF CAVITY WALL TIES AND INSULATION RETAINING CLIPS

This Agrément Certificate Product Sheet(1) relates to Vista Range of Cavity Wall Ties and Insulation Retaining Clips, comprising austenitic stainless steel for use in tying conventional masonry cavity walls with cavities of up to 150 mm (nominal) in width and securing insulation boards, slabs or batts for new-build or retrofit constructions.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

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

KEY FACTORS ASSESSED

Structural performance — the ties are suitable for light-duty and general purpose (according to type) applications (see section 6).

Behaviour in relation to fire — the ties are non-combustible as defined in the national Building Regulations (see section 8).

Thermal performance — in situations where thermal losses through ties need to be taken into account, the products will adequately resist thermal transmittance through a wall cavity (see section 9).

Durability — the ties will have a service life of not less than 60 years (see section 11).

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

On behalf of the British Board of Agrément

Date of First issue: 5 October 2017

Brian Chamberlain
Head of Technical Excellence

Claire Curtis-Thomas
Chief Executive

The BBA is a UKAS accredited certification body – Number 113.
The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk
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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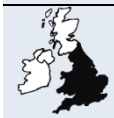
Regulations

In the opinion of the BBA, Vista Range of Cavity Wall Ties and Insulation Retaining Clips, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	**A1**	**Loading**
Comment:		Where the ties are relied upon to contribute to the strength and stability of cavity walls, they will be satisfactory. See sections 4.7 and 6 of this Certificate.
Requirement:	**B3(1)**	**Internal fire spread (structure)**
Comment:		The ties are non-combustible and will not adversely affect the fire resistance capabilities of the cavity wall in which they are installed. See section 8 of this Certificate.
Requirement:	**C2(b)(c)**	**Resistance to moisture**
Comment:		When used in an external cavity wall, the ties will not adversely affect the resistance of the wall to the passage of moisture. See section 7 of this Certificate.
Requirement:	**L1(a)(i)**	**Conservation of fuel and power**
Comment:		When calculating the thermal transmittance of insulated masonry cavity walls incorporating the ties, the thermal bridging due to the ties must be taken into account. See section 9.1 of this Certificate.
Regulation:	**7**	**Materials and workmanship**
Comment:		The ties are acceptable. See section 11 and the *Installation* part of this Certificate.
Regulation:	**26**	**CO_2 emission rates for new buildings**
Regulation:	**26A**	**Fabric energy efficiency rates for new dwellings (applicable to England only)**
Regulation:	**26A**	**Primary energy consumption rates for new buildings (applicable to Wales only)**
Regulation:	**26B**	**Fabric performance values for new dwellings (applicable to Wales only)**
Comment:		When calculating the thermal transmittance of insulated masonry cavity walls incorporating the ties, the thermal bridging due to the ties must be taken into account. See section 9.1 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)(2)**	**Durability, workmanship and fitness of materials**
Comment:		The products are an acceptable material and can contribute to a construction satisfying this Regulation. See section 11 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	1.1	Structure
Comment:		Where the ties are relied upon to contribute to the strength and stability of cavity walls, they will be satisfactory, with reference to clauses $1.1.1^{(1)(2)}$, $1.1.2^{(1)(2)}$ and $1.1.3^{(1)(2)}$ of this Standard. See sections 4.7 and 6 of this Certificate.
Standard:	2.3	Structural protection
Standard:	2.4	Cavities
Comment:		When used in a masonry cavity wall that contributes to the fire resistant properties of an element required to be fire resistant, the use of the ties will not adversely affect the level of fire safety of the wall. See section 8 of this Certificate.

Standard:	2.6	Spread to neighbouring buildings
Comment:		The products will not adversely affect the fire resistance of the wall, with reference to clause 2.6.1[(1)(2)] of this Standard. See section 8 of this Certificate.
Standard:	3.10	Precipitation
Comment:		When used in an external cavity wall, the ties will not adversely affect the resistance of the wall to the passage of moisture, with reference to clauses 3.10.1[(1)(2)], 3.10.3[(1)(2)] and 3.10.6[(1)(2)] of this Standard. See section 7 of this Certificate.
Standard:	6.2	Building insulation envelope
Comment:		When calculating the thermal transmittance of masonry cavity walls incorporating the ties, the thermal bridging due to the ties may need to be taken into consideration, with reference to clauses 6.2.1[(1)(2)], 6.2.3[(1)], 6.2.5[(2)], 6.2.10[(1)] and 6.2.12[(2)] of this Standard. See section 9.1 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The products can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6 and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard. In addition, the products can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4[(1)(2)] [Aspects 1[(1)(2)] and 2[(1)]], 7.1.6[(1)(2)] [Aspects 1[(1)(2)] and 2[(1)]] and 7.1.7[(1)(2)] [Aspect 1[(1)(2)]]. See section 9.1 of this Certificate.
Regulation:	**12**	**Building standards applicable to conversions**
Comment:		All comments given for 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 (as amended)

Regulation:	**23**	**Fitness of materials and workmanship**
Comment:		These products are acceptable. See section 11 and the *Installation* part of this Certificate.
Regulation:	**28(b)**	**Resistance to moisture and weather**
Comment:		When used in an external cavity wall, the ties will not adversely affect the resistance of the wall to the passage of moisture. See section 7 of this Certificate.
Regulation:	**30**	**Stability**
Comment:		Where the ties are relied upon to contribute to the strength and stability of cavity walls, they will be satisfactory. See sections 4.7 and 6 of this Certificate.
Regulation:	**35**	**Internal fire spread — Structure**
Regulation:	**36(a)**	**External fire spread**
Comment:		The ties are non-combustible and will not adversely affect the fire resistance capabilities of a cavity wall in which they are installed. See section 8 of this Certificate.
Regulation:	**39(a)(1)**	**Conservation measures**
Comment:		When calculating the thermal transmittance of masonry cavity walls incorporating the ties, the thermal bridging due to the ties can be disregarded. See section 9.2 of this Certificate.

Construction (Design and Management) Regulations 2015
Construction (Design and Management) Regulations (Northern Ireland) 2016

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

Additional Information

NHBC Standards 2017

In the opinion of the BBA, Vista Range of Cavity Wall Ties and Insulation Retaining Clips, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Part 6 *Superstructure (excluding roofs)*, Chapter 6.1 *External masonry walls*.

CE marking

The Certificate holder has taken the responsibility of CE marking the products, in accordance with harmonised European Standard BS EN 845-1 : 2013.

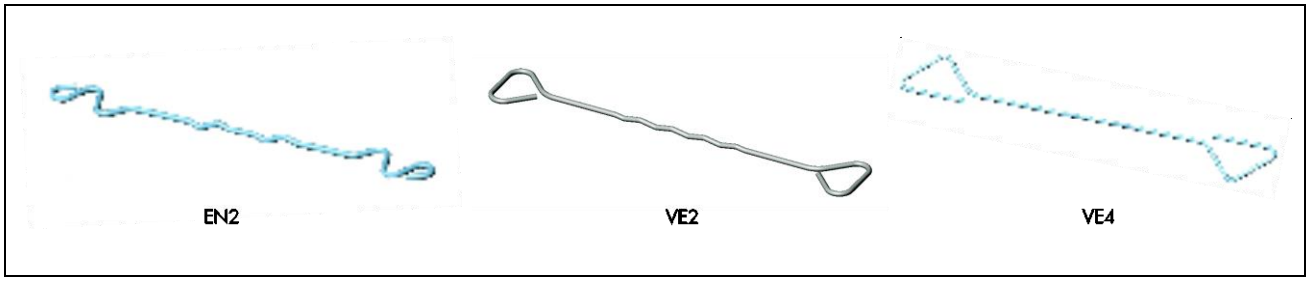
Technical Specification

1 Description

1.1 The ties (see Figure 1) are manufactured from austenitic stainless steel and are suitable for cavity widths up to 150 mm and used with polypropylene insulation retaining clips (see section 1.6 and Figure 2) used for retaining insulation boards, slabs or batts in partially-filled cavities. The ties are suitable for use across cavities that are clear, partially filled with insulation boards, slabs or batts, or fully filled with insulation approved by the BBA, subject to the conditions specified in the relevant Agrément Certificate for the insulation concerned.

1.2 Vista Range of Cavity Wall Ties comprises EN2-200, EN2-225, EN2-250, VE2-275, VE4-200, VE4-225, VE4-250 and VE4-275 wire ties (see Figure 1).

Figure 1 Vista Range of Cavity Wall Ties



1.3 The dimensions of the ties are specified in Table 1. The tie lengths are variable to suit the cavity wall width.

Table 1 Tie range

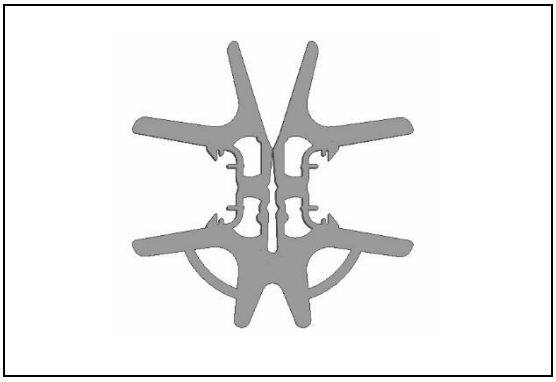
Tie name	Tie length (mm)	Tie diameter (mm)	Max cavity widths (mm)
EN2-200	200	3.0	75
EN2-225	225	3.0	100
EN2-250	250	3.3	125
VE2-275	275	3.6	150
VE4-200	200	2.3	75
VE4-225	225	2.3	100
VE4-250	250	2.8	125
VE4-275	275	2.8	150

1.4 The ties comply with the requirements of PD 6697 : 2010 and BS EN 845-1 : 2013.

1.5 Quality control of the ties includes dimensional checks on incoming steel, inspection of incoming steel test certificates, and regular visual and dimensional checks during manufacture.

1.6 Polypropylene insulation retaining clips with 75 mm diameter (see Figure 2) are available from the Certificate holder for retaining insulation boards, slabs or batts in partially-filled cavities. Quality control includes a check that the clip fits securely to the ties.

Figure 2 Polypropylene insulation retaining clip



2 Manufacture

2.1 The ties are manufactured from austenitic stainless steel conforming to steel number 1.4301 in accordance with BS EN 10088-3 : 2014.

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 Vista Engineering Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by British Assessment Bureau (Certificate 20/5433).

3 Delivery and site handling

3.1 The ties are delivered packed in bundles or boxes of 250, and the clips in polythene bags of 250 or cardboard cartons each with eight bags of 50.

3.2 All containers bear the Certificate holder's name, the product identification and the BBA logo incorporating the number of this Certificate.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Vista Range of Cavity Wall Ties and Insulation Retaining Clips.

Design Considerations

4 Use

4.1 Vista Range of Cavity Wall Ties are satisfactory for use across unfilled cavities or those partially filled with insulation boards, slabs or batts (in conjunction with a polypropylene insulation retaining clip). The ties are also suitable for use in cavities fully filled with insulation approved by the BBA, subject to the conditions specified in the relevant BBA Certificate relating to the insulation.

4.2 The ties must be used in accordance with the requirements of BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006, BS EN 1996-3 : 2006 and their UK National Annexes, PD 6697 : 2010 and BS EN 845-1 : 2013.

4.3 The minimum nominal embedment of the tie in the mortar joint is 62.5 mm. The minimum embedment allowing for site tolerances in cavity width and centring of ties is 50 mm.

4.4 The ties are suitable for use in the cavity widths shown in Table 1.

4.5 When used in clear or partially filled cavities, a drip must lie at, or close to, the centre of the cavity or residual cavity.

4.6 It is not normal practice for the ties to be installed across cavities (or residual cavities) less than 50 mm wide. Where this does occur, it is important to ensure that the requirements relating to weathertightness are met.

4.7 Masonry walls incorporating the ties must be constructed in accordance with the following technical specifications:

- PD 6697 : 2010
- BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006, BS EN 1996-3 : 2006 and their UK National Annexes
- the national Building Regulations:

England and Wales — Approved Document A1/2, Section 0.1c
Scotland — Mandatory Standard 1.1 Structure[(1)(2)]

(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).

Northern Ireland — Technical Booklet D.

4.8 Ties should be evenly distributed over the wall and for walls in which both leaves are not less than 90 mm thick, at a minimum density of 2.5 ties per square metre. To achieve this tie density it is normal practice to install at 900 mm centres horizontally and 450 mm centres vertically with successive rows staggered. In partially-filled applications, alternative spacing may be appropriate to suit the size of board and to ensure that the boards are adequately restrained. However, the density of ties must not fall below 2.5 ties per square metre. At the vertical edges of openings and at vertical unreturned or unbonded edges (for example at movement joints and up the sloping verge of gable walls), additional wall ties should be used at a rate of one tie per 300 mm height or equivalent, placed not more than 225 mm from the edge.

4.9 Where 1200 mm boards are used with partial fill cavities, the wall ties should:

- be spaced closer to provide adequate support and restraint
- be spaced at 600 mm centres in rows, ie not staggered.

5 Practicability of installation

5.1 The ties are designed to be installed by a competent general builder, or a contractor, experienced with these types of products.

5.2 The ties can be readily built into brickwork or blockwork during construction.

6 Structural performance

6.1 When tested for tension and compression load capacity the ties were found to be suitable for the following applications defined in Table 10 of PD 6697 : 2010:

- EN2 and VE2 Type 2 (general purpose)
- VE4 Type 4 (light duty).

6.2 The ties are sufficiently flexible to allow in-plane differential movement of the two connected leaves of masonry in vertical direction of up to 12 mm and also to allow site adjustment for differences in height between inner and outer leaves of up to 25 mm.

7 Weathertightness

The water shedding details of the ties are effective in preventing the transfer of water across the ties to the inner leaf (see Figure 1).

8 Behaviour in relation to fire

8.1 The ties are non-combustible and as such have a Class A1 fire rating as defined in the national Building Regulations.

8.2 Guidance on the fire resistance of cavity walls incorporating conventional wire ties is given in BS EN 1996-1-2 : 2005 and its UK National Annexes.

9 Thermal performance

9.1 In England and Wales and Scotland, the U value of a complete cavity wall will depend on the selected insulation thickness, the insulating value of the substrate masonry and its internal finish. Calculations of thermal transmittance (U value), including correction for wall ties if required, should be carried out in accordance with BS EN ISO 6946 : 2007 and BRE Report 443 : 2006 taking into account tie density, tie diameter and the thermal conductivity of stainless steel (17 $W \cdot m^{-2} \cdot K^{-1}$).

9.2 In Northern Ireland, the ties can be disregarded when calculating the thermal transmittance of masonry cavity walls.

10 Maintenance

As the products are confined wholly within the wall cavity for their entire service life, and have suitable durability (see section 11), maintenance is not required.

11 Durability

The ties are manufactured from austenitic stainless steel and will have a service life of not less than 60 years. The durability will not be impaired by contact with conventional cavity insulation materials or mortar admixtures.

Installation

12 General

The ties should be installed in accordance with the requirements of PD 6697 : 2010, BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006.

13 Procedure

13.1 The ties should be sandwiched between mortar in a nominal 10 mm horizontal bed joint, at the time the units are laid, to a minimum embedment length of 50 mm (design embedment, 62.5 mm), taking care that the drip is at, or close to, the centre of the cavity (or residual cavity) and the ties are placed horizontally or with a slight fall to the outer leaf of the wall, and at right angles to the walls.

13.2 In partially filled cavity applications:

- insulation should be cut/notched as necessary to fit closely around the ties (and abut the adjacent board, slab or batt)
- clips should be pushed firmly onto the ties, at right angles, until securely engaged
- clips must be pushed up against the insulation to hold it securely in place against the inner leaf
- clips are normally positioned at the centre of the multi-drip section of the ties
- clips should not be positioned on a sloping section of the multi-drip section of the ties.

13.3 The first run of ties is to be laid as near as possible to, though not directly on, the damp-proof course.

13.4 Normal precautions must be taken to prevent mortar dropping and protrusions impairing the functioning of the drips.

Technical Investigations

14 Tests

14.1 Tests were carried out by a UKAS-accredited independent laboratory to determine the tensile and compressive strength characteristics of the ties (see section 6).

14.2 Tests were conducted to determine the effectiveness of the drips in preventing the transmission of water across the ties to the inner leaf.

15 Investigations

15.1 An assessment was made of:

- durability of the ties and compatibility of materials in contact
- flexibility of the ties
- behaviour of the products in fire
- practicability of installation
- transmission of water across the ties
- thermal transmittance
- manufacturing and quality control practices
- effectiveness of the clip in retaining insulation.

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

Bibliography

BS EN 845-1 : 2013 + A1 : 2016 *Specification for ancillary components for masonry — Wall ties, tension straps, hangers and brackets*

BS EN 1996-1-1 : 2005 + A1 : 2012 *Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
NA to BS EN 1996-1-1 : 2005 + A1 : 2012 *UK National Annex to Eurocode 6. Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

BS EN 1996-1-2 : 2005 *Eurocode 6 — Design of masonry structures — General rules — Structural fire design*
NA to BS EN 1996-1-2 : 2005 UK National Annex to *Eurocode 6 — Design of masonry structures. General rules. Structural fire design*
BS EN 1996-2 : 2006 *Eurocode 6 — Design of masonry structures — Design considerations, selection of materials and execution of masonry*
NA to BS EN 1996-2 : 2006 UK National Annex to *Eurocode 6 — Design of masonry structures. Design considerations, selection of materials and execution of masonry*

BS EN 1996-3 : 2006 *Eurocode 6 — Design of masonry structures : Simplified calculation methods for unreinforced masonry structures*
NA+A1:2014 to BS EN 1996-3 : 2006 UK National Annex to *Eurocode 6 — Design of masonry structures. Simplified calculation methods for unreinforced masonry structures*

BS EN 10088-3 : 2014 *Stainless steels — Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resisting steels for general purposes*

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

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

PD 6697 : 2010 *Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2*

BRE Report BR 443 : 2006 *Conventions for U-value calculations*

16 Conditions

16.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

16.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

16.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

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

16.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

16.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

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