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Agrément Certificate
13/4996
Product Sheet 5

COTSWOLD FRICTION HINGES

HEAVY DUTY SELF-BALANCING FRICTION STAYS

This Agrément Certificate Product Sheet⁽¹⁾ relates to Heavy Duty Self-Balancing Friction Stays for use as friction hinges for PVC-U, timber or large aluminium windows to allow opening of top-hung commercial sashes.

(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

Resistance to wear and fatigue — the products have sufficient resistance to wear under normal use to provide a service life consistent with that of a window (see section 5).

Resistance to mechanical loading — windows fitted with the products were tested in accordance with BS 6375-2 : 1987, BS 6375-2 : 2009 and BS EN 13126-6 : 2008 and achieved the classifications shown in section 6.

Durability — the products have been tested and classified to BS EN 1670 : 2007 and have adequate resistance to corrosion in the conditions envisaged throughout the expected life of the windows (see section 8).

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: 28 May 2013

John Albon — Head of Approvals
Energy and Ventilation

Claire Curtis-Thomas
Chief Executive

Certificate amended on 25 July 2013 to change year of Standard BS EN 1191 : 2000 to BS EN 1191 : 2012.

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, there is no information in this Certificate which relates to the obligations of the client, CDM co-ordinator, designer and contractors under these Regulations.

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

In the opinion of the BBA there is no information in this Certificate which relates to the obligations of the client, CDM co-ordinator, designer and contractors under these Regulations.

Additional information

NHBC Standards 2013

NHBC accepts the use of the Heavy Duty Self-Balancing Friction Stays, provided they are installed, used and maintained in accordance with this Certificate in relation to *NHBC Standards, Chapter 6.7 Doors, windows and glazing*.

Technical Specification

1 Description

The metallic components of Heavy Duty Self-Balancing Friction Stays (see Figure 1) are made from stainless steel, number 1.4301 (austenitic) to BS EN 10088-2 : 2005. For sizes and maximum opening angle, see Table 1.

Figure 1 Typical Heavy Duty Self-Balancing Friction Stay

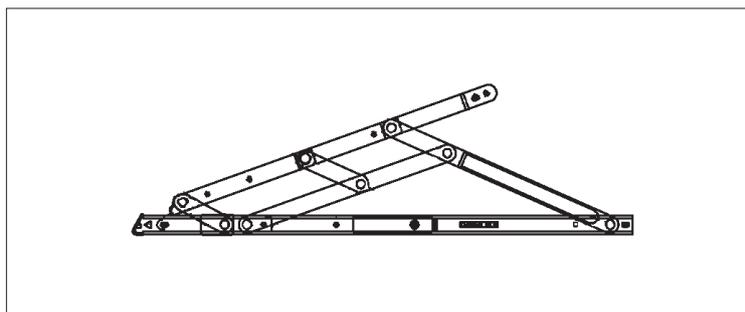


Table 1 Heavy Duty Self-Balancing Friction Stays — ranges

Product code	Size (inches)	Maximum opening angle (°)	Maximum sash weight (kg)	Maximum sash height (mm)
HD22SB	22.3	20 ⁽¹⁾ and 40 ⁽¹⁾	100 at 20° 80 at 40°	1500
HD26-180	27.1	20 ⁽¹⁾	180	2500
HD28	27.8	15 ⁽¹⁾	100	2200

(1) Manufacturer's own data. The resulting opening will vary, depending on profile and sash size.

2 Manufacture

2.1 The arms of the product are fastened to the slide using rivets. The assembled slide is placed into the channel of the friction stay and an end rivet inserted.

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 systems of Cotswold Architectural Products Ltd have been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by LRQA (Certificate LRQ 0880449).

3 Delivery and site handling

3.1 The products are packed in cardboard boxes, each containing 10 or 25 pairs of stays, and labelled with the BBA identification mark incorporating the number of this Certificate.

3.2 Boxes should be stored under cover in a clean area and suitably supported to avoid distortion or damage.

Assessment and Technical Investigations

The following is a summary of the technical investigations carried out on Heavy Duty Self-Balancing Friction Stays

Design Considerations

4 Use

4.1 Heavy Duty Self-Balancing Friction Stays are suitable for use in top-hung commercial windows made from PVC-U, timber or large section aluminium, within the limits shown in Table 1. Windows must have an outer frame/sash design suitable for correct fixing of the stays using appropriate screws⁽¹⁾ through the profiles or reinforcement. The Certificate holder will advise on the suitability of window profiles. It is the responsibility of the specifier to ensure that the finished window meets any required safety specifications.

(1) Outside the scope of this Certificate.

4.2 The friction stays are available in 16 mm stack heights to suit the design of the window system.

5 Resistance to wear and fatigue

The products were tested for cyclic operation in accordance with BS EN 1191 : 2012 and exceeded Class 3 — Heavy Duty when classified to BS EN 12400 : 2002 (see Table 2).

Table 2 Endurance results

Product code	Weight of sash tested (kg)	Comments
HD22SB	100	Normal operation after 25,000 cycles

6 Resistance to mechanical loading

6.1 Selected samples from the product range were tested on suitable window samples in accordance with BS 6375-2 : 1987, BS 6375-2 : 2009 and BS EN 13126-6 : 2008 (see Table 3).

Table 3 Mechanical loading characteristics

Test method and year of standard	HD22SB ⁽¹⁾
Static Torsion (BS 6375-2 : 2009)	Class 3
Racking (BS 6375-2 : 2009)	Class 3
Strength of maximum opening stops (BS 6375-2 : 1987)	Pass
Pull-in test (BS EN 13126-6, clause 7.2)	Pass
Friction test (BS EN 13126-6, clause 7.3)	Pass
Obstructed stay test (BS EN 13126-6, clause 7.4)	Pass
Pull-in abuse test (BS EN 13126-6, clause 7.5)	Pass
Static load (BS EN 13126-6, clause 7.9)	Pass
Additional load (BS EN 13126-6, clause 7.10)	Pass

(1) Weight of tested sash 100 kg, height of sash 1570 mm.

6.2 If classification of mechanical strength of a particular window is required, the window itself should be tested in accordance with BS 6375-2 : 2009.

7 Maintenance

7.1 The product should be cleaned and lubricated every six months to minimise wear and to ensure smooth operation. Care should be taken to avoid applying lubricant to the sliders as this will impair their braking action.

7.2 If damage occurs, the product can be replaced by removing the fixing screws and replacing the hinge.

8 Durability

8.1 The products were tested for resistance to salt spray as defined in BS EN 1670 : 2007 and achieved Grade 4 — Very high corrosion resistance.

8.2 The products are constructed from austenitic stainless steel and, when installed in accordance with this Certificate, will last the expected life of the window in all locations including those subject to corrosive conditions (such as coastal locations or near sources of industrial pollutants).

8.3 The products may need to be replaced within the life of a window if they become damaged.

9 Reuse and recyclability

The products comprise austenitic stainless steel, which can be recycled.

Installation

10 General

10.1 Installation of Heavy Duty Self-Balancing Friction Stays must be carried out in accordance with the Certificate holder's instructions using suitable corrosion resistant screws⁽¹⁾.

(1) Outside the scope of this Certificate.

10.2 The correct size of product should be chosen to suit the sash weight and height/width.

11 Procedure

The products are screwed first to the window sash, and then to the outer frame.

Technical Investigations

12 Tests

Tests were carried out on the product to determine:

- cyclic operation in accordance with BS EN 1191 : 2012
- mechanical loading in accordance with BS 6375-2 : 1987, BS 6375-2 : 2009 and BS EN 13126-6 : 2008
- resistance to salt spray in accordance with BS EN 1670 : 2007.

13 Investigations

13.1 An assessment was made of the durability of the components used in the manufacture of the products.

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

Bibliography

- BS 6375-2 : 1987 *Performance of windows — Specification for operation and strength characteristics*
BS 6375-2 : 2009 *Performance of windows and doors — Classification for operation and strength characteristics and guidance on selection and specification*
BS 8213-1 : 2004 *Windows, doors and rooflights — Design for safety in use and during cleaning of windows, including door-height windows and roof windows — Code of practice*
BS EN 1191: 2012 *Windows and doors — Resistance to repeated opening and closing — Test method*
BS EN 1670 : 2007 *Building hardware — Corrosion resistance — Requirements and test methods*
BS EN 10088-2 : 2005 *Stainless steels — Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes*
BS EN 12400 : 2002 *Windows and pedestrian doors — Mechanical durability — Requirements and classification*
BS EN 13126-6 : 2008 *Building hardware — Requirements and test methods for windows and doors height windows — Variable geometry stay hinges (with or without a friction stay)*
BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

14 Conditions

14.1 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.

14.2 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.

14.3 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.

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

14.5 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.

14.6 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.