

Test Report 9658643.

Debar Ltd


Introduction.

This report has been prepared by David Vinyard and relates to the activity detailed below:

Job/Registration Details	Client Details
Job number: 9658643 Job type: Testing Samples Submitted Start Date: 16/11/2018 Test type: Direct Sample ID: 10180593 Registration: NA Protocol: NA Quality system: NA Registration: NA Protocol: NA Quality system: NA	Debar Ltd Concept House Brackenbeck Road Bradford BD7 2LW United Kingdom

The report has been approved for issue by Mark Manito – Team Manager

This issue supersedes all previous issues. The amendment giving rise to this issue of the report can be ascertained by contacting the authorizing signatory

Approved For Issue	
	Issue Date: 12 December 2018

Objectives.

Direct Test

Product Scope.

Smart System Visofold 1000 Aluminium Bi-Folding Door

Report Summary.

The sample was received on 26 October 2018 and the testing was started on 28 November 2018

The sample submitted complied with the requirements of the test work conducted.

PAS24:2016 Direct Test.

1 off three leaf open in glaze in bi fold door assembly with one master leaf and two folding sliding leaves, full glass infill and standard threshold.

(Sample ID No 10180593)

Date sample received: 26 October 2018

Test Results.

- | | |
|--|---|
| 1. Manipulation | The test sample met the requirements of the Specification in respect of B.4.3 |
| 2. Infill removal | The test sample met the requirements of the Specification in respect of B.4.4 |
| 3. Mechanical infill removal | The test sample met the requirements of the Specification in respect of B.4.4.3 |
| 4. Mechanical loading | The test sample met the requirements of the Specification in respect of B.4.5 |
| 5. Manual check test | The test sample met the requirements of the Specification in respect of B.4.6 |
| 6. Soft body impact | The test sample met the requirements of the Specification in respect of B.4.8 |
| 7. Hard body impact | The test sample met the requirements of the Specification in respect of B.4.9 |
| 8. Security hardware and cylinder test | Test sample met the requirements of the Specification in respect of Annex A |

B.2 Sample Selection.

The sample submitted for tests were selected using the criteria in B.2 of the Specification. The sample was submitted for test mounted in a 75mm x 100mm timber subframe in accordance with the manufacturer's installation requirements. The test sample was manufactured by the client. Sample description provided by client and not verified by BSI.

B.3 Requirements for Test Apparatus.

The test apparatus for the manual and mechanical tests is shown in figures B.2 to B.5.

B.4 Test Methods.

The method of testing the samples followed the sequence detailed in B.4 of the Specification.

Description of Test Sample.

Outer Frame width	3753.00 mm	Outer Frame Material	Aluminium
Outer Frame height	2584.00 mm	Outer Frame Gasket	
Outer Frame Part Numbers		Gasket Type	EPDM
Top	DV14	Manufacturer	Smart Systems Ltd
Bottom	DV14	Product Name	N/A
Lock Side	DV14	Product Code	ACDV272, ACDV244
Hinge Side	DV14	Threshold	
Outer Frame section dimensions		Manufacturer	Smart Systems Ltd
Width	51.50 mm	Product name	N/A
Depth	70.00 mm	Product Code	DV14
Reinforcing:		Materials	Aluminium
Manufacturer	N/A	Outer Frame Joint Method	
Product Name	N/A	Head	Mechanical Corner Cleat
Product code	N/A	Foot	Mechanical Corner Cleat
Material	N/A		

Leaf		Leaf Material:	Aluminium
Leaf Width:	1200.00 mm	Leaf Gasket	
Leaf Height:	2500.00 mm	Gasket type:	EPDM
Leaf Part Numbers:		Manufacturer:	Smart Systems Ltd
Top:	DV23	Product Name:	Sealing Gasket
Bottom:	DV23	Product Code	ACDV272
Lock side:	DV23	Leaf Midrail:	
Hinge Side	DV23	Manufacturer:	N/A
Leaf section size		Product name:	N/A
Width:	60.50 mm	Product code:	N/A
Depth:	74.50 mm	Material:	N/A
Reinforcing		Leaf joint method	
Manufacturer:	N/A	Head:	Mechanical Corner Cleat
Product Name:	N/A	Foot:	Mechanical Corner Cleat
Product Code:	N/A		
Material:	N/A		
Bead			
Manufacturer:	Smart Systems Ltd		
Product Name:	N/A		
Product Code:	DV67		
Material:	Aluminium		
Bead Size:	22.00 mm x 17.00 mm		

Description of Test Sample. (Continued)

Glazing Unit		Glazing Gasket	
Manufacturer:	N/A	Gasket Type:	EPDM
Inner Thickness:	6.0 mm	Manufacturer:	Smart Systems Ltd
Spacer Material:	16.0 mm	Product Name:	N/A
Outer Thickness:	6.0 mm	Product Code	ACVG31, ACGV34
Unit Sizes:		Glazing Clip	
Glazing Tape Details		Manufacturer:	N/A
Manufacturer:	N/A	Product Name:	N/A
Product Name:	N/A	Product Code	N/A
Product Code	N/A		

Hardware	Product Code	Supplied By	Fixings	QTY
Hinges:	DBV1-11/BL	Debar Ltd	Supplied with the hinge	-
Hinge Protectors:	N/A	N/A	N/A	-
Multi Point Lock:	ACDV722 or ACDV723	Smart Systems Ltd	As per Smart Visofold 1000 Fabrication Manual	-
Keeps:	Part of ACDV722 or 723	Smart Systems Ltd	As per Smart Visofold 1000 Fabrication Manual	-
Lever/Lever Handle:	DBHP-01	Debar Ltd	Supplied with the handle	-
Security Cylinder:	DBCY/50/50/3STAR	Debar Ltd	Supplied with the cylinder	-
Shoot Bolt Lock:	DBLK-05	Debar Ltd	N/A	-
Shoot Bolt Handle	DBHL-03	Debar Ltd	Supplied with the handle	-
Shoot Bolt Cones & Guides:	ACDV328, ACDV229	Smart Systems Ltd	As per Smart Visofold 1000 Fabrication Manual	-
Cylinder for Shoot Bolt Lock:	DBCY-40/10	Debar Ltd	Supplied with the cylinder	-
Touch Bar:	N/A	N/A	N/A	-
Cylinder Support:	N/A	N/A	N/A	-
Cylinder Escutcheon:	N/A	N/A	N/A	-
Drip Bar	N/A	N/A	N/A	-
Additional Hardware:				
Roller	DBV1-15/BL or DBV1-13/BL	Debar Ltd	Supplied with the roller	-
Top Guide	DBV1-16/BL or DBV1-14/BL	Debar Ltd	Supplied with the top guide	-
Anti-lift block	DBA1-205/BL	Debar Ltd	-	-
Run-up block	ACDV080	Smart Systems Ltd	-	-

Description of Sample.

Sample Type -	Three leaves open in glaze in bi fold door assembly with one master leaf and two folding sliding leafs, full glass infill and standard threshold.		
Material -	Aluminium		
Construction -	Cleated		
Fittings (Master Leaf) -	A five-point locking (two cams, two hooks and one dead bolt) Fuhr espagnolette system, Hoppe handle with a key lockable Yale 3* cylinder and four Debar pin hinges.		
Fitting (Slave Leafs) -	Debar DBLK-05 two-point locking (with Smarts System ACDV328 two shoot bolts and ACDV229 two guide blocks) espagnolette system, and twelve Debar pin hinges and two rollers.		
Classification -	D		
Glass -	Double glazed 6-16-6mm toughened glass sealed units		
Panel -	Not applicable		
Glass Retention System -	Internal beads and gaskets		
Sample dimensions -	Overall length:	3753mm	Height: 2584mm
	Master leaf length:	1200mm	Height: 2500mm
	Slave leafs length:	1200mm	Height: 2500mm
Date of test -	28 November 2018		
Laboratory temperature -	20.1°C		

Test Results.

Performance Requirements

Assessment

Clause B.4.3 Manipulation Test A

The sample was mounted, vertically and square, in the test rig as described in B.3.1.

The test was carried out in accordance with the given objective of this Annex using the procedure detailed in B.4.3.1 and the tools described in Group A and Group B where applicable.

The sample was closed and locked and the key removed. The overall time limit is 15 minutes but no one technique was used for more than three minutes.

No tools effective

Pass

Clause B.4.4 Cutting and Infill Medium Removal Test

B.4.4.2 Infill Manual Test

The sample was mounted, vertically and square, in the test rig as described in B.3.1.

The test was carried out in accordance with the requirements of this Annex using the tools described in Group A and Group B where applicable.

A craft knife was used to cut the glazing gaskets.

No entry could be affected within three minutes.

Pass

B.4.4.3 Infill Mechanical Test

The sample was mounted, vertically and square, in the test rig as described in B.3.1.

The test was carried out with a perpendicular-to-plane load of 2.0kN applied to each corner of the glazing.

No evidence of bead failure. No entry could be affected.

Pass

Clause B.4.4.4 Manual Cutting Test

Not applicable

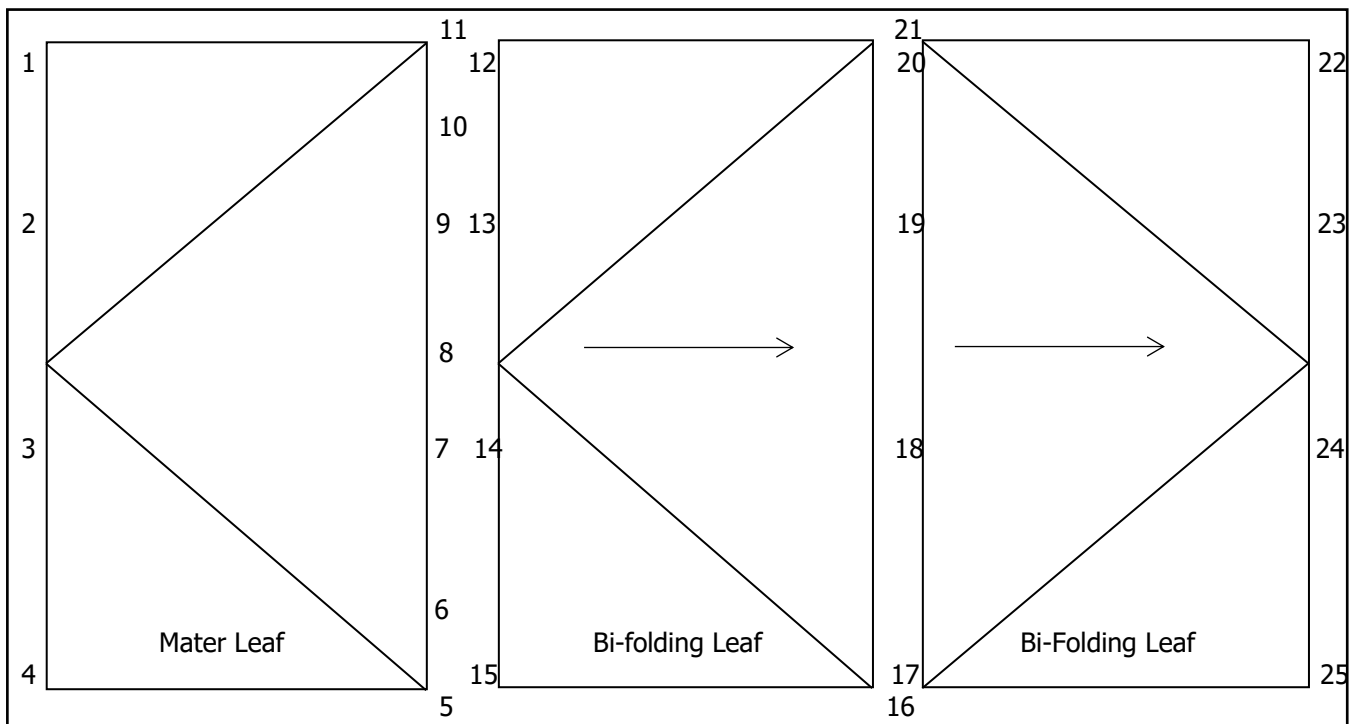
Test Results (Continued).

B.4.5 Mechanical Loading Test

The sample was mounted, vertically and square, in the test rig.

The test was carried out in accordance with the procedures detailed in B.4.5, using loading cases B.1 to B.6 and Figures B.12 for loading sequence, and using the test apparatus detailed in Figures B.6 to B.6.

Diagram of load points (external view)



B.4.5.2 Loading Procedure

Point of application of load

First Sequence

1. Hinge (upper left jamb)

Standard loading case used: 1

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

Test Results (Continued).

PERFORMANCE REQUIREMENTS

B.4.5 Mechanical Loading Test

B.4.5.2 Loading Procedures

Point of application of load

2. Hinge (upper left jamb)

Standard loading case used: 1

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

3. Hinge (lower left jamb)

Standard loading case used: 1

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

4. Hinge (lower left jamb)

Standard loading case used: 1

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

5. Roller (threshold of slave leaf)

Standard loading case used: 11

Load applied in plane: 1.5kN centred over loading point and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

6. Cam (lower master leaf)

Standard loading cases used: 7

Load applied in plane: 1.5kN along edge in a direction to disengage the bolt

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

Test Results (Continued).

PERFORMANCE REQUIREMENTS

B.4.5 Mechanical Loading Test

B.4.5.2 Loading Procedures

Point of application of load

7. Hook Bolt (lower master leaf)

Standard loading cases used: 7

Load applied in plane: 1.5kN along edge in a direction to disengage the bolt
Load applied perpendicular to plane: 4.5kN applied for 10 seconds

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge
Load applied perpendicular to plane: 4.5kN applied for 10 seconds

8. Dead (centre master leaf)

Standard loading case used: 5

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge
Load applied perpendicular to plane: 4.5kN applied for 10 seconds

9. Hook (upper master leaf)

Standard loading cases used: 7

Load applied in plane: 1.5kN along edge in a direction to disengage the bolt
Load applied perpendicular to plane: 4.5kN applied for 10 seconds

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge
Load applied perpendicular to plane: 4.5kN applied for 10 seconds

10. Cam (upper master leaf)

Standard loading cases used: 7

Load applied in plane: 1.5kN along edge in a direction to disengage the bolt
Load applied perpendicular to plane: 4.5kN applied for 10 seconds

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge
Load applied perpendicular to plane: 4.5kN applied for 10 seconds

Test Results (Continued).

PERFORMANCE REQUIREMENTS

B.4.5 Mechanical Loading Test

B.4.5.2 Loading Procedures

Point of application of load

11. Roller (head of slave leaf)

Standard loading case used: 11

Load applied in plane: 1.5kN centred over loading point and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

12. Hinge (upper slave leaf)

Standard loading case used: 2

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

13. Hinge (upper slave leaf)

Standard loading case used: 2

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

14. Hinge (lower slave leaf)

Standard loading case used: 2

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

15. Hinge (lower slave leaf)

Standard loading case used: 2

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

Test Results (Continued).

PERFORMANCE REQUIREMENTS

B.4.5 Mechanical Loading Test

B.4.5.2 Loading Procedures

Point of application of load

16. Shoot Bolt (threshold of slave leaf)

Standard loading case used: 5

Load applied in plane: 1.5kN along edge in a direction to disengage the bolt

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

17. Hinge (lower slave leaf)

Standard loading case used: 2

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

18. Hinge (lower slave leaf)

Standard loading case used: 2

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

19. Hinge (upper slave leaf)

Standard loading case used: 2

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

20. Hinge (upper slave leaf)

Standard loading case used: 2

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

21. Shoot Bolt (threshold of slave leaf)

Standard loading case used: 5

Load applied in plane: 1.5kN along edge in a direction to disengage the bolt

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

Test Results (Continued).

ASSESSMENT

PERFORMANCE REQUIREMENTS

B.4.5 Mechanical Loading Test

B.4.5.2 Loading Procedures

Point of application of load

22. Hinge (upper right jamb)

Standard loading case used: 1

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

23. Hinge (upper right jamb)

Standard loading case used: 1

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

24. Hinge (lower left jamb)

Standard loading case used: 1

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

25. Hinge (lower left jamb)

Standard loading case used: 1

Load applied in plane: 1.5kN at right angles to the edge and towards the opposite edge

Load applied perpendicular to plane: 4.5kN applied for 10 seconds

No entry gained

Pass

Clause 4.3 Manipulation (Test B)

The sample was mounted vertically in the test rig as described in Clause 3.

The test was carried out in accordance with the given objectives of this Clause using the tools specified in A.2.1

No fixing were exposed during mechanical loading.

Pass

Test Results (Continued).

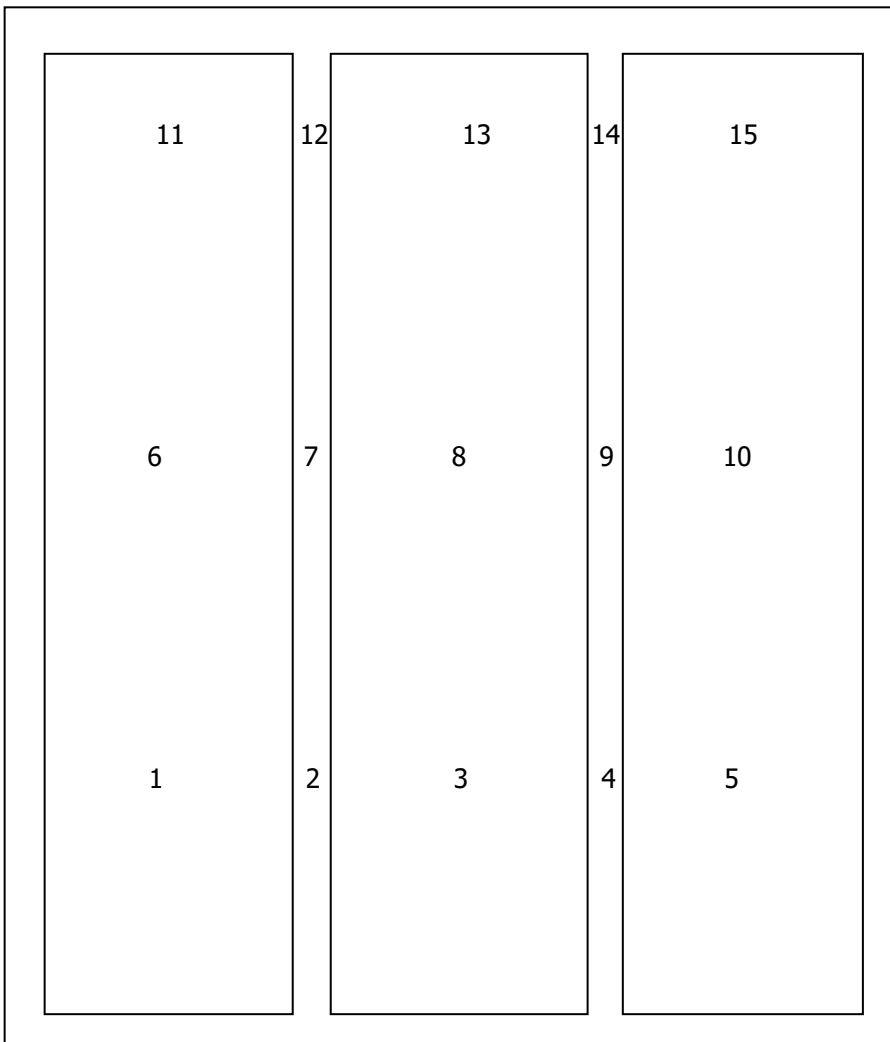
PERFORMANCE REQUIREMENTS

B.4.8 Soft Body Impact Test

The sample was mounted, vertically and square, in the test rig as described in B.3.1.

The test was carried out in accordance with the requirements, objectives and procedures detailed in B.4.8.1 using the impact point and procedure described in B.4.8.2 and B.4.8.3 and Figure B.10

Diagram of points of application of loads



Test Results (Continued).

PERFORMANCE REQUIREMENTS

B.4.8 Soft Body Impact Test

ASSESSMENT

Impact point	Position from floor level	Effect
1	0.8m	None
2	0.8m	None
3	0.8m	None
4	0.8m	None
5	0.8m	None
6	1.25m	None
7	1.25m	None
8	1.25m	None
9	1.25m	None
10	1.25m	None
11	1.7m	None
12	1.7m	None
13	1.7m	None
14	1.7m	None
15	1.7m	None

No entry gained

Pass

Test Results (Continued).

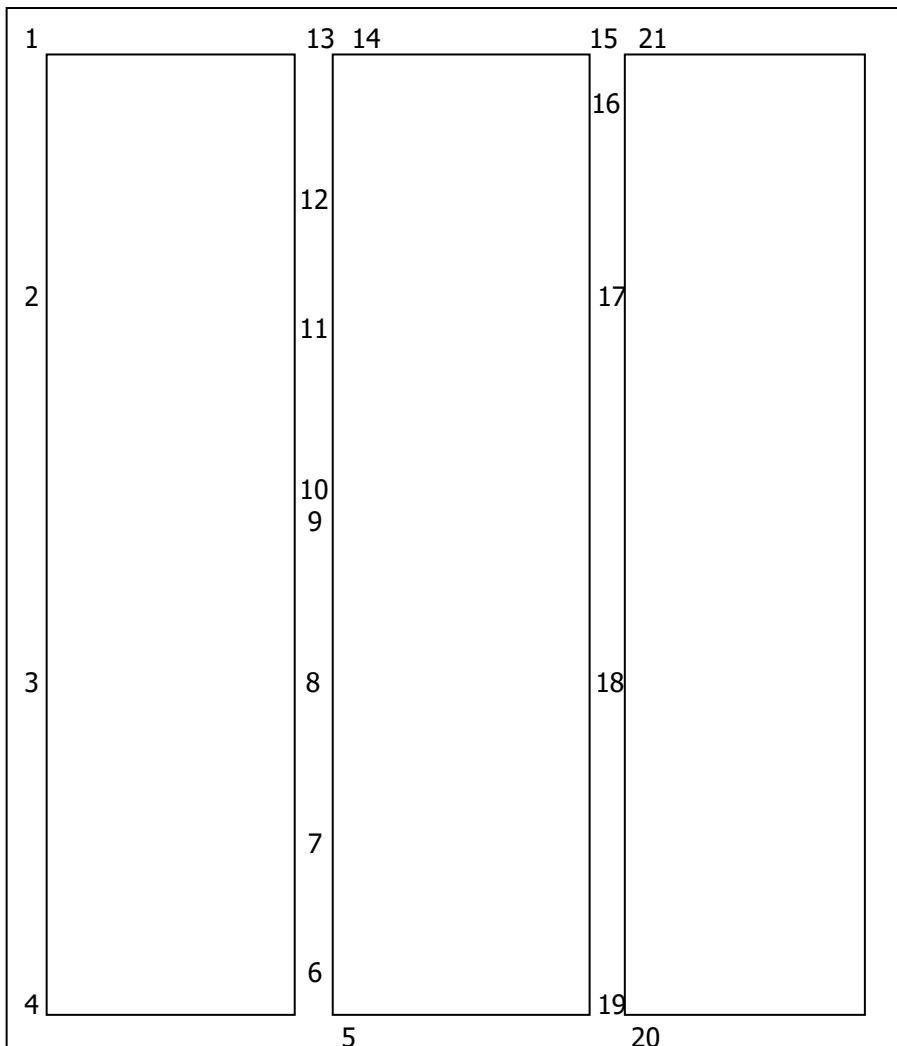
PERFORMANCE REQUIREMENTS

B.4.9 Hard body impact test

The sample was mounted, vertically and square, in the test rig as described in B.3.1.

The test was carried out in accordance with the requirements, objectives and procedures detailed in B.4.9.1, B.4.9.2.1, B.4.9.2.2, B.4.9.2.3 using procedure B.4.9.3, using the test apparatus detailed in B.11 using the impact sequence in figure B.14.

Diagram of points of application of loads



PERFORMANCE REQUIREMENTS

ASSESSMENT

B.4.9 Hard body impact test (continued)

Impact point	Position	Effect
1	Corner/Hinge	None
2	Hinge	None
3	Hinge	None
4	Corner/Hinge	None
5	Roller	None
6	Corner	None
7	Cam	None
8	Hook	None
9	Cylinder	None
10	Dead	None
11	Hook	None
12	Cam	None
13	Corner	None
14	Roller	None
15	Hinge	None
16	Hinge	None
17	Hinge	None
18	Hinge	None
19	Corner	None
20	Shoot	None
21	Shoot	None

No entry effected

Pass

Test Results (Continued).

Annex A Security Hardware and Cylinder Test

Assessment

Annex A.3.2 (Part 1)

The sample was mounted, vertically and square, in the test rig as described in Clause 3.1.

The test was carried out in accordance with the given objectives of this Annex using the procedure detailed in Annex A.3.1 and the tools described in A.2.

Mole grips were used to snap cylinder and a flat bladed screwdriver was then used to try and manipulate locking.

No entry could be affected within three minutes.

Pass

Annex A.3.2 (Part 2)

The sample was mounted, vertically and square, in the test rig as described in Clause 3.1.

The test was carried out in accordance with the given objectives of this Annex using the procedure detailed in Annex A.3.1 and the tools described in A.2.

The sample was closed and locked and the key removed.

The total attack time was three minutes and the total rest time was seven minutes.

No entry could be affected within three minutes.

Pass

B.4.6 Manual Check Test

The sample was mounted, vertically and square, in the test rig as described in B.3.1.

The test was carried out in accordance with the given objective of this Clause using the procedure detailed in B.4.6.3 and the tools described in B.4.6.2.

Two nail bars used for three minutes

No entry gained

Pass

Test Sample.

Sample Id	ER Number	Description
1	10180593	Aluminium Bi-Fold Door

Description of Test Sample.

Sample Description
1 off three leaf open in glaze in bi fold door assembly with one master leaf and two folding sliding leaves, full glass infill and standard threshold.

Test Requirements.

PAS24 Door Direct Test

Clause	Requirements
As required	PAS24 Door Direct Test

Glossary of Terms.

PASS: Complies. Tested by BSI engineers at BSI laboratories.

PASS1: Complies. Witnessed by BSI engineers in manufacturers laboratory.

PASS2: Complies. Tests carried out by third party lab; results accepted by BSI.

PASS*: Report resulted in uncertainty and states that Compliance is more probable than non-compliance.

FAIL: Non compliance – Product does not meet the requirements of this clause.

FAIL*: Report resulted in uncertainty and states that Non-compliance is more probable than compliance.

N/A: Not applicable to design under consideration.

N/T: Not tested due to similarity to previously tested item; reference earlier test report.

Conditions of Issue.

This Test Report is issued subject to the conditions stated in current issue of 'BSI Terms of Service'. The results contained herein apply only to the particular sample(s) tested and to the specific tests carried out, as detailed in this Test Report. The issuing of this Test Report does not indicate any measure of Approval, Certification, Supervision, Control or Surveillance by BSI of any product. No extract, abridgement or abstraction from a Test Report may be published or used to advertise a product without the written consent of BSI, who reserve the absolute right to agree or reject all or any of the details of any items or publicity for which consent may be sought.

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*** End of Report ***