

## Technical Report

**Report No** R17218

**Product Tested:** Sliding Patio Doors

**Test Conducted for:** Smart Systems Ltd  
Arnolds Way  
Yatton  
North Somerset  
BS49 4QN

**Standard Specified:** PAS 24:2016 – Enhanced security performance requirements for doorsets and windows in the UK

**Project No:** 17218

**Date of Test:** 22<sup>nd</sup> March 2017

**Test Conducted at:** Wintech Engineering Limited  
Halesfield 2  
Telford  
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**Report Compiled by:** S Tawn Laboratory Apprentice 

**Authorised by:** M Wass Technical Director 

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## 1. Introduction

This report describes testing of a door sample conducted at the test laboratory of Wintech Engineering Ltd on behalf of Smart Systems Ltd in order to determine compliance with PAS 24:2016.

Wintech Engineering Ltd is accredited by the United Kingdom Accreditation Service as UKAS Testing Laboratory No. 2223

## 2. Summary of Results

The following summarises the results of testing carried out, in accordance with PAS 24:2016

<b>Test Description</b>	<b>Result</b>
B.4.6 - Manual check test	<b>Pass</b>
B.4.3 - Manipulation test (a)	<b>Pass</b>
B.4.5 - Mechanical loading test	<b>Pass</b>
B.4.8 - Soft body impact test	<b>Pass</b>
B.4.9 - Hard body impact test	<b>Pass</b>
Overall Classification in accordance with PAS 24:2016	<b>D</b>

More comprehensive details are reported in Section 6.

**Note:** These results are valid only for the conditions under which the test was conducted

**Note:** All measurement devices, instruments and other relevant equipment were calibrated and traceable to National Standards.

### 3. Description of Test Sample

<b>Product range name:</b>	Visoglide Plus
<b>Configuration:</b>	Two track, one fixed, one slide
<b>Opening direction:</b>	Slide

#### Outer Frame

<b>Outer frame width:</b>	3200	<b>Outer frame material:</b>	Aluminium
<b>Outer frame height:</b>	3000	<b>Outer frame gasket</b>	
<b>Outer frame Part Numbers</b>		Gasket type:	Woolpile
Top:	VG510	Manufacturer:	Schlegel
Bottom:	VG510	Product name:	
Lock side:	VG510	Product code:	ACVS033
Hinge side:		<b>Threshold</b>	
<b>Outer frame section size</b>		Manufacturer:	Smart Extrusions
Width:	53	Product name:	
Depth:	99	Product code:	VG514
<b>Reinforcing:</b>		Material:	Aluminium
Manufacturer:		<b>Outer frame joint method</b>	
Product name:		Head:	Mech Corner Cleat
Product code:		Foot:	Mech Corner Cleat
Material:			

#### Leaf

<b>Leaf width:</b>	1589	<b>Leaf material:</b>	
<b>Leaf height:</b>	2913	<b>Leaf gasket</b>	
<b>Leaf Part Numbers</b>		Gasket type:	Woolpile
Top:	VG520	Manufacturer:	Schlegel
Bottom:	VG520	Product name:	
Lock side:	VG520	Product code:	ACVS033
Hinge side:	VG520	<b>Leaf midrail:</b>	
<b>Leaf section size</b>		Manufacturer:	
Width:	74	Product name:	
Depth:	51	Product code:	
<b>Reinforcing:</b>		Material:	
Manufacturer:		<b>Leaf joint method</b>	
Product name:		Head:	Mech Corner Cleat
Product code:		Foot:	
Material:			Mech Corner Cleat

#### Glazing

<b>Glass unit</b>		<b>Glazing gasket</b>	
Manufacturer:	Ashton Glass	Gasket type:	Epdm

Inner thickness:	16	Manufacturer:	Reddiplex
Spacer material:	Aluminium	Product name:	
Outer thickness:	28	Product code:	ACET841 & ACW20038
Unit sizes:	1471 x 2795	<b>Glazing clip</b>	
<b>Bead</b>		Manufacturer:	
Manufacturer:	Smart Extrusions	Product name:	
Product name:		Product code:	
Product code:	VG560	<b>Glazing tape details</b>	
Bead size:	12 X 20	Manufacturer:	
Bead material:	Aluminium	Product name:	
		Product code:	

## Hardware

	Manufacturer:	Product description:	Product code:	Quantity:
Door lock:	Sobinco	BT Vertical shoot bolt	ACSZ042	1
Door lock fixings:	Sobinco	Fixings/component kit	ACSZ046	1

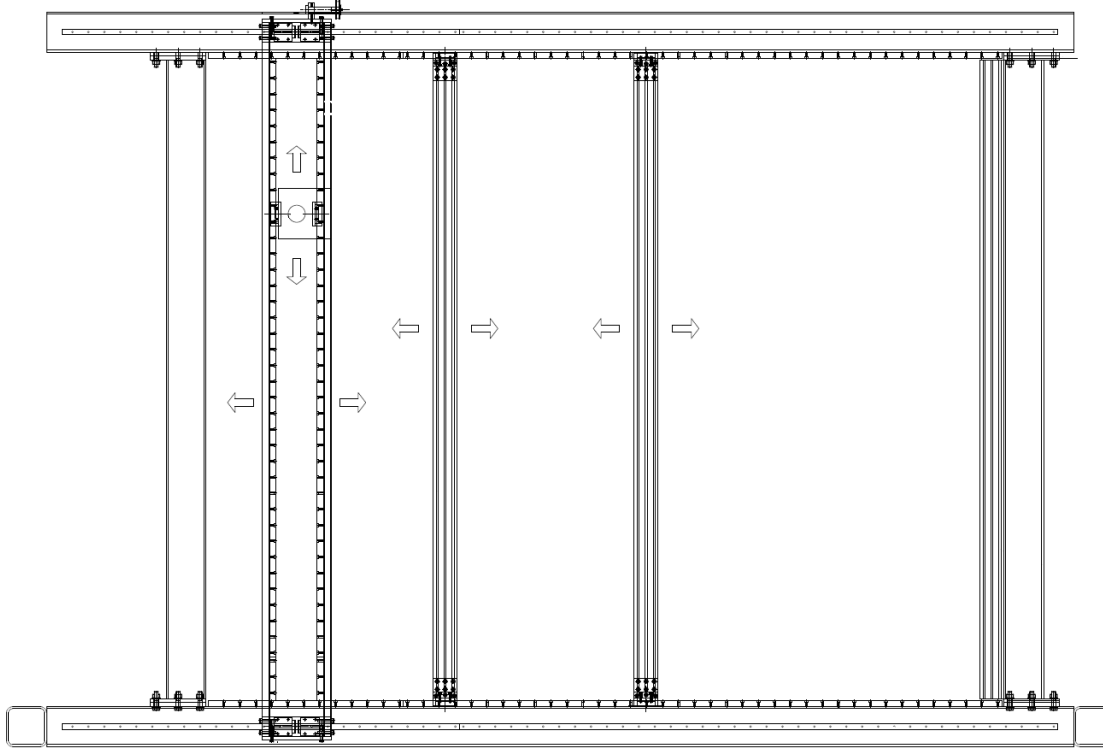
The details shown in Section 3 and drawings shown in Section 7 have been supplied by and confirmed as typical of normal production by Smart Systems Ltd and have not been verified by Wintech Engineering Limited.

#### 4. Test Arrangement

##### 4.1 Test Rig

The test sample was supplied mounted in 100 x 75 mm sub-frame in accordance with manufacturer's installation requirements. It was fitted into the test rig, shown below which was constructed to meet the requirements of the test specification and was fitted plumb, square and without twist or bends.

Figure 1 – Test rig used for testing



## 5. Test Procedures

### 5.1 Manual check test – determine additional mechanical loading

The objective of the manual check test is to explore the possibility that there might be weaknesses and vulnerabilities in the product that are not covered in the standard cases.

The objective of this test was to assess any vulnerabilities of the sample that are not covered by the standard loading cases assessed in the mechanical loading test B.4.5. The tools described in Section B.4.6.2 of PAS 24:2016 were used for a maximum period of 15 minutes in an attempt to gain entry through the sample. No single location was tested for more than 6 minutes with no single attack technique being used for more than 3 minutes.

### 5.2 Manipulation test (a)

The objective of this test was to highlight any inherent vulnerability in the design of the door which, from the outside, would permit entry by the hardware being operated, released or disengaged when tested using all of Tools group A from Section A.2.1 of PAS 24:2016 and, where applicable, tools specified in A.2.2.3, A.2.2.5 and A.2.2.6 in Tools group B from Section A.2.2 of PAS 24:2016. The overall attack time was limited to 15 minutes with no single test technique being used for more than 3 minutes.

### 5.3 Mechanical loading test

The objective of this test was to assess the ability of the sample to withstand a specified sequence of loading without gaining entry through the sample. The loads and loading sequence were in accordance with Section B.4.5 of PAS 24:2016.

### 5.4 Soft body impact test

The objective of this test was to assess the ability of the sample to resist impacts using a soft body impactor as shown in Figure B.11 of PAS 24:2016 and at various impact locations specified in Section B.4.8.2 of PAS 24:2016.

### 5.5 Hard body impact test

The objective of this test was to assess the hardware, infill medium and its retention system to hard body impacts using the impactor as shown in Figure B.12 of PAS 24:2016. Impacts were conducted at various locations specified in Section B.4.9.2 of PAS 24:2016.

## 6. Test Results

### 6.1 Laboratory Conditions

Prior to the start of the test, the laboratory conditions were measured as follows:

Temperature (°C)	21.9
Humidity (% RH)	45.8

Note The test samples were stored in a non-destructive environment at a temperature of 15 – 30°C and a r.h. of 25 – 75 % for a minimum of 12 hours, testing was also conducted at those conditions. Prior to testing, the door was closed and locked from the outside and any keys were removed.

### 6.2 Manual check test

Attempts were made from the external face to gain entry through the sample by applying load combinations not covered by the standard loading cases for the mechanical loading test. The overall attack time was limited to 15 minutes with no single attack technique being used for more than 3 minutes and no single location being attacked for more than 6 minutes.

No entry was be gained during this test.

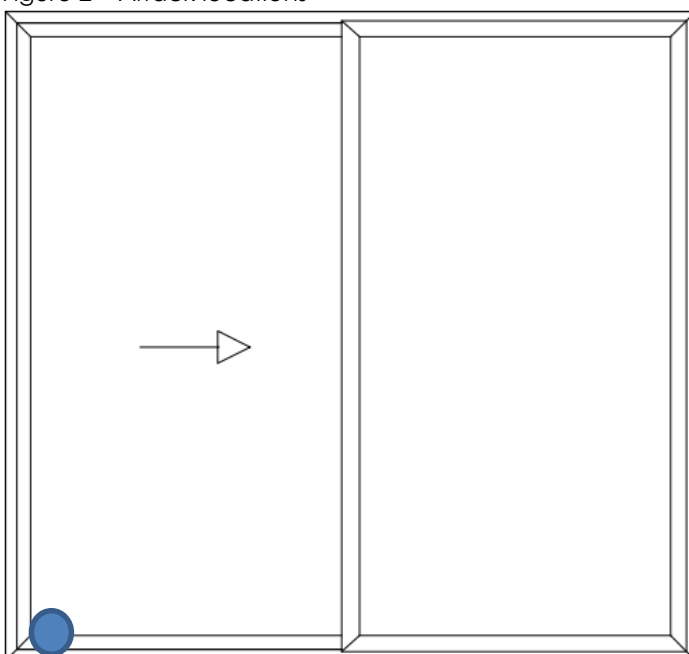
### 6.3 Manipulation test (a)

Attempts were made from the external face to operate, release and disengage the system hardware in order to gain entry through the sample in accordance with Section B.4.3 of PAS 24:201 6. The results are as follows:

Table 1 – Manipulation test (a)

Location	Tools Used	Method	Time
Bottom shoot bolt	Screwdrivers	Used the screwdrivers to remove the lower threshold, then removed the left hand threshold, then attempted to manipulate the shoot bolt.	03:00
Bottom shoot bolt	Scrapers	Used the scrapers in an attempt to manipulate the shoot bolt and gain entry. No entry gained.	03:00
Areas specified by Customer (Kevin Cole)			

Figure 2 – Attack locations





## 6.4 B.4.5 – Mechanical loading test

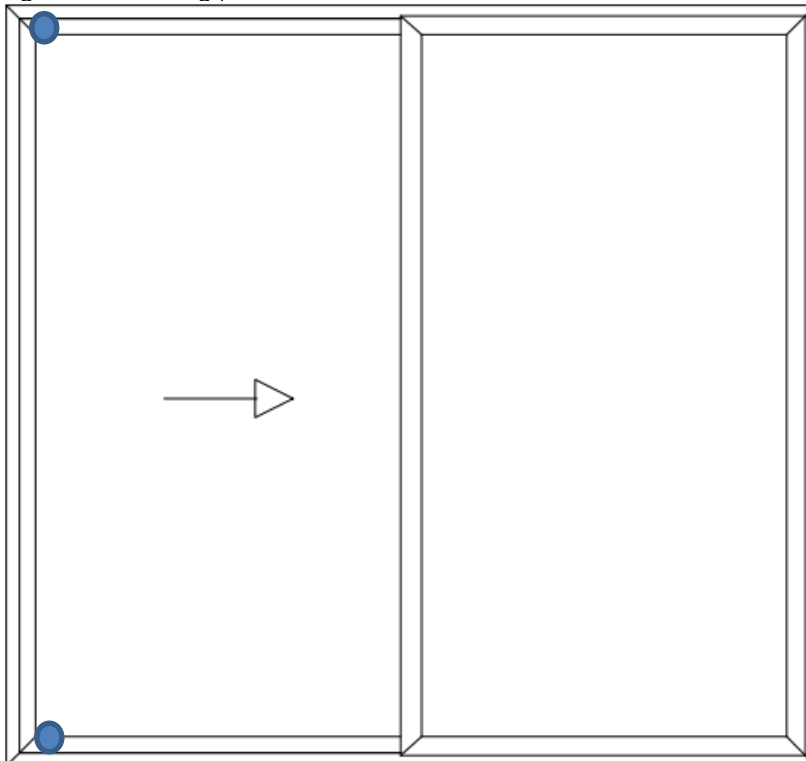
A series of loads were applied to the internal face of the sample as defined in Section B.4.5 of PAS 24:2016. The loading combinations used were as defined in Table B.1 to Table B.6 of PAS 24:2016 for the applicable door type and as shown in Table 2. The results are as follows:

Table 2 – Mechanical Loading

Loading Point	Parallel-to-plane Load		Perpendicular-to-plane Load		Result
	Load	Direction	Load	Direction	
1 – Shoot bolt/non meeting corner	4.5 kN	→	1.5 kN	-	Pass
1 – Shoot bolt/non meeting corner	1.5 kN	↓	4.5 kN	-	Pass
2 – Shoot bolt/non meeting corner	4.5 kN	→	1.5 kN	-	Pass
2 – Shoot bolt/non meeting corner	1.5 kN	↑	4.5 kN	-	Pass

Areas and pressures specified by Customer (Kevin Cole)

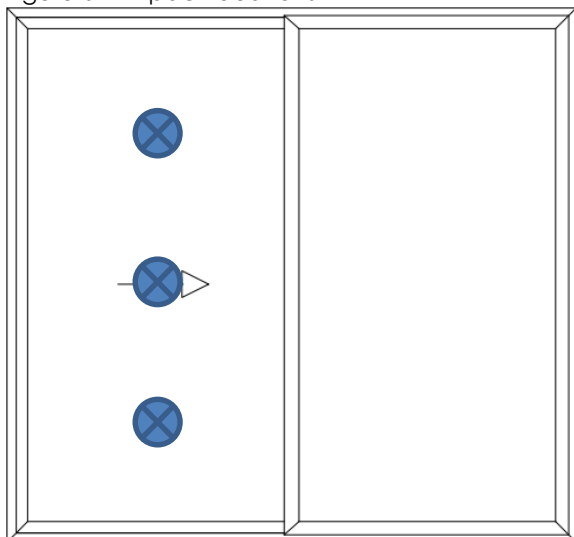
Figure 3 – Loading points



## 6.5 B.4.8 – Soft body impact test

The test sample was subject to soft body impacts on the external face as shown in Figure 6. Each of the locations was subject to 3 impacts from a drop height of 800mm, following which no damage was observed.

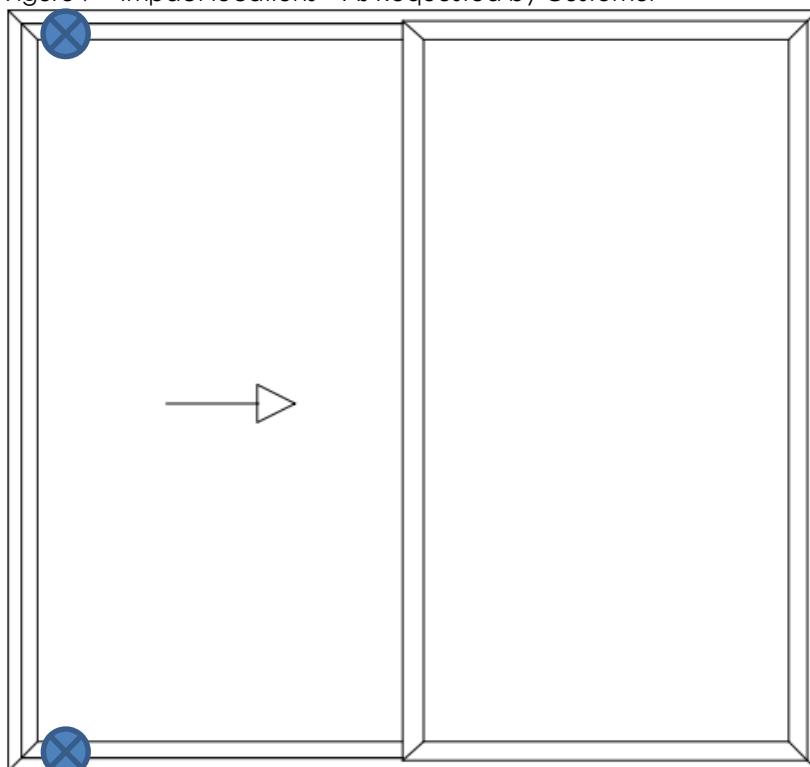
Figure 6 – Impact locations



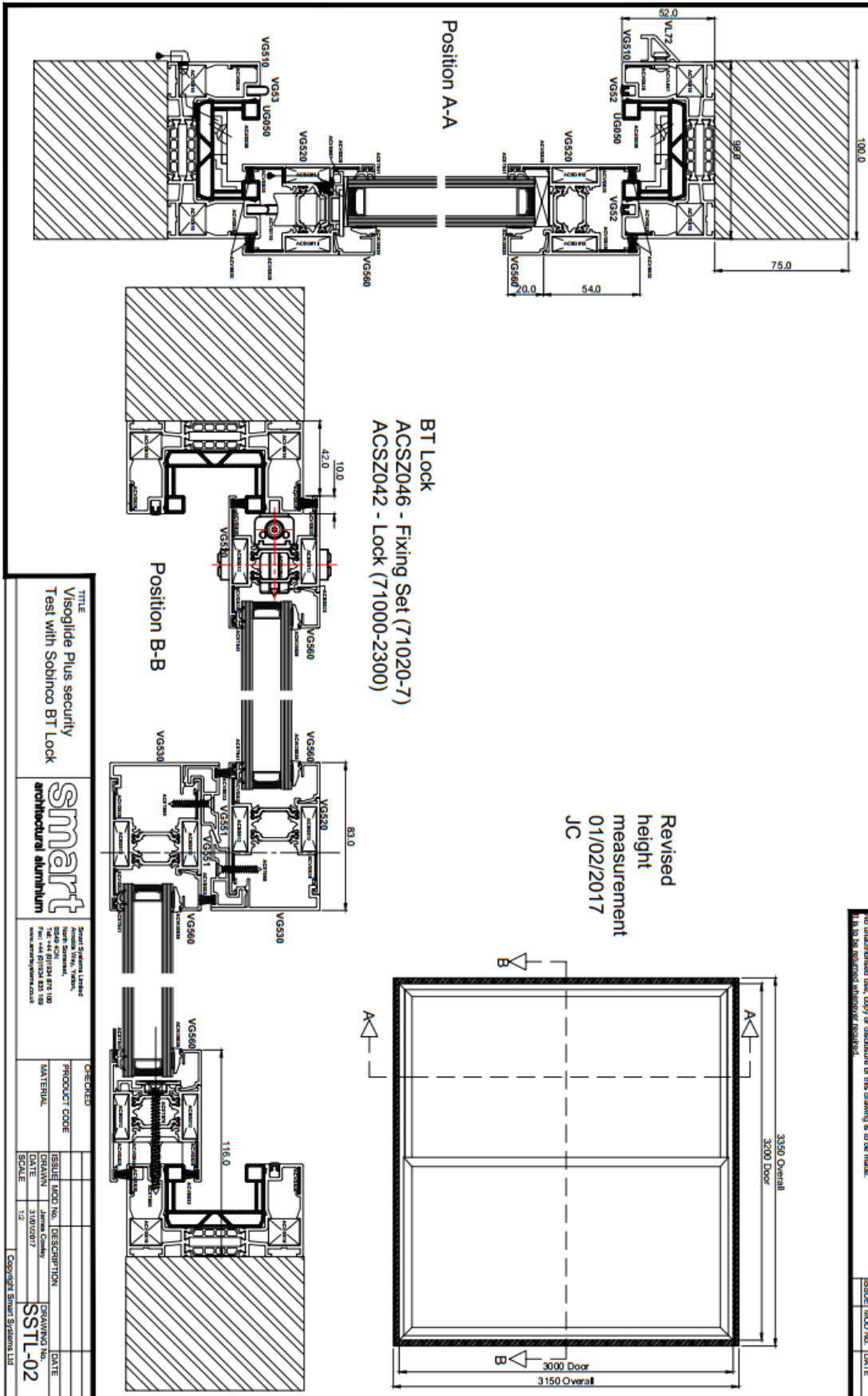
## 6.6 B.4.9 – Hard body impact test

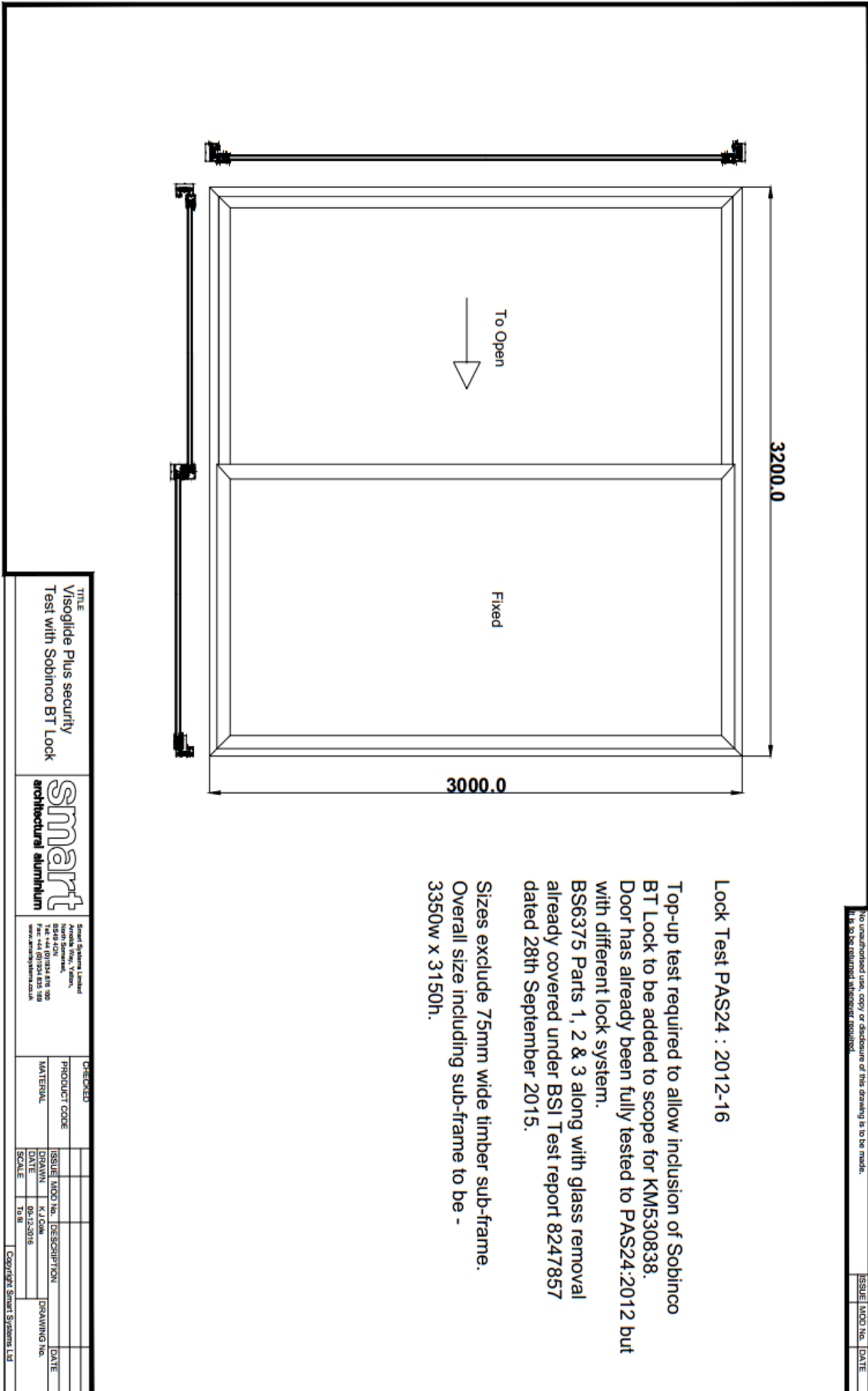
The test sample was subject to hard body impacts on the external face as shown in Figure 7. Each of the impact locations was subject to 3 impacts from a drop height of 165 mm following which no entry was gained through the sample.

Figure 7 – Impact locations – As Requested by Customer



## 7. System Drawings





TITLE  
Visoglide Plus security  
Test with Sobhico BT Lock



Smart Systems Limited  
Aston & Villa, Aston,  
B52 9JN  
Tel: +44 (0)121 419 195  
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**Sobinco BT Lock and fixing kit for Visoglide Plus.**

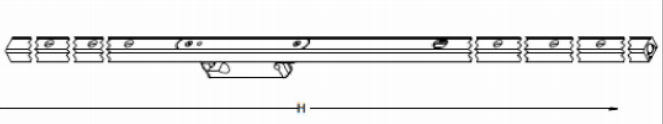
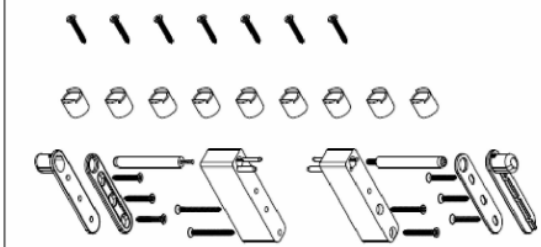
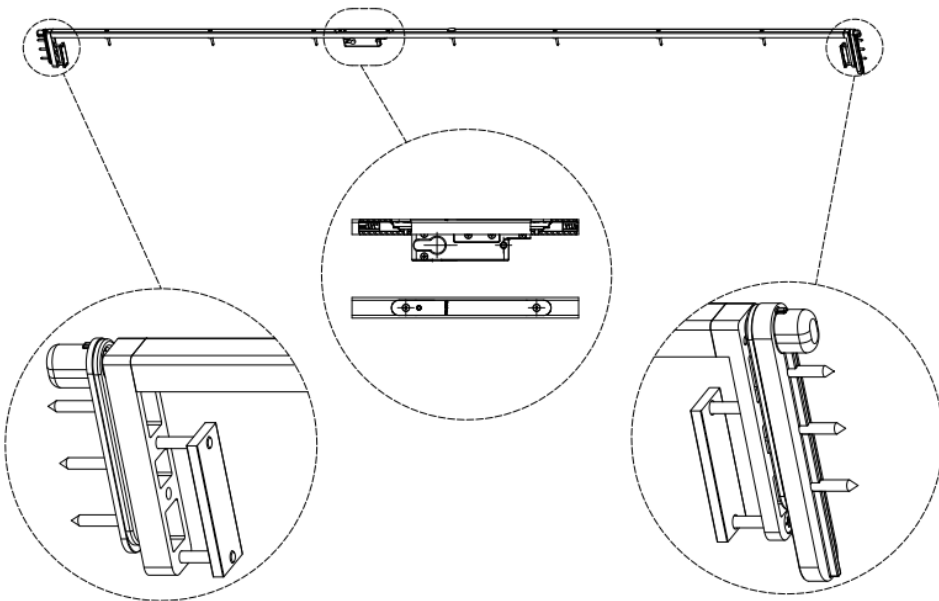
Image	Part Code	Pack	Unit
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	ACSZ041 - 52700 mm.	1	Pack
	ACSZ042 - 53100 mm.	1	Pack

Image	Part Code	Pack	Unit
	ACSZ045	1	Pack



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