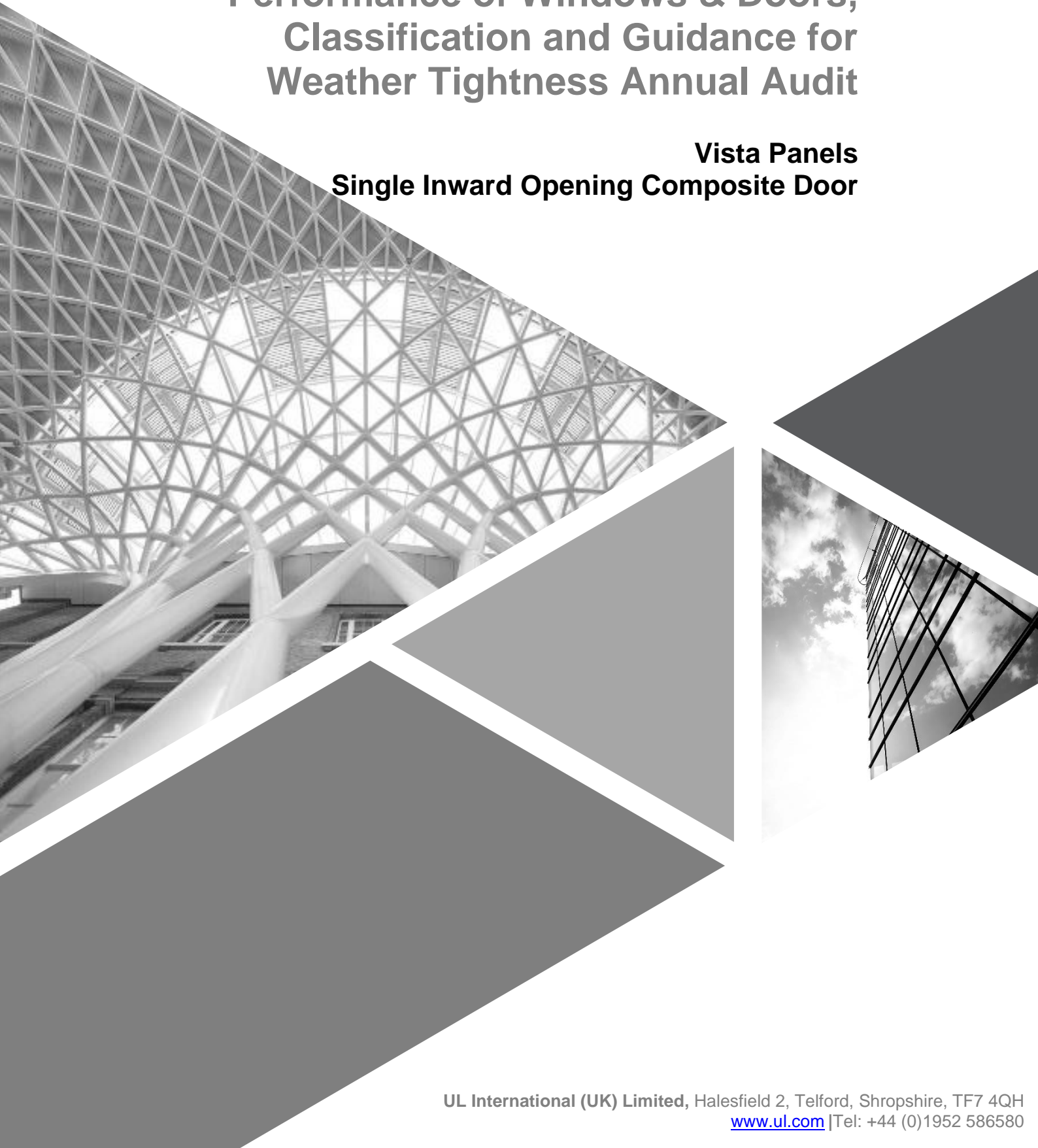




**Technical Report – R4790261459-2
BS 6375-1:2015+A1:2016
Performance of Windows & Doors,
Classification and Guidance for
Weather Tightness Annual Audit**

**Vista Panels
Single Inward Opening Composite Door**



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1. Introduction

This report describes tests carried in order to determine the weather tightness of the test specimen supplied as follows:

Test Details	
Customer:	Vista Panels Unit H1 Prenton Way North Cheshire Trading Estate Wirral CH43 3DU GB
Product Tested:	Vista Panels, Xtreme and Dales Composite Doors – Single inward opening door
Date of Test:	24 th January 2022
Test Conducted at:	UL International (UK) Limited Halesfield 2 Telford Shropshire TF7 4QH
Test Conducted by:	S Ward Senior Laboratory Technician C Holden Laboratory Assistant

Report Authorisation	
Report Compiled by:	R Cadwallader Engineering Project Handler 
Authorised by:	D Potts Engineering Leader 

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2. Summary of Results

The following summarises the results of testing carried out, in accordance with the relevant testing and classification standards.

The performance of the sample tested has been assessed against the criteria described in below standards.

	<i>Test Method & Classification Standard</i>	<i>Achieved Max. Test Pressure</i>	<i>Classification</i>
Initial Air Permeability	BS EN 1026:2016 BS EN 12207:2000	600 Pa	3
Water Tightness	BS EN 1027:2000 BS EN 12208:2000	50 Pa	2A

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.

2.1 Decision Rule

Classifications reported in Section 5 indicate that the product conforms with the relevant accuracy requirements of the testing standards (as summarised below) and the expanded measurement uncertainty ($k=2$ for approximately 95% coverage probability) is no greater in magnitude than the accuracy requirements defined in Section 4 of BS EN 12207:2000 and Section 4 and Section 5 of BS EN 12210:2016.

2.2 Measurement Uncertainty

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$, providing a level of confidence of approximately 95%, and for the air leakage measurements is $\pm 1.57\%$ whereas for the wind resistance measurements is $\pm 1.57\%$.



3. Description of Test Sample

The description of the test sample in this section has been supplied by Vista Panels and has not been verified by UL International (UK) Limited.

See Section 7 for test sample drawings as provided by the customer.

General Information	
Product range name:	Vista Panels, Xtreme and Dales Composite Doors
Project name to appear on front page of the test report:	Vista Panels, Xtreme and Dales Composite Doors
Configuration:	Single Door-Set
Opening direction:	Right Hand Opening In
Product manufacturer:	Vista Panels
The sample is typical of normal production:	Yes
Please define the closing condition of the sample: I.e. Closed, fastened, latched, locked and secured etc.	Latched & Locked Centrally, Hooks engaged Top & Bottom
Weight of Sample including subframe (kg):	Approx. 50kg

Outer Frame			
Height:	2117 including PVC Cill	Outer frame gasket	Co-ex to EWS031
Width:	1034mm	Gasket type:	Flipper
Outer frame material:	PVC	Manufacturer:	Eurocell
Surface finish	Smooth	Product name:	n/a
Outer frame Part Numbers		Product code:	n/a
Top:	EWS0315.3 WQL Profile	Threshold	
Bottom:	AC85646W Cill	Manufacturer:	Exitex
Lock side:	EWS0315.3 WQL Profile	Product name:	MXS15/2 - RITB
Hinge side:	EWS0315.3 WQL Profile	Product code:	1.01.0760.1050.15
Outer frame section size		Material:	Aluminium
Width:	70mm	Outer frame joint method	
Depth:	80mm	Head:	Welded
Reinforcing:		Foot:	Screwed On
Manufacturer:	Eurocell		
Product name:	Large Composite Door Frame Insert		
Product code:	EWS831P		
Material:	Re-cycled PVC		



Leaf, Sash, or Casement - 1			
Width:	914mm	Leaf / casement gasket	
Height:	2013mm	Gasket type:	Flipper – Co-ex to Profile
Material:	GRP Composite Slab	Manufacturer:	Eurocell
Surface finish:	GEL Coat – Wood Grained Finish	Product name:	n/a
Leaf / casement part numbers		Product code:	n/a
Top:	DoorCo Original Slab	Leaf midrail	
Bottom:		Manufacturer:	n/a
Lock side:		Product name:	n/a
Hinge side:		Product code:	n/a
Leaf / casement section size		Material:	
Width:	n/a	Leaf / casement joint method	
Depth:	n/a	Head:	n/a
Reinforcing	n/a	Foot:	n/a
Manufacturer:	DoorCo		
Product name:	Combi Door Slab		
Product code:	914 4/6P WH		
Material:	GRP		

Glazing			
Glass unit		Glazing gasket	
Manufacturer:	Art Glass	Gasket type:	n/a
Inner thickness:	18mm	Manufacturer:	n/a
Spacer material:	Silver Painted Spacer Bar - 17.5mm Air Space x 6.5mm Height - Rear Weld	Product name:	n/a
Outer thickness:	26mm	Product code:	n/a
Unit sizes:	26x559x913mm	Glazing clip	n/a
Bead		Manufacturer:	n/a
Manufacturer:	ODL Europe	Product name:	n/a
Product name:	Half Glazed Trisys Cassette	Product code:	n/a
Product code:	Inner: TSWHT2236CASSINS Outer: TSWHT2236	Glazing tape details	
Bead size:	n/a	Manufacturer:	UK Industrial Tapes
Bead material:	PC/ABS	Product name:	BLUEFILMIC LINER Tape
		Product code:	ProLINK 1000R



Hardware				
	Manufacturer:	Product description:	Product code:	Quantity:
Hinges:	Nico Manufacturing	White Icon Adjustable Hinge	4961WH	3 (Top, Middle, Bottom)
Hinge fixing:	Rapiestar	Countersunk Screw	CSR 4.8x45 Z StarPVCU	Each Hinge has 4 screws to the slab & 4 screws to the Frame
Hinge protectors:	n/a	n/a	n/a	n/a
Hinge protector fixings:	n/a	n/a	n/a	n/a
Locking hardware:	Ingenious Locks & Hardware	Multipoint Lock	1009 Duplex MPL	1
Locking hardware fixing:	Rapiestar	Countersunk Screw	CFG 4.3x40Z	8
Cylinder:	Ingenious Locks & Hardware	Key/Key EPC Star Cylinder	6001-13-3535-SN	1
Cylinder fixing:	Ingenious Locks & Hardware	Countersunk Bolt	M5 65 Z	1
Handle:	Ingenious Locks & Hardware	Lever/Lever PVD Chrome Handles	4007-LL-SS-04	1
Handle fixings:	Ingenious Locks & Hardware	Pan-Head Securing Bolts	M5 x 60	2
Touch bar:	n/a	n/a	n/a	n/a
Cylinder support:	Ingenious Locks & Hardware	Cylinder Guard	9101	1
Cylinder escutcheon:	n/a	n/a	n/a	n/a
Keeps:	Ingenious Locks & Hardware	1009 MPL Keep Set	1141LH, 1141RH, 1143	1 of each
Keep fixings:	Rapiestar	Countersunk Screw	CFG 4.3x30Z	2 per Keep
Drip bar:	Exitex	Deflector 20	1.01.0110.0914.30	1
Drip bar fixings:	Rapiestar	Countersunk Screw	CFG 4.3x20Z	4

Confirmation

Customer is to confirm that the samples provided for testing are representative of standard production. Please note: the details given above, as well as the drawings supplied by the customer as confirmed as typical of normal production are not verified by UL International (UK) Limited.

Company:	Vista Panels
Name:	Pip Anger
Position:	Technical Director
Date:	17 th January 2022



4. Test Arrangement

4.1 Test Chamber

A window specimen, supplied for testing in accordance with the relevant British and European Standards, was mounted into a rigid test chamber. The pressure within the chamber was controlled by means of a centrifugal fan and a system of ducting and valves. The static pressure difference between the outside and inside of the chamber being measured by means of a pressure transmitter.

4.2 Instrumentation

4.2.1 Static Pressure

A pressure measuring device capable of measuring rapid changes in pressure to an accuracy within 5%, was used to measure the pressure differential across the sample.

4.2.2 Air Flow

An air flow meter mounted in the air system ducting was used to measure the airflow required to obtain pressures within the test chamber. The system has the capability of measuring airflow through the sample to an accuracy of $\pm 5\%$.

4.2.3 Water Flow

A flow meter(s), mounted in the spray frame water supply system, was used to measure water flow to the test sample to an accuracy of $\pm 10\%$.

4.2.4 Temperature & Humidity

A digital data logger capable of measuring temperature with an accuracy of $\pm 3^{\circ}\text{C}$ and humidity with an accuracy of $\pm 5\% \text{Rh}$ was used.

4.2.5 Barometric Pressure

A digital barometer capable of measuring barometric pressure with an accuracy of $\pm 1 \text{ kPa}$ was used.

4.3 Pressure Generation

4.3.1 Static Air Pressure

The air supply system comprised of a centrifugal fan assembly and associated ducting and control valves and was used to create both positive and negative static pressure differentials. The fan provided a constant airflow at the required pressure and period required for the tests.

Note: References are made to both positive and negative pressures in this document, it should be noted that in these instances, positive pressure is when pressure on the weather face of the sample is greater than that on the inside face and vice versa.

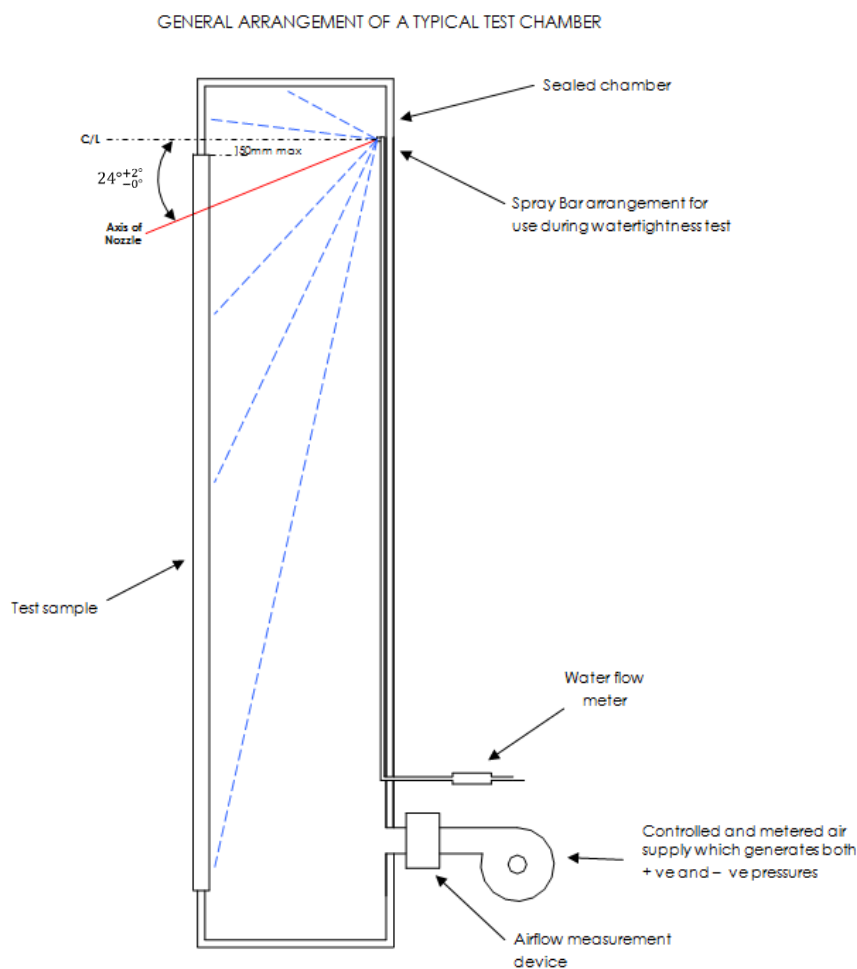


4.4 Water Spray System

The spray nozzles have a circular full cone spray pattern and a spray angle of $120^\circ (+0^\circ/-10^\circ)$ at working pressure of 2 – 3 bar and a flow rate of 2 litres/min (± 0.2 litres/min) per nozzle. The nozzles were spaced at 400 mm (± 10 mm) along the axis of the spraybar and the nozzles were arranged so that the lateral distance between the outer edge of the surround and the outermost nozzles shall be greater than 50mm but not exceeding 250mm.

The nozzle line was located not more than 150mm above the topmost horizontal joint line of any moving frame or the glazing line of any fixed glazing, in order to provide complete wetting of the adjacent horizontal frame member(s). The nozzle line was also located at a distance of 250mm ($+10$ mm/- 0mm) from the external face of the specimen as defined by the outermost external joint plane of moving parts or the glazing plane of fixed parts.

Figure 1 – Test arrangement



5. Test Procedures

Testing was carried out in accordance with the following standards:

- | | |
|---|------------------------|
| – Performance of windows and doors
Part 1: Classification for weathertightness and guidance on selection and specification | BS 6375-1:2015+A1:2016 |
| – Windows and doors - Air Permeability - Test method | BS EN 1026:2016 |
| – Windows and doors - Air Permeability - Classification | BS EN 12207:2000 |
| – Windows and doors - Watertightness - Test method | BS EN 1027:2000 |
| – Windows and doors - Watertightness - Classification | BS EN 12208:2000 |

5.1 Sequence of Testing

1. Air Permeability – Infiltration
2. Air Permeability – Exfiltration
3. Watertightness

Note: Prior to all testing the sample was conditioned for at least 4 hours at between 10 – 30°C & 25 – 75% RH, as required by the relevant testing standards.

5.2 Air Permeability - Infiltration

The air leakage of the test chamber and joints between the chamber and test sample was determined by sealing the sample with adhesive tape and polythene sheeting and measuring the air flows at positive pressure differentials of: 50, 100, 150, 200, 250, 300, 450 and 600 Pa, each step being held for at least 10 seconds.

The sample was unsealed and any opening lights were opened and closed at least once before being brought in to the closing condition defined by the manufacturer as listed in Section 3. Three pressure pulses of 660 Pa positive pressure were then applied to the test sample.

Air flows measurements were then repeated with the sample unsealed and the difference between readings being the air leakage through the test sample which was then adjusted to normal conditions as defined in BS EN 1026:2016.

5.3 Air Permeability - Exfiltration

The air permeability test was repeated using negative pressures as described in Section 5.2.

5.4 Watertightness

Any opening lights were opened and closed at least once before being brought into the closing condition defined by the manufacturer as listed in Section 3. Three pressure pulses of 660 Pa positive pressure were then applied to the test sample.

Water was then sprayed on to the sample as per section 4.4, for 15 minutes at 0 Pa. The water spray continued and the pressure was increased in the following increments: 50 & 100 Pa (each stage being held for 5 minutes).

The interior face of the sample was continuously monitored for water ingress throughout the test.



6. Test Results

6.1 Lab Conditions

The conditions measured inside the laboratory were as follows:

Temperature (°C)	Humidity (%rh)	Atmospheric Pressure (kPa)
19.2	27.3	102.0

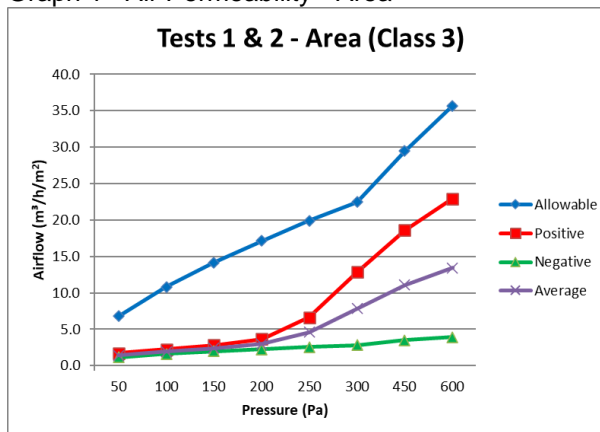
6.2 Air Permeability

Calculated area of test sample 2.18 m²
 Measured length of opening joints 5.72 m

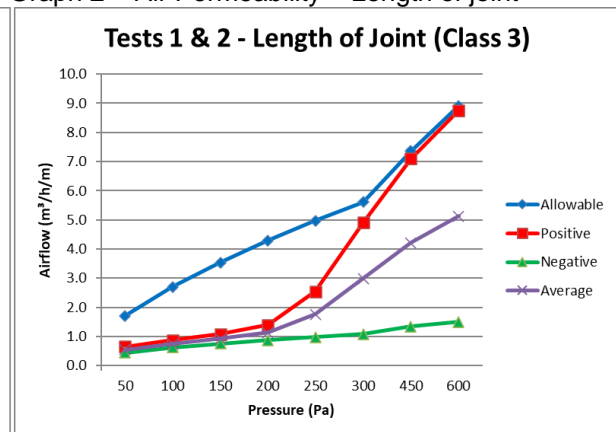
6.2.1 Air Permeability Tests 1 & 2

Pressure Differential Pa	Air Permeability Rate Infiltration & Exfiltration Tests m ³ /hr/m ² - Area			Air Permeability Rate Infiltration & Exfiltration Tests m ³ /hr/m - Length of Joint		
	Test No. 1	Test No. 2	Average	Test No. 1	Test No. 2	Average
50	1.71	1.16	1.43	0.65	0.44	0.55
100	2.27	1.62	1.94	0.87	0.62	0.74
150	2.82	1.99	2.40	1.08	0.76	0.92
200	3.65	2.27	2.96	1.39	0.87	1.13
250	6.66	2.54	4.60	2.54	0.97	1.76
300	12.86	2.82	7.84	4.91	1.08	2.99
450	18.59	3.51	11.05	7.10	1.34	4.22
600	22.94	3.93	13.43	8.76	1.50	5.13

Graph 1 – Air Permeability - Area



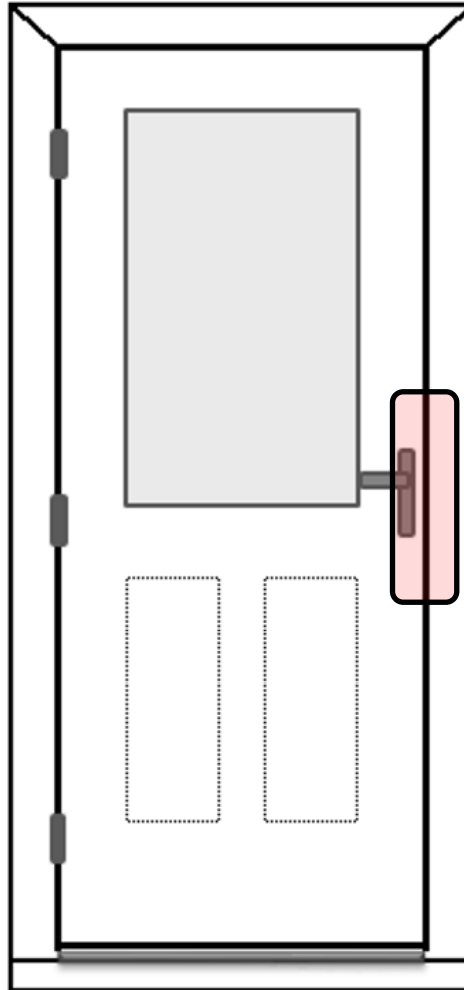
Graph 2 – Air Permeability – Length of joint



6.2.2 Areas of Concentrated Leakage

During the test, there were areas of concentrated air leakage identified as shown in Figure 2.

Figure 2 – Areas of concentrated air leakage



Note Due to the high performance of the test specimen, the chamber leakage exceeded the maximum 30% rule and as such is a deviation from the test standard.

6.2.3 Initial Air Permeability – Classification

Based on Area	Based on Length of Opening Joint
3	3



6.3 Watertightness Testing

6.3.1 Watertightness – Results

Water Temperature (°C)	16.9
Spray method used	1A

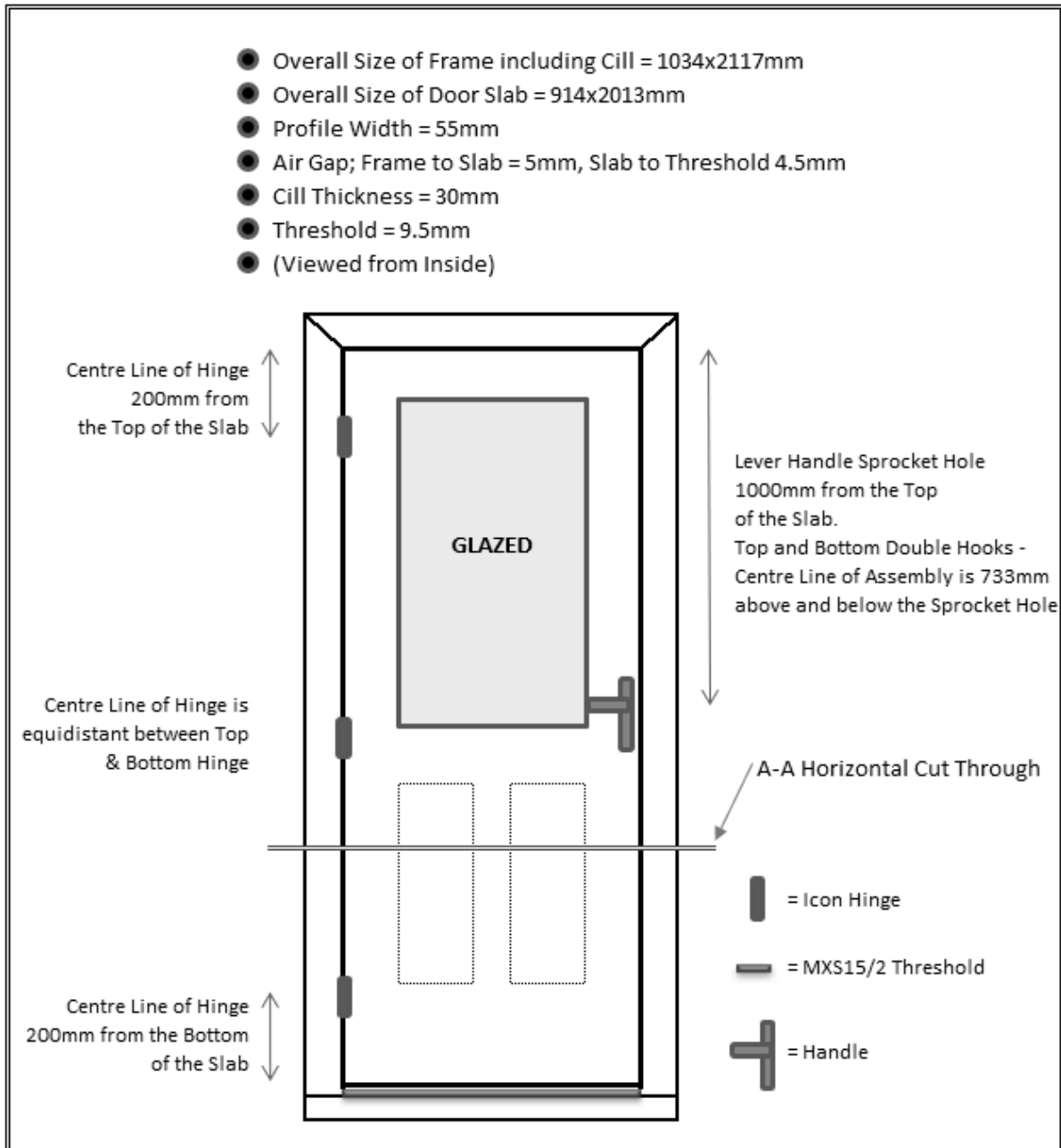
Observations			
Air Pressure (Pa)	Time Stage Held (minutes)	Comments	Classification
0	15	No leakage observed	1A
50	5	No leakage observed	2A

6.3.2 Watertightness - Classification

Overall Classification
2A

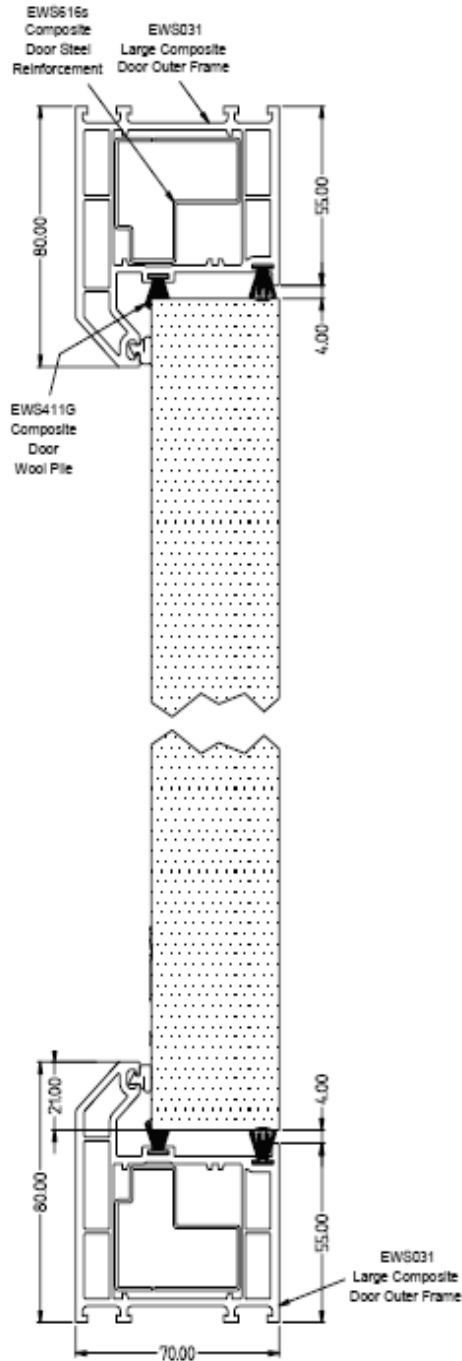


7. System Drawings



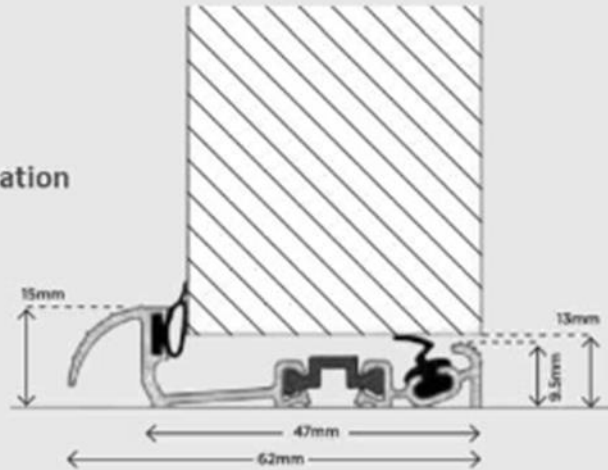


Composite Door System Information



MXS 15/2 RITB

Inward Opening
Available in Gold & Mill Finish
Part M Compliant
Thermally Broken Prevents Condensation





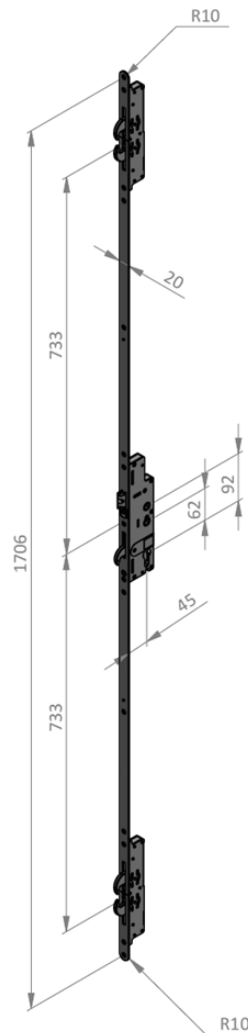
1000 Series Multi-Point Door Lock

Product Code

- **1009** Ingenious Duplex 5 Hook Multi-Point Door Lock

Product Specifications

- 45mm Backset Centre Case
- Centre Hook
- 20mm Faceplate
- 1726mm Faceplate Length
- Radius End Faceplate
- 92mm/62mm PZ Centres
- Twin Spindle
- Reversible Latch
- Hold Back Function
- 2 Duplex Hooks
- Anti Manipulation Plate
- PAS 24 Compliant
- BS 6375-2 Compliant
- S.B.D. Approved
- BS EN 1670 Grade 5, 480 hrs NSS



Date **14/07/2016**

Catalogue Page No.

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----- END OF REPORT -----





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