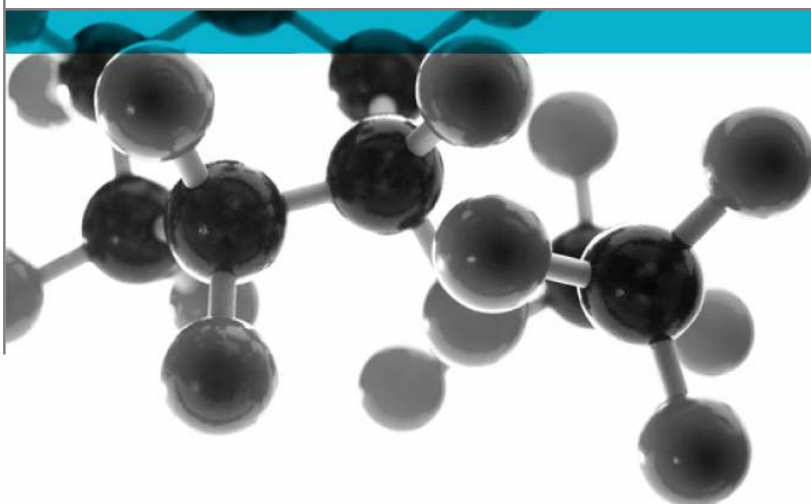




PAS 24:2007

+A2:2011



Test of: CS68 Double Open in Door Set

Enhanced security performance requirements for door assemblies

A Report To: Reynaers Ltd

Document Reference: WIL 322389

Date: 12/02/2013

Copy: 1

Issue No.: 1

Page 1

**Testing
Advising
Assuring**



TEST CONCLUSIONS

Samples of:

Manufacturer Reynaers Ltd
 Product Open in door set
 Model CS68 Double

have been tested in accordance with: PAS24:2007 +A2:2011

By Exova Warringtonfire Willenhall, a UKAS accredited Testing Laboratory (No. 0621) and EC Notified Body number (No. 1104)

At Key Industrial Park, Fernside Rd, Willenhall, West Midlands, WV13 3YA.

Results and comments as detailed below:

Clause No.	Description	Compliance
7	Enhanced security performance requirements	
7.1	General	Yes
A.4	Manipulation test	Yes
A.5	Cutting and infill medium removal test	N/T
A.6	Mechanical loading test	Yes
A.7	Manual check test	Yes
A.8	Additional mechanical loading test	Yes
A.9	Soft body impact test	Yes
A.10	Hard body impact test	Yes
A.11	Security hardware and cylinder test	Yes
7.3	Cylinders for locks	Yes
7.4	Classification – K	Yes
7.4	Classification – KT	Yes
8	Design and general performance requirements	
8.1	General	N/T
8.2	Glazing	Yes

No inferences can be made regarding performance against other requirements of this standard

Tests marked " N/A" are not applicable to the sample under test.

Tests marked "N/T" were not applied to the sample under test

AUTHORISATION

Tests performed by: Mark Garfield, Test Engineer

Report issued by: Mark Garfield, Test Engineer

Signed 

Date 12/02/13

For and on behalf of Exova Warringtonfire

Report authorised by: Mark West, Assistant Operations Manager

Signed 

Date 12/02/13

For and on behalf of Exova Warringtonfire

Report issued: 12 February 2013



NOTE.

Tests marked "Not UKAS Accredited" are not covered by the Laboratory UKAS accreditation schedule.

Tests marked NT were not tested

Tests marked NA are not applicable to the product on test.

The laboratory has tested the product supplied by the client as sampled in accordance with their own requirements

Exova Warringtonfire is an EC Notified Body Number 1104

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TEST DETAILS

CLIENT DETAILS

Company name Reynaers Ltd
 Address Kettles Wood Drive,
 Birmingham,

 Postcode B32 3DB

 Contact John McComb

ORDER DETAILS

Order number RAP1208070
 Dated 17/09/12

SAMPLE DETAILS

Product Open in door set
 Model CS68 Double
 Manufacturer Reynaers Ltd
 Frame Dimensions Stated: 2400 x 2400mm
 Sash Dimensions Stated: inactive 1149 x 2342 mm active 1149 x 2342mm measured from mitre to mitre
 Material Aluminium
 Details of Hardware
 Hinges 065.6391
 Hinge protection 060.7830
 Lock FUHR
 Markings None
 Date of Manufacture Unknown
 Other information None

TEST DETAILS

Test specification PAS 24:2007 +A2:2011
 Full test No
 Test to clauses A.4, A.6, A.7, A.9, A.10, A.11

Sample received 12/10/12
 Test started 15/10/12
 Test completed 15/10/12

Special Test requirements
 Other reports to be used in conjunction with this report WIL 322390

TEST PROCEDURE

Introduction	This test report should be read in conjunction with the Standard PAS 24:2007 +A2:2011 Enhanced security performance requirements for door assemblies – Single and double leaf, hinged external door assemblies to dwellings. The specimens were judged on their ability to comply with the performance criteria as required in PAS24:2007.
Instruction To Test	The test was conducted on the 15/10/12 on behalf of Reynaers Ltd. Mr Paul Guest, a representative of Reynaers witnessed the test. Initial requirement was for a classification of K for key locking only.
Test Specimen Construction	A description of the test construction is given in the Schedule of Components. The description is based on a detailed survey of the specimens and information supplied by the sponsor of the test.
Installation	The sample was supplied mounted within a timber sub-frame of nominal section 75mm x 100mm fitted flush with the exterior face, in accordance with the clients fitting instructions.
Sampling	The samples were not independently witnessed or selected and were provided direct from the test sponsor.
Test Climate	The sample was conditioned in the laboratory in the range 10-30 °C and 25-75% humidity.

INITIAL OBSERVATIONS

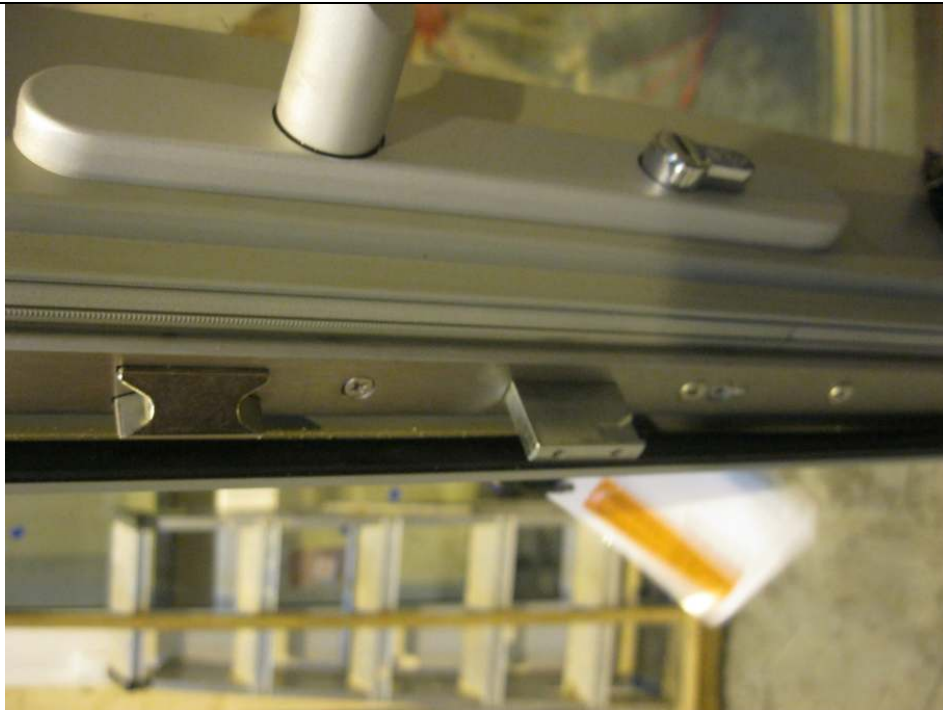
**The internal face
of the sample**



**The external face
of the sample**



Sample handle**Sample centre
keeper**

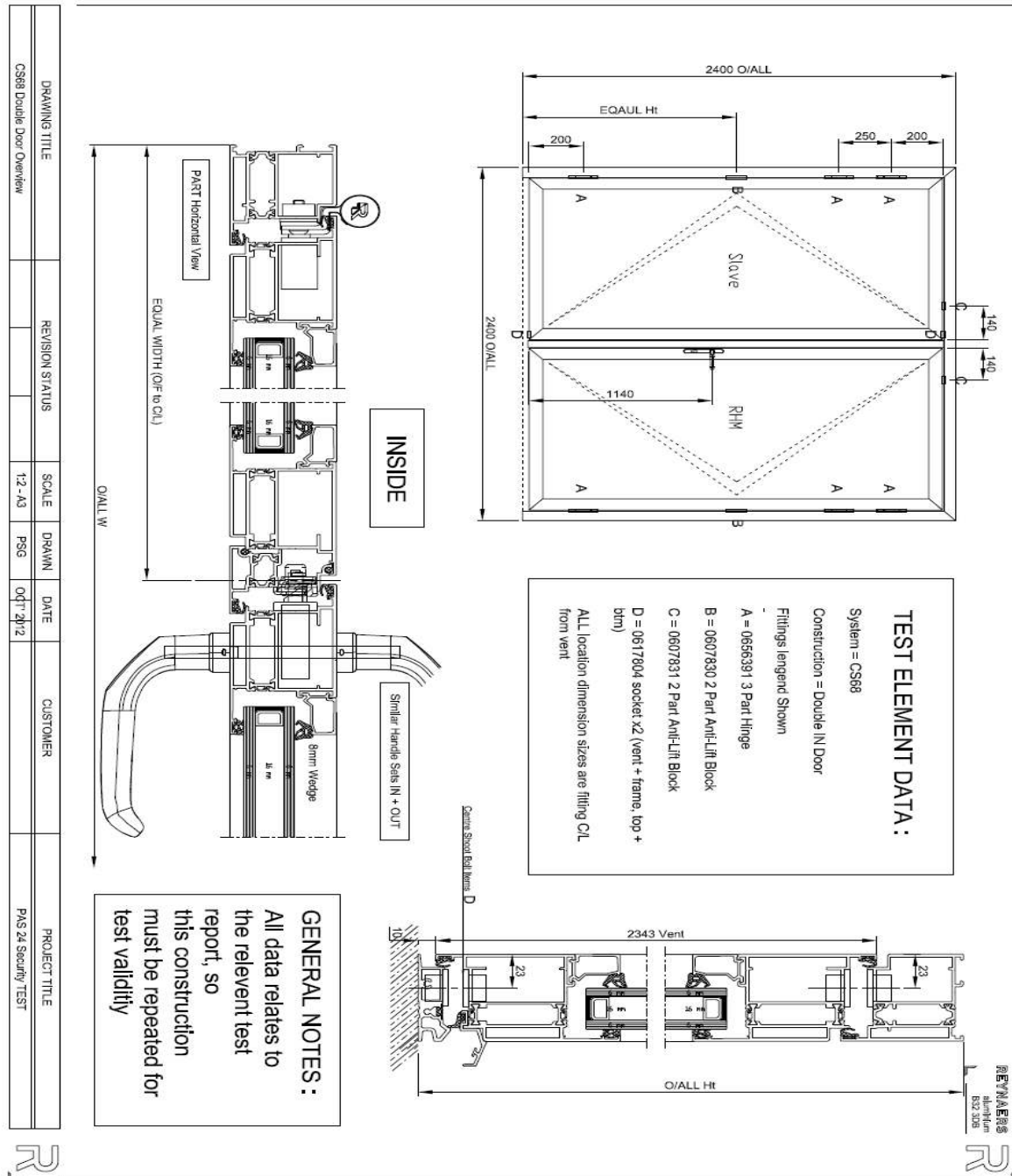
**Sample centre
locking point****Sample Top
locking point**

Sample hinge**Sample hinge protection**

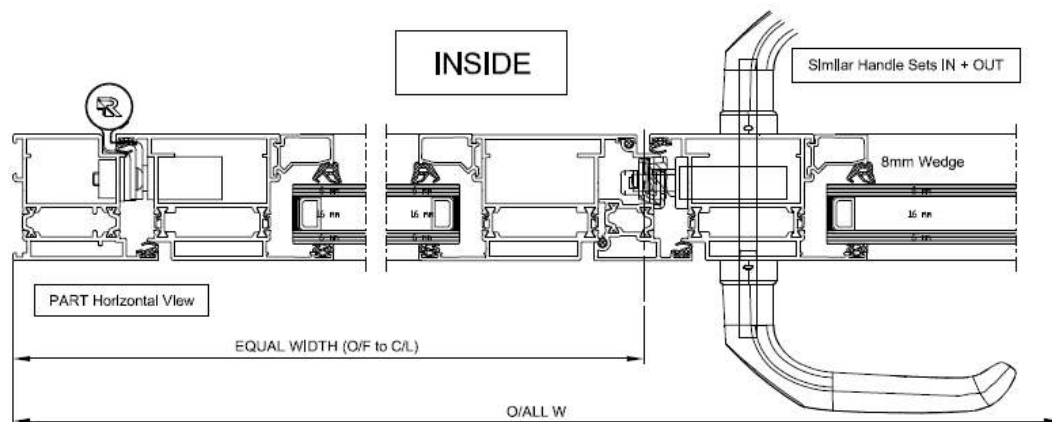
**Shoot bolt
locking handle**



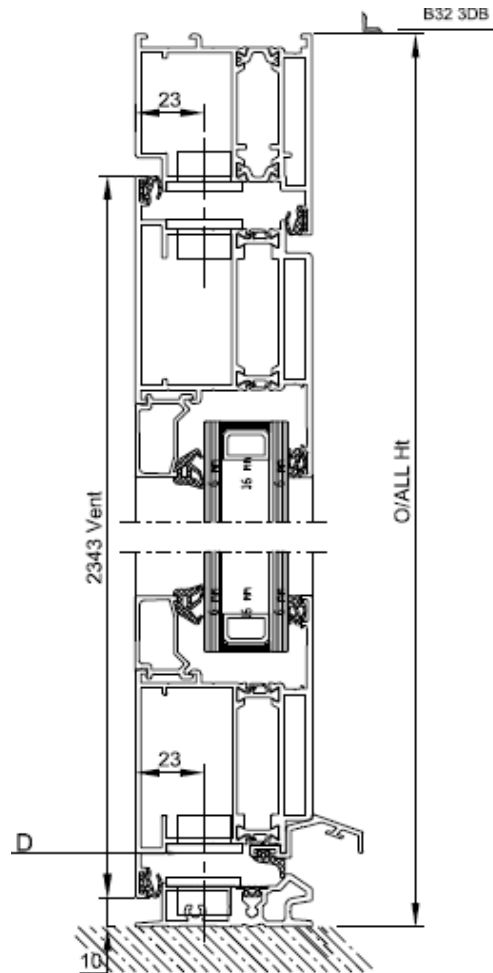
TEST SPECIMEN

Figure 1- General Elevation of Test Specimen (External Face)


Do not scale. All dimensions are in mm

Figure 2 – Horizontal section


Do not scale. All dimensions are in mm

Figure 3 – Vertical section


Do not scale. All dimensions are in mm

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 Author: M Garfield
 Client: Reynaers Ltd

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0621

SCHEDULE OF COMPONENTS

(Refer to Figures 1 to 3)

(All values are nominal unless stated otherwise)

(All other details are as stated by the sponsor)

Variants

None

<u>Item</u>	<u>Description</u>
1. Door leaf framing	
Supplier	: Reynaers Ltd
Profile codes	
i. stile profile code	: 005.3026.XX
ii. rail profile code	: 005.3026.XX
Material	: Aluminium
Grade	: 6060 / 6063 T66 Anodise quality/grade
Gauge	:
Overall size	: 102mm x 59mm
Fixing jamb to head/sill joints	:
i. type	: Cleats
ii. size	: 50mm x 21mm and 40mm x 7mm
iii. quantity	: x1 set per corner
Details of adhesive	
i. supplier	: Reynaers Ltd
ii. reference	: 084.9080.-- 2 part epoxy glue
2. Door leaf glass (IGU)	
Supplier	:
Configuration	: 6mm tough – 16mm space – 6mm tough
Thickness	: 28mm
Overall size	
i. top pane	: 983mm x 2176mm
Nominal edge clearance	: 6mm
3. Glazing gasket (internal)	
Supplier	: Reynaers Ltd
Reference	: 080.9128.04 wedge
Fixing method	: Push Fit
4. Glazing gasket (external)	
Supplier	: Reynaers Ltd
Reference	: 080.9114.04 captive
Fixing method	: Push Fit
5. Glazing beads	
Glazing method	: Internally beaded
Supplier	: Reynaers Ltd
Profile code	: 030.3648.XX

Item**Description**

Material	:	Aluminium
Grade	:	6060 / 6063 T66 Anodise quality/grade
Gauge	:	
Overall size	:	25mm x 14mm
Fixing method	:	Push / Clip Fit

6. Door frame head

Supplier	:	Reynaers Ltd
Profile code	:	005.1898.XX
Material	:	Aluminium
Grade	:	6060 / 6063 T66 Anodise quality/grade
Gauge	:	
Overall section size	:	68mm x 59mm
Rebate	:	15mm
Fixing jamb to head joints	:	
i. type	:	Cleats
ii. size	:	41mm x 21mm and 31mm x 7mm
iii. quantity	:	x1 set per corner
Details of adhesive	:	
iii. supplier	:	Reynaers Ltd
iv. reference	:	084.9080 2 part epoxy glue

7. Door frame jamb

Supplier	:	Reynaers Ltd
Profile code	:	005.1898.XX
Material	:	Aluminium
Grade	:	6060 / 6063 T66 Anodise quality/grade
Gauge	:	
Overall size	:	68mm x 59mm

8. Door frame threshold

Supplier	:	Reynaers Ltd
Profile code	:	005.0873.XX
Material	:	Aluminium
Grade	:	6060 / 6063 T66 Anodise quality/grade
Gauge	:	
Overall size	:	18mm x 59mm
Fixing method	:	
i. type	:	Stainless Steel Screws
ii. material	:	PVC with stainless steel screws
iii. size	:	
iv. quantity	:	x1 per connection

9. Door frame weather seal

Supplier	:	Reynaers Ltd
Reference	:	080.9440.04 and 080.9080.04
Material	:	EPDM
Fixing method	:	Push Fit

Item**Description****10. Hinges**

Supplier	:	Reynaers Ltd
Description	:	Barrel Type
Reference	:	065.6391.XX
Quantity	:	x3 per leaf
Primary material	:	Aluminium
Size of knuckle	:	21mm DIA barrel

ADDITIONALLY,

0607830 @ jamb sides / 0607831 @ head (central, lock side)

Fixing hinge to doorleaf

i. type	:	Clamped with Screws
ii. size	:	Part of Hinge Set
iii. quantity	:	Part of Hinge Set

Fixing hinge to frame

i. type	:	Clamped with Screws
ii. size	:	Part of Hinge Set
iii. quantity	:	Part of Hinge Set

Position of hinge

i. top hinge	:	200mm from top of door to C/L of hinge
ii. middle hinge	:	450mm from top of door to C/L of hinge
iii. bottom hinge	:	200mm from bottom of door to C/L of hinge

11. Lock

Supplier	:	Reynaers Ltd
Description	:	3 Point (lift handle to engage)
Reference	:	061.8150.ZC
Fixings		
i. type	:	Stainless Steel Countersunk
ii. size	:	4.2mm x 19mm
iii. quantity	:	x13

12. Lock Keeps

Supplier	:	Reynaers Ltd
Description	:	3x Lock Plates
Reference		
i. top & bottom keeps	:	061.8182.--
ii. centre keep	:	061.8153.--
Overall size		
i. top & bottom keeps	:	150mm x 24mm x 19.75mm
ii. centre keep	:	232mm x 24mm x 21.5mm
Fixing keeps to frame		
i. type	:	Riv-Nuts and Stainless Steel Screws
ii. size	:	M5 x 20mm and 4.2mm x 19mm
iii. quantity	:	x2 to Top and Bottom Keeps x3 to Centre Keep

Item**Description****13. Shoot bolts**

Supplier	:	Reynaers Ltd
Description	:	Finger Operated Gearbox with Bolts Top and Bottom
Reference	:	
i. shoot bolt	:	061.7161.-- with 061.7155.-- + 061.7156.--and 061.7154.--
ii. keep	:	
Fixing bolt to doorleaf	:	
i. type	:	Riv-Nuts and Stainless Steel Screws
ii. size	:	M5 x20mm
iii. quantity	:	x2
Fixing keeps to frame	:	
i. type	:	0617804 Top hat Socket
ii. size	:	50 x 20 plate with DIA 11/18 socket
iii. quantity	:	1x to o/frame & vent both top and bottom

14. Cylinder

Supplier	:	Avocet
Description	:	ABS anti drill / pick
Reference	:	DC3AB 35 55 PC
Fixings	:	
i. type	:	Machine screw CSK
ii. size	:	M5
iii. quantity	:	X1

15. Lever handles

Supplier	:	Reynaers Ltd
Description	:	Long Cover Plate
Reference	:	061.7130.XX and 061.7140.XX
Material	:	Aluminium/Zinc Pressure Die Cast
Fixings	:	
i. type	:	Stainless Steel Countersunk
ii. size	:	M5 x 75mm
iii. quantity	:	x3

PERFORMANCE CRITERIA & TEST RESULTS

Clause	Result	Pass/Fail
A.4 Manipulation test	Attacks were made with the paint scraper to try and disengage the bottom locking point for 50 seconds, but entry was not achieved. Attacks were made with the Stanley knife to try and cut the rebate to expose the hook for 1 minute 22 seconds, but entry was not achieved. Attacks were made with the small screwdriver to try and manipulate the hinge for 45 seconds, but entry was not achieved.	PASS K / KT
A.5.2 Manual test on infill	Testing was not carried out at the clients request.	N/T
A.5.3 Mechanical test on infill	Testing was not carried out at the clients request.	N/T
A.5.4 Manual cutting test	Testing was not carried out at the clients request..	N/T
A.6 Mechanical loading test	Attempts to apply Mechanical loads to all the hinge points and locking points were made with the following results obtained. Position 1: Top right Hinge 1.5KN 90° Parallel & 4.5KN Perpendicular force applied without any component failure. Position 2: 2nd right Hinge 1.5KN 90° Parallel & 4.5KN Perpendicular force applied without any component failure. Position 3: Right Hinge protection 1.5KN 90°Parallel & 4.5KN Perpendicular force applied without any component failure. Position 4: Bottom right Hinge 1.5KN 90° Parallel & 4.5KN Perpendicular force applied without any component failure. Position 5: Bottom shoot bolt 1.5KN Parallel & 4.5KN Perpendicular force applied without any component failure. Position 6: Bottom locking point 1.5KN Parallel & 4.5KN Perpendicular force applied without any component failure. Position 6: Bottom locking point 1.5KN 90° Parallel & 4.5KN Perpendicular force applied without any component failure. Position 7: Centre locking point 1.5KN 90° Parallel & 4.5KN Perpendicular force applied without any component failure. Position 8: Top locking point 1.5KN Parallel & 4.5KN Perpendicular force applied without any component failure. Position 8: Top locking point 1.5KN 90° Parallel & 4.5KN Perpendicular force applied without any component failure. Position 9: Top shoot bolt 1.5KN Parallel & 4.5KN Perpendicular force applied without any component failure.. Position 10: Top Left Hinge 1.5KN 90° Parallel & 4.5KN Perpendicular force applied without any component failure. Position 11: 2nd Left Hinge 1.5KN 90° Parallel & 4.5KN Perpendicular force applied without any component failure. Position 12: Left Hinge protection 1.5KN 90°Parallel & 4.5KN	PASS K / KT

Clause	Result	Pass/Fail
	Perpendicular force applied without any component failure.. Position 13: Bottom Left Hinge 1.5KN 90° Parallel & 4.5KN Perpendicular force applied without any component failure. Entry was not achieved	

**Defined
mechanical
loading points**

**A.7
Manual check
test**

Attacks were made with a lever and a screwdriver to try and lever the door open between the bottom and centre hinge for 2 minutes, but entry was not achieved.

Attacks were made with 2 levers to try and lever the door open at the bottom corner of the active door for 2 minutes, but entry was not achieved.

Attacks were made with a lever and a screwdriver to try and lever the door open between the bottom and centre locking point for 3 minutes, but entry was not achieved.

**PASS
NO
VULNER-
ABILITY
IDENTIFIED**

No vulnerabilities were identified

Clause	Result	Pass/Fail
A.8 Additional mechanical loading test	Testing was not required as no vulnerabilities were identified in the manual check test.	NOT REQUIRED
A.9 Soft body impact test	The sample withstood 9 soft body impacts to points 800mm above floor level, 1250mm above floor level, and 1700mm above floor level in the centre of both door leaves and meeting stile. No visible damage was caused by these impacts and no entry was gained.	PASS K / KT
A.10 Hard body impact test	Attempts to apply hard body impacts to all the corners of the door leaf, hinge points and locking points were made with the following results obtained. Position 1 Top Hinge Corner 3 impacts applied indentation made in door leaf Position 2 Top Hinge 3 impacts applied indentation made in door leaf Position 3 2nd Hinge 3 impacts applied indentation made in door leaf Position 4 Hinge protection 3 impacts applied indentation made in door leaf Position 5 Bottom Hinge 3 impacts indentation made in door leaf Position 6 Bottom Hinge Corner 3 impacts applied indentation made in door leaf Position 7 Bottom active door corner 3 impacts indentation made in door leaf Position 8 Bottom shoot bolt 3 impacts applied indentation made in door leaf Position 9 Bottom Locking point 3 impacts applied indentation made in door leaf Position 10 cylinder 3 impacts applied indentation made in door leaf Position 11 centre Locking point 3 impacts applied indentation made in door leaf Position 12 Top Locking point 3 impacts applied indentation made in door leaf Position 13 Top Lock Corner 3 impacts applied indentation made in door leaf Position 14 Top shoot bolt 3 impacts applied indentation made in door leaf.	PASS K / KT

Clause	Result	Pass/Fail
A.11.3.2 - 1 Security hardware test	<i>*Assessed from WIL 322390*</i> <i>Attacks were made with the straight jaw mole grips to remove the handle and snap the cylinders sacrificial front off, but entry was not achieved in 3 minutes.</i>	PASS K / KT
A.11.3.3 - 2 Security hardware test	<i>*Assessed from WIL 322390*</i> <i>Attacks were made with a 4.2mm traction screw, Norbar(hook), straight jaw mole grips and screwdriver to remove the handle snap the sacrificial front end off and insert the screw, the cylinder then sheared at the second shear line, but entry was not achieved in 3 minutes.</i>	PASS K / KT

Clause	Requirement	Result	Pass/fail
7 Enhanced Security Performance Requirements			
7.1 General	It shall not be possible to gain entry when tested to the test methods in annex A	Criteria achieved for clauses A.4, A.6, A.7, A.8, A.9, A.10, A.11	PASS
7.3 Cylinders for locks	Cylinders falling within the scope of EN1303 used in the tested door assembly shall meet the requirements of key related security to grade 5 and Resistance to drilling grade 2.	Evidence supplied by client KM586153	PASS
	Additionally cylinders shall have been successfully assessed in accordance with the requirements of Annex C of PAS24.	Evidence supplied by client KM586153	PASS
7.4 Classification	Following testing to clause 7.1 with an entry definition defined in 3.1, the final classification shall be determined as K for a doorset that requires the use of a removable key, or KT for key-thumbturn locking.	Doorset classified as K for key locking hardware only	PASS
8 Design & general performance requirements			
8.1 General	All door assemblies shall meet the requirements of PAS23-1	Testing was not carried out at the clients request.	N/T
8.2 Glazing	Glazing shall be in accordance with BS 6262. Glazing in doors that do not require the use of a removable key shall be laminated. Secured by Design requires 6.4mm laminated glass on the external face and 4mm toughened glass on the internal face.	Doorset tested with toughened glass. Client was notified that 6.4mm laminated glass on the external face is required for thumbturn scenario and Secured by Design	PASS

CONCLUSIONS

Evaluation against objective	The sample as provided by the client was subjected to enhanced security testing in accordance with PAS24:2007 +A2:2011 and achieved the requirements for a classification of K for key-key locking and KT for key-thumbturn locking to the clauses tested.
Observations & comments	Performance to clause 8 design & general performance requirements, clause 9 installation instructions, and clause 10 markings was not assessed.

LIMITATIONS

Limitations	The results relate only to the behaviour of the specimens of the element of construction under the particular conditions of test. They are not intended to be the sole criteria for assessing the potential performance of the element in use, nor do they reflect the actual behaviour in use.
Range of assemblies covered by this report	It is our opinion that the range of assemblies covered by this report are limited to the following ▪ Assemblies with identical hardware fitted no further apart than in the tested assembly ▪ Assemblies of the same or smaller overall dimensions to the tested assembly
Uncertainty of Measurement	The uncertainties of measurements calculated for a confidence level of 95% throughout these tests are within the limits of these tolerances. The standard specifies the following tolerances ▪ Forces: $\pm 2\%$ ▪ Distances: $\pm 1\text{mm}$ for tape measures $\pm 0.01\text{mm}$ for dial gauges ▪ Times: $\pm 5\text{s}$

REVISION HISTORY

Issue No :	Re - Issue Date :
Revised By:	Approved By:
Reason for Revision:	

Issue No :	Re - Issue Date :
Revised By:	Approved By:
Reason for Revision:	

END OF REPORT