Test Report

Sponsor:
Newstar Door Controls Ltd
Unit 2, Block A
Lion Business Park
Dering Way
Gravesend
Kent
DA12 2DA

CONFIDENTIAL

Report: BMT/FEP/F14095

A fire resistance test performed on a one and a half leaf single acting doorset and a single leaf single acting doorset

Test conducted in accordance with BSEN 1634-1: 2014 and BSEN 1363-1: 2012

Test date: 27th June 2014

BM TRADA – the new name for Chiltern International Fire Ltd

From July 1st 2013, Chiltern International Fire Ltd commenced trading under the name of its parent company BM TRADA and at the same time adopted a brand new visual identity.

Historically, the group has delivered its services through a number of individual companies: BM TRADA Certification Ltd, TRADA Technology Ltd, Chiltern International Fire Ltd (including Chiltern Dynamics) and a network of international offices. Both BM TRADA Group and these individual companies will now trade under the same name - BM TRADA - and adopt the new visual identity.

To coincide with this change, our Technical Reports, Test Reports, Products Assessments, company stationery and marketing collateral have been re-designed to carry the new branding and visual identity.

The validity of all documents previously issued by the individual companies including certificates, test reports and product assessments is unaffected by this change and a letter to this effect will be available to download from our website www.bmtradagroup.com.

About BM TRADA.

With origins dating back to 1934, we have a deep history and services which are highly valued by our customers. We offer independent certification, testing, inspection, training and technical services around the world. In all these areas we continue to use industry-leading experts in their chosen fields to develop and deliver services – an ethos that has been at the heart of our approach since we began.

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A recent review of our businesses and customers revealed that the individual identities sometimes make communications confusing, and that in an already complex business area, clarity and simplicity in communications is rare, but valued. It also revealed that a single identity and combined offer would help us strengthen our appeal.

With this in mind, we brought the companies together under the name BM TRADA and took the opportunity to create a fresh new visual identity.

We have modernised our image and combined our strengths. However, our values, our people and the integrity of our services remain the same. I hope you will welcome these changes and the improvements they will bring.

Jon Osborn
Chief Operating Officer

Contents

1 Summary of performance

The following performance was achieved from the specimens tested. Full details of the testing and specimen construction are described in the report.

Results:

Fire resistance test in accordance with BSEN 1634-1: 2014 and BSEN 1363-1: 2012

Doorset A

Integrity	
Cotton pad	59 (fifty nine) minutes
Continuous flaming	59 (fifty nine) minutes
Gap gauges	68 (sixty eight) minutes*
Insulation - 1 discrete area	
Discrete area 1 - timber	
Average set	59 (fifty nine) minutes**
Maximum ≥ 100mm in from leaf edge	59 (fifty nine) minutes**
Door frame ≥ 180ºc temp rise	59 (fifty nine) minutes**
Door frame ≥ 360ºc temp rise	59 (fifty nine) minutes**
Letterplate	49 (forty nine) minutes
Radiation – time to 15kW/m^2	68 (sixty eight) minutes*

* No failure of the test criteria had occurred at termination of the test at 68 minutes
** Failure by virtue of integrity failure at 59 minutes

Doorset B

Integrity	
Cotton pad	68 (sixty eight) minutes*
Continuous flaming	68 (sixty eight) minutes*
Gap gauges	68 (sixty eight) minutes*
Insulation – 1 discrete area	
Discrete area - timber	
Average set	68 (sixty eight) minutes*
Maximum ≥ 100mm in from leaf edge	68 (sixty eight) minutes*
Door frame ≥ 180ºc temp rise	68 (sixty eight) minutes*
Door frame ≥ 360ºc temp rise	68 (sixty eight) minutes*
Radiation – time to 15kW/m^2	68 (sixty eight) minutes*

* No failure of the test criteria had occurred at termination of the test on this specimen at 68 minutes

Summary of specimens:

A latched one and a half leaf single acting doorset and a latched single leaf single acting doorset

Doorset A
- left leaf size:
2135mm high x 926mm wide x 54mm thick
- right leaf size:
2135mm high x 300mm wide x 54mm thick

Doorset B
leaf size:
2135mm high x 926mm wide x 54mm thick

2 Introduction

The doorsets were installed into an aerated autoclaved concrete blockwork supporting construction. In accordance with BS EN 14600: 2005 the leaves were pre-cycled before the fire test. The doorsets were instrumented with the standard and supplementary sets of thermocouples and installed opening in towards the furnace.

3 Specimen verification

The hardware was delivered to BM TRADA on the 6th June 2014. BM TRADA sourced the door blanks from commercially available stock and Craig Brown Furniture subsequently further produced the specimens with respect to the following:

Doorset A	**Doorset B**
Hardwood lippings	Hardwood lippings
Hardwood door frame	Hardwood door frame
Intumescent materials	Intumescent materials
Hardware	Hardware
Overhead closer	Overhead closer

The component parts of the doorsets were identified and, where appropriate, moisture content readings and density checks were performed on either the original specimen, or, samples provided by the sponsor. These details are outlined in the construction section of this report.

3.1 Conditioning

BM TRADA stored the specimens in climatic conditions approximate to those in normal service.

3.2 Sampling

BM TRADA was not involved in factory sampling of the components used for the specimen subject to this report.

4 Description of supporting construction

The supporting construction comprised a 245mm thick low density concrete blockwork wall built in accordance with BSEN 1363-1: 2012.

5 Description of specimens

Details of the specimens are shown in Figures 1 to 6 of Appendix 1.

5.1 Door leaves

The left doorset was designated doorset A and the left leaf measured 2135mm high x 926mm wide x 54mm thick and the right leaf measured 2135mm high x 300mm wide x 54mm thick; the right doorset was designated doorset B and the leaf measured 2135mm high x 926mm wide x 54mm thick.

6 Description of construction (refers to Figures 1 to 6 of Appendix 1)

Leaf – both doorsets – identified as Halspan FD60 doorblanks

		Species/type	Dimensions (mm)	Density (kg/m³)	Moisture (% w/w)	Key to figures
Stiles and rails		None fitted	-	-	-	-
Core		Halspan Ltd graduated density particleboard	54 thick	635*	9.1-10.7	1
Facings		None fitted	-	-	-	-
Lippings – vertical edges only		Sapele	6 thick	640**	10.4-10.5	2
Adhesives	Lippings	PU	-	-	-	-

* Stated by door blank manufacturer, accuracy agreed by the laboratory
** Nominal value

Door frame – both doorsets

	Species/type	Dimensions (mm)	Density (kg/m³)	Moisture (% w/w)	Key to figures
Head and jambs	Sapele	44 thick x 90 deep with a 6mm deep scallop on the pivot hinge jamb	640*	11.3-12.1	3
Stop – planted (pinned)	Sapele – fitted on head and left leaf hanging edge only of doorset A and head and closing edge of doorset B	12 thick x 20 wide	640*	12.2	4
Frame jointing detail	Mortice and tenon - screwed	-	-	-	-
Architrave	Sapele	20 thick x 45 wide	640*	10.6-10.7	-
Threshold	Non combustible	-	-	-	-
Frame fixings	4 No masonry fixings per jamb	No 10 x 80 long at nominally 600-800 centres	-	-	-
Frame fire stopping	Mineral fibre capped with intumescent acrylic mastic on both faces	Nominally 5-10mm wide x 20-30 deep	-	-	-

* Nominal value

Intumescent and sealing materials – doorset A

	Make/type	Size (mm)	Location	Key to figures
Leaf edge – right leaf closing edge only	2No. Pyroplex Rigid Box Seal FO8700	15 x 4	Fitted 10mm apart 7mm from the exposed face in the right leaf closing edge	5
Frame reveal – head and jambs	2No. Pyroplex Rigid Box Seals FO8700	15 x 4	Fitted 10mm apart, 7mm from the exposed face in the frame reveal	6

Intumescent and sealing materials – doorset B

	Make/type	Size (mm)	Location	Key to figures
Leaf edge	None fitted	-	-	-
Frame reveal – head and jambs	2No. Pyroplex Rigid Box Seals FO8700	15 x 4	Fitted 10mm apart, 7mm from the exposed face in the frame reveal	7

Intumescent interruptions and additional protection – doorset A (see Figure 1 of Appendix 1 for hardware positions

	Make/type	Size (mm)	Location
Around closer A1	Partially interrupted	-	Closer partially interrupts both seals in frame reveal with 5mm of each remaining continuous
Under closer A1	Closer manufacturers supplied kit (graphite type)	2 thick	Fitted around closer body
Around hinge blade A2	Partially interrupted	-	Hinge blade partially interrupts both seals with 3mm of each remaining continuous
Under hinge blade A2	Interdens	2 thick	Fitted under hinge blade on frame and leaf
Around hinge blade A3	Partially interrupted	-	Hinge blade partially interrupts both seals with 5mm of each remaining continuous
Under hinge blade A3	Interdens	2 thick	Fitted under hinge blade on frame and leaf
Around hinge blade A4	Partially interrupted	-	Hinge blade partially interrupts both seals with 5mm of each remaining continuous
Under hinge blade A4	Interdens	2 thick	Fitted under hinge blade on frame and leaf
Letterplate A5	Norseal (graphite type) intumescent strip	54 x 4 thick overall (made from 2No 2mm thick layers)	Fitted lining the letterplate aperture
Pivot hinge A6 and A7	Partially interrupted	-	Pivot hinge partially interrupts both seals with 8mm of each remaining continuous
Under top pivot hinge A6 and A7	Interdens	2 thick	Fitted under top pivot hinge
Encasing latch body A11	Interdens	2 thick	Fitted around the body of the latch
Around latch forend A11	Partially interrupted	-	Latch forend partially interrupts both seals with 8mm of each remaining continuous
Under latch forend A11	Interdens	2 thick	Fitted under the latch forend
Encasing latch body A12	Interdens	2 thick	Fitted around the body of the latch
Around latch forend A12	Partially interrupted	-	Latch forend partially interrupts both seals with 10mm of each remaining continuous
Under latch forend A12	Interdens	2 thick	Fitted under the latch forend
Under flush bolt A13	Interdens	2 thick	Fitted under the flush bolt

Intumescent interruptions and additional protection – doorset B (see Figure 1 of Appendix 1 for hardware positions

	Make/type	Size (mm)	Location
Around pivot hinge B1	Partially interrupted	-	Pivot hinge partially interrupts both seals in frame reveal with 1.5mm of each remaining continuous
Under pivot hinge B1	Interdens	2 thick	Fitted under pivot hinge and fitted on top plate
Around door restrictor 930000	Partially interrupted	-	Door restrictor partially interrupts both seals in frame reveal with 7.5mm of each remaining continuous
Under door restrictor 930000	Interdens	2 thick	Fitted encasing both the frame and leaf elements of the door restrictor
Eye viewer B2	Interdens	1 thick	Fitted lining the eye viewer cut out
Around latch B3 keep	Partially interrupted	-	Latch keep partially interrupts both seals with 13mm of each remaining continuous
Under latch B3 forend, keep and lining cut out	Interdens	2 thick	Fitted under latch forend, keep and lining latch body cut out
Around latch B4 keep	Partially interrupted	-	Latch keep leaves 1st seal continuous and partially interrupts 2nd seal with 10mm remaining continuous
Under latch B4 forend, keep and lining cut out	Interdens	2 thick	Fitted under latch forend, keep and lining latch body cut out
Around latch B5 keep	Fully interrupted	-	Latch keep fully interrupts both seals
Under latch B5 keep and lining cut out	Interdens	2 thick	Fitted under latch forend, keep and lining latch body cut out
Around latch B6	Partially interrupted	-	Latch keep interrupts 1st seal and leaves 2nd seal continuous
Under latch B6	Interdens	2 thick	Fitted under all areas
Around latch/catch B7	Fully interrupted	-	Latch/catch fully interrupts both seals
Under latch/catch B7	Interdens	2 thick	Fitted under all areas

Hardware – doorset A

	Make/type	Size (mm)	Location	Key to figures
Closer A1	Product reference CL 144	See Appendix 1 for manufacturers drawings for dimensions	Closer body fitted in the left leaf head and reaction arm runner fitted in frame reveal as per the manufacturer's instructions	8
Hinge A2	Product reference CH 32140		Fitted 275mm from the head of the left leaf	9
Hinge A3	Product reference ACH 28140		Fitted 1080mm from the head of the left leaf	10
Hinge A4	Product reference CH 28115		Fitted 1900mm from the head of the left leaf	11
Closer A16	Bary Over head type closer Product reference EN-100		Fitted on the exposed face of the right leaf as per the manufacturer's instructions	12
Pivot hinge A6, A7 and A8	New Star pivot hinge Product reference C-4-C		Fitted at head and threshold of the right leaf	13
Letterplate A5	Product reference IPL & IT		Fitted 860mm from the threshold of the leaf	14
Flush bolt A9	Product reference FB600		Fitted in the leaf edge at head of the right leaf	15
Door restrictor A10	Bary Door and Window restrictor Product reference WL1		Fitted 1400mm from the threshold of the leaf	16
Lock A11	Mortice lock Product reference FB1. M & FB2.M		Fitted 1200mm from the threshold of the leaf	17
Lock A12	Lock product reference NS.H Keep product reference NS.G Escutcheon NS.C		Fitted 950mm from the threshold of the leaf	18
Latch A13	Roller latch Product reference RC1.SSS		Fitted 700mm from the threshold of the leaf	19
Lock A14	Lock product reference NSN Keep product reference NS.CK		Fitted 470mm from the threshold of the leaf	20
Flush bolt A15	Product reference FB200		Fitted in the leaf edge at threshold of the right leaf	21
Door selector A17	Product Reference SF250-F		Fitted at the head of the leaf as per the manufacturer's instructions	21A

Hardware – doorset B

	Make/type	Size (mm)	Location	Key to figures
Pivot hinge B1	Product reference CID001	See Appendix 1 for manufacturers drawings for dimensions	Fitted at the head and threshold of the leaf	22
Door restrictor	Product reference 930000		Fitted centrally into the frame and leaf head, located 150mm from the pivot hinge B1	22a
Eye viewer B2	Product reference DV-015		Fitted 540mm from the head of the leaf	23
Latch B3	Product reference NS.A and NSL	See Appendix 1 for manufacturers drawings for dimensions	Fitted 430mm from the head of the leaf	24
Latch B4	Product reference C-7-C		Fitted 150mm from latch B3	25
Latch B5	Product reference MC-41		Fitted 150mm from latch B4	26
Latch B6	Product reference Bary NKS		Fitted 150mm from latch B5	27
Latch B7	Product reference C-5-C		Fitted 150mm from latch B6	28

7 Pre-test measurements

7.1 Pre-cycling

Operability test of 25 manual cycles was completed on each doorset in accordance with BSEN 14600, section 5.1.1.1.

Minimum angle of opening	90º
Number of operation cycles completed	25

7.2 Door perimeter gaps

The manufacturer did not declare a working range so the doors were installed to open and close freely, maintaining gaps, where possible, to a range of 2-4mm along all edges except the threshold, and 3-8mm along the threshold. The gaps between the edge of the leaves and frame were measured prior to test. A total of 25 readings were recorded. The measurements (in mm) are given in Figure 5 of Appendix 1.

7.3 Closer forces

Measured in accordance with BSEN 1634-1: 2014 Section 10.1.3.

	Opening Force (Nm)
Doorset A left leaf	47 @ handle position
Doorset A right leaf	21 @ handle position
Doorset B	None fitted

7.4 Method of installation

The doorsets were fixed into a pre-prepared opening. The details of the fixings and fire stopping between frame and supporting construction are outlined in the construction section and Figure 4 of Appendix 1. The exposed face of the doorsets were flush with the exposed face of the supporting construction.

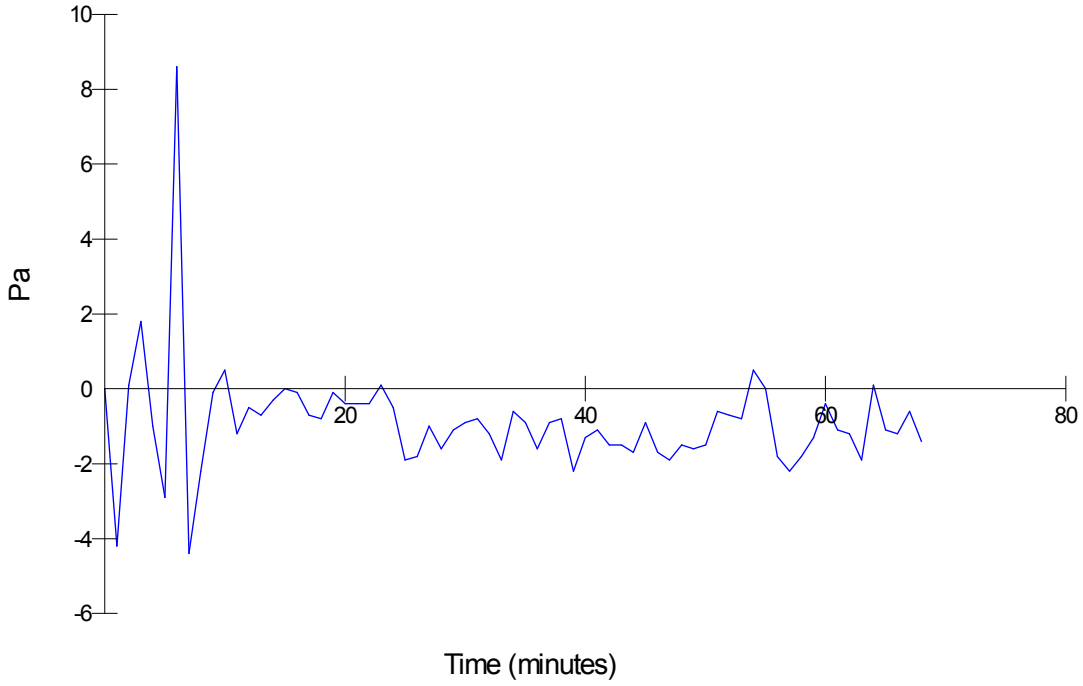
8 Test conditions

8.1 Ambient temperature

The ambient temperature of the test area at commencement of test was 19°C.

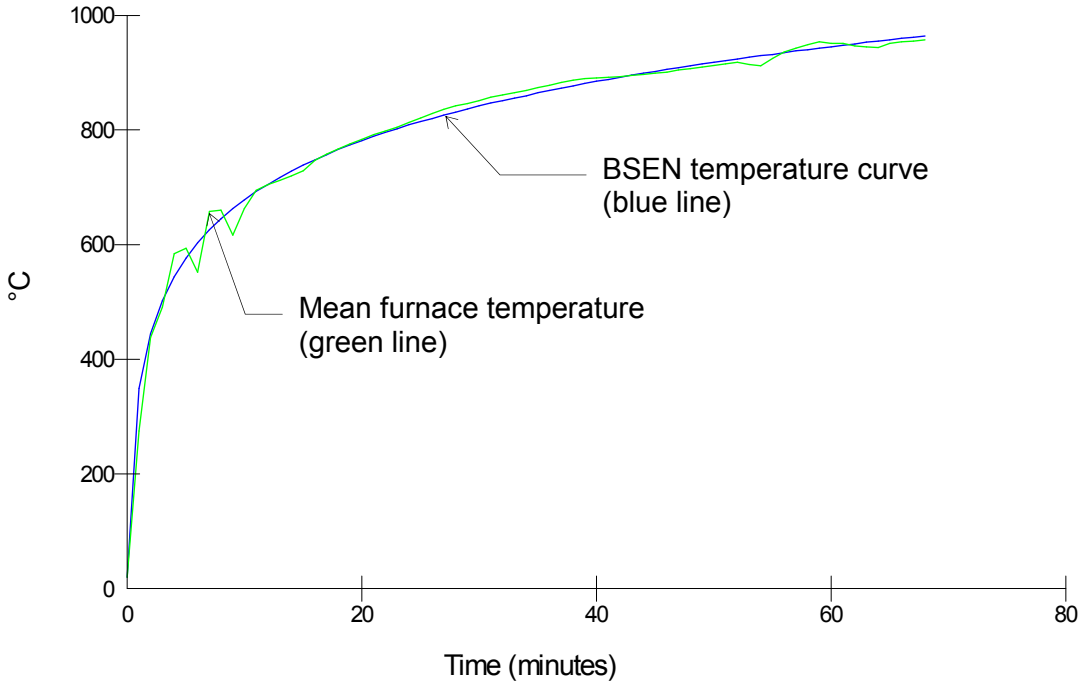
8.2 Pressure readings

After the first 5 minutes of the test, the furnace pressure was maintained at 0 ± 5 Pa and after 10 minutes was maintained at 0 ± 3 Pa with respect to atmosphere, at a point 0.5m from the notional floor level. The pressure readings were recorded and tabulated in Appendix 2 and are shown graphically below:



8.3 Furnace temperature

The furnace was controlled to follow the temperature/time relationship specified in BSEN 1363: Part 1: 2012 Section 5.1.1 as closely as possible, using the average of nine plate thermometers suitably distributed within the furnace. The temperatures were recorded and are tabulated in Appendix 2 and are shown graphically below:



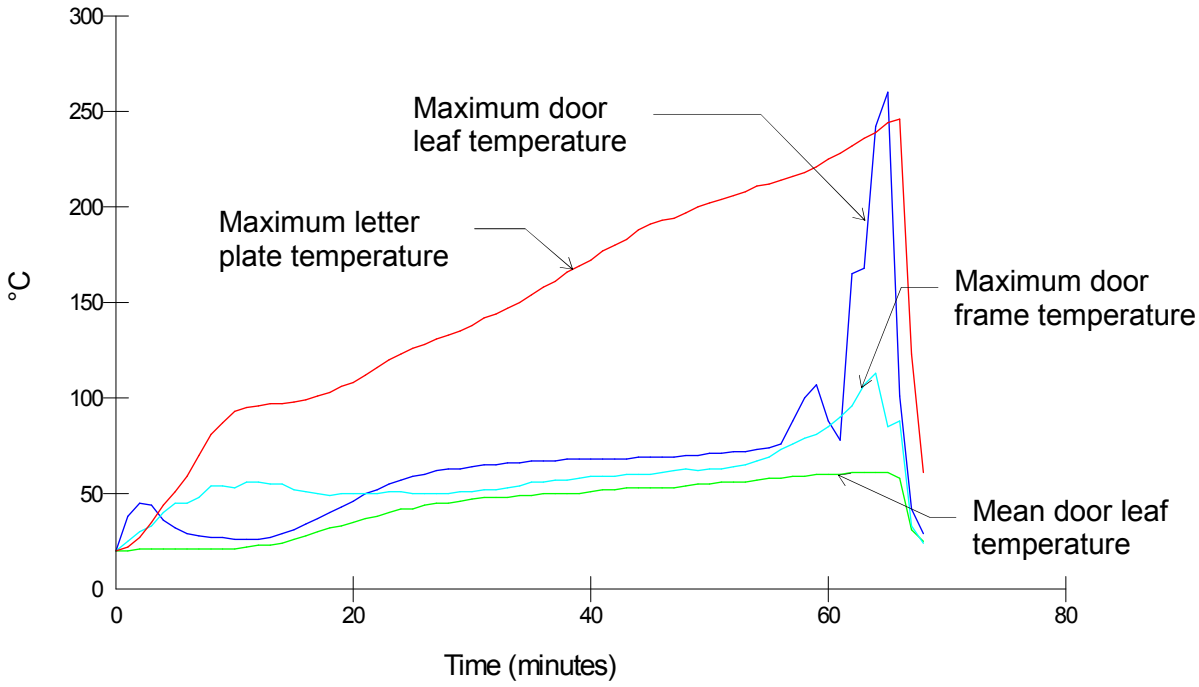
8.4 Unexposed face temperatures

The temperature of the unexposed face was monitored by means of the following thermocouples:

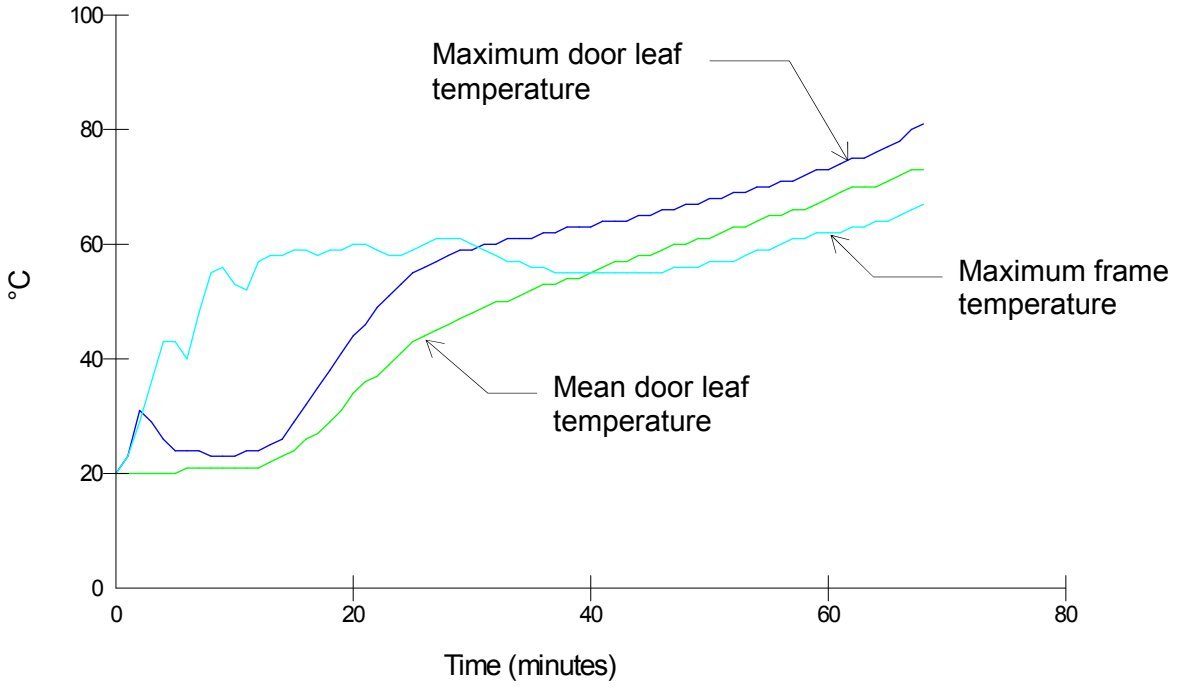
Doorset A		
	1 discrete area	
Leaf	Discrete area - timber	5 measuring mean temperature rise.
		8 measuring maximum temperature rise, standard set 100mm in from the door leaf edges.
Frame		5 measuring maximum temperature rise.
Letterplate		1 measuring maximum temperature
Doorset B		
	1 discrete area	
Leaf	Discrete area - timber	5 measuring mean temperature rise.
		4 measuring maximum temperature rise, standard set 100mm in from the door leaf edges.
Frame		5 measuring maximum temperature rise.

The location of the thermocouples are shown in Figure 6 of Appendix 2. The temperatures were recorded and tabulated in Appendix 2 and are shown graphically below:

Doorset A



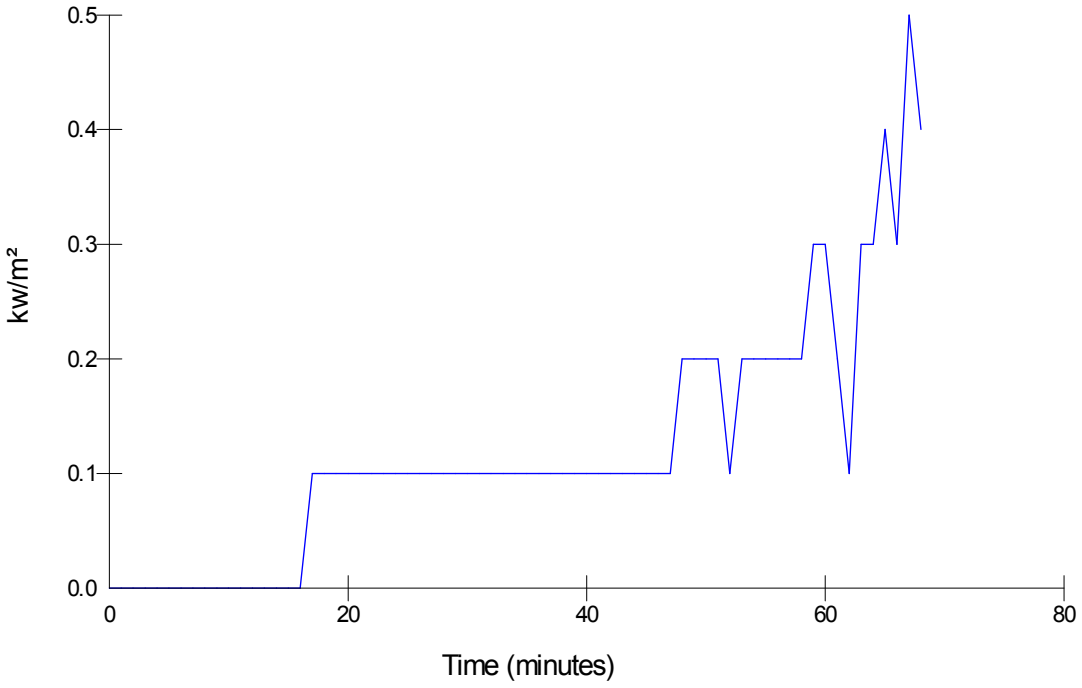
Doorset B



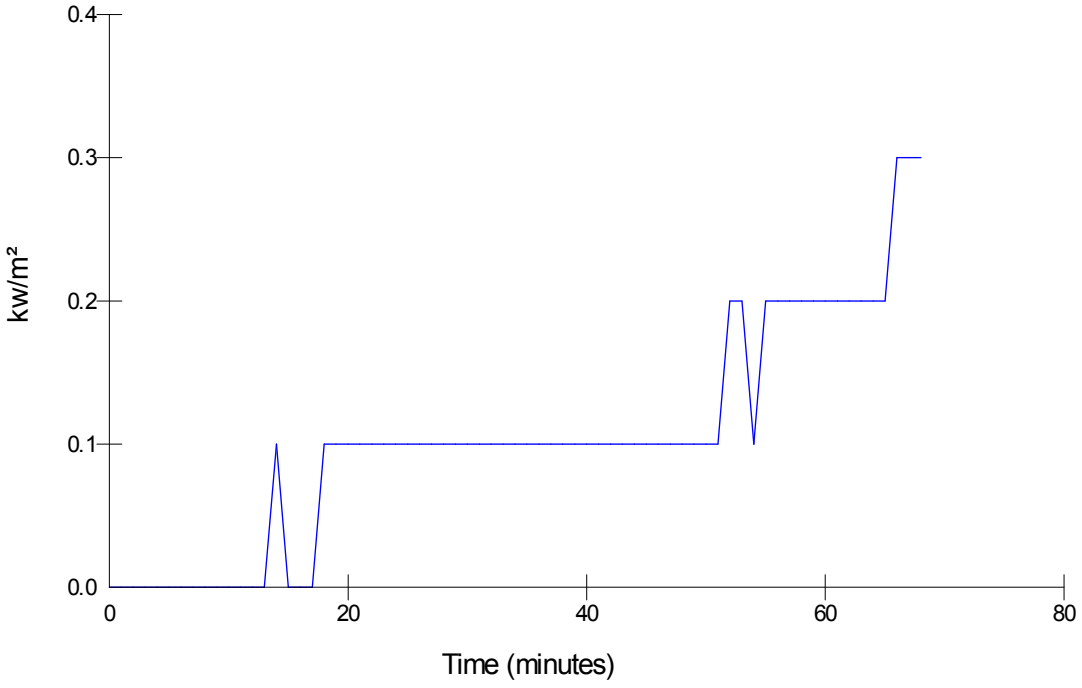
8.5 Radiation

A radiometer was used to measure the radiation 1m away from the specimens. The results of the radiometer were recorded and tabulated in Appendix 2 and are shown graphically below:

Doorset A

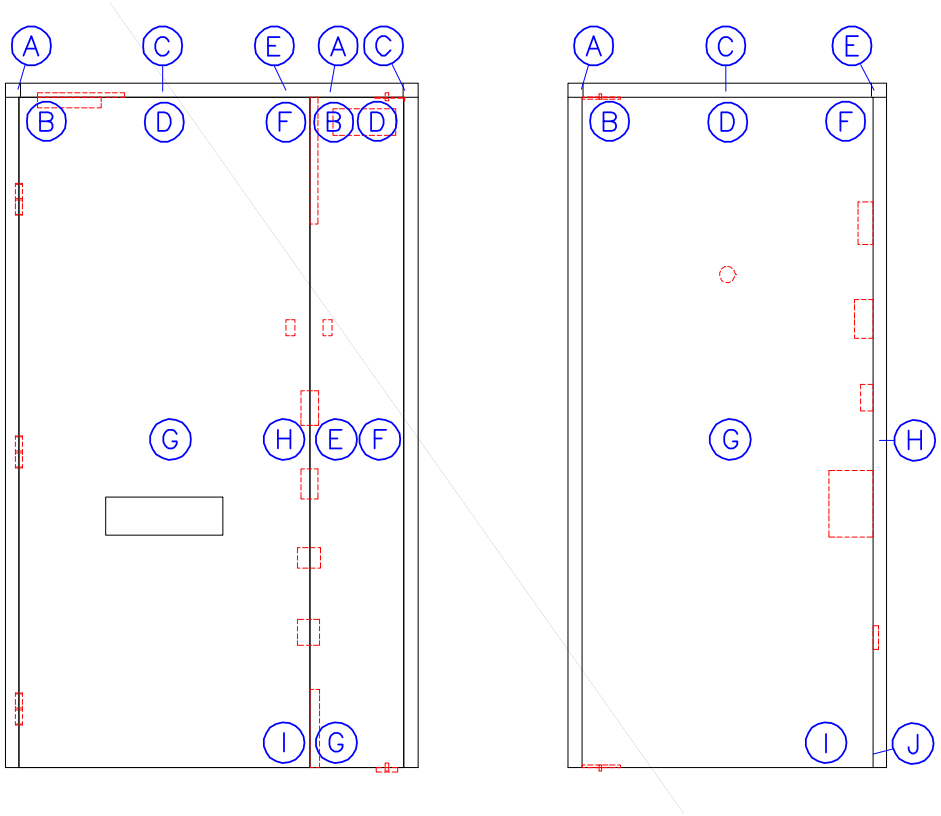


Doorset B



8.6 Leaf and frame distortion data

The following tables show the distortion in mm with an accuracy of ±1mm.
A positive measurement indicates distortion towards the furnace.
A negative measurement indicates distortion away from the furnace.



Doorset A - left leaf (hung on the left and opening in towards the furnace)

Time	A	B	C	D	E	F	G	H	I
15	1	3	2	1	2	4	-10	-12	-5
30	2	9	2	2	2	4	-24	-34	-21
45	3	13	1	-2	1	1	-45	-60	-44
60	4	-25	0	-11	0	-2	-79	-93	-63

Doorset A – right leaf (hung on the right and opening in towards the furnace)

Time	A	B	C	D	E	F	G
15	3	3	3	3	-9	-6	-5
30	3	2	3	4	-24	-12	-18
45	1	-2	2	5	-52	-30	-39
60	1	-7	3	11	-72	-32	-54

Doorset B - leaf (hung on the right and opening in towards the furnace)

Time	A	B	C	D	E	F	G	H	I	J	K
15	1	2	1	2	0	5	-7	0	1	8	0
30	1	1	0	-1	-1	6	-14	-3	-1	10	-2
45	1	12	-1	-2	-1	7	-26	-4	-3	9	1
60	1	4	-3	-11	-2	8	-31	-6	-2	7	-1

9 Observations

All comments relate to the unexposed face unless otherwise specified.

Time (minutes)	
00.00	Test started.
01.13	Both doorsets, there is smoke issuing from the top half perimeters of the leaves.
05.32	There is a decrease in smoke issuing from the previous position.
09.27	Both doorsets, there is discolouration across the head of the leaves.
12.01	Doorset A, there is smoke issuing from the letter plate. Doorset B, there is smoke issuing from the eye viewer.
13.53	Doorset A, the smoke issuing has reduced to the concealed closer position, the top closing corner and the top and middle hinge positions on the left leaf, and the top meeting edge and top hanging corner of the right leaf. Doorset B, the smoke issuing has reduced to the top hanging and top closing corners and the latch position. There is discolouration at all positions.
20.35	Doorset A, there is smoke issuing from the top half of the meeting edges of the leaves.
29.57	Both doorsets, there is an increase in discolouration and smoke issuing from the top hanging and top closing corners of the leaves.
30.53	Doorset A, there is an increase in discolouration and smoke issuing from the top meeting edge and there is discolouration at the right edge of the letter plate.
39.21	Doorset A left leaf, there is an increase in discolouration and smoke issuing from the top hinge position.
43.02	Doorset A left leaf, the intumescent has expanded out over the concealed closer.
50.45	Doorset A left leaf, there is an increase in discolouration and smoke issuing from the top and middle hinge positions and the top closing corner of the leaf.
51.30	Doorset A right leaf, there is a glow at the top hanging corner of the leaf and an increase in smoke issuing from the latch position.
52.29	Doorset A left leaf, there is a glow at the top hanging corner of the leaf.
52.54	Doorset A left leaf, there is charring at the top hinge position and top hanging corner of the leaf. Doorset A right leaf, there is charring at the top hanging corner of the leaf.
53.51	Both doorsets, there is an increase in discolouration and smoke issuing from all previous positions.

54.47 Doorset A left leaf, there is a glow at the top hinge position.

56.35 Doorset A left leaf, a cotton pad integrity test was performed at the top hinge position, no failure.

57.04 Doorset A left leaf, there is a glow at the closer position approximately 300mm across the head from the top hanging corner of the leaf.

58.00 Doorset A left leaf, a cotton pad integrity test was performed at the top hanging corner of the leaf, no failure.

58.48 Doorset A right leaf, there is a glow across the head of the leaf.

59.05 Doorset A left leaf, a cotton pad integrity test was performed at the top hinge position which resulted in ignition of the cotton pad thereby constituting **integrity failure.**

59.15 Doorset A left leaf, there is continuous flaming across the left half of the leaf head at the concealed closer position thereby constituting **further integrity failure.**

60.11 Both doorsets, there is an increase in discolouration and smoke issuing from all positions.

60.20 Doorset B, embers have been ejected from the threshold due to hardware falling from the exposed face.

62.25 Doorset A, there is a glow across the head of the leaf.

63.05 Doorset B, there is a glow at the mid latch position.

64.30 Doorset B, a cotton pad integrity test was performed at the mid latch position, no failure.

64.50 Doorset A, there is a glow at the latch position.

67.30 Doorset A, there is intermittent flaming at the latch position.

68.00 Test terminated.

10 Expression of results

Doorset A

Integrity	
Cotton pad	59 (fifty nine) minutes
Continuous flaming	59 (fifty nine) minutes
Gap gauges	68 (sixty eight) minutes*
Insulation - 1 discrete area	
Discrete area 1 - timber	
Average set	59 (fifty nine) minutes **
Maximum ≥ 100mm in from leaf edge	59 (fifty nine) minutes **
Door frame ≥ 180ºc temp rise	59 (fifty nine) minutes **
Door frame ≥ 360ºc temp rise	59 (fifty nine) minutes **
Letterplate	49 (forty nine) minutes
Radiation – time to 15kW/m^2	68 (sixty eight) minutes*

* No failure of the test criteria had occurred at termination of the test at 68 minutes
** Failure by virtue of integrity failure at 59 minutes

Doorset B

Integrity	
Cotton pad	68 (sixty eight) minutes*
Continuous flaming	68 (sixty eight) minutes*
Gap gauges	68 (sixty eight) minutes*
Insulation – 1 discrete area	
Discrete area - timber	
Average set	68 (sixty eight) minutes*
Maximum ≥ 100mm in from leaf edge	68 (sixty eight) minutes*
Door frame ≥ 180ºc temp rise	68 (sixty eight) minutes*
Door frame ≥ 360ºc temp rise	68 (sixty eight) minutes*
Radiation – time to 15kW/m^2	68 (sixty eight) minutes*

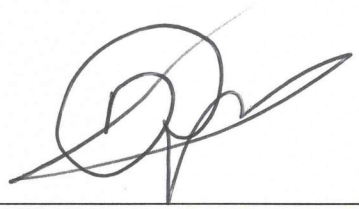
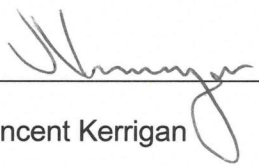
* No failure of the test criteria had occurred at termination of the test on this specimen at 68 minutes

11 Limitations

The results only relate to the behaviour of the element of construction under the particular conditions of test; they are not intended to be the sole criteria for assessing the potential fire performance of the element in use nor do they reflect the actual behaviour in fires.

The results of this test were obtained using the door to frame gaps recorded in Figure 5 of Appendix 1. The fire resistance performance of doors of this design may change if substantially different gaps are employed.

The specification and interpretation of fire test methods are the subject of ongoing development and refinement. Changes in associated legislation may also occur. For these reasons it is recommended that the relevance of test reports over 5 years old should be considered by the user. BM TRADA will be able to offer, on behalf of the legal owner, a review of the procedures adopted for a particular test to ensure that they are consistent with current practices, and if required may endorse the test report.

Signature:		
Name:	Robert Axe	Vincent Kerrigan
Title:	Lead Technical Officer – Fire	Technical Manager
Date of issue:	23-10-2014	23-10-2014

12 Field of direct application of test results

The results of the test are directly applicable to similar constructions where one or more of the changes listed in BSEN 1634-1: 2014, Clause 13, are made and the construction continues to comply with that appropriate design code for its stiffness and stability. Other changes are not permitted by the document.

A copy of the field of direct application is available from BM TRADA

Photographs

Intumescent interruptions by hardware – both doorsets

Doorset A – Hinge A3

Doorset A – Hinge A2

Doorset A – closer A1

Doorset A – latch A12

Doorset A - latch A11

Doorset A – hinge A4

Doorset B – top pivot hinge B1

Doorset B – latch keep B3

Doorset B - latch keep B5

Doorset B – latch keep B6

Doorset B – latch D7

Doorset B – latch B4

At start of test

At 15minutes

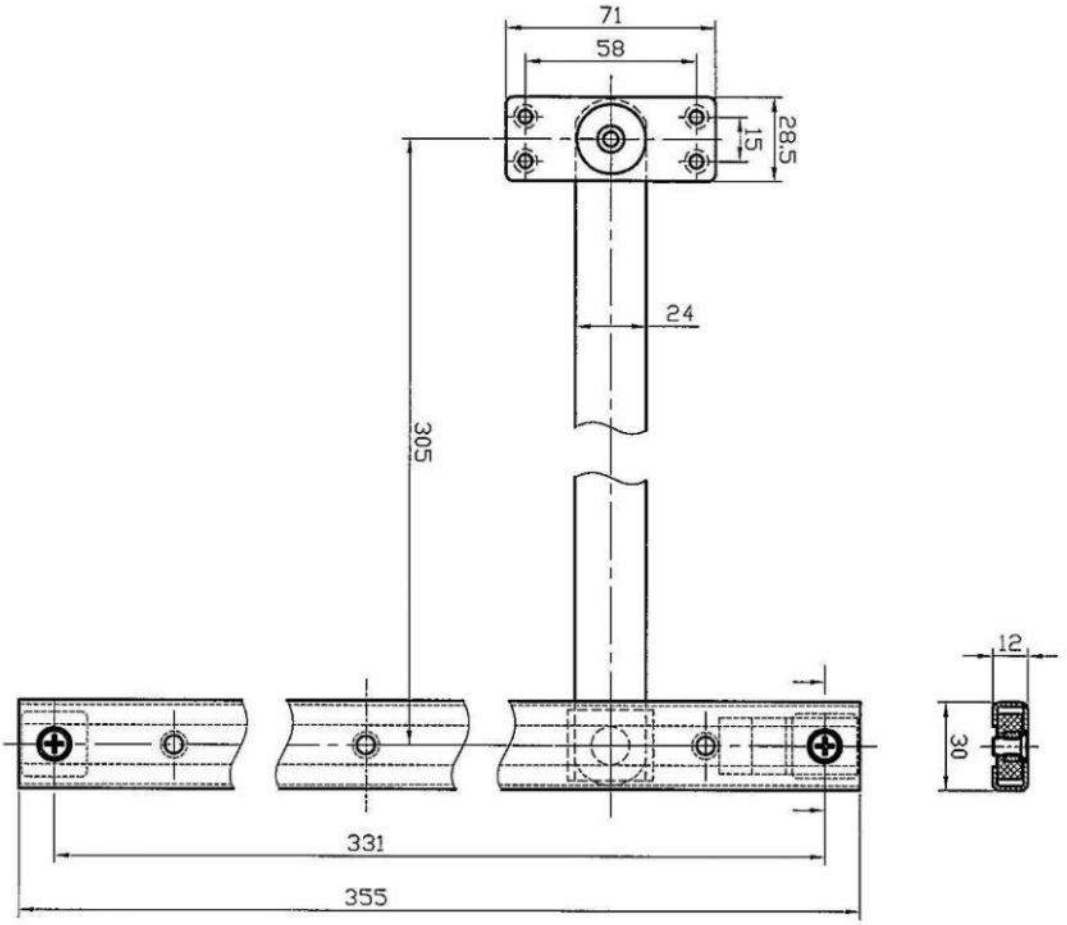
At 30 minutes

At 45 minutes

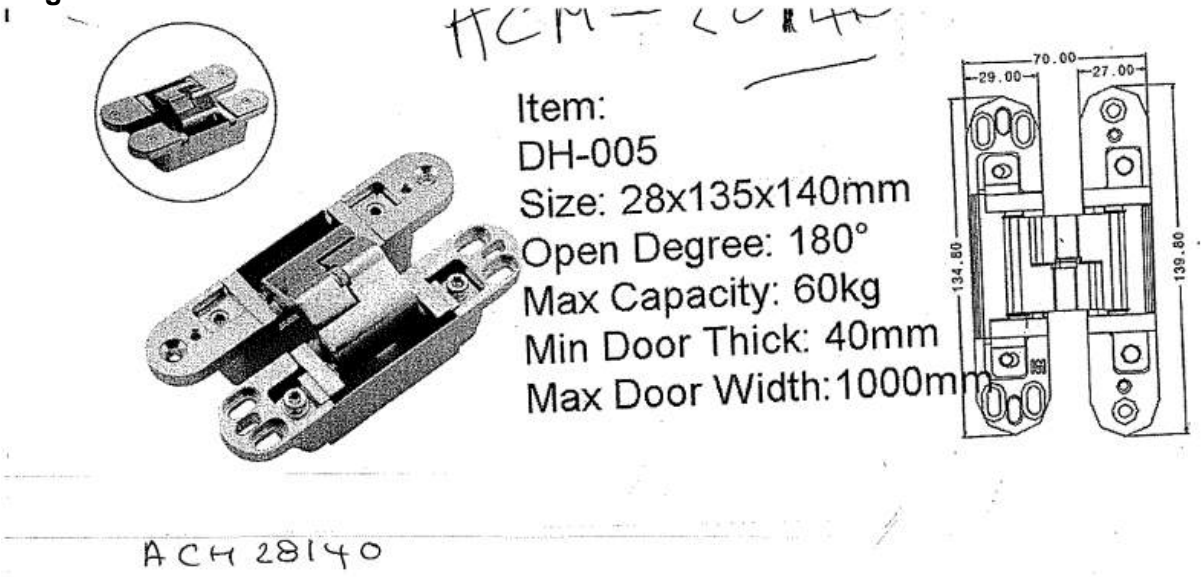
After 60 minutes

Appendix 1 – clients drawings and figures 1 to 6

Door restrictor 93000



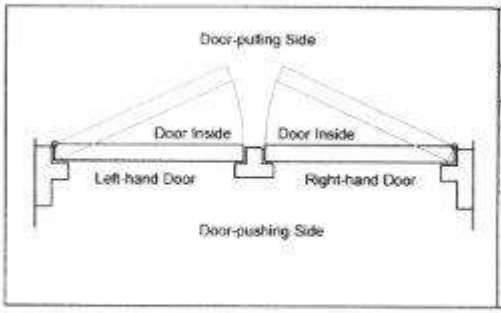
Hinge ACH28140



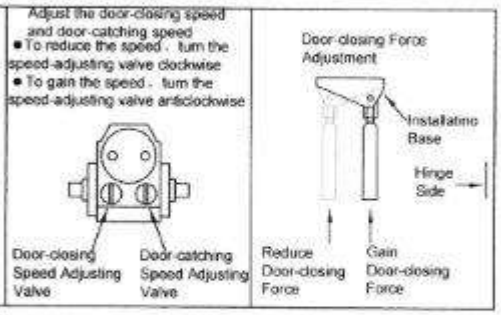
Bary B2

BARY 'B' Door Shutting Device
Installation Manual

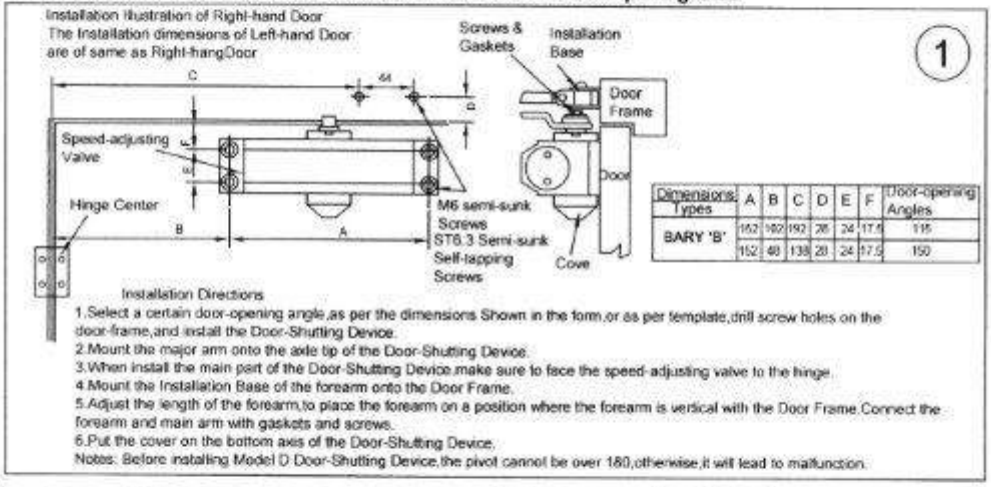
■ Ascertain the door direction

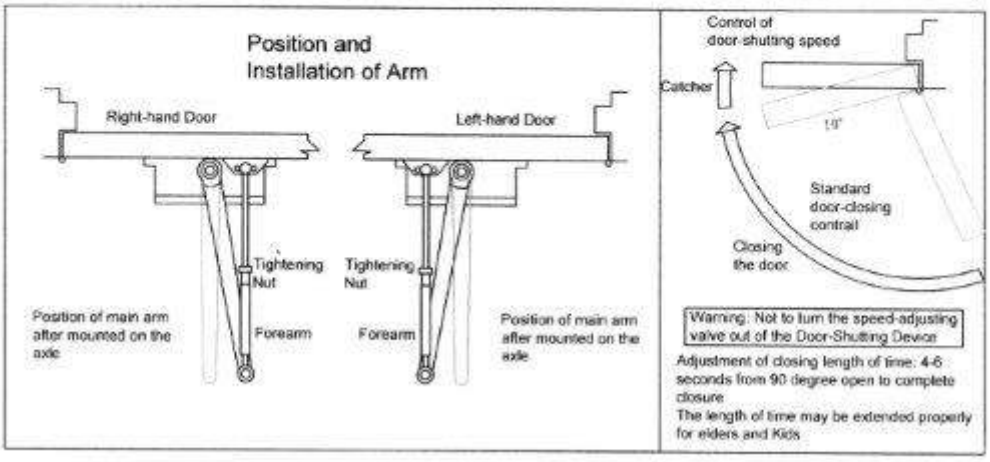


■ Adjustment after installation

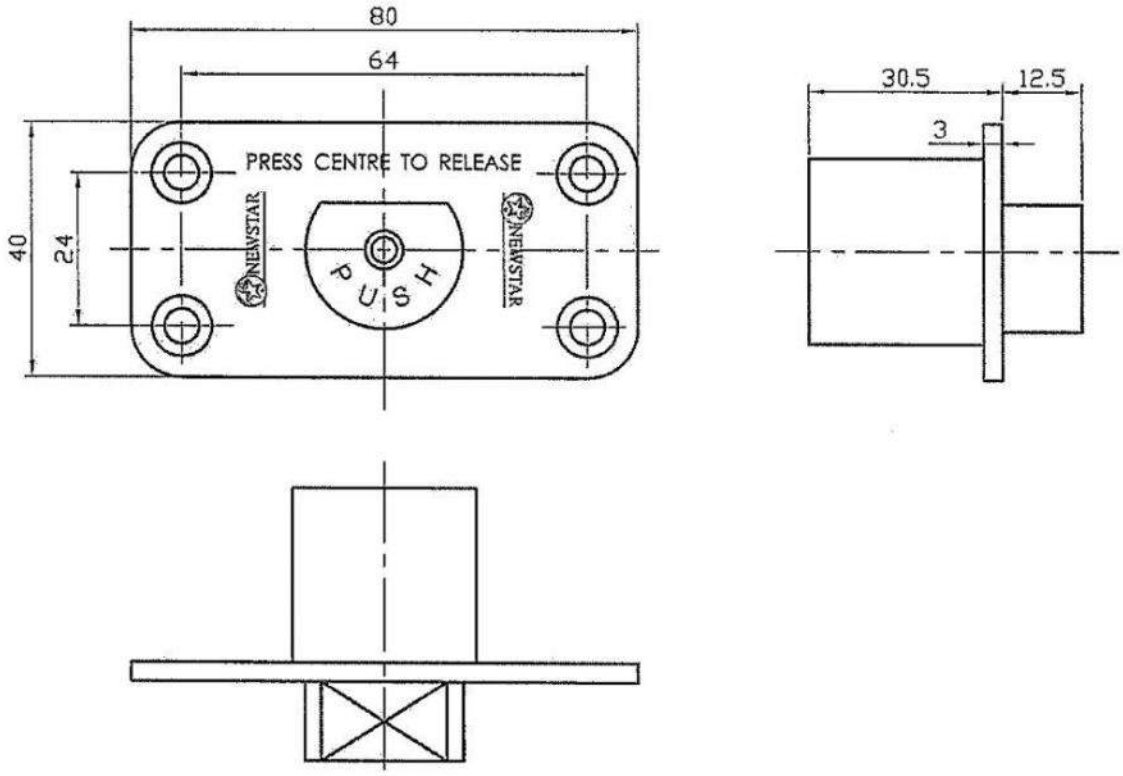


■ Standard Installaaion Method:Vertical Installation at Door-pulling Side

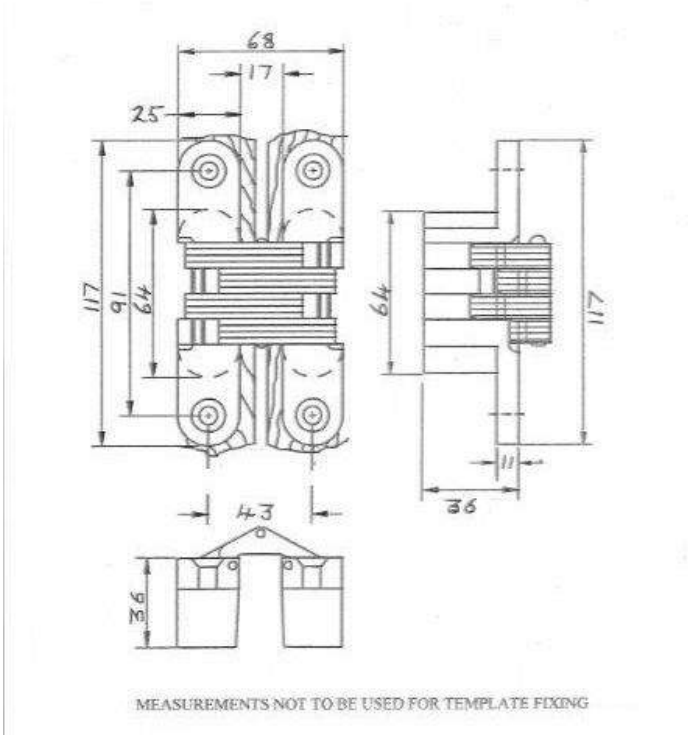




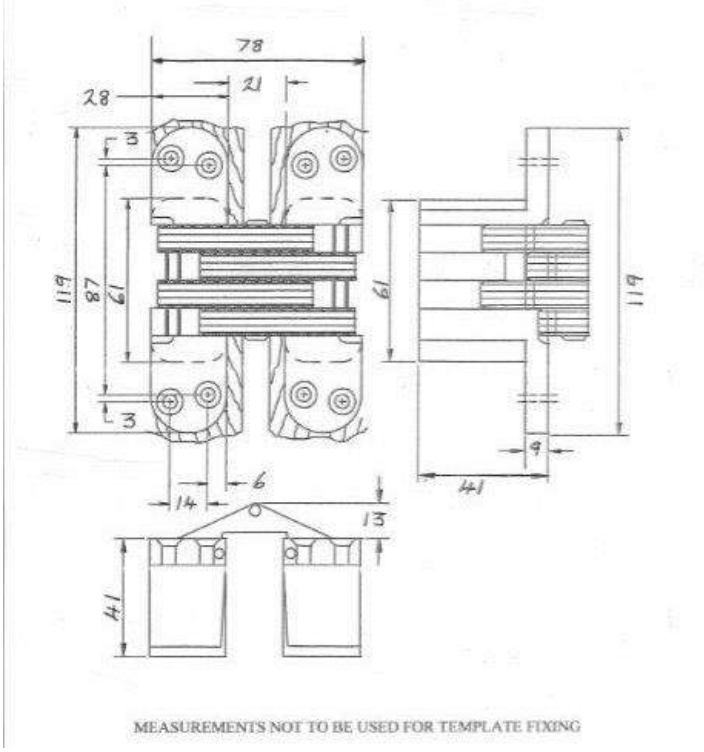
Latch C-7-C



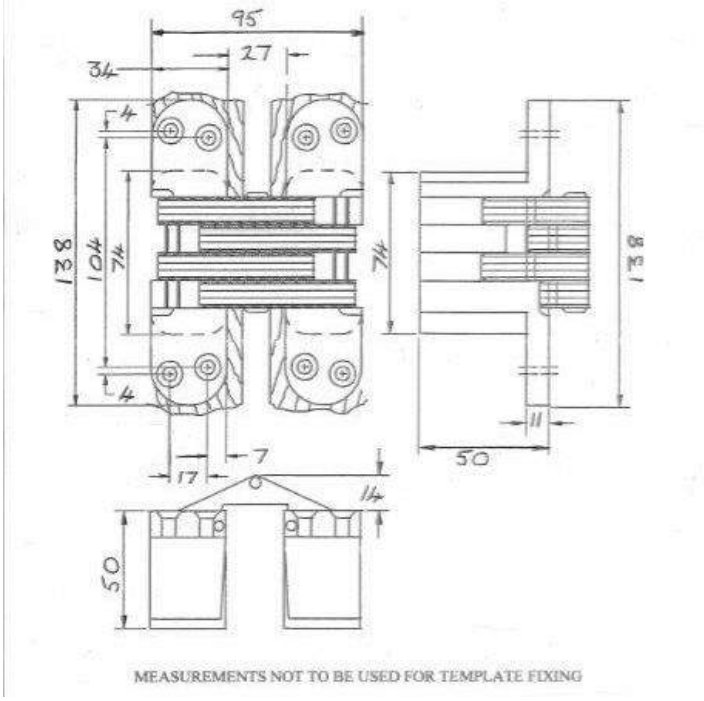
CH-25117



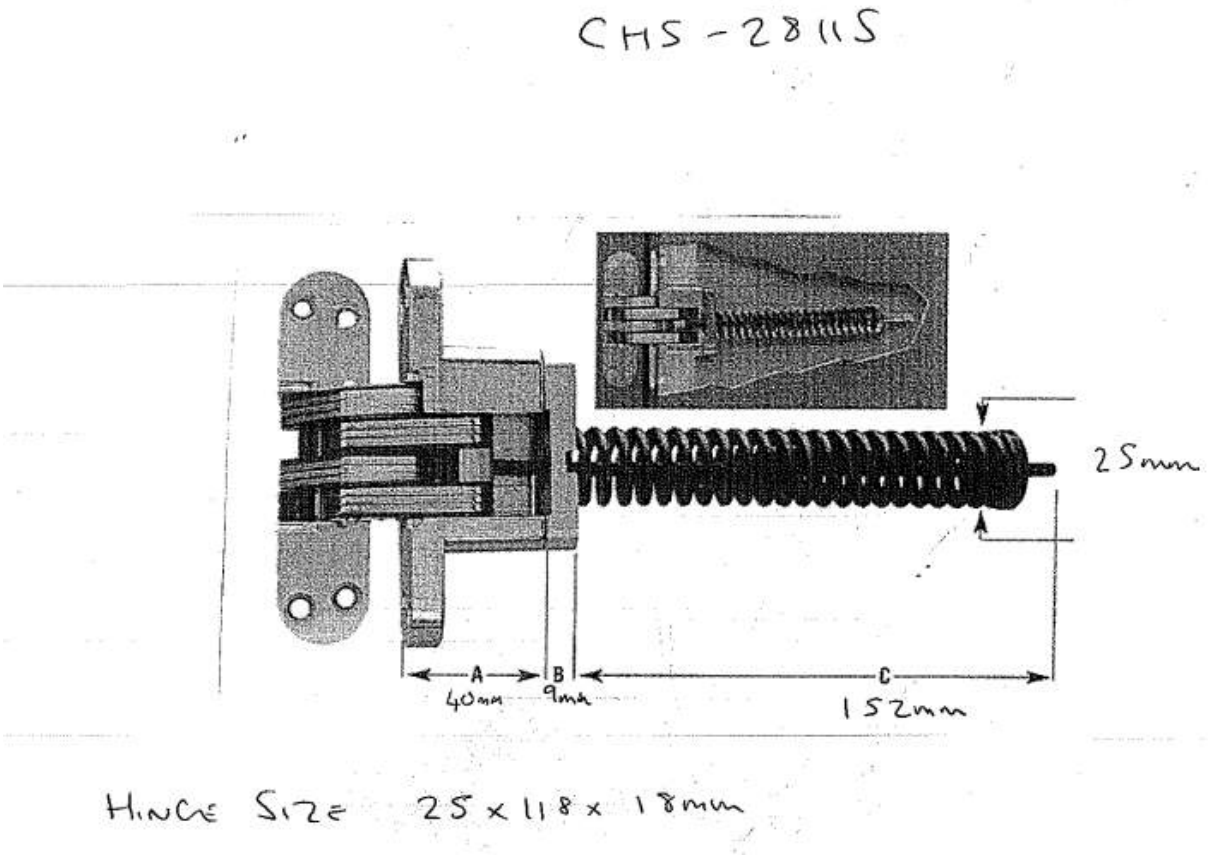
CH-28115



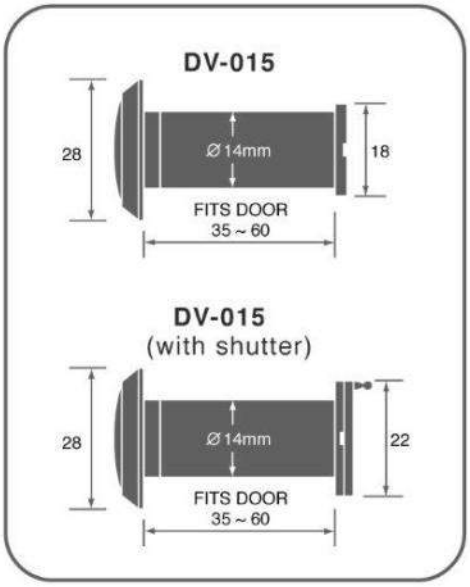
CH-32140

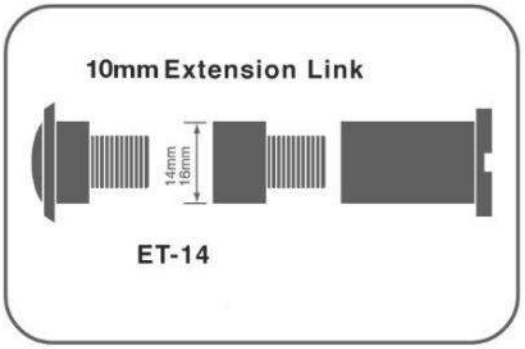


CHS 28115

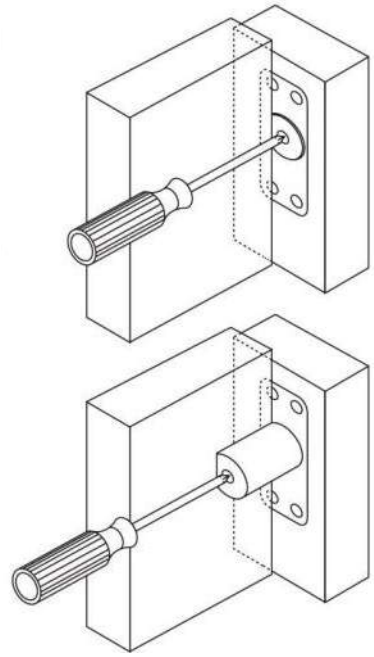


Eye viewer DV-015

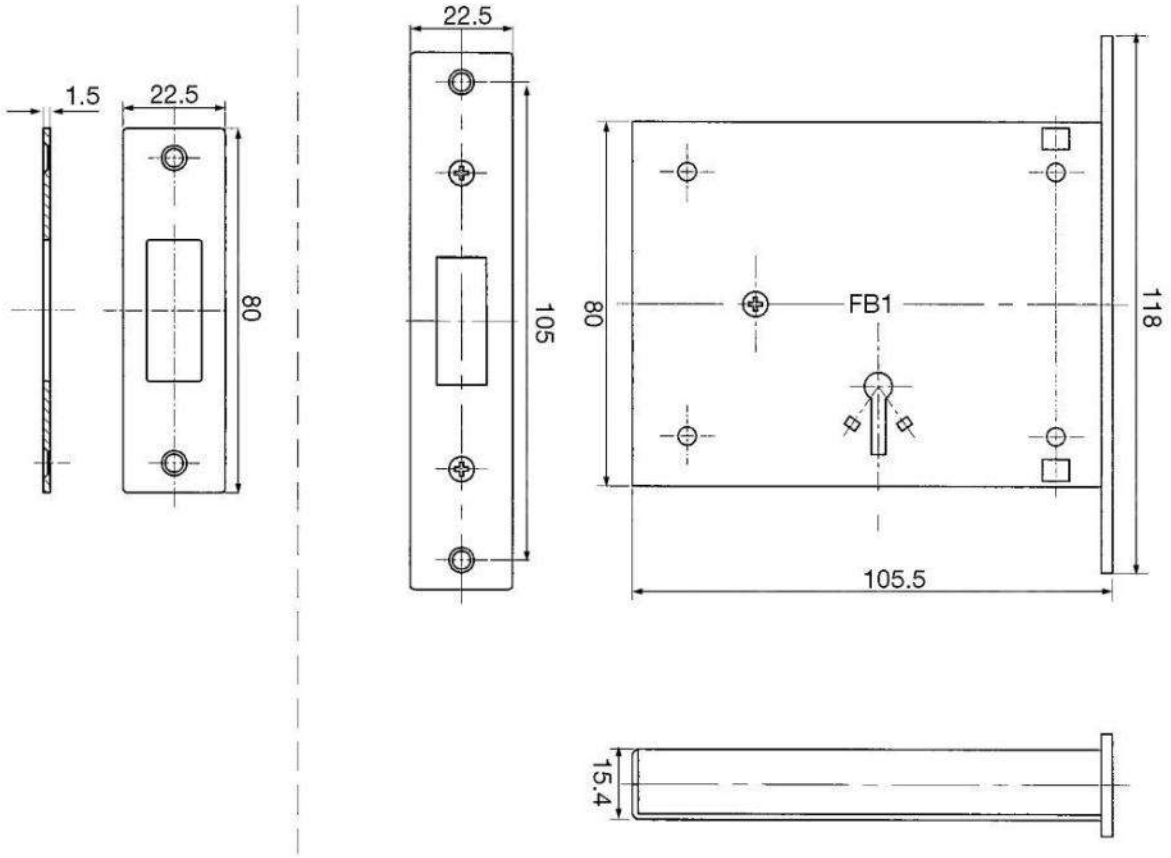




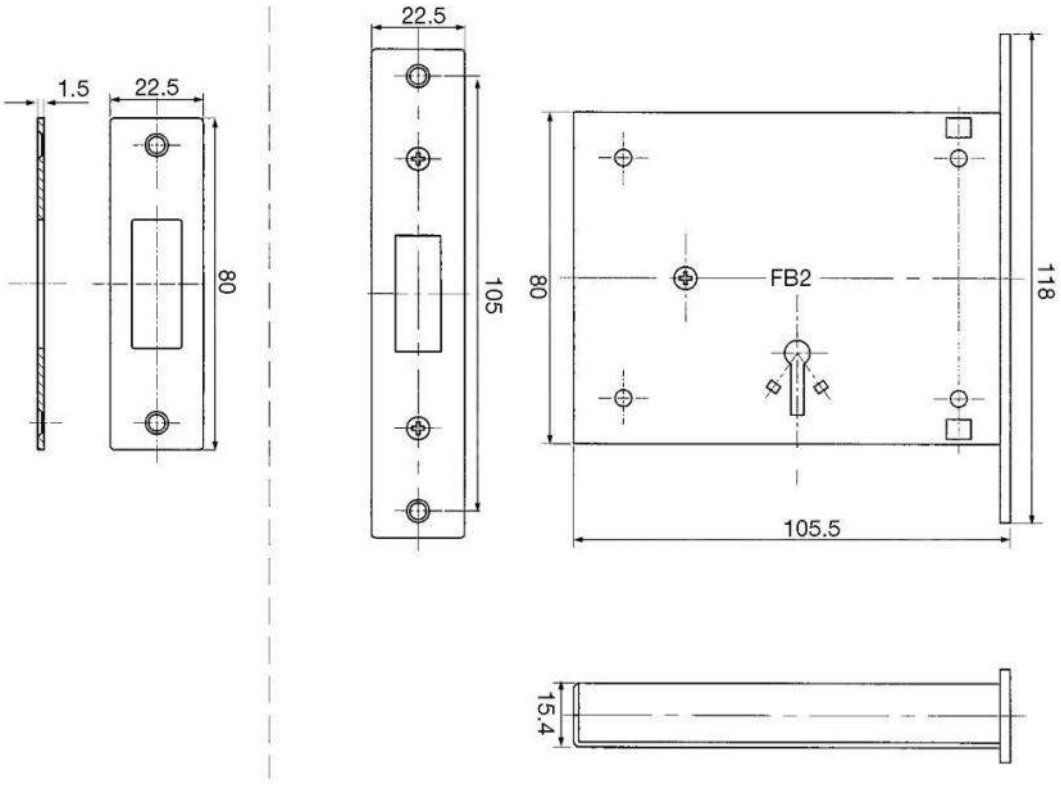
Emergency release C-7-C



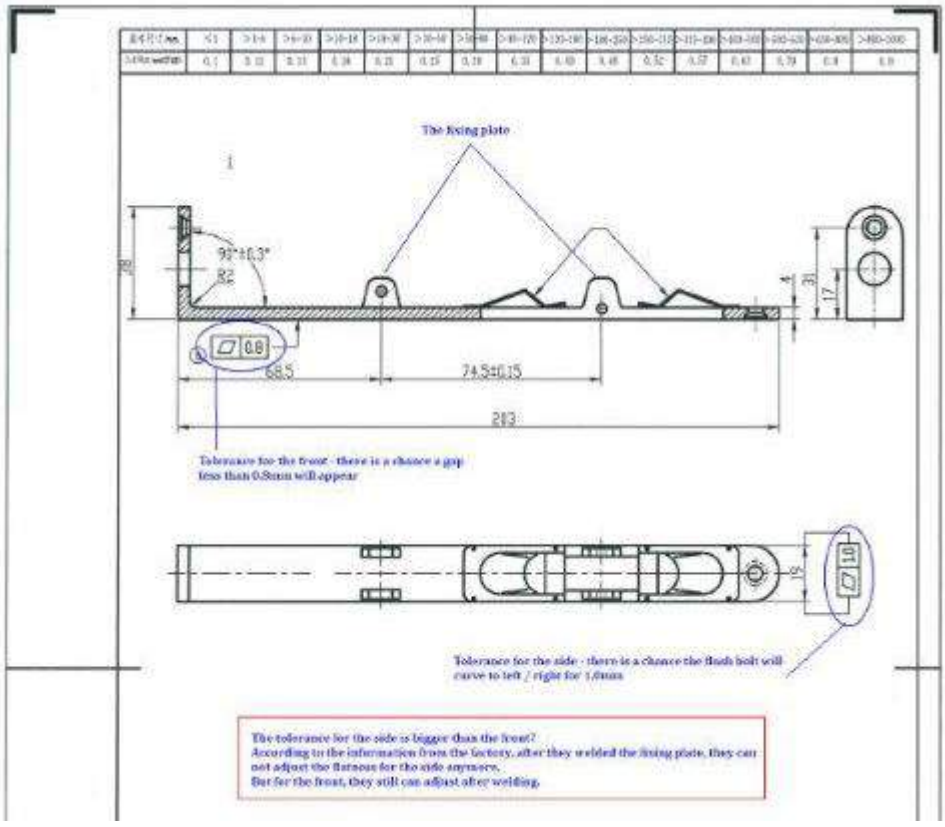
Lock FB1



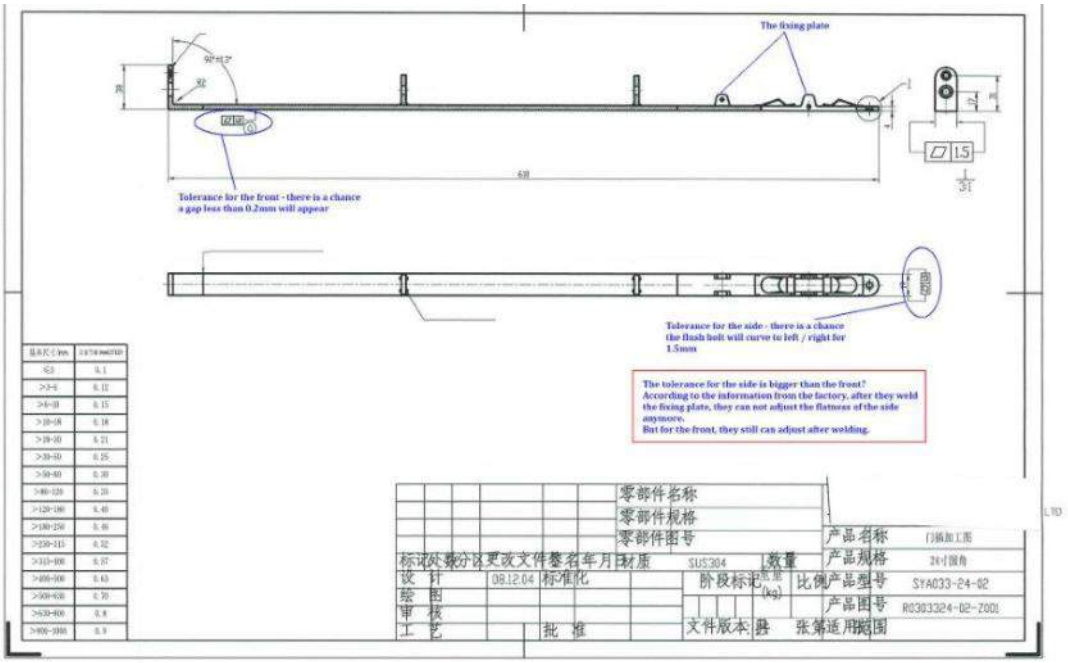
Lock FB2



Flush bolt FB200



Flush bolt FB600

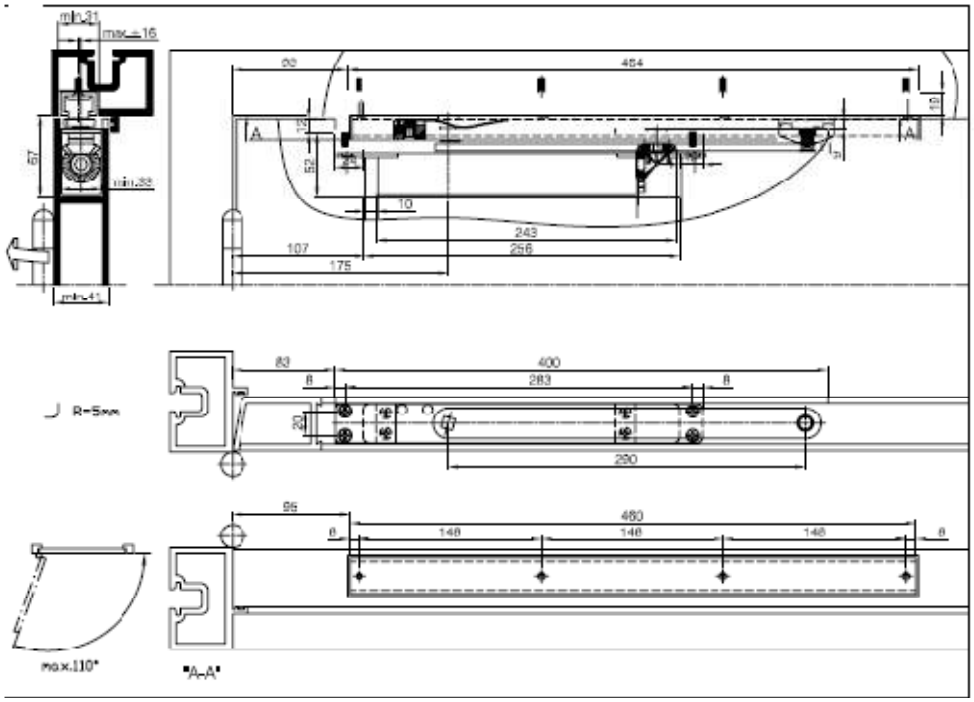


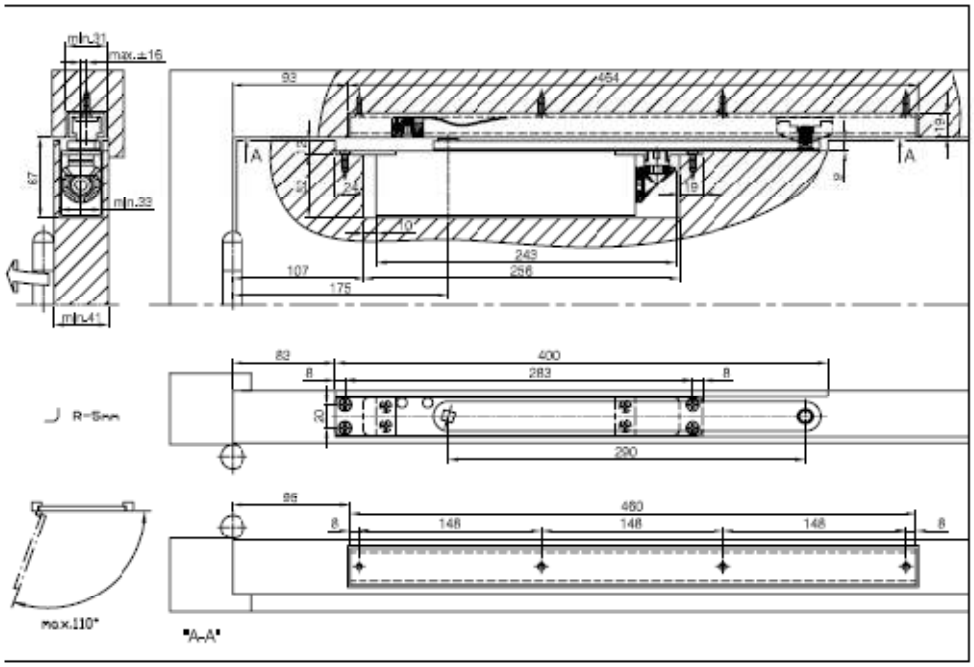
Closer CL – 144

NEWSTAR www.new-star.co.uk

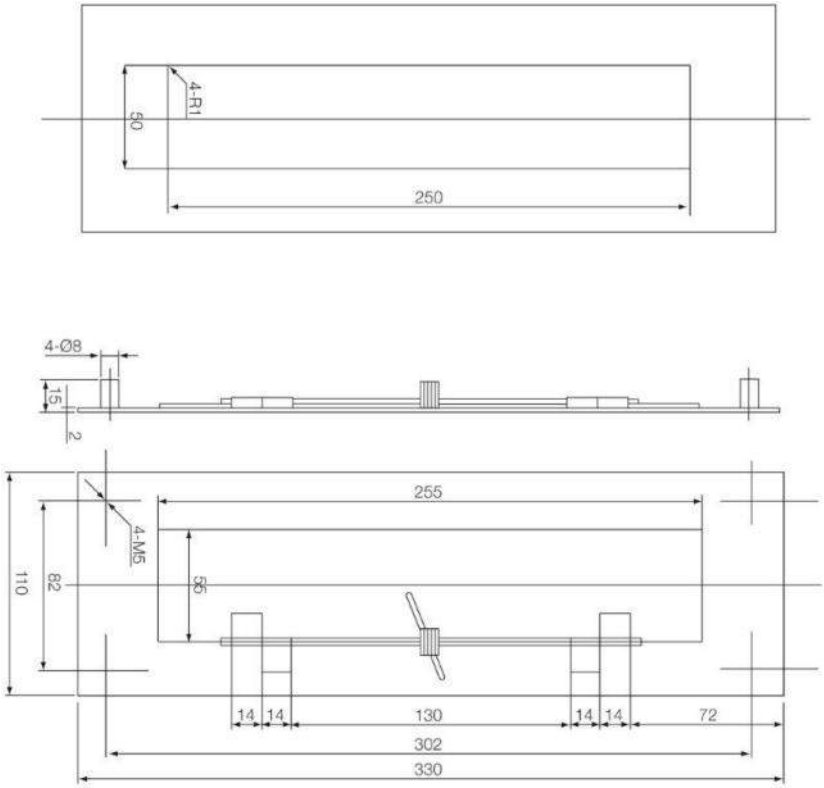
BARYCAM

Adjustable Door Closer CL-144

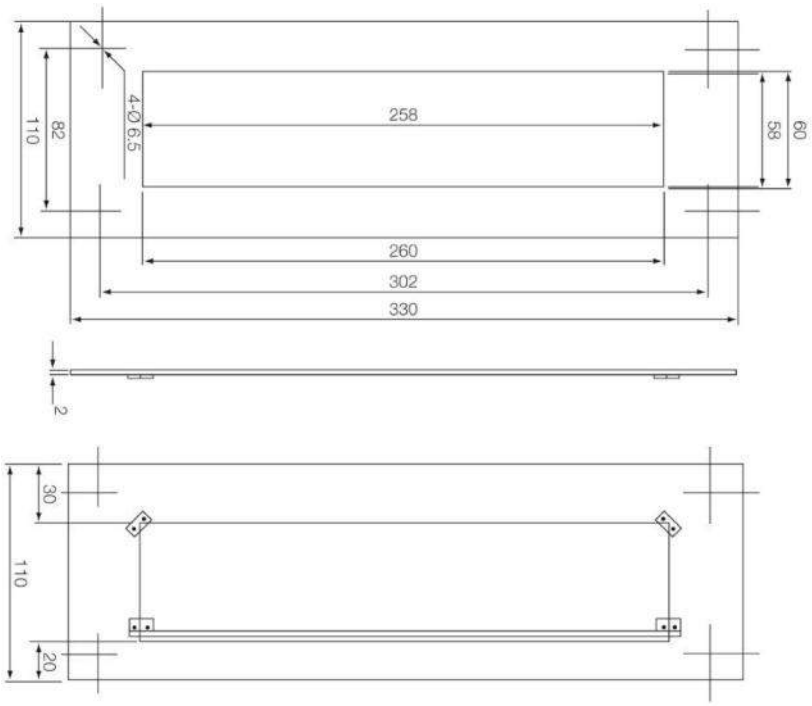




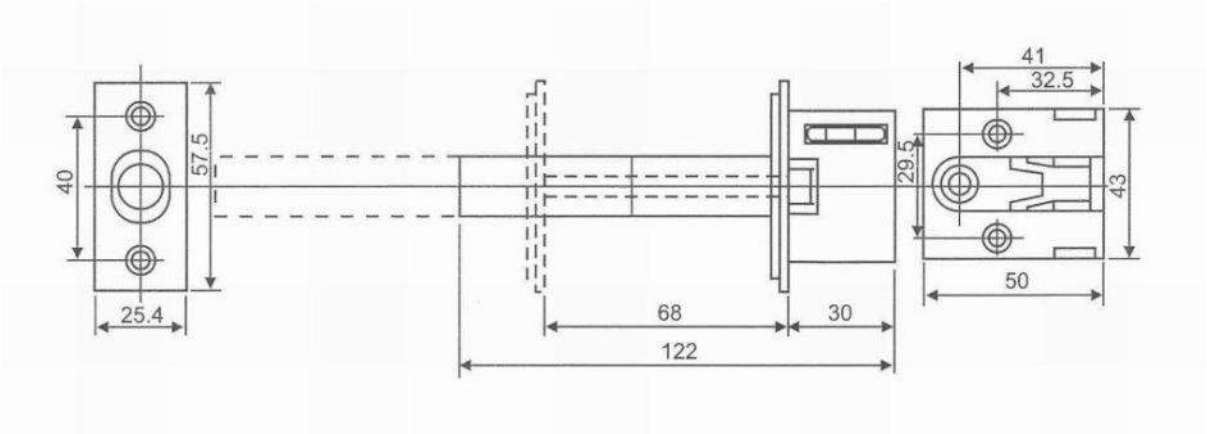
Letter plate – external ILP1



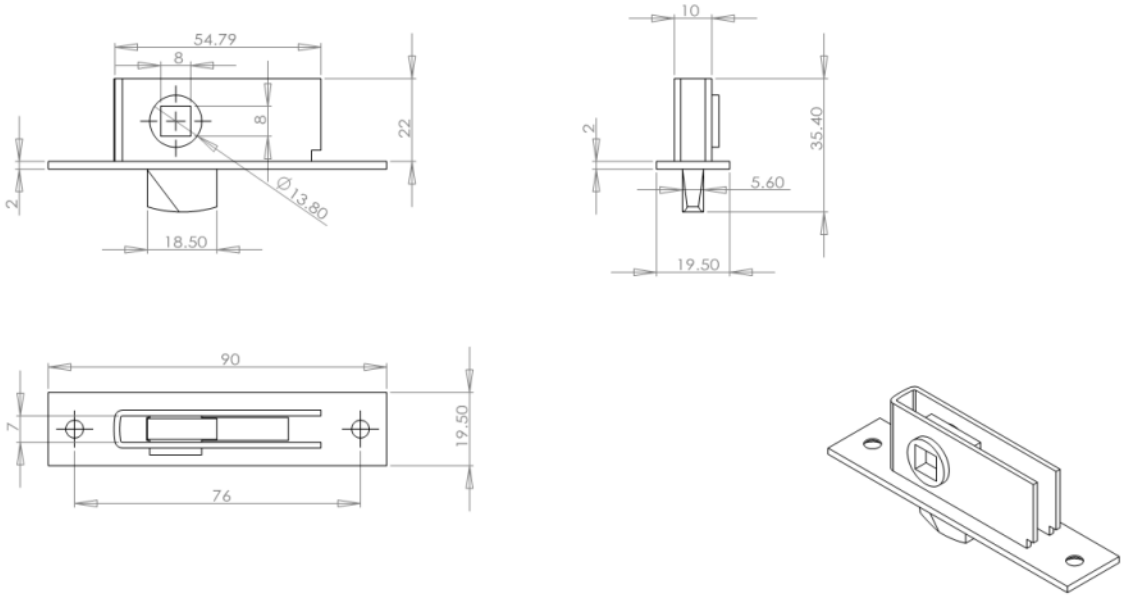
Letterplate – internal IT1



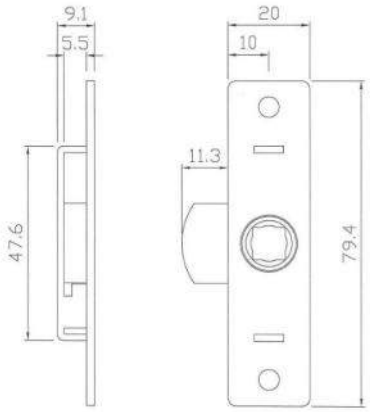
Latch MC41a



Lock NSA

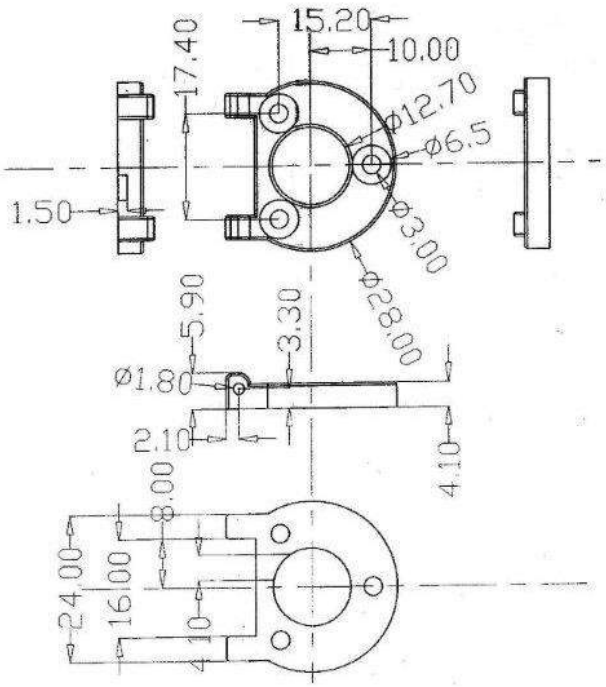


Lock NS.H

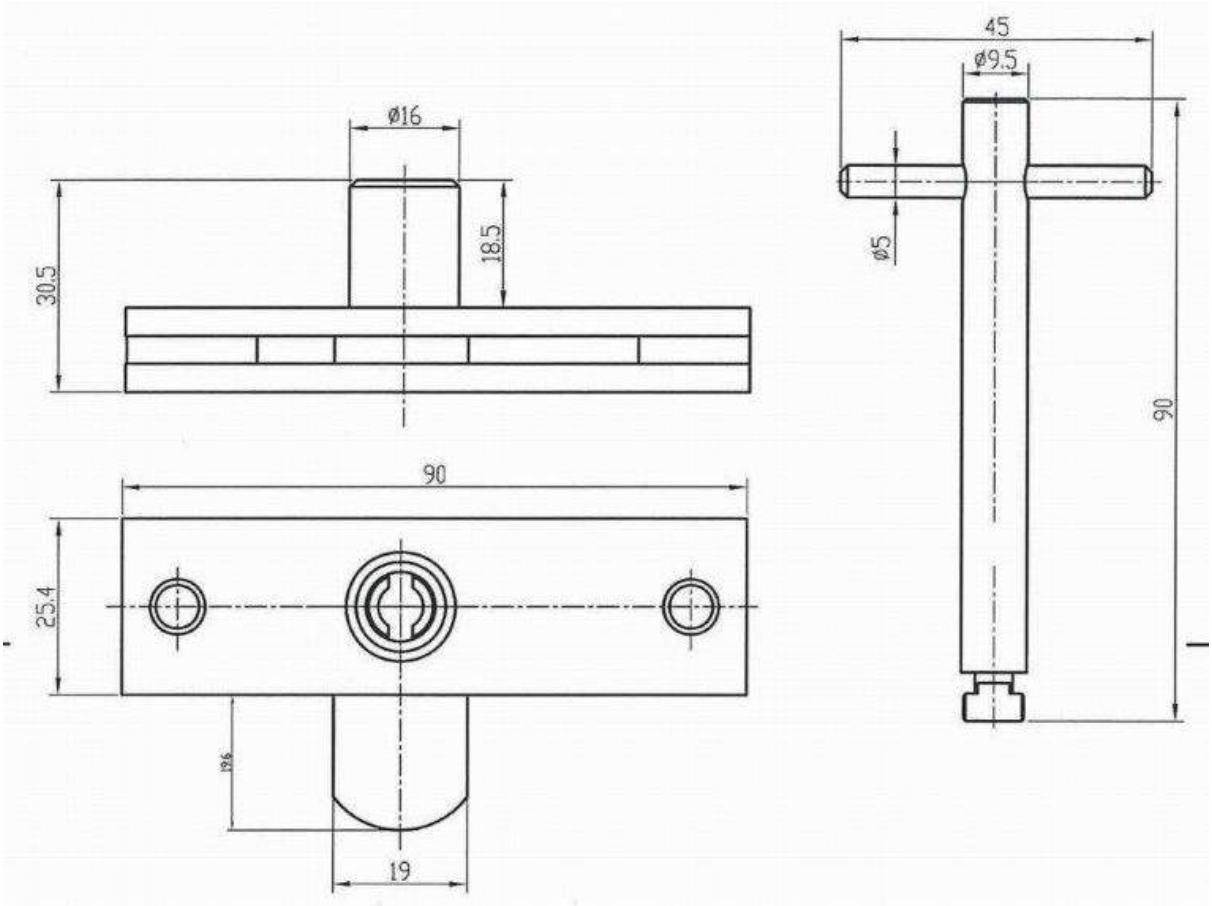


NS.H

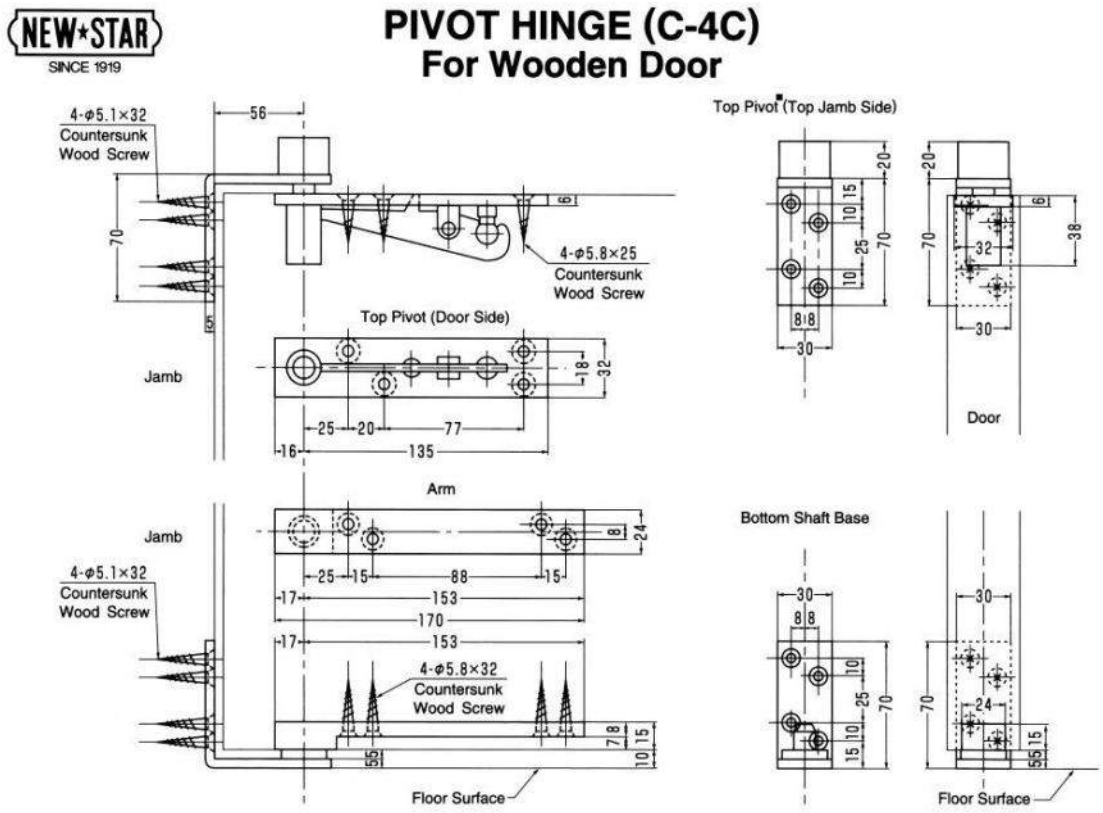
Latch plate NS.L



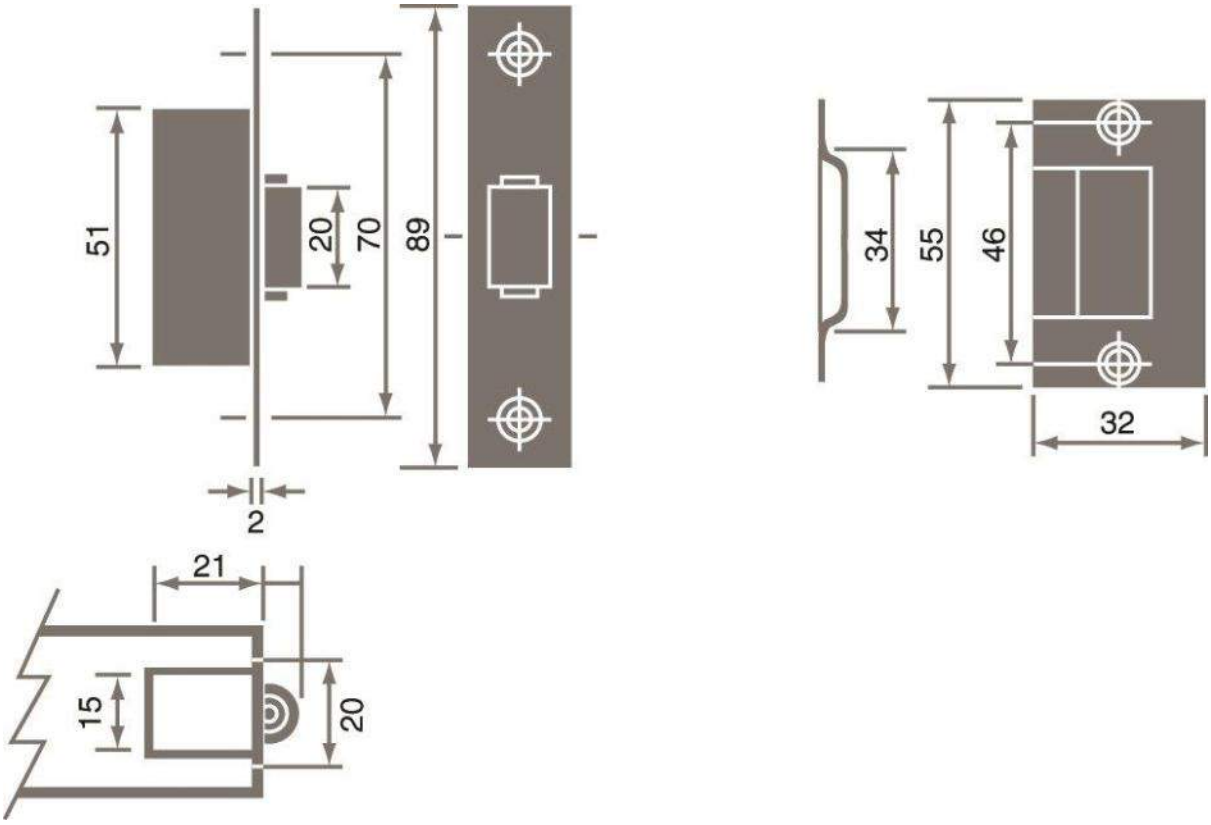
Latch NS.N and NS.P



Pivot hinge C-4C



Roller catch RC_1



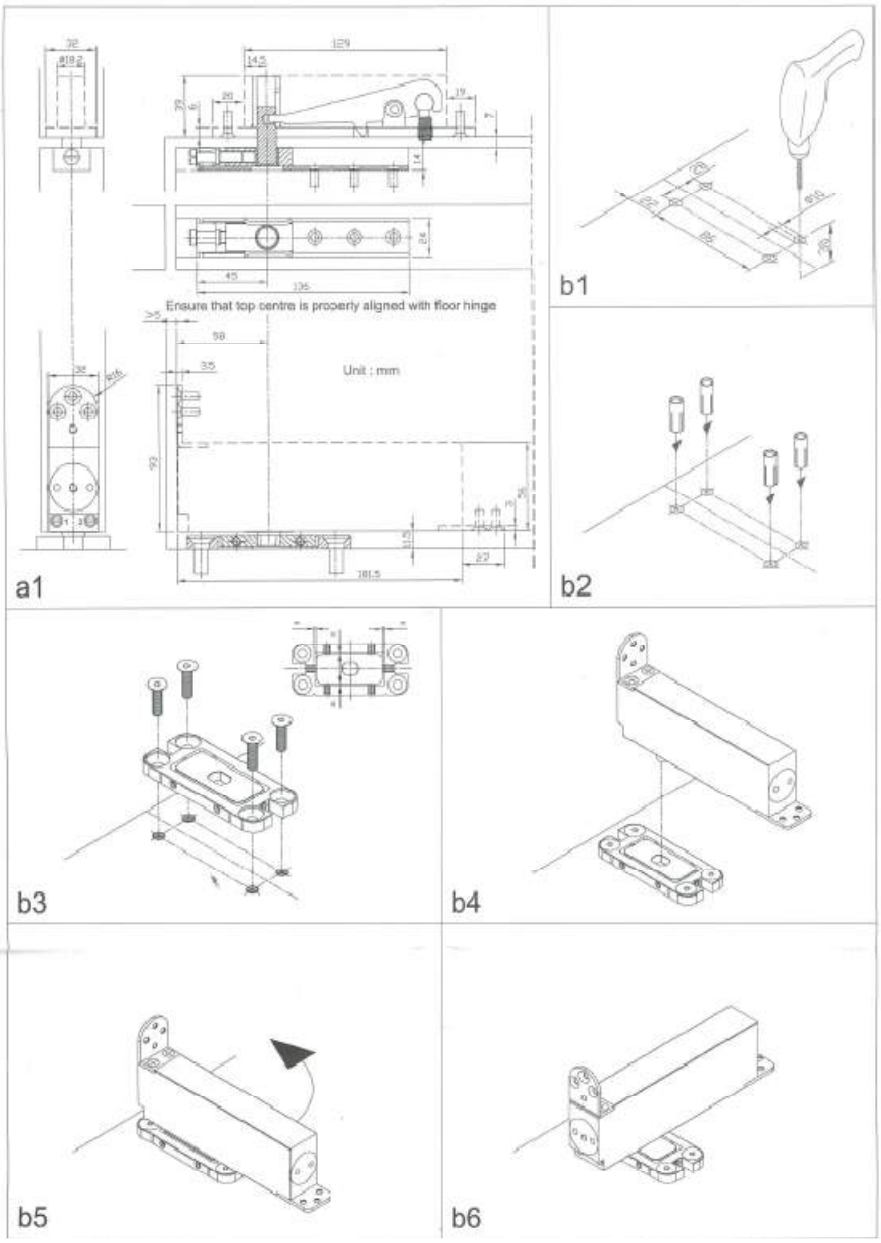
NS.CID.001 Fixing Instructions

NEWSTAR www.new-star.co.uk

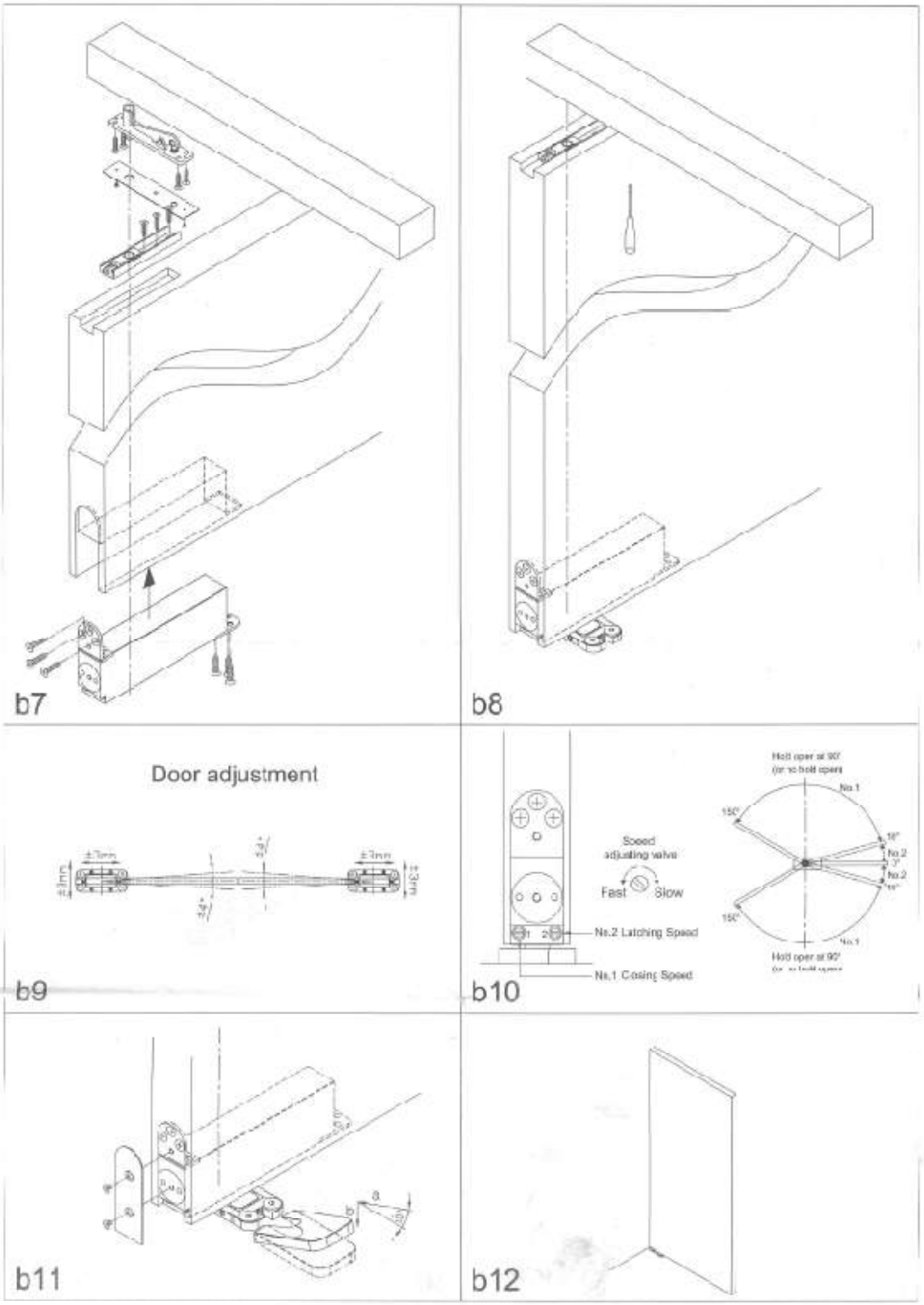
CE

BARY Door Closer Set

NS.CID.001



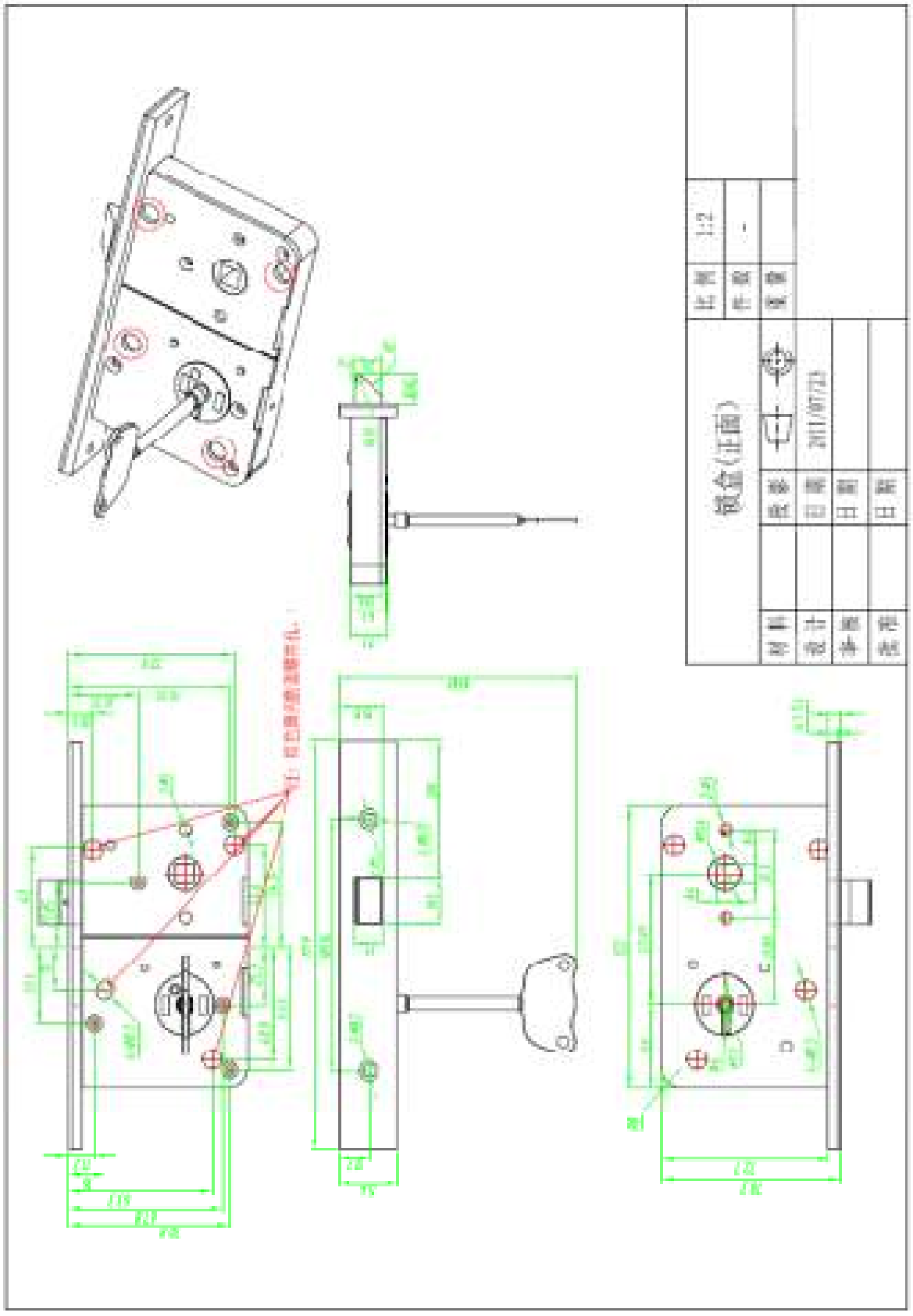
NS.CID.001 Fixing Instructions cont.



CE

021CPR2013-07-03
NS.CID.001
Batch No' 20:4

Newstar Door Controls Ltd. Unit 2. Block A. Lion Business Park. Derirg Way. Gravesend. Kent. DA12 2DN

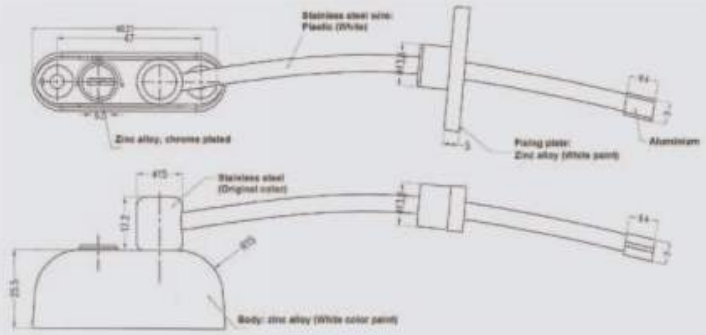


Bary door restrictor WL1 WHT

BARY Door & Window Restrictor

WL1

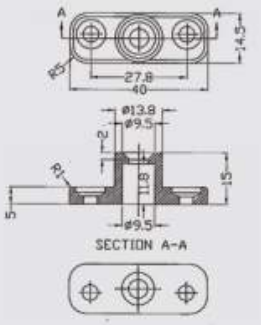
WHT PCP PB SNP



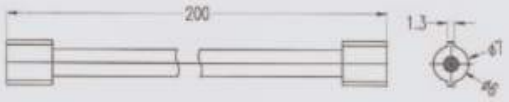
The BARY Restrictor limits the opening of doors and windows. Particularly designed with window safety in mind, due to the number of accidents occurring through window openings exceeding that of a child's size.

The BARY Restrictor is lockable and comes with a cable length of 200mm. All keys are within a passing group which ensures ease of use within a single dwelling. The BARY Restrictor can be fitted on wood, aluminum, PVC and steel. Supplied with tamper proof screws once fitted the likelihood of abuse is minimized. The BARY Restrictor is available in white only.

The BARY Restrictors are multi-faceted and are ideal for houses, apartments, commercial premises and public buildings. Supplied with a disc lock mechanism the BARY Restrictor will improve the security of buildings and the safety of its occupants.

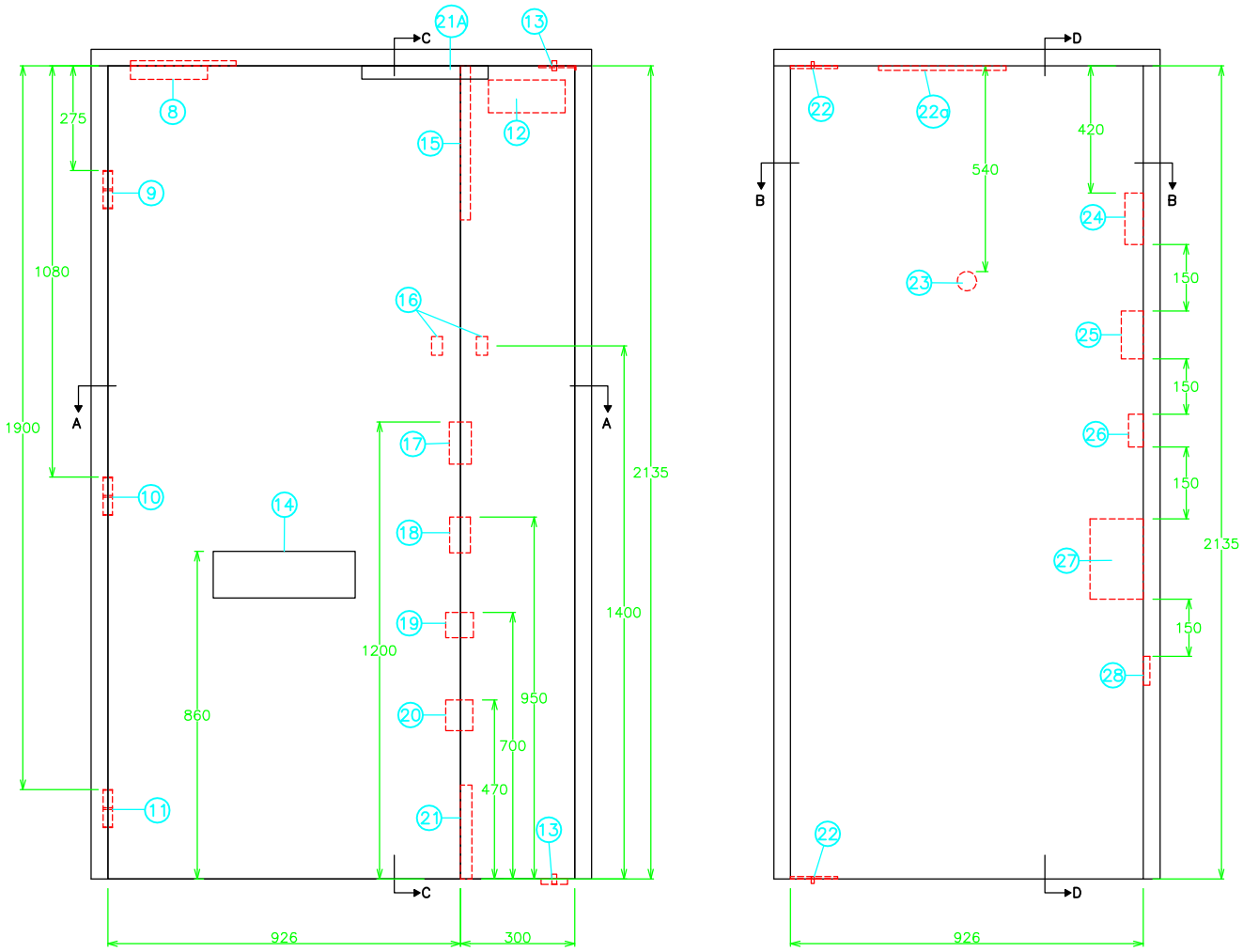


Fixing Plate



Stainless Steel Wire

Newstar Door Controls Limited, Unit 2, Block A Lion Business Park, Dering Way, Gravesend, Kent DA12 2DN.
Telephone: (01474) 353111 Facsimile: (01474) 353911 email: info@new-star.co.uk www.new-star.co.uk



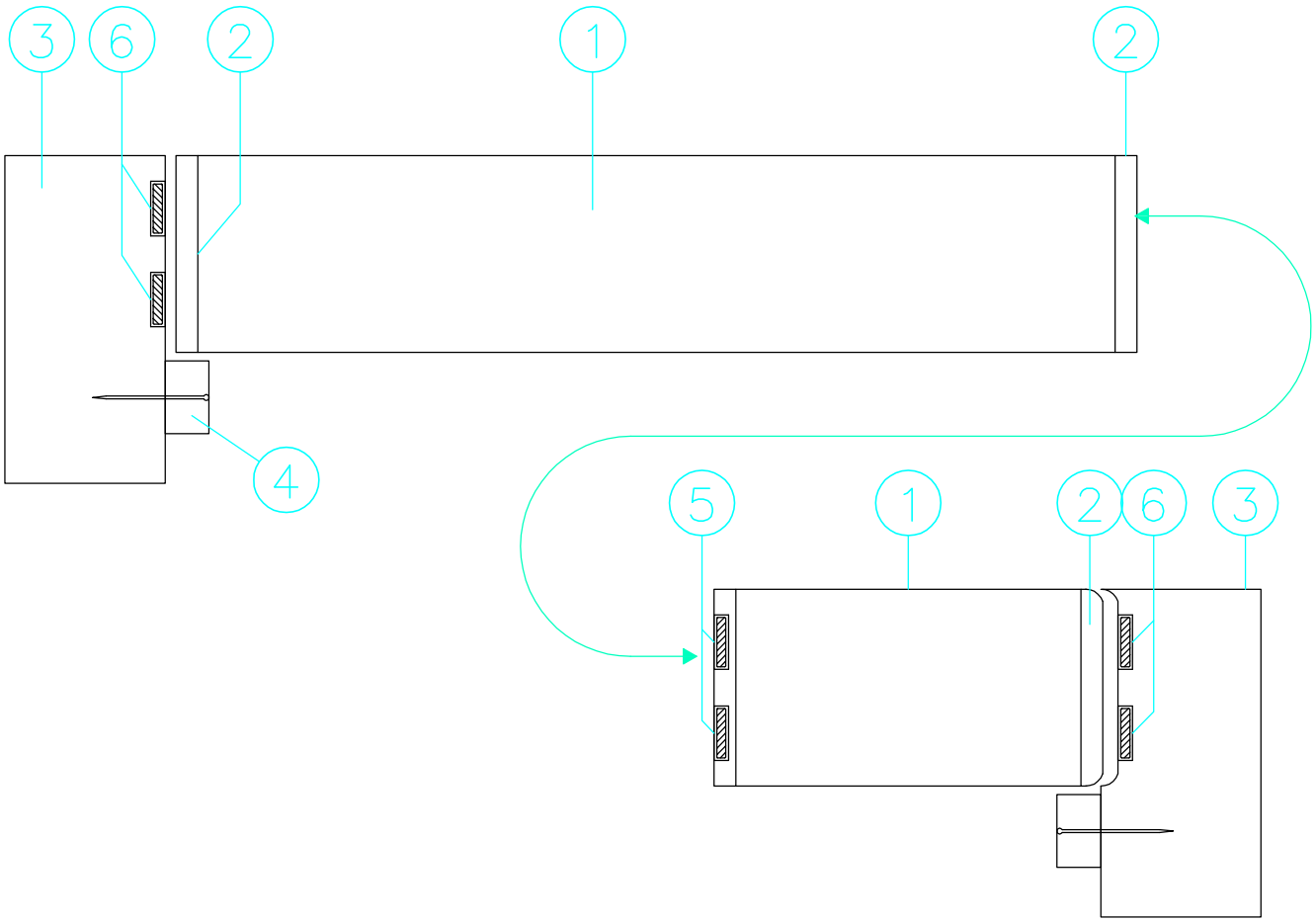
BM TRADA
Chiltern House, Stocking Lane, Hughenden Valley
High Wycombe, Buckinghamshire, HP14 4ND, UK.
Tel: +44 (0)1494 569800 Fax: +44 (0)1494 564895

Title: Unexposed face elevation showing hardware positions
(All dimensions in mm)

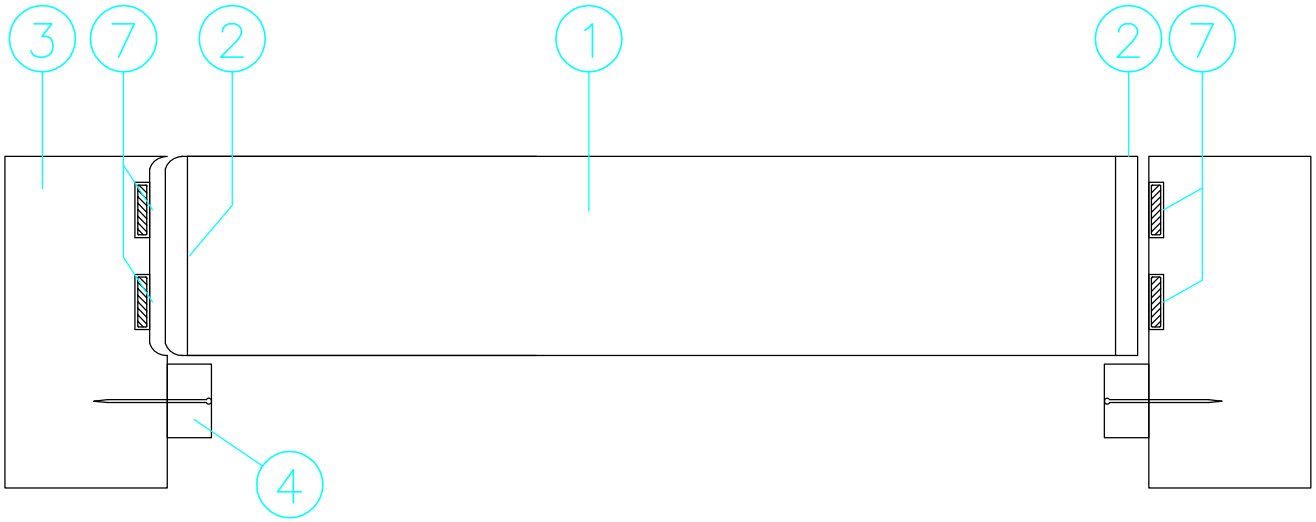
Date Drawn	Drawn By	Scale
7/07/14	ARD	NTS

Project No.	
BMT/FEP/F14095	Appendix 1

Section A–A



Section B–B



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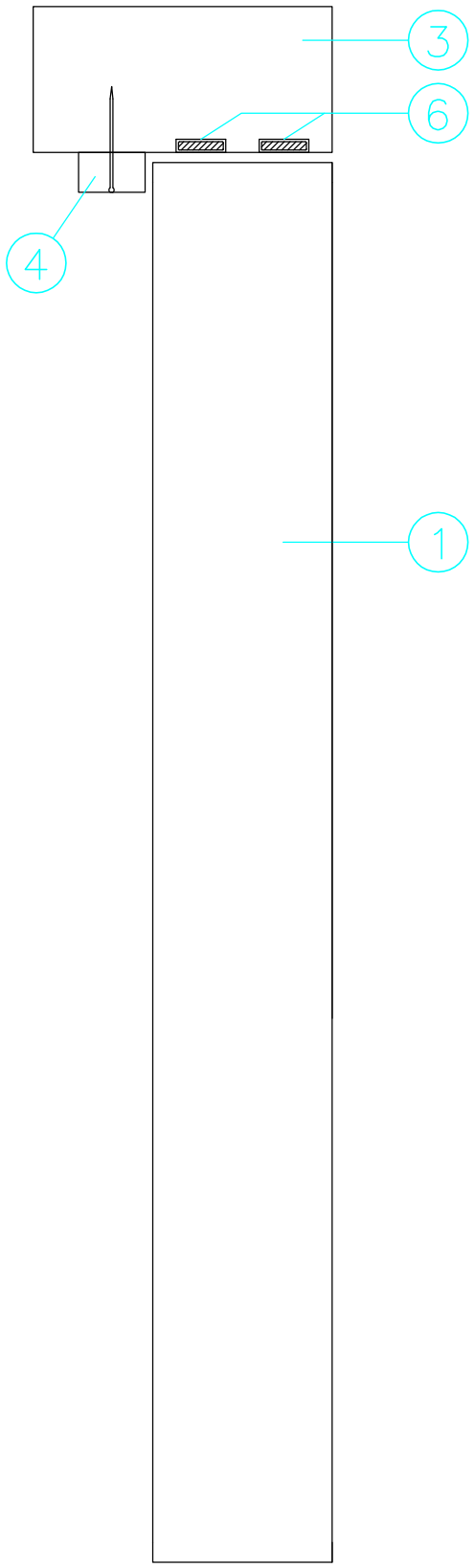
Tel: +44 (0)1494 569800 Fax: +44 (0)1494 564895

Title
Horizontal cross sections
(All dimensions in mm)

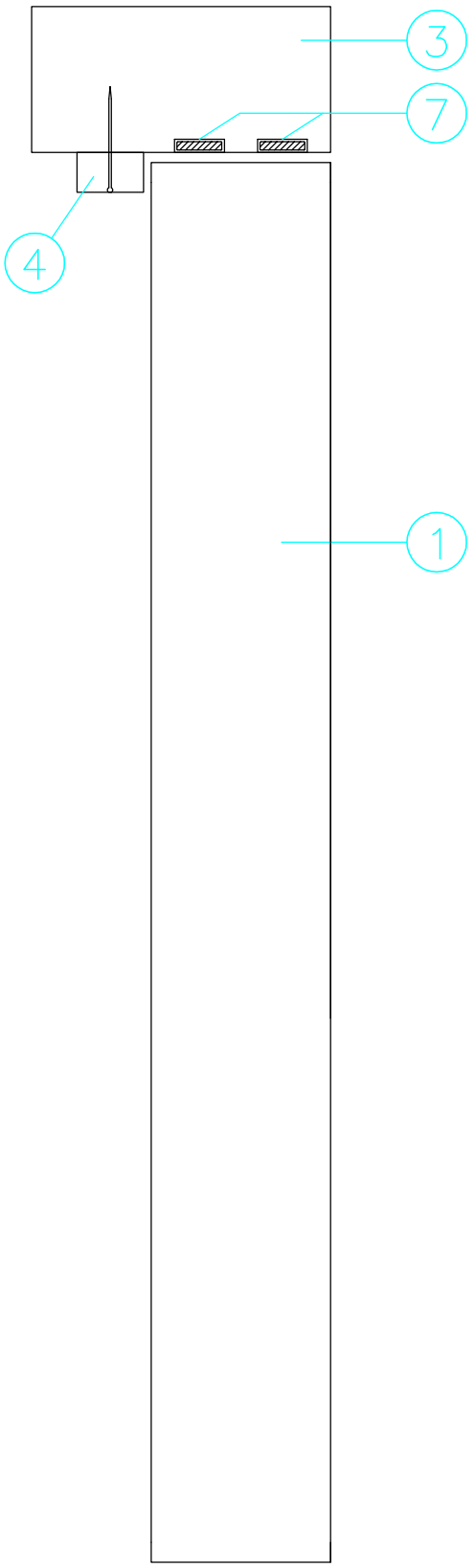
Date Drawn	Drawn By	Scale
7/07/14	ARD	NTS

Project No.	
BMT/FEP/F14095	Appendix 1

Section C–C



Section D–D



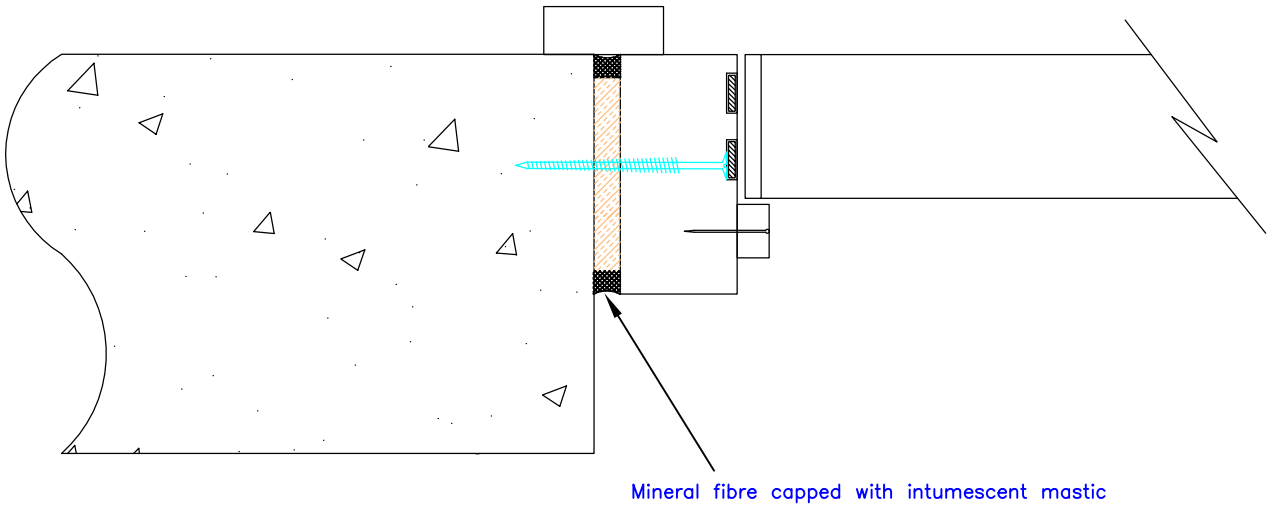
BM TRADA
Chiltern House, Stocking Lane, Hughenden Valley
High Wycombe, Buckinghamshire, HP14 4ND, UK.
Tel: +44 (0)1494 569800 Fax: +44 (0)1494 564895

Title
Vertical cross sections
(All dimensions in mm)

Date Drawn	Drawn By	Scale
7/07/14	ARD	NTS

Project No.	
BMT/FEP/F14095	Appendix 1

Both doorsets



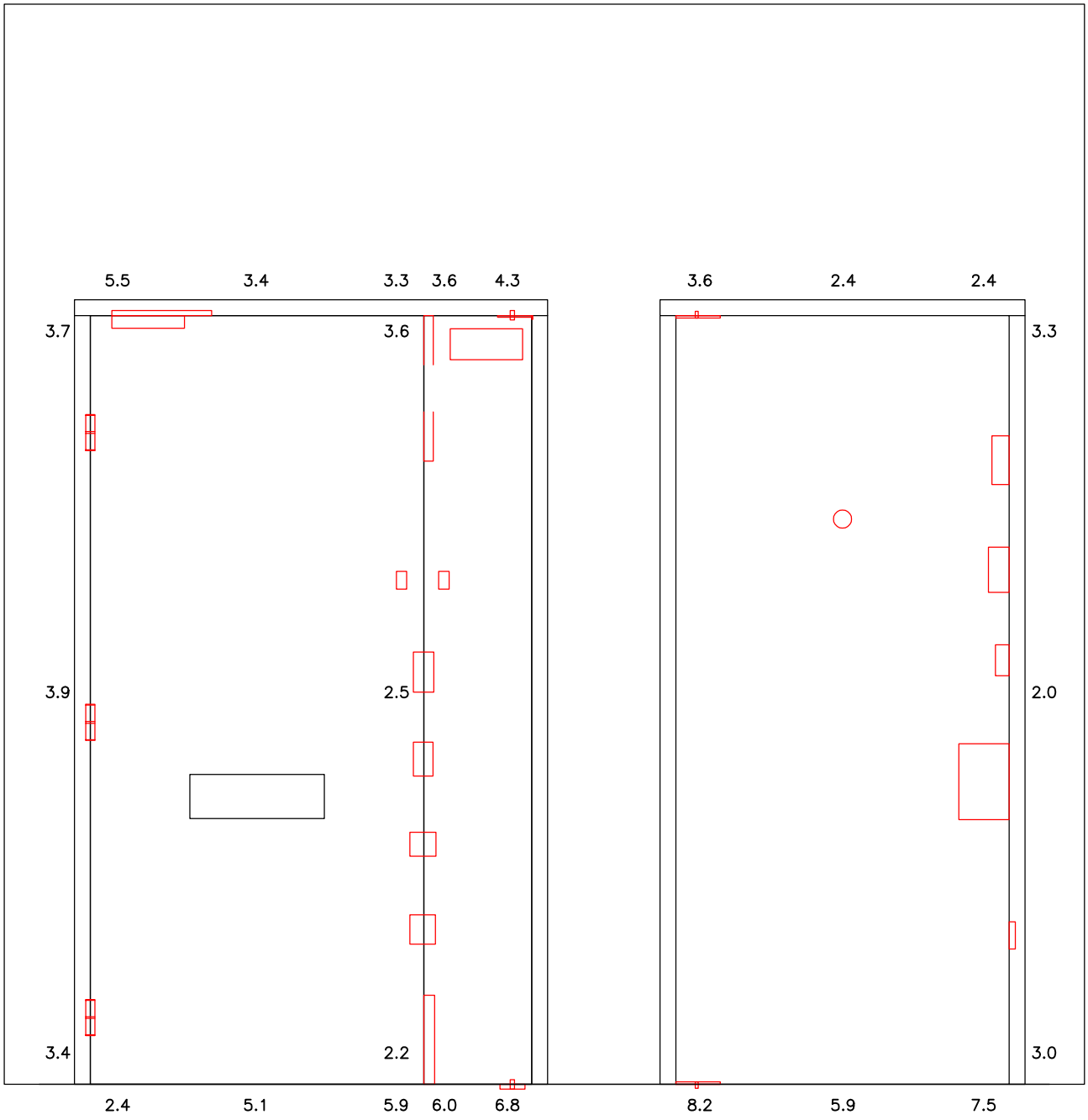
BM TRADA

Chiltern House, Stocking Lane, Hughenden Valley
High Wycombe, Buckinghamshire, HP14 4ND, UK.
Tel: +44 (0)1494 569800 Fax: +44 (0)1494 564895

Title
Frame to supporting construction fixing detail
(All dimensions in mm)

Date Drawn	Drawn By	Scale
7/07/14	ARD	NTS

Project No.	
BMT/FEP/F14095	Appendix 1



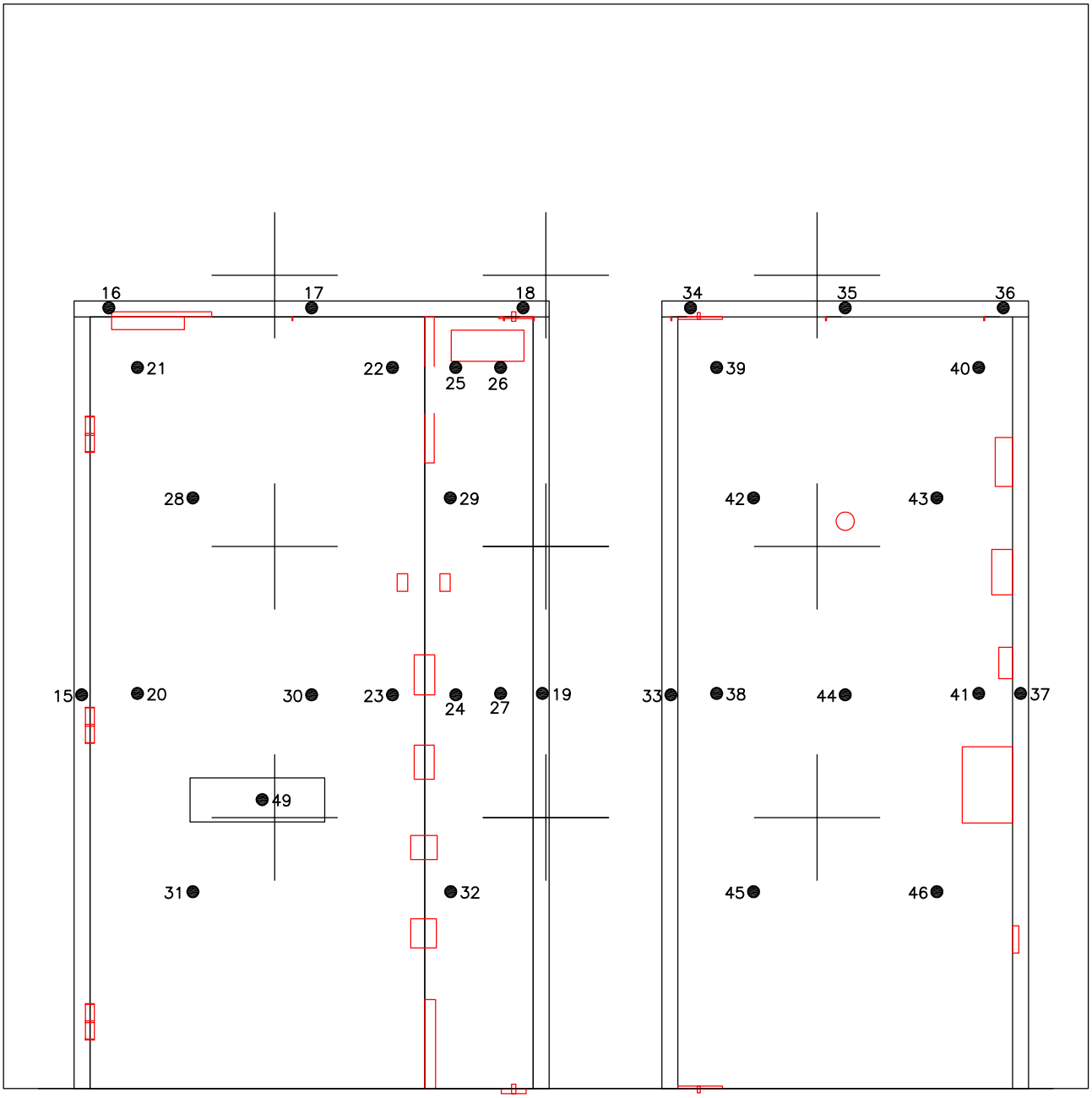
Viewed From Unexposed Face

BM TRADA
Chiltern House, Stocking Lane, Hughenden Valley
High Wycombe, Buckinghamshire, HP14 4ND, UK.
Tel: +44 (0)1494 569800 Fax: +44 (0)1494 564895

Title
Door leaf/frame gaps
(All dimensions in mm)

Date Drawn	Drawn By	Scale
7/07/14	ARD	NTS

Project No.	
BMT/FEP/F14095	Appendix 1



: Furnace Thermocouples

: Unexposed Face Thermocouples

Viewed From Unexposed Face

BMTRADA

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High Wycombe, Buckinghamshire, HP14 4ND, UK.
Tel: +44 (0)1494 569800 Fax: +44 (0)1494 564895

Title

Thermocouple positions

(All dimensions in mm)

Date Drawn	Drawn By	Scale
7/07/14	ARD	NTS

Project No.	
BMT/FEP/F14095	Appendix 1

BMTRADA

Appendix 2 - raw test data (6 pages)

(see figure 6 of appendix 1 for channel locations)

Furnace thermocouples

Time	Chan 0	Chan 1	Chan 2	Chan 3	Chan 4	Chan 5	Chan 6	Chan 7	Chan 8	Chan 9	Chan 11	Chan 15	Chan 16	Chan 17	Chan 18	Chan 19	Chan 20	Chan 21	Chan 22	Chan 23	Chan 24	Chan 25
min	Pa	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C
0	0	21	21	22	22	21	22	22	22	22	20	20	20	20	20	20	20	20	20	20	20	20
1	-4.2	246	279	296	294	318	198	268	252	328	20	20	23	23	25	21	21	25	38	20	21	22
2	0.1	450	424	460	429	459	409	424	436	454	20	20	29	26	30	21	20	38	45	21	21	24
3	1.8	496	431	488	476	505	503	493	499	532	20	20	33	29	33	23	20	44	38	21	22	25
4	-1	560	525	561	582	579	589	600	596	669	20	20	37	29	40	22	20	36	33	21	21	24
5	-2.9	560	509	594	590	587	616	618	609	668	20	21	39	28	45	21	20	32	30	21	21	23
6	8.6	499	473	531	564	559	581	585	585	596	20	21	40	27	45	22	21	29	29	21	22	23
7	-4.4	598	624	660	662	648	654	677	679	728	20	21	45	27	48	23	21	28	28	21	21	23
8	-2.2	635	614	691	653	634	667	671	667	716	20	21	50	26	54	22	21	27	27	21	21	23
9	-0.1	591	561	612	615	619	645	635	639	641	20	22	52	26	54	22	21	26	27	21	21	23
10	0.5	634	636	652	667	678	680	673	679	675	20	22	53	27	51	22	21	26	26	21	21	23
11	-1.2	660	669	708	695	687	696	705	716	725	20	22	56	27	52	22	21	26	26	21	21	23
12	-0.5	676	684	722	704	696	704	714	726	727	20	22	56	26	52	22	21	26	26	22	22	24
13	-0.7	686	695	730	714	710	709	719	729	718	20	23	55	28	49	22	22	26	27	23	22	25
14	-0.3	698	703	738	722	720	721	724	736	718	20	23	55	30	47	22	23	27	29	25	23	26
15	0	707	711	745	736	732	731	735	744	723	20	23	52	31	46	22	25	29	31	27	25	28
16	-0.1	719	737	755	757	750	745	758	763	742	20	24	51	33	45	22	27	31	34	30	27	31
17	-0.7	730	745	768	767	757	756	767	776	756	20	24	50	35	44	22	29	34	37	33	29	35
18	-0.8	735	754	780	777	769	763	775	786	766	20	25	49	35	44	22	32	36	40	36	31	38
19	-0.1	747	768	787	787	777	772	789	793	770	20	25	50	36	46	22	35	39	43	39	34	41
20	-0.4	754	776	796	794	785	783	795	800	777	20	26	50	39	45	22	37	42	46	41	37	45
21	-0.4	765	787	801	804	793	789	804	807	783	20	26	50	39	45	22	40	45	49	44	39	48
22	-0.4	773	790	810	810	800	795	806	814	790	20	26	50	40	44	22	43	47	51	46	41	51

Time	Chan 0	Chan 1	Chan 2	Chan 3	Chan 4	Chan 5	Chan 6	Chan 7	Chan 8	Chan 9	Chan 11	Chan 15	Chan 16	Chan 17	Chan 18	Chan 19	Chan 20	Chan 21	Chan 22	Chan 23	Chan 24	Chan 25
min	Pa	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C
23	0.1	781	799	816	818	807	803	815	817	795	20	27	51	40	44	22	45	49	53	48	43	53
24	-0.5	789	809	823	824	816	810	826	824	801	20	27	51	41	43	23	47	52	55	50	45	55
25	-1.9	799	820	836	829	823	817	825	832	809	20	28	50	41	43	23	49	53	56	52	47	57
26	-1.8	807	831	843	839	831	824	838	837	813	20	28	50	42	44	23	51	55	58	53	49	59
27	-1	816	839	852	844	837	834	840	845	822	20	29	50	42	44	23	52	56	59	55	50	60
28	-1.6	822	848	857	849	844	839	849	849	826	20	30	50	43	44	24	53	57	60	55	52	62
29	-1.1	831	852	859	853	848	842	853	854	829	20	31	51	44	44	24	54	58	61	56	53	63
30	-0.9	834	853	862	859	852	847	862	858	835	20	32	51	45	44	25	55	59	62	57	54	64
31	-0.8	841	861	869	863	856	854	865	865	841	20	33	52	45	45	26	56	60	62	58	55	65
32	-1.2	849	867	871	867	860	858	867	868	844	20	34	52	45	44	26	56	60	63	58	56	65
33	-1.9	852	876	880	870	867	862	871	870	845	20	35	53	45	43	27	57	61	63	59	56	66
34	-0.6	857	877	883	874	870	865	877	873	850	20	37	54	45	44	28	58	62	64	59	57	66
35	-0.9	862	879	888	880	874	871	880	878	855	20	38	56	46	44	29	58	62	64	60	58	67
36	-1.6	863	880	892	877	877	876	870	886	884	20	40	56	46	44	30	59	62	64	60	58	67
37	-0.9	864	880	901	880	881	881	873	891	896	20	41	57	46	45	31	59	63	65	60	59	67
38	-0.8	870	887	904	883	884	887	874	895	901	20	42	57	46	45	32	59	63	65	60	59	68
39	-2.2	875	892	906	887	889	893	876	897	903	20	43	58	47	45	33	59	63	65	61	60	68
40	-1.3	883	895	900	887	891	894	878	896	903	20	43	59	47	46	34	60	63	65	61	60	68
41	-1.1	884	896	896	884	891	899	878	897	908	20	44	59	48	47	34	61	63	66	61	61	68
42	-1.5	887	895	896	885	896	900	881	899	905	20	45	59	48	47	35	61	64	66	62	61	68
43	-1.5	889	898	900	886	898	900	880	898	907	20	46	60	48	48	36	62	64	66	62	62	68
44	-1.7	889	898	900	892	901	902	884	901	908	20	47	60	49	48	37	62	64	66	62	62	69
45	-0.9	894	900	903	894	902	904	886	904	910	20	47	60	49	49	37	63	65	67	63	63	69
46	-1.7	896	902	904	899	906	906	887	906	911	20	48	61	50	50	38	62	65	67	63	63	69
47	-1.9	902	907	909	901	909	907	890	909	914	20	49	62	50	50	39	62	65	67	63	63	69
48	-1.5	903	908	911	902	910	911	894	910	920	20	50	63	51	51	40	62	65	68	64	64	70
49	-1.6	905	911	913	908	914	911	897	913	919	20	50	62	52	52	39	63	66	68	64	64	70
50	-1.5	908	913	916	910	918	916	899	916	922	20	50	63	53	53	40	64	66	68	65	65	71
51	-0.6	910	916	918	912	919	917	901	918	925	20	51	63	54	55	40	64	67	69	65	66	71

Time	Chan 0	Chan 1	Chan 2	Chan 3	Chan 4	Chan 5	Chan 6	Chan 7	Chan 8	Chan 9	Chan 11	Chan 15	Chan 16	Chan 17	Chan 18	Chan 19	Chan 20	Chan 21	Chan 22	Chan 23	Chan 24	Chan 25
min	Pa	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C
52	-0.7	911	917	921	918	924	921	907	922	927	20	51	64	54	58	41	65	68	69	66	66	72
53	-0.8	911	911	894	914	923	918	912	923	928	20	52	65	55	61	41	65	68	70	66	67	72
54	0.5	905	906	867	919	923	917	923	926	926	20	52	67	56	65	42	66	70	70	67	67	73
55	0	921	922	880	937	939	933	929	935	936	20	52	68	57	69	42	67	72	71	68	68	74
56	-1.8	936	934	888	948	949	946	938	945	946	20	53	70	58	73	42	67	76	71	68	68	74
57	-2.2	942	940	895	952	956	953	946	954	955	20	52	71	59	76	43	68	88	72	69	69	75
58	-1.8	949	946	900	961	961	955	952	960	962	20	53	76	61	79	43	69	100	73	69	70	75
59	-1.3	954	950	904	968	966	959	959	966	965	20	54	81	65	81	43	69	107	74	70	70	76
60	-0.4	948	945	898	961	961	955	961	966	965	20	54	85	73	85	44	70	88	75	70	71	77
61	-1.1	950	947	906	959	960	954	957	963	963	20	54	86	75	90	44	63	65	76	69	70	74
62	-1.2	945	941	898	954	954	952	959	960	963	20	51	80	76	96	45	56	165	78	70	71	75
63	-1.9	942	940	894	952	951	949	958	959	962	20	51	85	75	107	46	52	168	74	71	72	72
64	0.1	943	939	894	950	951	949	957	958	958	20	51	87	76	113	46	52	242	71	72	72	67
65	-1.1	950	947	899	964	963	959	957	962	962	20	51	71	72	85	44	51	260	74	73	72	61
66	-1.2	953	950	906	964	965	960	961	963	965	20	23	88	75	84	43	23	101	84	74	73	61
67	-0.6	957	952	908	964	964	961	962	965	969	20	19	24	21	33	18	20	25	29	38	29	27
68	-1.4	958	954	908	967	966	966	964	967	969	20	18	21	20	24	18	20	21	24	26	25	22

Time	Chan 26	Chan 27	Chan 28	Chan 29	Chan 30	Chan 31	Chan 32	Chan 33	Chan 34	Chan 35	Chan 36	Chan 37	Chan 38	Chan 39	Chan 40	Chan 41	Chan 42	Chan 43	Chan 44	Chan 45	Chan 46
min	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C
0	20	20	21	21	20	20	19	20	20	20	20	20	20	20	20	20	20	20	20	20	20
1	22	21	21	22	20	20	19	20	23	20	22	20	20	21	23	20	20	20	20	20	20
2	24	21	21	23	20	20	19	20	28	29	24	20	20	21	31	20	20	20	20	20	20
3	24	21	21	24	20	20	19	20	31	31	36	21	20	21	29	21	20	21	20	20	20
4	23	21	21	23	20	20	19	20	36	31	43	20	21	22	26	21	20	21	20	20	20
5	23	21	21	23	20	20	19	20	40	31	43	20	21	22	24	21	20	21	20	20	20
6	23	21	21	22	21	20	19	20	40	30	40	21	21	22	24	21	21	21	21	21	21
7	23	22	21	23	21	20	19	20	48	31	38	22	21	22	24	22	21	21	21	21	22
8	23	21	21	23	21	20	19	20	55	35	38	21	21	22	23	21	21	21	21	21	21

Time	Chan 26	Chan 27	Chan 28	Chan 29	Chan 30	Chan 31	Chan 32	Chan 33	Chan 34	Chan 35	Chan 36	Chan 37	Chan 38	Chan 39	Chan 40	Chan 41	Chan 42	Chan 43	Chan 44	Chan 45	Chan 46
min	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C
9	23	21	21	23	22	20	19	20	56	35	37	21	21	22	23	21	21	21	21	21	21
10	23	21	22	23	22	20	19	20	53	33	35	21	21	23	23	22	21	21	21	21	22
11	23	21	22	25	23	20	19	20	52	32	36	21	21	24	23	22	21	21	21	21	21
12	24	22	22	27	25	20	19	21	57	34	35	21	21	24	24	22	21	22	21	21	22
13	25	22	23	27	25	21	19	21	58	34	34	21	22	24	25	22	22	23	22	21	22
14	26	23	25	28	27	22	19	21	58	34	32	21	23	25	26	24	23	24	23	22	23
15	29	25	27	32	29	23	19	21	59	35	32	21	24	27	29	25	24	26	24	23	24
16	32	27	29	35	31	25	19	21	59	35	32	21	26	29	32	26	26	28	25	25	26
17	36	29	31	37	34	27	19	21	58	36	32	21	27	32	35	28	27	30	27	26	27
18	39	32	34	40	37	29	19	21	59	37	32	21	29	34	38	30	29	33	28	28	29
19	43	34	36	41	39	32	19	21	59	37	32	21	32	37	41	32	31	35	30	30	31
20	46	37	39	43	40	34	19	21	60	38	33	21	34	40	44	34	33	38	32	32	33
21	50	39	41	45	42	36	19	21	60	38	33	21	36	42	46	37	35	40	34	34	35
22	52	42	43	47	43	38	20	21	59	38	33	21	38	45	49	39	37	42	36	35	37
23	55	44	46	49	45	40	20	22	58	38	33	21	39	47	51	41	39	44	37	37	38
24	57	46	48	51	47	42	20	23	58	38	33	22	41	49	53	43	41	46	39	39	40
25	59	48	49	52	48	43	20	23	59	38	35	22	43	51	55	45	43	48	41	40	42
26	60	50	51	54	49	45	20	24	60	39	35	22	45	52	56	46	44	49	42	42	43
27	62	52	52	55	51	46	20	25	61	39	35	22	46	54	57	48	45	51	43	43	44
28	63	53	53	56	51	46	20	26	61	39	37	23	47	55	58	49	46	52	45	44	45
29	63	54	54	58	53	47	20	27	61	39	37	23	48	56	59	50	47	53	46	45	46
30	64	56	55	59	53	48	19	28	60	39	38	24	49	56	59	52	48	53	46	46	47
31	65	57	56	60	54	49	19	30	59	39	37	24	51	57	60	53	49	54	48	47	48
32	65	57	56	60	55	49	19	30	58	39	39	25	52	57	60	54	50	55	49	48	49
33	65	58	57	61	55	50	19	31	57	39	38	26	52	58	61	55	50	55	49	48	50
34	66	59	58	62	56	50	19	32	57	38	39	27	53	58	61	56	50	56	50	49	50
35	66	60	58	62	56	51	19	34	56	38	39	28	54	59	61	57	51	57	51	50	51
36	66	60	59	62	57	51	19	35	56	38	39	30	55	59	62	58	52	57	52	51	52
37	66	61	59	63	57	51	19	35	55	39	40	31	55	59	62	59	52	58	52	52	53

Time	Chan 26	Chan 27	Chan 28	Chan 29	Chan 30	Chan 31	Chan 32	Chan 33	Chan 34	Chan 35	Chan 36	Chan 37	Chan 38	Chan 39	Chan 40	Chan 41	Chan 42	Chan 43	Chan 44	Chan 45	Chan 46
min	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C
38	66	61	59	63	57	52	19	37	55	39	40	33	56	60	63	59	53	58	53	52	53
39	67	62	60	63	57	52	19	38	55	39	39	34	56	60	63	60	53	59	53	53	54
40	67	62	61	63	58	53	20	38	55	39	39	34	57	60	63	60	53	59	54	54	54
41	67	63	61	64	59	55	20	41	55	39	40	36	58	60	64	61	55	60	56	55	55
42	67	63	62	64	59	55	20	42	55	39	41	37	58	61	64	62	55	61	56	55	56
43	67	20	62	65	60	56	20	42	55	40	42	38	59	61	64	62	55	61	57	56	57
44	67	20	63	65	60	57	20	44	55	41	43	39	60	62	65	62	56	62	58	57	57
45	68	20	63	65	61	58	20	45	55	41	44	40	60	62	65	63	57	62	58	57	58
46	68	20	63	66	61	57	20	46	55	41	45	41	61	62	66	63	57	63	59	58	59
47	69	20	63	66	61	57	20	46	56	42	46	42	61	63	66	64	57	64	60	59	59
48	69	20	64	67	62	58	20	46	56	42	46	44	62	64	67	64	58	64	60	59	60
49	70	20	65	68	62	59	20	47	56	43	47	44	62	64	67	65	58	64	61	60	61
50	70	20	65	68	63	60	21	47	57	44	47	44	62	64	68	65	59	65	61	60	61
51	71	20	66	69	63	60	20	47	57	44	47	45	63	65	68	65	59	66	62	61	62
52	72	20	66	69	64	61	21	48	57	44	48	46	63	65	69	66	60	66	63	62	62
53	72	21	66	70	64	61	21	48	58	45	49	47	64	66	69	67	60	67	63	63	64
54	73	21	67	71	65	63	21	49	59	45	50	47	65	66	70	68	61	68	65	63	64
55	73	21	68	71	66	63	21	50	59	45	49	47	65	67	70	68	62	68	65	64	65
56	74	21	69	72	66	64	21	49	60	45	50	48	66	67	71	68	62	69	66	65	65
57	75	20	70	72	67	65	21	49	61	45	50	48	66	68	71	69	63	69	66	66	66
58	76	21	70	73	68	65	21	49	61	46	50	48	67	69	72	69	63	70	67	66	66
59	77	20	70	74	69	66	21	50	62	46	51	48	68	69	73	70	64	70	68	67	67
60	77	21	71	74	69	67	21	51	62	47	53	49	68	70	73	71	65	71	68	68	68
61	78	20	70	75	69	68	19	51	62	46	53	50	69	70	74	71	65	72	69	69	69
62	79	20	70	76	71	68	19	51	63	47	54	50	69	71	75	72	66	73	70	69	70
63	76	20	71	75	71	67	20	51	63	47	55	51	70	71	75	73	66	73	70	70	71
64	65	20	72	74	72	68	20	52	64	48	56	51	70	72	76	74	66	74	71	70	71
65	59	20	69	73	72	69	20	52	64	48	56	51	71	73	77	74	67	75	72	71	71
66	59	20	70	75	73	53	19	53	65	48	58	52	72	73	78	75	68	76	73	72	72

Time	Chan 26	Chan 27	Chan 28	Chan 29	Chan 30	Chan 31	Chan 32	Chan 33	Chan 34	Chan 35	Chan 36	Chan 37	Chan 38	Chan 39	Chan 40	Chan 41	Chan 42	Chan 43	Chan 44	Chan 45	Chan 46
min	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C
67	32	42	27	40	44	24	20	53	66	50	60	52	72	74	80	76	69	76	73	72	73
68	24	29	23	30	32	21	20	53	67	51	63	52	72	74	81	76	69	76	73	72	73

Time	Chan 47	Chan 48	Chan 49
min	kw/m²	kw/m²	°C
0	0	0	20
1	0	0	22
2	0	0	27
3	0	0	35
4	0	0	44
5	0	0	51
6	0	0	59
7	0	0	70
8	0	0	81
9	0	0	87
10	0	0	93
11	0	0	95
12	0	0	96
13	0	0	97
14	0	0.1	97
15	0	0	98
16	0	0	99
17	0.1	0	101
18	0.1	0.1	103
19	0.1	0.1	106
20	0.1	0.1	108
21	0.1	0.1	112
22	0.1	0.1	116

Time	Chan 47	Chan 48	Chan 49
min	kw/m²	kw/m²	°C
23	0.1	0.1	120
24	0.1	0.1	123
25	0.1	0.1	126
26	0.1	0.1	128
27	0.1	0.1	131
28	0.1	0.1	133
29	0.1	0.1	135
30	0.1	0.1	138
31	0.1	0.1	142
32	0.1	0.1	144
33	0.1	0.1	147
34	0.1	0.1	150
35	0.1	0.1	154
36	0.1	0.1	158
37	0.1	0.1	161
38	0.1	0.1	166
39	0.1	0.1	169
40	0.1	0.1	172
41	0.1	0.1	177
42	0.1	0.1	180
43	0.1	0.1	183
44	0.1	0.1	188
45	0.1	0.1	191

Time	Chan 47	Chan 48	Chan 49
min	kw/m²	kw/m²	°C
46	0.1	0.1	193
47	0.1	0.1	194
48	0.2	0.1	197
49	0.2	0.1	200
50	0.2	0.1	202
51	0.2	0.1	204
52	0.1	0.2	206
53	0.2	0.2	208
54	0.2	0.1	211
55	0.2	0.2	212
56	0.2	0.2	214
57	0.2	0.2	216
58	0.2	0.2	218
59	0.3	0.2	221
60	0.3	0.2	225
61	0.2	0.2	228
62	0.1	0.2	232
63	0.3	0.2	236
64	0.3	0.2	239
65	0.4	0.2	244
66	0.3	0.3	246
67	0.5	0.3	123
68	0.4	0.3	61

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