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Title:

The Fire Resistance Performance of Timber Doorsets Incorporating Frelan Lever and Knob Furniture

WF Assessment Report No:

421627 Issue 3

Prepared for:

FRELAN HARDWARE LTD

Unit 10
Mitcham Industrial Estate
Streatham Road,
Mitcham
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CR4 2AP

Date:

17 December 2019

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Foreword

This assessment report has been commissioned by Frelan Hardware Ltd and relates to the fire resistance of door handles.

The report is for National Application and has been written in accordance with the general principles outlined in BS EN 15725: 2010; *Extended application reports on the fire performance of construction products and building elements.*

This report uses established empirical methods of extrapolation and experience of fire testing similar elements of construction, in order to extend the scope of application by determining the limits for the designs based on the tested constructions and performances obtained. The scope is an evaluation of the potential fire resistance performance if the variation(s) specified herein were to be tested in accordance with BS EN 1634-1:2014 + A1:2018.

This scope document cannot be used as supporting documentation for either a CE marking application for doorsets, nor can the conclusion be used to establish a formal classification against EN13501-2.

The defined scope presented in this report relates to the behaviour of the proposed door handles under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the door handles in use.

This report has been prepared and checked by product assessors with the necessary competence, who subscribe to the principles outlined in the Passive Fire Protection Forum (PFPF) 'Guide to Undertaking Technical Assessments of the Fire Performance of Construction Products Based on Fire Test Evidence - 2021'. The aim of the PFPF guidelines is to give confidence to end-users that assessments that exist in the UK are of a satisfactory standard to be used for building control and other purposes.

Executive Summary

Objective

This report considers the expected fire resistance performance of Frelan door handles when fitted to previously tested timber doorsets, if subjected to a test in accordance with BS EN 1634-1:2014 + A1:2018 or BS 476: Part 22: 1987.

Report Sponsor

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Summary of Conclusions

Should the recommendations given in this report be followed, it can be concluded that timber doorsets which, which have previously been successfully fire tested to BS 476: Part 22 or EN 1634-1 by a laboratory accredited to IS/IEC 17025 (under International Laboratory accreditation Cooperation (ILAC) membership), and have achieved up to 60 minutes, as discussed in this report, may be fitted with Frelan door handles as detailed within this report may, without detracting from the overall integrity performance (and insulation where relevant) of the doorset.

This assessment represents our opinion as to the performance likely to be demonstrated on a test in accordance with BS 476: Part 22: 1987 or EN 1634-1:2014+A1:2018, based on the evidence referred to herein. We express no opinion as to whether that evidence, and/or this assessment, would be regarded by any Building Control authority as sufficient for that or any other purpose. This assessment is provided to the client for its own purposes, and we cannot opine on whether it will be accepted by Building Control authorities or any other third parties for any purpose.

Valid until

17 December 2024

Introduction

Doorset Specification

This report presents an appraisal of the fire resistance performance of single-acting timber when fitted with a range of Frelan Hardware door handles. The doorset, onto which the proposed hardware is to be fitted, may be of single-leaf or double-leaf configuration.

The proposed doorsets are required to provide a fire resistance performance of 30 or 60 minutes integrity and where applicable insulation, with respect to BS 476: Part 22: 1987 or BS EN 1634-1.

FTSG/PFPF

The data referred to in the supporting data section has been considered for the purpose of this appraisal which has been prepared in accordance with the Fire Test Study Group Resolution No. 82: 2001 and the Passive Fire Protection Federation (PFPF) Guide to Undertaking Technical Assessments of Fire Performance of Construction Products Based on Fire Test Evidence - 2021.

Assumptions

EN1634-1

EN1634-1 was issued originally in 2000, with amended versions issued in 2008, 2014 and 2018. The differences between each version are mainly procedural and are not considered to have a practical impact on the performance of the samples under test. On this basis this evaluation is consider applicable to all versions of EN1634-1 issued prior to the issue of this assessment.

Supporting wall

It is also assumed that the construction of the wall, which supports the proposed doorsets, will have been the subject of a separate test and the performance of the wall is such that it will not influence the performance of the doorset for the required period.

Doorset Specification

It is assumed that the Frelan Hardware door handles will be fitted to a doorset which has also been previously shown to be capable of providing the required fire resistance performance when tested in accordance with EN 1634-1 or BS 476: Part 22: 1987 in the proposed configuration i.e. single-leaf or double-leaf.

It is also assumed that the doorsets will fully comply with any certification scope or assessed modifications, apart from the modifications specified in this report.

Doorset Details

The lever/knob furniture will always be used in combination with a lock/latch, and it is therefore assumed that the tested doorset will have been tested or assessed when incorporating a latch/lock.

The spindle hole should be as small as possible, allowing for the operation of the handle, but shall be a maximum 16 mm in diameter.

Where pull handles are over 1000 mm high, the chosen door shall have specific test/approval for pull handles to the required size.

Clearance gaps

Door leaf to frame clearance gaps can have a significant effect on the overall fire performance of a doorset. It is therefore assumed that the leaf to leaf and leaf to frame clearance gaps will not exceed those measured for the relevant fire tested doorset. In addition, it is assumed that the door leaves will be in the closed and latched position.

Door Closers

The proposed doorsets will include a surface mounted overhead door closer capable of returning the door leaf to the fully closed position if there is no latch present or capable of restraining the doorset.

Installation

This appraisal does not consider the implications of installing a specific lock, within a fire door construction and only considers the influence of the lever/knob handle furniture, the suitability of the door leaf and latch/lock should be demonstrated by separate test/assessment evidence. Including any additional intumescent protection included either side of the lock case where applicable.

The intumescent protection included either side of the lockcase shall be as tested/approved for the specific lockcase

The lever handles shall not be fitted higher than 1000 mm from the centre of spindle to the finished floor level of the surrounding floors.

For timber based doorsets intumescent protection shall be included if required by the lock evidence. It shall be included to either side of the lockcase, and this shall be that tested with the mortice locks/doors to which the handles are to be fitted.

Hardware Variant Specifications

An appraisal of the hardware variants detailed in this report is based upon product information supplied by the hardware manufacturer, which is retained in the confidential file relating to this report. Warringtonfire have not inspected the devices being appraised and cannot be held responsible for the accuracy of the information provided.

Proposals

It is proposed that previously fire tested (or assessed by Warringtonfire or Chiltern International Fire) timber doorsets which have achieved 30 or 60 minutes integrity and, where applicable, insulation performance, as discussed later in this report, may be fitted with Frelan door handles, in accordance with recommendations given in this report without detracting from the overall performance of the doorset.

It is also proposed that the doorsets may be of single or double-leaf configuration. Details of the proposed range of architectural furniture are as identified in Annex A.

Assessed Performance

Fire doors often incorporate locking/latching devices either to retain the doorset in the closed position during a fire or simply for keeping the doorset closed/locked in normal use.

The introduction of a lock/latch case into a timber based leaf can increase the risk of localised integrity failure, via either the mortise removing enough leaf material that premature burn through can occur, or by interruption of the intumescent seals around the leaf perimeter by the strike/forend plate.

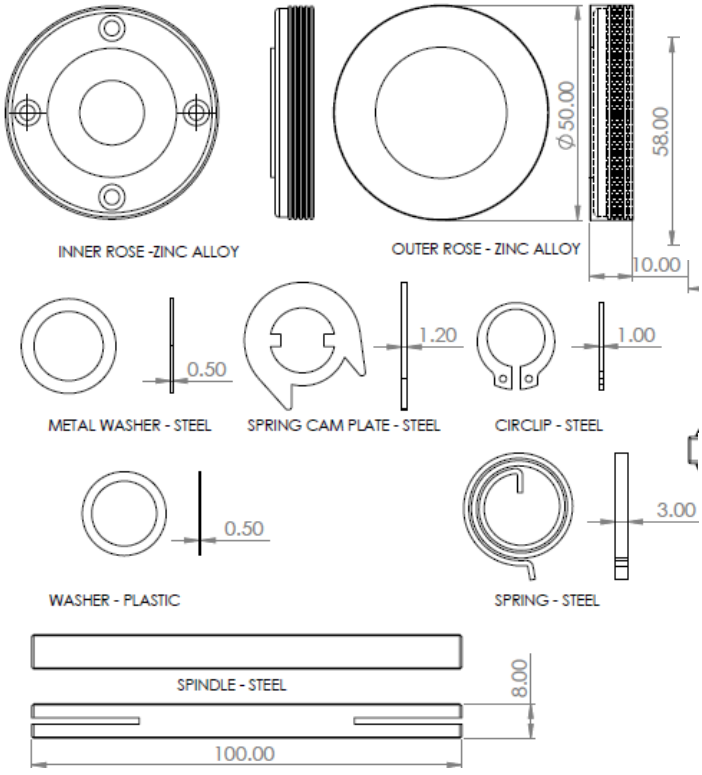
This appraisal does not however consider the implications of installing a specific lock, within a specific timber fire door construction and only considers the influence of the lever handle furniture, the suitability of the door leaf and latch/lock should be demonstrated by separate test/assessment evidence.

The range consists of 5 families of product:

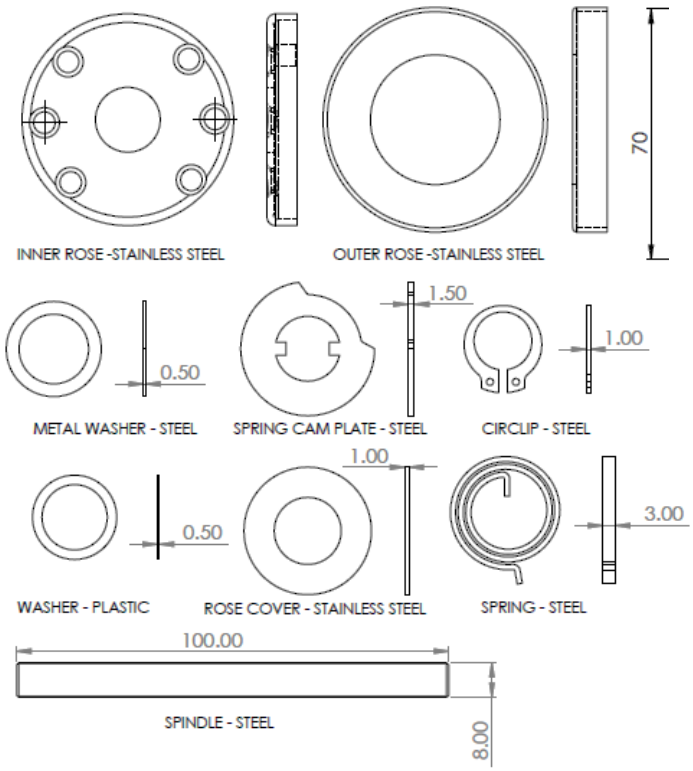
- Zinc lever on sprung round rose
- Aluminium lever on sprung round rose
- Burlington brass lever on sprung round rose
- Burlington brass Mortice Knob on Unsprung round rose
- Stainless steel lever on sprung round rose

All of the proposed lever and knob furniture is entirely surface mounted fixed using wood screws or M4 bolt-through steel fixings, and therefore do not require any further removal of timber from the leaf (beyond the spindle hole tested as part of the latch/lock) or interruption of intumescent seals around the leaf perimeter, these already being a consequence of the inclusion of the door lock or latch. The effect of the proposed lever furniture upon the fire resistance performance of the doorset would therefore be expected to be negligible and no reduction in performance would be anticipated as a consequence of their inclusion.

The zinc, brass and aluminium sprung handle incorporates the same basic mechanism consisting of steel washers, spring CAM plate, spring, circlip and spindle, and plastic washer, with the inner rose, outer rose and handle being of zinc, brass or aluminium:



The stainless steel sprung handle incorporates the same basic mechanism spring cam and rose are a slightly different design, with an additional steel rose cover:



The unsprung brass knob furniture is fundamentally the same as the brass sprung furniture, except the spring CAM plate and spring are omitted.

The impact of the handles melting or deforming on the exposed face, and possible ignition on the unexposed face of plastic or other flammable elements associated with the handles has to be considered.

The hierarchy of melting temperatures is as follows:

1. Zinc alloy (approx. 380-420°C)
2. Aluminium alloy (approx. 462-671°C)
3. Brass alloy (approx. 930°C)
4. Steel (approx. 1425-1540°C)

The effect of these minor changes in mechanism and handle shape would be expected to be negligible and no reduction in performance would be anticipated as a consequence of these variations. On this basis testing with products of a lower melting point will cover the handles, roses, etc. with a higher melting point.

Zinc lever on sprung round rose
Zinc lever on sprung round rose

A JV760 Zinc lever on sprung round rose was incorporated on Doorset B of WF Test No. 382742. The doorset was a simulated typical 30 minute timber doorset, including of a 44 mm thick multi-layered chipboard door, incorporating a tubular latch wrapped in 1 mm Interdens intumescent sheet material.

The doorset achieved 34 minutes at which time a cotton pad failure was recorded at the top hinge.

This report is considered suitable test data to support the use of the full range of zinc based lever handles for use with timber-based 30 minute doors only.

Aluminium lever on sprung round rose
Aluminium lever on sprung round rose

A SAA01 aluminium lever on sprung round rose was incorporated on Doorset A of WF Test No. 375988. The doorset was a simulated typical 30 minute timber doorset, including of a 44 mm thick multi-layered chipboard door, incorporating a mortice sashlock with 1 mm Interdens intumescent sheet material to each side of the case.

The doorset achieved 36 minutes without failure at which time the doorset was blanked off to allow the testing of Doorset B to continue.

A JV861 aluminium lever on sprung round rose was incorporated on Doorset B of WF Test No. 375988. The doorset were a simulated typical 60 minute timber doorset, including of a 54 mm thick multi-layered chipboard door, incorporating a mortice sashlock with 2 mm Interdens intumescent sheet material to each side of the case.

The doorset achieved 55 minutes at which time a cotton pad failure was recorded at a door viewer. A further sustained flaming failure was recorded at the lock – between the forend and strikeplate, but this not associated with the handle location. The test was discontinued at 60 minutes without failure at the lever handle position.

This report is considered suitable test data to support the use of the full range of aluminium based lever handles for use with timber-based 30 and 60 minute

doors.

Burlington brass lever on sprung round rose
Burlington brass lever on sprung round rose

A BUR10 brass lever on sprung round rose was incorporated on Doorset A and a BUR30 brass lever on sprung round rose was incorporated on Doorset B of WF Test No. 382742. The doorsets were typical 30 minute timber doorsets, including of a 44 mm thick multi-layered chipboard door, with a tubular latch wrapped in 1 mm Interdens intumescent sheet material.

Doorset A achieved 33 minutes at which time a sustained flaming failure occurred at the top edge of the door. The test was terminated at 36 minutes without failure of the lever handles.

Doorset B achieved 31 minutes at which time a cotton pad failure was recorded at a separate lock location. With a further sustained flaming failure at the leading edge at 35 minutes. The test was terminated at 36 minutes without failure of the lever handles.

This report is considered suitable test data to support the use of the full range of brass based lever handles for use with timber-based 30 minute doors.

As the design of the brass handles is identical to the Aluminium handles tested for 60 minutes on Doorset B of WF Test No. 375988, and the melting point of the brass is far higher than that of the tested aluminium, this is considered suitable test data to allow the use of the brass handles for 60 minute timber-based doors.

Burlington brass Mortice Knob on Unsprung round rose

A BUR100 brass knob on unsprung round rose was incorporated on Doorset A of WF Test No. 419361. The doorsets were typical 30 minute timber doorsets, including of a 44 mm thick multi-layered chipboard door, with a tubular latch wrapped in 1 mm Interdens intumescent sheet material.

Doorset A achieved 38 minutes at which time the doorset was blanked off without failure to allow the testing of Doorset B to continue.

This report is considered suitable test data to support the use of the full range of brass based knob furniture for use with timber-based 30 minute doors.

As the design of the brass knob furniture is identical to the Aluminium handles tested for 60 minutes on Doorset B of WF Test No. 375988, except for the omission of the spring and spring CAM, and the melting point of the brass is far higher than that of the tested aluminium, this is considered suitable test data to allow the use of the brass knob furniture for 60 minute timber-based doors.

Stainless steel lever on sprung round rose

A JSS213 stainless steel lever on sprung round rose was incorporated on Doorset A and a JSS13 stainless steel lever on sprung round rose was incorporated on Doorset B of WF Test No. 358389. The doorsets were typical 30 minute timber doorsets, including of a 44 mm thick multi-layered chipboard door, with a DIN sashlock to Doorset A and a tubular latch to Doorset B, both wrapped in 1 mm Interdens intumescent sheet material.

The test was terminated at 36 minutes without failure of the lever handles.

This report is considered suitable test data to support the use of the full range of stainless steel based lever handles for use with timber-based 30 doors.

As the design of the stainless handles is virtually identical to the Aluminium handles tested for 60 minutes on Doorset B of WF Test No. 375988, and the melting point of the steel is far higher than that of the tested aluminium, this is considered suitable test data to allow the use of the stainless steel handles for 60 minute timber-based doors.

Issue 2

Stainless steel lever on sprung round rose

The handles proposed to be added are:

Code	Name
JMB400	Mitred diamond knurled lever on round rose
JMB401	Solid mitred diamond knurled lever on round rose
JMB402	Solid mitred linear knurled lever on round rose
JGM400	Mitred diamond knurled lever on round rose
JGM401	Solid mitred diamond knurled lever on round rose
JGM402	Solid mitred linear knurled lever on round rose
JSS690	Solid cast stainless steel Wing handle on sprung round rose

The fixing method for the proposed range above is the same as the previously assessed stainless steel lever on sprung round rose outlined in issue 1. With the differences being either a variance of handle shape or a different surface finish.

A JMB400 stainless steel lever on a sprung round rose was incorporated on Doorset A of WF429674. The doorsets were typical 30 minute timber doorsets, including a 44 mm thick chipboard door, with a sashlock wrapped in flexifire 0.88 mm graphite intumescent that was connected to the JMB400 stainless steel lever handles and was also connected to an oval cylinder.

On reviewing observations taken from the test report, there was sustained flaming failures at 28 and 34 minutes. At 28 minutes the sustained flaming failure was at the centre of the head of the doorset. This failure cannot be attributed to the lever handle fitted along the leading edge. The sustained flaming failure at 34 minutes was at the lockset fitted with the JMB400 stainless steel lever handle, even though the failure occurred at the lever handles location it had already surpassed the required fire resistance period. The doorset was blanked off at 36 minutes to allow the continuation of the test for doorset B.

The performance of the doorset during the test referenced WF 429674 is cited to display the ability of the JMB400 stainless steel lever handle to contribute towards the required fire resistance performance of 30 minute rated timber based doorsets.

The variance of handle shape or surface finish associated with each handle would be expected to be negligible with regards to the effect on expected fire performance and no reduction of fire performance would be expected as it does not intrude upon the door.

Therefore, other lever handles with the same base material as the JMB400 lever handle) which are either through bolted or surface mounted are not expected to have a detrimental effect upon the doorset for the required period and they are positively appraised for 30 minute timber-based doors.

As the design of the stainless handles is virtually identical to the Aluminium handles tested for 60 minutes on Doorset B of WF Test No. 375988 previously mentioned, and the melting point of the steel is far higher than that of the tested aluminium, this is considered suitable test data to allow the use of the stainless steel handles for 60 minute timber-based doors.

Burlington brass lever on sprung round rose

The handles proposed to be added are:

Code	Name
BUR15	Fitzrovia lever on round rose
BUR25	Kensington lever on round rose
BUR35	Highgate lever on round rose
BUR45	Richmond lever on round rose

The fixing method for the proposed range above is the same as the previously assessed stainless steel lever on sprung round rose outlined in issue 1. With the differences being either a variance of handle shape or a different surface finish.

A BUR10 brass lever on sprung round rose was incorporated on Doorset A and a BUR30 brass lever on sprung round rose was incorporated on Doorset B of WF Test No. 382742. The doorsets were typical 30 minute timber doorsets, including of a 44 mm thick multi-layered chipboard door, with a tubular latch wrapped in 1 mm Interdens intumescent sheet material.

Doorset A achieved 33 minutes at which time a sustained flaming failure occurred at the top edge of the door. The test was terminated at 36 minutes without failure of the lever handles.

Doorset B achieved 31 minutes at which time a cotton pad failure was recorded at a separate lock location. With a further sustained flaming failure at the leading edge at 35 minutes. The test was terminated at 36 minutes without failure of the lever handles.

The variance of handle shape or surface finish associated with each handle would be expected to be negligible with regards to the effect on expected fire performance and no reduction of fire performance would be expected as it does not intrude upon the door.

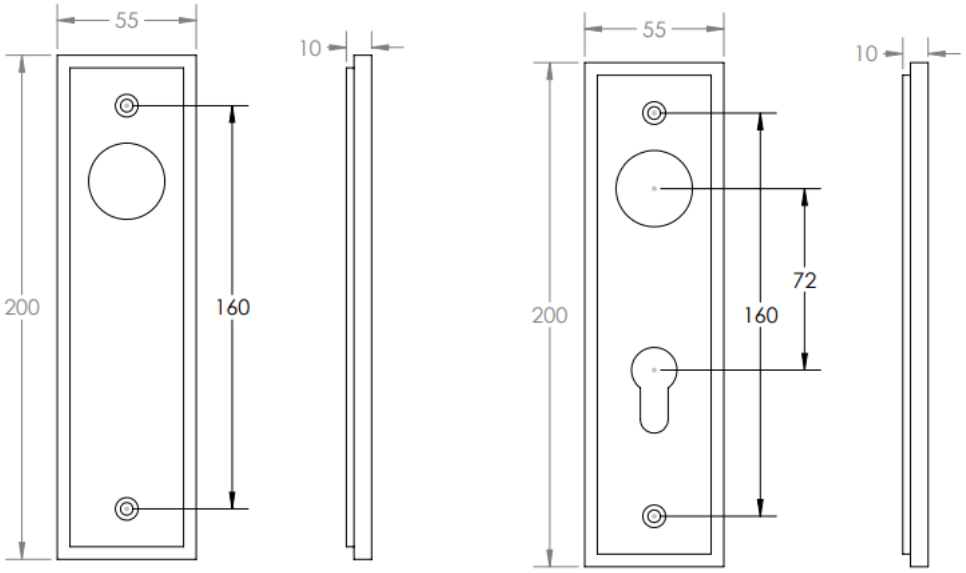
This report is considered suitable test data to support the use of the full range of brass based lever handles for use with timber-based 30 minute doors.

As the design of the brass handles is identical to the Aluminium handles tested for 60 minutes on Doorset B of WF Test No. 375988, and the melting point of the brass is far higher than that of the tested aluminium, this is considered suitable test data to allow the use of the brass handles for 60 minute timber-based doors.

Burlington brass backplates

The backplates proposed to be added are:

Code	Name
BUR450	Latchplate
BUR451	Keyhole
BUR453	Bathroom 57mm centres
BUR454	Euro 57mm Centres
BUR455	Euro 72mm Centres
BUR456	Bathroom 8mm Centres



The backplates above are supplied independently of the lever handles, the backplates do not contain any mechanical components, the mechanical components are contained within the previously assessed lever handles, with the intention to use an existing lever on the proposed backplates. All the backplates are surface mounted.

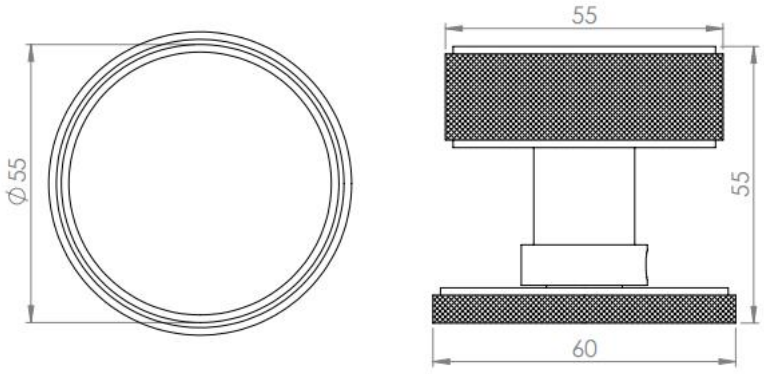
The increase or reduction in size of a rose/backplate of the lever handle would be expected to be negligible with regards to the effect on expected fire performance as it is surface mounted and does not intrude within the door leaf with the exception of fixing positions. The variance of handle shape associated with each handle would be expected to be negligible with regards to the effect on expected fire performance and no reduction of fire performance would be expected as it does not intrude upon the door.

Therefore, lever handles with the same base material as the backplates are not expected to have a detrimental effect upon a 30 or 60 minute timber-based door and they are positively appraised.

Burlington brass mortice knobs

The mortice knob proposed to be added is:

Code	Name
BUR102	Westbourne



The proposed knob handle is surface mounted which should not require any removal of timber from the leaf in order to accommodate the knob handle.

As the handle is surface mounted its use has no impact upon the doorset and no reduction in fire performance would be expected.

The variance of handle shape or surface finish associated with each handle would be expected to be negligible with regards to the effect on expected fire performance and no reduction of fire performance would be expected as it does not intrude upon the door.

Therefore, as the Burlington brass lever handles have already been positively appraised, with the variance of shape and being surface mounted expected to have little to almost no impact upon the expected fire performance of a timber-based 30 and 60 minute door.

Aluminium lever on sprung round rose

The handles proposed to be added are:

Code	Name
JV846	Comet lever on round rose
JV850	Bari lever on round rose

The fixing method for the proposed range above is the same as the previously assessed stainless steel lever on sprung round rose outlined in issue 1. With the differences being either a variance of handle shape or a different surface finish.

A SAA01 aluminium lever on sprung round rose was incorporated on Doorset A of WF Test No. 375988. The doorset was a simulated typical 30 minute timber doorset, including of a 44 mm thick multi-layered chipboard door, incorporating a mortice sashlock with 1 mm Interdens intumescent sheet material to each side of the case.

The doorset achieved 36 minutes without failure at which time the doorset was blanked off to allow the testing of Doorset B to continue.

A JV861 aluminium lever on sprung round rose was incorporated on Doorset B of WF Test No. 375988. The doorset were a simulated typical 60 minute timber doorset, including of a 54 mm thick multi-layered chipboard door, incorporating a mortice sashlock with 2 mm Interdens intumescent sheet material to each side of the case.

The doorset achieved 55 minutes at which time a cotton pad failure was recorded at a door viewer. A further sustained flaming failure was recorded at the lock – between the forend and strikeplate, but this not associated with the handle location. The test was discontinued at 60 minutes without failure at the lever handle position.

The variance of handle shape or surface finish associated with each handle would be expected to be negligible with regards to the effect on expected fire performance and no reduction of fire performance would be expected as it does not intrude upon the door.

This report is considered suitable test data to support the use of the full range of aluminium based lever handles for use with timber-based 30 and 60 minute doors.

Pull handles

The handles proposed to be added are:

Code	Name
BUR1000	425X20mm
BUR130	425X20mm
BUR140	425X20mm

All the pull handles proposed are manufactured from stainless steel and are retained in position by the same fixing method. They are available as either back-to back or to one face only.

A BUR130 stainless steel pull handle was incorporated on Doorset A of WF Test No. 429674. The doorset was a typical 30 minute timber doorset, including a 44 mm thick chipboard door, with a BUR130 pull handle bolted through the leaf and fitted to the exposed face.

On reviewing observations taken from the test report, there was sustained flaming failures at 28 and 34 minutes. At 28 minutes the sustained flaming failure was at the centre of the head of the doorset. This failure cannot be attributed to the pull handle fitted centrally on the leaf. The sustained flaming failure at 34 minutes was at the lockset position which is not in close proximity to the pull handle therefore this failure cannot be attributed to the pull handle fitted centrally on the leaf. The doorset was blanked off at 36 minutes to allow the continuation of the test for doorset B.

The performance of the doorset during the test referenced WF 429674 is cited to display the ability of the BUR130 pull handle stainless steel pull handle to contribute towards the required fire resistance performance of 30 minute rated timber based doorsets.

A BUR1000 stainless steel pull handle was incorporated on Doorset A of WF Test No. 429674. The doorset was a typical 60 minute timber doorset, including a 54 mm thick chipboard door, with a BUR1000 pull handle bolted through the leaf and fitted to the exposed face.

On reviewing observations taken from the test report, there was sustained flaming failures at 63, 64 and 65 minutes. At 63 minutes the sustained flaming failure was at the top and bottom fixing positions of the pull handle, even though the failure occurred at the pull handle location it had already surpassed the required fire resistance period.

The performance of the doorset during the test referenced WF 429674 is cited to display the ability of the BUR1000 stainless steel pull handle to contribute towards the required fire resistance performance of 60 minute rated timber based doorsets.

The variance of handle shape associated with each handle would be expected to be negligible with regards to the effect on expected fire performance and no reduction of fire performance would be expected.

The length of the pull handle is not considered critical to the fire resistance performance, providing it does not reach a size that is considered to influence the stability of the distortion or induce additional distortion into the door height. Empirical data suggests pull handles of a maximum 513 mm in height is unlikely to have a detrimental impact on the fire performance of the doorset, as the penetration through the door leaf does not change with respect to the length of the handle, consequently 513 mm is the maximum length of the pull handle is approved without specific test data.

Therefore, other pull handles with the same base material as the BUR130 & BUR1000 which are through bolted into the leaf are not expected to have a detrimental effect upon the doorset for the required period and they are positively appraised.

The fixing method for the fitting of pull handles in the back to back application is the same as the tested BUR130 incorporated in Doorset A (30 minute rated timber based doorset) in WF 429674. If fitted, in the back-to-back application the additional pull handle would not require any additional material to be removed from the doorset and would be wholly surface mounted and therefore it would be expected to be negligible with regards to the effect on expected fire performance. Therefore, with the extended period of coverage gained from WF 429674 and with no sustained flaming failures in the pull handles location it is reasonable to assume that the pull handles in the back to back application in 30 minute of timber based doors would perform in a similar manner.

Issue 3

Aluminium lever on sprung round rose

The handles proposed to be added are:

Code	Name
Classic	JV847
Bloom	JV848
Hex	JV849
Geo	JV851
Jet	JV600
Venice	JV852
Midtown	JV853

The fixing method for the proposed range above is the same as the previously assessed stainless steel lever on sprung round rose outlined in issue 1. With the differences being either a variance of handle shape or a different surface finish.

A SAA01 aluminium lever on sprung round rose was incorporated on Doorset A of WF Test No. 375988. The doorset was a simulated typical 30 minute timber doorset, including of a 44 mm thick multi-layered chipboard door, incorporating a mortice sashlock with 1 mm Interdens intumescent sheet material to each side of the case.

The doorset achieved 36 minutes without failure at which time the doorset was blanked off to allow the testing of Doorset B to continue.

A JV861 aluminium lever on sprung round rose was incorporated on Doorset B of WF Test No. 375988. The doorset were a simulated typical 60 minute timber doorset, including of a 54 mm thick multi-layered chipboard door, incorporating a mortice sashlock with 2 mm Interdens intumescent sheet material to each side of the case.

The doorset achieved 55 minutes at which time a cotton pad failure was recorded at a door viewer. A further sustained flaming failure was recorded at the lock – between the forend and strikeplate, but this not associated with the handle location. The test was discontinued at 60 minutes without failure at the lever handle position.

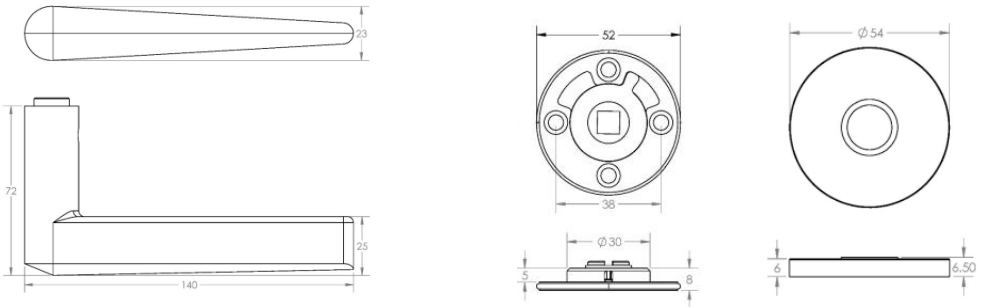
The variance of handle shape or surface finish associated with each handle would be expected to be negligible with regards to the effect on expected fire performance and no reduction of fire performance would be expected as it does not intrude upon the door.

This report is considered suitable test data to support the use of the full range of aluminium based lever handles for use with timber-based 30 and 60 minute doors.

Stainless steel lever handles 'CRES' range

The 'CRES' range is intended to be of a modular construction, so each handle consists of a lever, sprung/unsprung cassette and a rose/backplate. The components proposed are listed below:

Name	Reference
101-107	Various Levers
201	Sprung cassette
202	Unsprung cassette
501	Cover rose
901	Latch plate
902	Euro plate
903	Bathroom plate



All of the components are made from steel, with variations in handle design and surface finish. All variations of the handles are surface fixed into the door leaf.

The performance of Doorset A & B in test report WF 533797 is cited to display the ability of a completed lever handle assembly to contribute towards the required fire resistance performance of 30 and 60 minute timber doorsets.

Doorset A included in test report WF 533797 was a 2080 x 1004 mm single acting single leaf doorset with a 2040 x 930 x 44 mm graduated density chipboard door with 8 mm hardwood lippings to the vertical edges. The leaf was hung within a hardwood frame with a 15 x 4 mm perimeter intumescent fire seal fitted centrally within the frame rebate. The doorset opened towards the heating conditions.

Doorset A was fitted with various items of hardware including a lever assembly which consisted of CRES107SSS lever, CRES091SSS backplate and a CRES201SSS sprung cassette when fitted to a sashlock and CRES107SSS lever, CRES501SSS rose and a CRES201SSS sprung cassette when fitted to a tubular latch.

The handle assembly was fitted to the different locks fitted on the doorset, a JL-DS60 europrofile sashlock along the leading edge was fitted with 1 mm intercalated graphite kit referenced as GRA9 Flexifire which was applied to all face of the casing and behind the forend and strike plate. The handle assembly was also fitted to a JL-HDT102SSS Tubular latch along the upper quadrant of the leading edge, the latch was fitted with a 1 mm intercalated graphite kit referenced as GRA16 Flexifire which was applied to all face of the casing and behind the forend and strike plate. The handle assembly was also fitted to a 7260AL lever operated sashlock along the hinged edge, the latch was fitted with a 1 mm intercalated graphite kit referenced as GRA9 Flexifire which was applied to all face of the casing and behind the forend and strike plate.

There were no integrity failures prior to Doorset A being blanked off at 36 minutes to allow the continuation of testing on Doorset B.

Doorset B included in test report WF 533797 was a 2080 x 1004 mm single acting single leaf doorset with a 2040 x 930 x 54 mm graduated density chipboard door with 8 mm hardwood lippings to the vertical edges. The leaf was hung within a hardwood frame with two 15 x 4 mm perimeter intumescent fire seal fitted within the frame rebate. The doorset opened towards the heating conditions.

Doorset B was fitted with various items of hardware including a lever assembly which consisted of CRES107SSS lever, CRES091SSS backplate and a CRES201SSS sprung cassette when fitted to a sashlock and CRES107SSS lever, CRES501SSS rose and a CRES201SSS sprung cassette when fitted to a tubular latch.

The handle assembly was fitted to the different locks fitted on the doorset, a JL-DS60 europrofile sashlock along the leading edge was fitted with 2 mm intercalated graphite kit referenced as GRA9.2 Flexifire which was applied to all face of the casing and behind the forend and strike plate. The handle assembly was also fitted to a JL-HDT102SSS Tubular latch along the upper quadrant of the leading edge, the latch was fitted with a 2 mm intercalated graphite kit referenced as GRA16.2 Flexifire which was applied to all face of the casing and behind the forend and strike plate. The handle assembly was also fitted to a 7260AL lever operated sashlock along the hinged edge, the latch was fitted with a 2 mm intercalated graphite kit referenced as GRA9.2 Flexifire which was applied to all face of the casing and behind the forend and strike plate.

There was a sustained flaming failure at the tubular latch location on Doorset B at 63 minutes. As the lever handle assemblies and locksets passed the required resistance period the test referenced WF 533797 is cited to display the ability of the CRES lever handle assembly to contribute towards the required fire resistance of 60 minute timber based doorset.

The other components of the lever handles in the proposed range are manufactured from the same material as those tested. The models are entirely surface mounted do not require any additional removal of timber within the leaf (with the exception of the fixing holes) or interruption of intumescent seals around the leaf perimeter, these already being a consequence of the inclusion of the door lock or latch

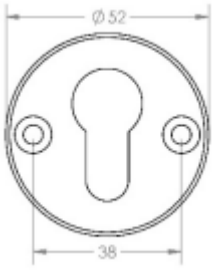
The difference of the proposed lever and the components is the shape. The effect of minor changes in shape associated with each handle would be expected to be negligible and no reduction in fire performance would be anticipated as a consequence of these variations. As the proposed handles do not influence the performance of the hardware when used in the proposed applications, the proposed additional hardware is positively appraised.

The hardware is supplied in a range of applied finishes e.g. Satin Stainless Steel and Brushed Stainless Steel. The change of finish from the proposed hardware is not considered to have any negative influence on the performance of the hardware when used in the proposed applications because the fundamental material does not change. The proposed hardware with an alternative finished are positively appraised.

Escutcheons 'CRES' range

The range is entirely surface fixed. All products within the range are manufactured from stainless steel and are available in a variety of finishes. With variances being in shape of the 'keyhole' or the shape of the escutcheon is rectangular. The proposed hardware to be added are listed below:

Name	Reference
701	Keyhole 54 x 6 mm Surface fixed
702	Euro 54 x 6 mm Surface fixed
703	Keyhole square 54 x 54 x 6 mm Surface fixed
704	Euro square 54 x 54 x 6 mm Surface fixed
J3003	Door Guard



All of the proposed hardware is surface mounted and the impact upon the doorset would be expected to be negligible and no reduction of fire performance would be expected as it does not intrude upon the door. If the components were to be fitted to the exposed face they would be consumed or fall away within the early stages of the fire test. If the components where to be fitted to the unexposed face of the doorset the insulating properties of the timber doorset would protect the hardware from any direct flaming or excessive heat release which may result in the ignition of the components of the finger guard. Therefore, the range of the proposed hardware is positively appraised.

Stainless steel door knob 'CRES' range

All the centre door knobs proposed are manufactured from stainless steel. The door knob is fixed to the face of the door with a M8 bolt and all door knobs have the same fixing method and are fixed in the same way as the pull handles. They are available as either back-to back or to one face only. The proposed hardware to be added are listed below:

Name	Reference
1501	Plain
1502	Knurled

The performance of Doorset A & B in test report WF 533797 is cited to display the ability of a centre door knob to contribute towards the required fire resistance performance of 30 and 60 minute timber doorsets.

Doorset A included in test report WF 533797 was a 2080 x 1004 mm single acting single leaf doorset with a 2040 x 930 x 44 mm graduated density chipboard door with 8 mm hardwood lippings to the vertical edges. The leaf was hung within a hardwood frame with a 15 x 4 mm perimeter intumescent fire seal fitted centrally within the frame rebate. The doorset opened towards the heating conditions.

Doorset A was fitted with various items of hardware including a centre door knob referenced as CRES1501 was fitted back to back with a M8 bolt 250 mm from the head of the leaf, the through bolt had no intumescent protection.

There were no integrity failures prior to Doorset A being blanked off at 36 minutes to allow the continuation of testing on Doorset B.

Doorset B included in test report WF 533797 was a 2080 x 1004 mm single acting single leaf doorset with a 2040 x 930 x 54 mm graduated density chipboard door with 8 mm hardwood lippings to the vertical edges. The leaf was hung within a hardwood frame with two 15 x 4 mm perimeter intumescent fire seal fitted within the frame rebate. The doorset opened towards the heating conditions.

Doorset B was fitted with various items of hardware including a centre door knob referenced as CRES1501 was fitted back to back with a M8 bolt 250 mm from the head of the leaf, the through bolt had no intumescent protection.

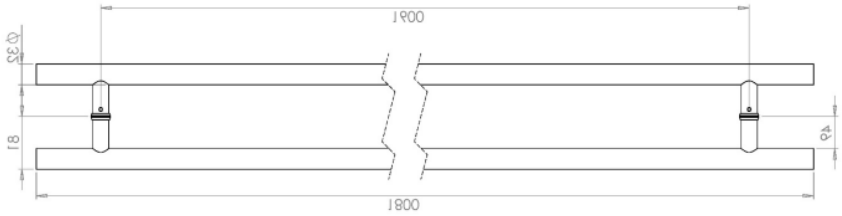
There was a sustained flaming failure at the tubular latch location on Doorset B at 63 minutes. As this failure is not associated with the door knob the test referenced WF 533797 is cited to display the ability of the door knob to contribute towards the required fire resistance of 60 minute timber based doorset.

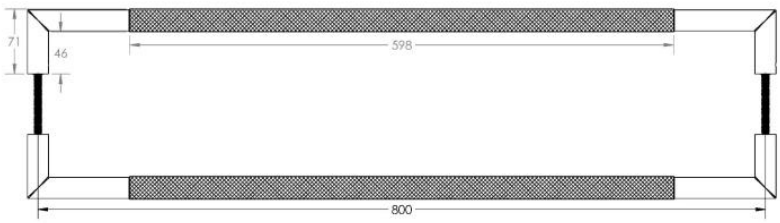
The variance of handle shape associated with each handle would be expected to be negligible with regards to the effect on expected fire performance and no reduction of fire performance would be expected.

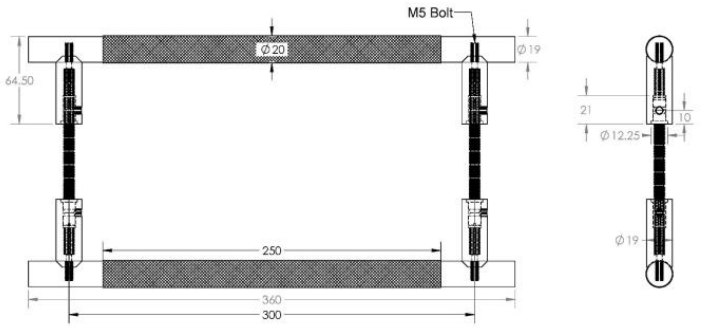
Therefore, other door knobs with the same base material as the CRES1501 which are through bolted into the leaf are not expected to have a detrimental effect upon the doorset for the required period and they are positively appraised.

Pull handles

The handles proposed to be added are listed within the annex of this report, All the pull handles proposed are manufactured from stainless steel or aluminium and are retained in position by the same fixing method (M8 through bolt). They are available as either back-to back or to one face only and are supplied in a range of finishes.







The performance of Doorset A & B in test report WF 533797 is cited to display the ability of the pull handles to contribute towards the required fire resistance performance of 30 and 60 minute timber doorsets.

Doorset A included in test report WF 533797 was a 2080 x 1004 mm single acting single leaf doorset with a 2040 x 930 x 44 mm graduated density chipboard door with 8 mm hardwood lippings to the vertical edges. The leaf was hung within a hardwood frame with a 15 x 4 mm perimeter intumescent fire seal fitted centrally within the frame rebate. The doorset opened towards the heating conditions.

Doorset A was fitted with various items of hardware, including the following pull handles fitted in a back to back orientation, JSS521D, JGM20 and JV1800b2b. All of the pull handles were fitted using M8 bolts. The JSS521D was manufactured from stainless steel and is 32 mm diameter x 1800 mm long. The JGM20 was manufactured from stainless steel and is 25 mm diameter x 823 mm long. The JV1800b2b is manufactured from aluminium and is 19 mm diameter x 300 mm long. No intumescent was fitted to any of the pull handles.

There were no integrity failures prior to Doorset A being blanked off at 36 minutes to allow the continuation of testing on Doorset B.

Doorset B included in test report WF 533797 was a 2080 x 1004 mm single acting single leaf doorset with a 2040 x 930 x 54 mm graduated density chipboard door with 8 mm hardwood lippings to the vertical edges. The leaf was hung within a hardwood frame with two 15 x 4 mm perimeter intumescent fire seal fitted within the frame rebate. The doorset opened towards the heating conditions.

Doorset B was fitted with various items of hardware, including the following pull handles fitted in a back to back orientation, JSS521D, JGM20 and JV1800b2b. All of the pull handles were fitted using M8 bolts. The JSS521D was manufactured from stainless steel and is 32 mm diameter x 1800 mm long. The JGM20 was manufactured from stainless steel and is 25 mm diameter x 823 mm long. The JV1800b2b is manufactured from aluminium and is 19 mm diameter x 300 mm long. No intumescent was fitted to any of the pull handles.

There was a sustained flaming failure at the tubular latch location on Doorset B at 63 minutes. As the pull handles passed the required resistance period the test referenced WF 533797 is cited to display the ability of the stainless steel and aluminium pull handles to contribute towards the required fire resistance of 60 minute timber based doorset.

The back to back fixing of the pull handle is considered most onerous of the fixing methods as the other methods require either less material to be removed from the door leaf, or that the handle orientation provides either the same or less of a heat sync when compared to the tested pull handle.

The length of the pull handle is not considered critical to the fire resistance performance, providing it does not reach a size that is considered to influence the stability of the distortion or induce additional distortion into the door height. All of the proposed handles fall within the intermediatory length of what was tested and are therefore positively appraised.

It is assumed that the proposed hardware will be fitted to timber based doorsets which have previously been tested with alternative pull handles and are capable of providing up to 30 or 60 minutes integrity and insulation.

The hardware is supplied in a range of applied finishes e.g. Satin Stainless Steel and Brushed Stainless Steel. The change of finish from the proposed hardware is not considered to have any negative influence on the performance of the hardware when used in the proposed applications because the fundamental material does not change. The proposed hardware with an alternative finished are positively appraised.

All of the proposed models incorporate the same base material and have the same fixing methods. It is reasonable to assume that the proposed hardware will not reduce the fire resistance performance of a 30 or 60 minute timber based doorset and therefore positively appraised.

Cylinders

All the cylinders are 5 pin and have the same typical euro profile and are manufactured from the same material (Brass). The cylinders are available in single, double and double cylinder and turn variants all available in a variety of finishes. The proposed hardware to be added are listed below:

Name	Reference
JL-40EPS	Single Cylinder
JL-45EPS	Single Cylinder
JL-60EPD	Double Cylinder
JL-70EPD	Double Cylinder
JL-60EPCT	Double Cylinder & Turn
JL-70EPCT	Double Cylinder & Turn

The performance of Doorset A & B in test report WF 533797 is cited to display the ability of cylinders to contribute towards the required fire resistance performance of 30 and 60 minute timber doorsets.

Doorset A included in test report WF 533797 was a 2080 x 1004 mm single acting single leaf doorset with a 2040 x 930 x 44 mm graduated density chipboard door with 8 mm hardwood lippings to the vertical edges. The leaf was hung within a hardwood frame with a 15 x 4 mm perimeter intumescent fire seal fitted centrally within the frame rebate. The doorset opened towards the heating conditions.

Doorset A was fitted with various items of hardware, including a JL-DS60 europrofile sashlock along the leading edge was fitted with 1 mm intercalated graphite kit referenced as GRA9 Flexifire which was applied to all face of the casing and behind the forend and strike plate. The sashlock was fitted with a lever handle assembly and a JL-70EPDSC europrofile 70 mm double cylinder.

There were no integrity failures prior to Doorset A being blanked off at 36 minutes to allow the continuation of testing on Doorset B.

Doorset B included in test report WF 533797 was a 2080 x 1004 mm single acting single leaf doorset with a 2040 x 930 x 54 mm graduated density chipboard door with 8 mm hardwood lippings to the vertical edges. The leaf was hung within a hardwood frame with two 15 x 4 mm perimeter intumescent fire seal fitted within the frame rebate. The doorset opened towards the heating conditions.

Doorset A was fitted with various items of hardware, including a JL-DS60 europrofile sashlock along the leading edge was fitted with 2 mm intercalated graphite kit referenced as GRA9.2 Flexifire which was applied to all face of the casing and behind the forend and strike plate. The sashlock was fitted with a lever handle assembly and a JL-70EPDSC europrofile 70 mm double cylinder.

There was a sustained flaming failure at the tubular latch location on Doorset B at 63 minutes. As the sashlock, lever handle assembly and cylinder passed the required resistance period the test referenced WF 533797 is cited to display the ability of the 70 mm europrofile cylinder to contribute towards the required fire resistance of 60 minute timber based doorset.

The proposed europrofile cylinders can all be described as "typical" europrofile cylinders, with the same shape and materials just different variations on length, either being longer on shorter or being a single euro profile cylinder. As the reason for the different cylinder lengths is primarily to suit the thickness of the door into which the lockset is installed, it is reasonable to consider that the alternative cylinders will perform in a similar manner to the tested model. The proposed range includes single cylinders, double cylinders and cylinder/thumbturn options.

However, as the tested products were double cylinders, this configuration is considered to represent the most onerous application, requiring the body of the cylinder to pass completely through the entire door thickness and lock case, therefore this provides a high degree of confidence that the single cylinders, double cylinders and cylinder/thumbturns will perform for the required periods of fire resistance.

Cylinders shall only be fitted to doors which have previously been shown capable of accommodating the installation of cylinder locks without detriment to the doorset's performance.

The hole in the door face shall follow the shape of the cylinders and be as tight as possible; furthermore the single cylinders door preparation will penetrate through only half the thickness of the door leaf.

Proposed Doorsets

As stated in this report, the doorset, in the required configuration, will be previously tested and its performance is therefore not in doubt.

All door hardware is subject to the acceptance by the chosen door assembly supplier's tested, assessed or certificated scope, which generally identifies the types of hardware approved, the required specification/design based on the key materials/ maximum size (e.g. spindle hole), and the application of any additional intumescent protection.

On this basis approval should be sought from the specific door assembly supplier to ensure compliance based on this assessed/certificated scope.

Conclusions

Should the recommendations given in this report be followed, it can be concluded that timber doorsets which, which have previously been successfully fire tested to BS 476: Part 22 or EN 1634-1 by a laboratory accredited to IS/IEC 17025 (under International Laboratory accreditation Cooperation (ILAC) membership), and have achieved up to 60 minutes, as discussed in this report, may be fitted with Frelan Hardware door handles as detailed in Annex A, without detracting from the overall integrity performance (and insulation where relevant) of the doorset.

This report represents our opinion as to the performance likely to be demonstrated on a test in accordance with BS 476: Part 22: 1987 or BS EN 1634-1:2014+A1:2018, on the basis of the test evidence referred to in this report. We express no opinion as to whether that evidence, and/or this report would be regarded by any Building Control authorities or any other third parties as sufficient for that or any other purpose.

Validity

The assessment is initially valid for five years after which time it is recommended to be submitted to Warringtonfire for re-appraisal.

This assessment report is not valid unless it incorporates the declaration given below duly signed by the applicant.

Test Evidence

Test report review

The original test reports used in support of this assessment have been reviewed and it has been concluded that the test data remains acceptable, and the final result would be unchanged on the following basis:

- A comparison of the test procedures and performance criteria with the current standard has identified that any variations would have no detrimental impact on the performance of the doorset and hardware under test
- The client has confirmed that there has been no change to the design or material specification of the hardware tested originally, consequently.
- The reports are available in their entirety, the products are adequately referenced and linked to the products being considered for assessment, and the ownership of the test data has been confirmed as the assessment report holder.
- Where the test data is not the property of assessment report sponsor the original test sponsor has confirmed that this test data may still be used in support of this revalidation.

Summary of Primary Supporting Data

WF No. 358389

To determine the fire resistance performance of two single-acting, single-leaf doorsets incorporating various items of hardware in accordance with BS EN 1634-1: 2014.

For the purpose of the test the doorsets were referenced Doorset A and Doorset B.

Doorset A had overall nominal dimensions 2082 mm high by 1000 mm wide incorporating a door leaf with overall dimensions 2038 mm high by 932 mm wide by 44 mm thick. The door leaf was of a solid graduated density chipboard construction, with 8 mm hardwood lippings to the vertical edges and was hung within a softwood frame on three 5 knuckled polymer hinges referenced J9606SSS.

The doorset also incorporated two brass door viewers, a back to back pull handle, a mortise lockset with stainless steel handles and a surface mounted closer.

Doorset B had overall nominal dimensions 2082 mm high by 1000 mm wide incorporating a door leaf with overall dimensions 2038 mm high by 932 mm wide by 44 mm thick. The door leaf was of a solid graduated density chipboard construction, with 8 mm hardwood lippings to the vertical edges and was hung within a softwood frame on three 3 knuckled polymer hinges referenced J9603SSS.

The doorset also a bathroom thumbturn and an engaged tubular latch with stainless steel handle.

Both doorsets were and installed so that they opened towards the heating conditions of the test

The specimen satisfied the test requirements for the following periods:

Integrity	Doorset A	Doorset B
Sustained flaming	36 minutes*	36 minutes*
Gap gauge	36 minutes*	36 minutes*
Cotton Pad	36 minutes*	36 minutes*
Insulation	36 minutes*	36 minutes*

* The test duration.

The test was discontinued after a period of 36 minutes.

Test date : 21st November 2015

Test Sponsors : Frelan Hardware Ltd

WF report No. 375988 Issue 2

An investigation which utilised the heating and pressure conditions given in BS EN 1363-1:2012.

The purpose of the test was to provide an indication of the fire resistance performance of Frelan Hardware 5-levere sashlock referenced JL136 when installed in to 30 and 60 minute fire rated simulated single-acting single-leaf doorsets.

For the purpose of the test the simulated doorsets were referenced Specimen A and Specimen B.

Specimen A briefly had overall nominal dimensions 1500 mm high by 721 mm wide incorporating a section of door leaf with overall dimensions 1500 mm high by 687 mm wide by 44 mm thick. The door leaf was of a solid graduated density chipboard construction, with 8 mm hardwood lippings to the leading vertical edge and included a section of softwood timber frame along one vertical edge to simulate the leading edge frame member.

Specimen B briefly had overall nominal dimensions 1500 mm high by 726 mm wide incorporating a section of door leaf with overall dimensions 1500 mm high by 687mm wide by 54 mm thick. The door leaf was of a solid graduated density chipboard construction, with 8 mm hardwood lippings to the leading vertical edge and included a section of hardwood timber frame along one vertical edge to simulate the leading edge frame member.

Each Specimen was installed two Frelan Hardware Door viewers and a Frelan Hardware 5-levere sashlock connected to a Frelan Hardware lever handle. Further details of the ironmongery and test specimen's construction can be found in the schedule of components section of this report.

Both specimens were orientated to simulate a full scale doorsets that would open towards the heating conditions of the test and formed the front vertical face of a 1.5 metre wide by 1.5 metre high by 2 metre deep gas fired furnace chamber, the temperature rise of which was controlled to conform to the relationship given in BS EN 1363-1:2012.

The specimen satisfied the test requirements for the following periods:

Integrity	**Doorset A**	**Doorset B**
Sustained flaming	36 minutes*	57 minutes
Gap gauge	36 minutes*	60 minutes**
Cotton Pad	36 minutes*	55 minutes

*Doorset A blanked off without failure.

**The test was discontinued after a period of 60 minutes.

Test date : 9th November 2017

Test Sponsors : Frelan Hardware Ltd

WF report No. 382742

An investigation which utilised the heating and pressure conditions given in BS EN 1363-1:2012.

The purpose of the test was to provide an indication of the fire resistance performance of various items of Frelan Hardware when installed in to 30 minute fire rated simulated single-acting single-leaf doorsets.

For the purpose of the test the doorsets were referenced **Doorset A** and **Doorset B**.

Doorset A had overall nominal dimensions 1489 mm high by 731 mm wide incorporating a door leaf with overall dimensions 1442 mm high by 661 mm wide by 44 mm thick. The door leaf was of a solid graduated density chipboard construction; with 8 mm hardwood lipping's to the vertical edges only and was hung within a softwood frame. The doorset was not fitted with a latch for test and therefore is deemed as unlatched. The doorset incorporated the following hardware:

Description	Reference
Frelan Hardware Stainless Steel Ball bearing Hinge	J9500

Doorset B had overall nominal dimensions 1489 mm high by 731 mm wide incorporating a door leaf with overall dimensions 1442 mm high by 661 mm wide by 44 mm thick. The door leaf was of a solid graduated density chipboard construction; with 8 mm hardwood lipping's to the vertical edges only and was hung within a softwood frame. The doorset was unlatched for the duration of the test and incorporated the following hardware:

Description	Reference
Frelan Hardware stainless steel concealed ball bearing hinge	J2020
Frelan Hardware steel & brass latch set	JL-HDT64SS
Frelan Hardware polished satin chrome lever handlesets	JV760PC/SC

The specimen satisfied the test requirements for the following periods:

Integrity	**Doorset A**	**Doorset B**
Sustained flaming	33 minutes	35 minutes*
Gap gauge	35 minutes*	35 failure*
Cotton Pad	33 minutes	34 minutes

*The test was discontinued after a period of 35 minutes.

Test date : 28th April 2017

Test Sponsors : Frelan Hardware Ltd

WF No. 403194 Issue 2

To determine the fire resistance performance of two single-acting, single-leaf doorsets incorporating various items of hardware in accordance with BS EN 1634-1: 2014.

Doorset A & B have overall dimensions of 2080 mm high by 1000 mm wide incorporating a door leaf with overall dimensions of 2040 mm high by 932 mm wide by 44 mm thick. The door leaves were of a solid graduated density chipboard construction, with 8 mm hardwood lippings to the vertical edges and were hung within a softwood frame. The doorsets were installed so that they opened towards the heating conditions of the test and all the locksets fitted were disengaged for the duration of the test.

Doorset A incorporated the following hardware:

Item Number	Description	Reference
4	Stainless steel hinges	J2050SSS
5	Brass tubular latch	JL6666S-150
6	Satin chrome lever handles	BUR10
7	Steel surface mounted latch	JL5031SC
8	Steel roller bolt catch	J8073SN
14	Surface mounted closer	121CE

Doorset B incorporated the following hardware:

Item Number	Description	Reference
8	Steel roller bolt catch	J8073SN
9	Stainless steel hinges	J9603SSS
10	Steel deadlock	JLFB1
11	Brass roller bolt catch	JL5011PB
12	Steel tubular deadbolt	JL192SSS
13	Satin chrome lever handles	BUR30
14	Surface mounted closer	121CE

Further details of both doorsets construction and hardware details can be found in the schedule of components section of this report.

The specimen satisfied the test requirements for the following periods:

Integrity	Doorset A	Doorset B
Sustained flaming	33 minutes	35 minutes
Gap gauge	33 minutes	35 minutes
Cotton Pad	33 minutes	31 minutes
Insulation	33 minutes	31 minutes

The test was discontinued after a period of 36 minutes.

Test date : 12th October 2018

Test Sponsors : Frelan Hardware Ltd

WF No. 419361

To determine the fire resistance performance of two single-acting, single-leaf doorsets incorporating various items of hardware in accordance with BS EN 1634-1: 2014.

Doorset A had overall nominal dimensions of 1000 mm wide by 2080 mm high, incorporating a single door leaf with overall dimensions of 932 mm wide by 2040 mm high by 44 mm thick. The door leaf was formed from a solid graduated density chipboard construction, with 8 mm hardwood lippings to the vertical edges and was hung within a softwood frame, on three stainless steel hinges and was orientated so that the door leaf opened towards the heating conditions. The Doorset was latched for the duration of the test. The Doorset was fitted with the following hardware:

Description	Reference
Hinges	J9400SSS
Sashlock	JL1091
Lever handles	SAA01
Roller ball latch	JL8091SS
Tubular latch	JL121NP
Door knob	BUR 100SN
Door chain	J3004
Door Guard	J3003
Door viewer	JV944SC

Doorset B had overall nominal dimensions of 1000 mm wide by 2080 mm high, incorporating a single door leaf with overall dimensions of 924 mm wide by 2040 mm high by 54 mm thick. The door leaf was formed from a solid graduated density chipboard construction, with 8 mm hardwood lippings to the vertical edges and was hung within a hardwood frame, on three stainless steel hinges and was orientated so that the door leaf opened towards the heating conditions. The Doorset was latched for the duration of the test. The lockset fitted to the hinged edge was unlatched for the duration of the test. The Doorset was fitted with the following hardware:

Description	Reference
Hinges	J9400SSS
Cylinder	JL70
Sashlock	JL1053SSS
Sashlock	JLB55
Lever handles	SAA01
Escutcheon	JSS17
Lever handles	JSS134
Door viewer	JV945SC
Door guard	J3003

The specimen satisfied the test requirements for the following periods:

Integrity	Doorset A	Doorset B
Sustained flaming	38 minutes*	61 minutes
Gap gauge	38 minutes*	62 minutes
Cotton Pad	38 minutes*	61 minutes
Insulation	38 minutes*	61 minutes

* Doorset A blanked off

**The test was discontinued after a period of 68 minutes.

Test date : 19th November 2019

Test Sponsors : Frelan Hardware Ltd

WF No. 428674

To determine the fire resistance performance of two single-acting, single-leaf doorsets incorporating various items of hardware in accordance with BS EN 1634-1: 2014 + A1:2018.

For the purposes of the test the doorsets were referenced as A and B.

Doorset A had overall nominal dimensions of 1010 mm wide by 2085 mm high, incorporating a single door leaf with overall dimensions of 930 mm wide by 2040 mm high by 44 mm thick. The door leaf was formed from a solid graduated density chipboard construction, with 8 mm hardwood lippings to the vertical edges and was hung within a softwood frame, on three stainless steel hinges and was orientated so that the door leaf opened towards the heating conditions. The Doorset was unlatched and unlocked for the duration of the test. The Doorset was fitted with the following Frelan hardware:

Item No	Description	Reference
5	Lever Handleset	JMB400
6	Oval Cylinder	JL60-OPDSC
7	Escutcheon	JSS-PSS 04
8	Sashlock	JL1053
9	Pull handle	BUR130
10	Surface Mounted Closer	Synergy S100
11	Hinges	J8502
12	Deadlock	JLFB1

Doorset B had overall nominal dimensions of 1015 mm wide by 2085 mm high, incorporating a single door leaf with overall dimensions of 930 mm wide by 2040 mm high by 54 mm thick. The door leaf was formed from a solid graduated density chipboard construction, with 8 mm hardwood lippings to the vertical edges and was hung within a hardwood frame, on three stainless steel hinges and was orientated so that the door leaf opened towards the heating conditions. The Doorset was unlatched and unlocked for the duration of the test and fitted with a surface mounted closer to the exposed face. The Doorset was fitted with the following hardware:

Item No	Description	Reference
10	Surface Mounted Closer	Synergy S100
13	Deadlock	JLFB2
14	Lever Handleset	JMB13
15	Tubular Latch	JL120NP
16	Pull Handle	BUR1000
17	Hinges	J8500

The specimen satisfied the test requirements for the following periods:

Integrity	Doorset A	Doorset B
Sustained flaming	28 minutes	63 minutes
Gap gauge	28 minutes	64 minutes
Cotton Pad	28 minutes	63 minutes
Insulation	28 minutes	62 minutes

Doorset A blanked off at 36 minutes.

The test was discontinued after a period of 67 minutes.

Test date : 12th July 2020

Test Sponsors : Frelan Hardware Ltd

WF No. 533797

To determine the fire resistance performance of two single-acting, single-leaf doorsets incorporating various items of hardware in accordance with BS EN 1634-1: 2014 + A1:2018.

For the purposes of the test the doorsets were referenced as A and B.

Doorset A had overall nominal dimensions of 1004 mm wide by 2080 mm high, incorporating a single door leaf with overall dimensions of 930 mm wide by 2040 mm high by 44 mm thick. The door leaf was formed from a solid graduated density chipboard construction, with 8 mm hardwood lippings to the vertical edges and was hung within a softwood frame, on three stainless steel hinges and was orientated so that the door leaf opened towards the heating conditions. The Doorset was latched and for the duration of the test and was fitted with a surface mounted closer to the exposed face. The Doorset was fitted with the following Frelan hardware:

Item No	Description	Reference
9	Hinges	TXH403530
10	Sashlock	JL-DS60
12	Cylinder	JL-70EPDSC
13	Sashlock	7260AL
15	Tubular latch	JL-HDT102SS
17-19	Lever handles assembly	CRES107SSS CRES902SSS CRES201SSS CRES501SSS
20	Door knob	CRES1501
21	Door knob	JSSPSS3580
22	Pull handle	JSS521D
23	Pull Handle	JGM20
24	Pull Handle	JV1800b2b
25	Door Guard	J3003
26	Escutcheon	CRES1651 CRES1652
27	Surface mounted door closer	Briton 121

Doorset B had overall nominal dimensions of 1004 mm wide by 2080 mm high, incorporating a single door leaf with overall dimensions of 930 mm wide by 2040 mm high by 54 mm thick. The door leaf was formed from a solid graduated density chipboard construction, with 8 mm hardwood lippings to the vertical edges and was hung within a hardwood frame, on three stainless steel hinges and was orientated so that the door leaf opened towards the heating conditions. The Doorset was latched for the duration of the test and was fitted with a surface mounted closer to the exposed face. The Doorset was fitted with the following hardware:

Item No	Description	Reference
9	Hinges	TXH403530
10	Sashlock	JL-DS60
12	Cylinder	JL-70EPDSC
13	Sashlock	7260AL
15	Tubular latch	JL-HDT102SS
17-19	Lever handles assembly	CRES107SSS CRES902SSS CRES201SSS CRES501SSS
20	Door knob	CRES1501

21	Door knob	JSSPSS3580
22	Pull handle	JSS521D
23	Pull Handle	JGM20
24	Pull Handle	JV1800b2b
25	Door Guard	J3003
26	Escutcheon	CRES1651 CRES1652
27	Surface mounted door closer	Briton 121

The specimen satisfied the test requirements for the following periods:

Integrity	**Doorset A**	**Doorset B**
Sustained flaming	36 minutes*	63 minutes
Gap gauge	36 minutes*	63 minutes
Cotton Pad	36 minutes*	63 minutes
Insulation	36 minutes*	63 minutes

*Doorset A blanked off at 36 minutes.

The test was discontinued after a period of 67 minutes.
A representative of Warrington Certification sample selection the hinges on the 26th July 2023 (FM 533926).

Test date : 10th August 2023

Test Sponsors : Frelan Hardware Ltd

Declaration by Frelan Hardware Ltd.

We the undersigned confirm that we have read and complied with the obligations placed on us by the Passive Fire Protection Forum (PFPF) Guide to undertaking technical assessments and engineering evaluations based on fire test evidence – 2021.

We confirm that the component or element of structure, which is the subject of this assessment, has not to our knowledge been subjected to a fire test to the Standard against which the assessment is being made.

We agree to withdraw this assessment from circulation should the component or element of structure be the subject of a fire test to the Standard against which this assessment is being made.

We understand that this assessment is based on test evidence and will be withdrawn should evidence become available that causes the conclusion to be questioned. In that case, we accept that new test evidence may be required.

We are not aware of any information that could adversely affect the conclusions of this assessment.

If we subsequently become aware of any such information, we agree to cease using the assessment and ask Warringtonfire to withdraw the assessment.

(In accordance with the principles of FTSG Resolution 82)

Signature:

Name:

Position:

Company:

Date:

Limitations

The following limitations apply to this assessment:

We confirm that any changes to a component or element of structure which are the subject of this assessment have not to our knowledge been tested to the standard against which this assessment has been made.

We agree to withdraw this assessment from circulation should the component or element of structure, or any of its component parts be the subject of a failed fire resistance test to the standard against which this assessment is being made.

1. This report addresses itself solely to the elements and subjects discussed and do not cover any other criteria or modifications. All other details not specifically referred to should remain as tested or assessed.

2. This report is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available to Warringtonfire, the assessment will be unconditionally withdrawn, and the applicant will be notified in writing. Similarly, the assessment evaluation is invalidated if the assessed construction is subsequently tested since actual test data is deemed to take precedence.

3. This field of application has been carried out in accordance with Fire Test Study Group Resolution No. 82: 2001.

4. Opinions and interpretation expressed herein are outside the scope of UKAS accreditation.

5. This field of application relates only to those aspects of design, materials and construction that influence the performance of the element(s) under fire resistance test conditions against the ISO 834 time/temperature curve that is stipulated in the standard this assessment concludes to. It does not purport to be a complete specification ensuring fitness for purpose and long-term serviceability. It is the responsibility of the client to ensure that the element conforms to recognised good practice in all other respects and that, with the incorporation of the guidance given in this field of application, the element is suitable for its intended purpose.

6. This report represents our opinion as to the performance likely to be demonstrated on a test in accordance with EN1634-1, on the basis of the test evidence referred to in this report. We express no opinion as to whether that evidence, and/or this report would be regarded by any Building Control authorities or any other third parties as sufficient for that or any other purpose.

7. This report may only be reproduced in full. Extracts or abridgements of reports shall not be published without permission of Warringtonfire. All work and services carried out by Warringtonfire Testing and Certification Limited are subject to, and conducted in accordance with, the Standard Terms and Conditions of Warringtonfire Testing and Certification Limited, which are available at https://www.element.com/terms/terms-and-conditions or upon request.

8. The version/revision stated on the front of this report supersedes all previous versions/revisions and must be used to manufacture the assessed systems from the stated validity date on this front cover. Previous revisions of the report cannot be used once an updated report has been issued under a new revision.

Signatories

Responsible Officer

A.Green-Morris* - Product Assessor

Approved (Issue 3)

R Anning* - Principal Product Assessor

* For and on behalf of Warringtonfire.

Report Issued: 17 December 2019

The assessment report is not valid unless it incorporates the declaration duly signed by the applicant.

Revision History

Issue No: 1	Issue Date: 17 December 2019
Written By: R. Anning	Approved By: M. Tolan

Issue No: 2	Re-issue Date: 19 Sept 2018
Written By: A. Green-Morris	Approved By: R. Anning & M. Tolan
Reason for Revision: Additional products added.	

Issue No: 3	Re-issue Date: 09 May 2024
Written By: A. Green-Morris	Approved By: R. Anning
Reason for Revision: Additional products added.	

Annex A

ZINC LEVER ON SPRUNG ROUND ROSE			
Name	**Reference**	**30 Minutes**	**60 Minutes**
Twin	JV430	YES	NO
Mailand	JV710	YES	NO
Thame	JV502	YES	NO
Charlotte	JV467	YES	NO
Avantime	JV555	YES	NO
Athena	JV3002	YES	NO
Alexander	JV465	YES	NO
Modena	JV780	YES	NO
Olivia	JV466	YES	NO
Octavia	JV765	YES	NO
Oxford	JC6002	YES	NO
Oxford	JC6003	YES	NO
Mitred	JV435	YES	NO
Lydia	JV790	YES	NO
Seros	JV3001	YES	NO
Aerodeck	JV482	YES	NO
Arkus	JV760	YES	NO
Gull	JV420	YES	NO
Milo	JH5314	YES	NO
Monaco	JV690	YES	NO
Gamma	JV509	YES	NO
Fluted	JH5312	YES	NO
Twirl	JV504	YES	NO
Petra	JV508	YES	NO
Turin	JV550	YES	NO
Curve	JV520	YES	NO

ALUMINIUM LEVER ON SPRUNG ROUND ROSE			
Name	**Reference**	**30 Minutes**	**60 Minutes**
Comet	JV845	YES	YES
Capri	JV860	YES	YES
Opal	JV844	YES	YES
Rosetta	JV843	YES	YES
Lorenzo	JV861	YES	YES
	SAA01	YES	YES
	J4645B	YES	YES
Added in Issue 2			
JV846	Comet lever on round rose	YES	YES
JV850	Bari lever on round rose	YES	YES
Added in Issue 3			
Classic	JV847	YES	YES
Bloom	JV848	YES	YES
Hex	JV849	YES	YES
Geo	JV851	YES	YES
Jet	JV600	YES	YES
Venice	JV852	YES	YES
Midtown	JV853	YES	YES

BURLINGTON BRASS LEVER ON SPRUNG ROUND ROSE			
Name	**Reference**	**30 Minutes**	**60 Minutes**
Mayfair	BUR10	YES	YES
Knightsbridge	BUR20	YES	YES
Westminster	BUR30	YES	YES
Piccadilly	BUR40	YES	YES
Added in Issue 2			
BUR15	Fitzrovia lever on round rose	YES	YES
BUR25	Kensington lever on round rose	YES	YES
BUR35	Highgate lever on round rose	YES	YES
BUR45	Richmond lever on round rose	YES	YES

BURLINGTON BRASS Backplates			
Added in Issue 2			
Name	**Reference**	**30 Minutes**	**60 Minutes**
BUR450	Latchplate	YES	YES
BUR451	Keyhole	YES	YES
BUR453	Bathroom 57mm centres	YES	YES
BUR454	Euro 57mm Centres	YES	YES
BUR455	Euro 72mm Centres	YES	YES
BUR456	Bathroom 8mm Centres	YES	YES

BURLINGTON BRASS MORTICE KNOB ON UNSPRUNG ROUND ROSE			
Name	**Reference**	**30 Minutes**	**60 Minutes**
Berkeley	BUR100	YES	YES
Bloomsbury	BUR101	YES	YES
Added in Issue 2			
Westbourne	*BUR102*	YES	YES

STAINLESS STEEL LEVER ON SPRUNG ROUND ROSE			
Name	**Reference**	**30 Minutes**	**60 Minutes**
Cambrio	JSSPS701	YES	YES
Saturn	JSSPS702	YES	YES
Radium	JSS403	YES	YES
Radium	JPS403	YES	YES
Radium	JSS304	YES	YES
Sandrine	JSS580	YES	YES
Sandrine	JPS580	YES	YES
Sirius	JSS280	YES	YES
Sirius	JPS280	YES	YES
Orbit	JSS13	YES	YES
Orbit	JPS13	YES	YES
Orbit	JSS202	YES	YES
Orbit	JSS213	YES	YES
Orbit	JPS213	YES	YES
Orbit	JSS212	YES	YES
Nebula	JSS480	YES	YES
Nebula	JPS480	YES	YES
Atlanta	JSS412	YES	YES
Atlanta	JPS412	YES	YES
Atlanta	JSS214	YES	YES
Meteor	JSS360	YES	YES
Meteor	JPS360	YES	YES

Juno	JSS385	YES	YES
Juno	JPS385	YES	YES
Neptune	JSS406	YES	YES
Neptune	JPS406	YES	YES
Neptune	JSS604	YES	YES
Vecta	JSS501	YES	YES
Carina	JSS405	YES	YES
Carina	JPS405	YES	YES
Carina	JSS408	YES	YES
Julian	JSS402	YES	YES
Julian	JSP402	YES	YES
Julian	JSS204	YES	YES
Luma	JSS380	YES	YES
Luma	JPS408	YES	YES
Added in Issue 2			
JMB400	Mitred diamond knurled lever on round rose	YES	YES
JMB401	Solid mitred diamond knurled lever on round rose	YES	YES
JMB402	Solid mitred linear knurled lever on round rose	YES	YES
JGM400	Mitred diamond knurled lever on round rose	YES	YES
JGM401	Solid mitred diamond knurled lever on round rose	YES	YES
JGM402	Solid mitred linear knurled lever on round rose	YES	YES
JSS690	Solid cast stainless steel Wing handle on sprung round rose	YES	YES

CRES STAINLESS STEEL LEVER HANDLES AND COMPONENTS			
Added in Issue 3			
Name	**Reference**	**30 Minutes**	**60 Minutes**
101-107	Various Levers	YES	YES
201	Sprung cassette	YES	YES
202	Unsprung cassette	YES	YES
501	Cover rose	YES	YES
901	Latch plate	YES	YES
902	Euro plate	YES	YES
903	Bathroom plate	YES	YES

CRES STAINLESS STEEL ESCUTCHEONS & ACCESSORIES			
Added in Issue 3			
Name	**Reference**	**30 Minutes**	**60 Minutes**
701	Keyhole 54 x 6 mm Surface fixed	YES	YES
702	Euro 54 x 6 mm Surface fixed	YES	YES
703	Keyhole square 54 x 54 x 6 mm Surface fixed	YES	YES
704	Euro square 54 x 54 x 6 mm Surface fixed	YES	YES
J3003	Door Guard	YES	YES

CRES STAINLESS STEEL DOOR KNOB			
Added in Issue 3			
Name	**Reference**	**30 Minutes**	**60 Minutes**
1501	Plain	YES	YES
1502	Knurled	YES	YES

BURLINGTON BRASS PULL HANDLES					
Added in Issue 2					
Name	**Reference**	**30 Minutes**	**30 Minutes back-to-back**	**60 Minutes**	**60 Minutes back-to-back**
BUR1000	425X20mm	YES	YES	YES	No
BUR130	425X20mm	YES	YES	YES	No
BUR140	425X20mm	YES	YES	YES	No

ALUMINIUM PULL HANDLES					
Added in Issue 3					
Name	**Reference**	**30 Minutes**	**30 Minutes back-to-back**	**60 Minutes**	**60 Minutes back-to-back**
JV1800	300 x 19 mm diamond knurled	YES	YES	YES	YES
JV1803	300 x 19 linear	YES	YES	YES	YES
JV1801	425 x 19 diamond knurled	YES	YES	YES	YES
JV1804	425 x 19 linear	YES	YES	YES	YES
JV1802	600 x 19 diamond knurled	YES	YES	YES	YES
JV1805	600 x 19 linear	YES	YES	YES	YES

PULL HANDLES					
Added in Issue 3					
Available in various colours (PSS and matt black) and in various finishes (SSS, PSS & JMB)					
Name	**Reference**	**30 Minutes**	**30 Minutes back-to-back**	**60 Minutes**	**60 Minutes back-to-back**
JSS219A	325 x 19 x 225 mm B/T	YES	YES	YES	YES
JSS220A	325 x 19 x 225 mm B/B	YES	YES	YES	YES
JSS219B	400 x 19 x 300 mm B/T	YES	YES	YES	YES
JSS220B	400 x 19 x 300 mm B/B	YES	YES	YES	YES
JSS219C	1000 x 19 x 900 mm B/T	YES	YES	YES	YES
JSS220C	1000 x 19 x 900 mm B/B	YES	YES	YES	YES
JSS222A	400 x 25 x 300 mm B/T	YES	YES	YES	YES
JSS223A	400 x 25 x 300 mm B/B	YES	YES	YES	YES
JSS222B	600 x 25 x 450 mm B/T	YES	YES	YES	YES
JSS223B	600 x 25 x 450 mm B/B	YES	YES	YES	YES
JSS222C	750 x 25 x 650 mm B/T	YES	YES	YES	YES
JSS223C	750 x 25 x 650 mm B/B	YES	YES	YES	YES
JSS222D	1000 x 25 x 900 mm B/T	YES	YES	YES	YES
JSS222D	1000 x 25 x 900 mm B/B	YES	YES	YES	YES
JSS520A	600 x 32 x 400 mm B/T	YES	YES	YES	YES
JSS521A	600 x 32 x 400 mm B/B	YES	YES	YES	YES
JSS520B	800 x 32 x 600 mm B/T	YES	YES	YES	YES
JSS521B	800 x 32 x 600 mm B/B	YES	YES	YES	YES
JSS520C	1200 x 32 x 1000 mm B/T	YES	YES	YES	YES
JSS521C	1200 x 32 x 1000 mm B/B	YES	YES	YES	YES
JSS520D	1800 x 32 x 1600 mm B/T	YES	YES	YES	YES
JSS521D	1800 x 32 x 1600 mm	YES	YES	YES	YES
JMB6	425 x 20 mm B/T	YES	YES	YES	YES

JMB7	425 x 20 mm B/B Linear	YES	YES	YES	YES
JMB8	425 x 20 mm B/T Diamond Knurled	YES	YES	YES	YES
JMB9	425 x 20 mm B/B Diamond Knurled	YES	YES	YES	YES
JMB10	600 x 20 mm B/T Diamond Knurled	YES	YES	YES	YES
JMB10	600 x 20 mm B/B Diamond Knurled	YES	YES	YES	YES
JMB14	600 x 20 mm B/T Linear	YES	YES	YES	YES
JMB15	600 x 20 mm B/B Linear	YES	YES	YES	YES
JMB19	800 x 20 mm B/T Diamond Knurled	YES	YES	YES	YES
JMB20	800 x 20 mm B/B Diamond Knurled	YES	YES	YES	YES
JMB21	800 x 20 mm B/T Linear	YES	YES	YES	YES
JMB22	800 x 20 mm B/B Linear	YES	YES	YES	YES

EUROPROFILE CYLINDERS			
Added in Issue 3			
Name	**Reference**	**30 Minutes**	**60 Minutes**
JL-40EPS	Single Cylinder	YES	YES
JL-45EPS	Single Cylinder	YES	YES
JL-60EPD	Double Cylinder	YES	YES
JL-70EPD	Double Cylinder	YES	YES
JL-60EPCT	Double Cylinder & Turn	YES	YES
JL-70EPCT	Double Cylinder & Turn	YES	YES