

Field of Application Report

IFC Report PAR/14472/01 Revision A

Fire Resistance Standard: EN1634-1: 2014+A1: 2018



Prepared for:

Ryobi Ltd

Assessed Product/System:

Assessment of the fire resistance performance provided by Ryobi COU-50 and CO-50 Series concealed overhead door closers, when installed in single-acting, timber-based door assemblies

Assessed Performance:

30 or 60 minutes fire resistance (as applicable)

Issue Date

July 2022

Expiry Date

July 2027

**Partner
for
Progress**

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International Fire Consultants Ltd

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Prepared on behalf of:	Ryobi Ltd
Project:	Annex of Tokyo Head Office 5-2-8 Toshima Kita-Ku Tokyo 114 - 8518 Japan
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Issue and Amendment Record

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Original	February 2015	MB	DC	All	-
Rev A	July 2022	CH	DC	All	Review of test data, checking compliance with current industry protocols and formatting into new livery

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1. Introduction

This report has been prepared by International Fire Consultants Ltd (IFC), on the instruction of Ryobi Ltd, to define the Field of Application for Ryobi COU-50 and CO-50 Series concealed overhead door closers, when installed in single-acting, timber-based door assemblies, that are required to provide 30 or 60 minutes fire resistance performance, as applicable, when adjudged against EN1634-1:2014+A1: 2018.

This assessment has been produced using the principles outlined in the [Passive Fire Protection Forum \(PFPF\): 'Guide to undertaking technical assessments of fire performance of construction products based on fire test evidence, 2021, Industry Standard Procedure'](#).

When establishing the variations in the construction that can achieve the required fire resistance performance, IFC complies with the principles found in the following documents:

- [BS ISO/TR 12470-2: 2017 'Fire resistance tests - Guidance on the application and extension of results from tests conducted on fire containment assemblies and products. Part 2: Non-load bearing elements'](#).
- [EN 15725: 2010: 'Extended application reports on the fire performance of construction products and building elements'](#).

It is proposed that Ryobi COU-50 and CO-50 Series concealed overhead door closers may be accommodated into door assemblies, without reducing their potential to achieve a 30 or 60 minute integrity rating, as applicable, if tested in accordance with the method and criteria of EN1634-1:2014+A1: 2018. The omission of information on any components or manufacturing methods does not imply a lack of approval of those details but these would need to be the subject of a separate analysis. Only variations specifically mentioned are supported by this assessment document, and all other aspects must otherwise be as proven in tests summarised herein.

It is more onerous to test timber door assemblies, hinged or pivoted, with the specimen installed with the leaf opening in towards the furnace. Testing in this orientation is therefore incorporated into Field of Application Reports to cover doors opening in the opposite direction. The principle is only applicable when the door construction, and any features within the door leaf, such as glazing, are symmetrical.

Unless stated otherwise, herein, this Field of Application considers the scope of approval for door assemblies fitted with Ryobi COU-50 and CO-50 Series concealed overhead door closers that may be installed in either orientation, that being with either face exposed to fire conditions.

2. Proposal

It is proposed that alternative models of the Ryobi COU-50 and CO-50 Series concealed overhead closers may be incorporated to provide the closing element of a single-acting, timber-based door assembly, of a design that has otherwise been proven to achieve 30 or 60 minutes fire resistance, as applicable, when independently tested or assessed to BS EN1634-1: 2014; provided that the recommendations of this assessment are complied with.

In particular, this Assessment Report considers the following aspects;

- Ryobi CO-53 and COU-53 models have been included in a fire test of door assemblies, and the test evidence generated with those closers forms the basis of this assessment for other models in the CO-50 and COU-50 Series. The individual closer models that are considered herein are listed in **Table 1** below.

- The fire test was performed upon single-acting doors supported on hinges, and this report also considers use of the closers when fitted to single-acting doors supported on pivots.
- The fire test was performed upon doors formed with a specific construction. It is proposed that the closers may also be used with other types of timber-based door constructions; subject to limitations that ensure that the specifications relevant to the closer zone are maintained.

<u>COU-50 Series</u> For use with doors at least 44mm thick, designed to provide 30 minutes fire resistance; or with doors at least 54mm thick, designed to provide 60 minutes fire resistance.	COU-53 L	COU-53 R
	COU-53BC L	COU-53BC R
	COU-53H L	COU-53H R
<u>CO-50 Series</u> For use with doors at least 54mm thick, designed to provide 30 or 60 minutes fire resistance.	CO-53	CO-53 BC
	CO-54	CO-54 BC

Table 1. Proposed Models of Ryobi Concealed Overhead Closers

Key:	
L	Left Hand (The CO range are not handed)
R	Right Hand
BC	Backcheck
H	Models have smaller guide rail

Table 2. Key to Ryobi Closer Suffixes

Note: This report only considers the use of Ryobi concealed closers when fitted in “standard installation”, where the closer body is installed in the door head. This report does not consider, or approve, applications where the closer body is fitted in the frame head.

3. Test Evidence

The test evidence used to support this Field of Application Report is summarised in Appendix A of this report.

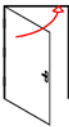
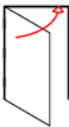
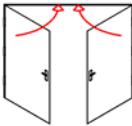
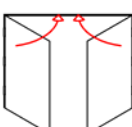
The test evidence referenced in this Engineering Assessment Report is more than 5 years old. In accordance with industry practice, IFC have reviewed this test evidence, and have concluded that the evidence is still valid, and suitable to form the basis of this approval.

The test standard EN1634-1 has been revised several times since the original testing, and the current version is EN1634-1:2014+A1: 2018; but the revisions to the test standard do not affect the opinions in the Assessment Report.

4. Scope of Approval

4.1 Door Assembly Configuration

The approved configurations of door assemblies containing Ryobi COU-50 and CO-50 Series concealed overhead door closers, when installed in timber-based door assemblies, are outlined below:

CONFIGURATION	
	<ul style="list-style-type: none"> • Latched • Single Acting • Single Door • Without Overpanel
	<ul style="list-style-type: none"> • Unlatched • Single Acting • Single Door • Without Overpanel
	<ul style="list-style-type: none"> • Latched • Single Acting • Double Doors • Without Overpanel
	<ul style="list-style-type: none"> • Unlatched • Single Acting • Double Doors • Without Overpanel

5. ANALYSIS

5.1 General

Fire resisting doors generally need to be fitted with a mechanism to close the leaf, and/or ensure that it remains in the closed position while not in use, so that if a fire did occur, the door would be able to fulfil its function as a barrier to fire spread. Commonly, a closing device is fitted for this purpose.

Any door closer is capable of making both positive and negative contributions to the fire resistance of the door to which it is fitted and this assessment considers both characteristics.

In considering the fire resistance performance of a single acting door assembly, an overhead closer of any type should perform the following functions described below:

1. The closing device should remain in place and provide a closing action to the leaf during the initial 20 minutes of exposure to a EN1634-1: 2014 heating regime. By this time, in the case of fire doors with timber leaves, the intumescent seals installed within the edges of the door leaf or frame will be fully activated and will 'lock' the door in position.
2. In all fire resistance tests of door assemblies, overhead face-fixed closers fitted to the exposed leaf face generally lose their closing force between 15 and 20 minutes into the test, due to the use of the aluminium body and/or guide rail. However, this effect is delayed slightly with concealed overhead closers as they are 'protected' by the surrounding timber of the leaf head.
3. During the time the closer mechanism remains in place and is able to apply a closing force to the leaf, the closing action also helps to limit the thermally induced distortion of the head of the door leaf towards the furnace.
4. Once the closer has lost its ability to perform a closing function due to the softening/melting of its aluminium housing, and has effectively become redundant, whether it is fitted to a 30 minute or 60 minute door leaf of proven performance is of little concern.
5. A concealed overhead closer might compromise the performance of a fire resisting timber door assembly by facilitating the conduction of heat towards the unexposed face, via the closer body and/or guide rail. In addition, the closer body/guide rail generally interrupts the intumescent seals fitted in the door leaf/frame head. This could lead to premature integrity failure.

This Report will review the implications of interpolating the evidence of the closer models tested in fire resistance test CFR14112501 (see Appendix A) for use with other closer models, and in alternative door types.

5.2 Alternative Closer Models

5.2.1 COU-53 closer model

A COU-53 closer was included in the fire resistance test CFR14112501 (see Appendix A) and was fitted within a 44mm thick timber-based door leaf with integrity failure not occurring until 42 minutes. This demonstrates the suitability of the COU-53 closer for use in 44mm thick timber-based doors that are required to provide 30 minutes fire resistance.

The body of the COU-53 closer is only 28mm thick and is therefore suitable for installation into a 44mm thick door leaf, as tested. However, it would also not be a cause of integrity failure if fitted in a 54mm thick timber-based door and tested for 60 minutes fire resistance, subject to inclusion of the necessary 60 minute specifications outlined in Section 5.3.2, and assuming that the leaf is within the limitations for leaf size and weight (see Section 5.5.1).

5.2.2 CO-53 closer model

A CO-53 closer was included in the fire resistance test CFR14112501 (see Appendix A) and was fitted within a 54mm thick timber-based door leaf with integrity failure at the proximity of the closer not occurring until 65 minutes. This demonstrates the suitability of the COU-53 closer for use in 54mm thick timber-based doors that are required to provide 60 minutes fire resistance.

The body of the CO-53 model is 36mm thick and is therefore more suitable for installation into a 54mm thick door leaf, as tested. Installation literature from Ryobi states that this model of closer is designed for use in doors that are a minimum of 50mm thick, which precludes its installation into 44mm thick leaves which are more commonly used for assemblies to provide 30 minutes fire resistance.

However, the COU-53 closer model could be used in 54mm thick timber-based door leaves that are required to provide 30 minutes fire resistance, since the CO-53 closer did not cause integrity failure at proximity of the closer when installed within a 54mm thick leaf until after 60 minutes of fire exposure.

5.2.3 Alternative Ryobi closer models

The size of the closer bodies and guide rails for the relevant models within the Ryobi CO-50 and COU-50 Series (see Tables 1 and 2), are identical to those of the Ryobi CO-53 and COU-53 models, respectively, used in the fire test summarised in Appendix A. The CO-54 model has the same sized body and guide rail as the tested CO-53 model. Closers with the 'H' suffix have a guide rail which is only 23mm wide, as opposed to the 29mm wide guide rail used in testing. Equally, the same materials are used for all models in the Series.

On this basis, the degree of thermal conduction through the closer components, and the "physical interruption" of the intumescent seals and door assembly, will be the same throughout the range of models proposed in Table 1.

Since all of the proposed models employ similar main springs, valves and fluids, they can all be expected to maintain the closing movements for a similar period of time as the tested CO-53/COU-53 closer models tested in accordance with EN1634-1: 2014, if tested within similar door assemblies.

5.3 Alternative Door Constructions

5.3.1 General overview

The leaves tested in fire resistance test CFR14112501 (see Appendix A) comprised solid particleboard door blanks with 8mm thick hardwood lippings to the vertical edges only. They did not contain any perimeter framing e.g. stiles and rails, so the closers were morticed directly into the door substrate in the leaf head.

The closer body requires a mortice, approximately 65mm deep by 324mm long, and 28mm or 36mm wide, depending on closer model.

Some proprietary fire rated timber doors include a head rail, which contributes to the structure and stability of the leaf. Fitting of a concealed closer will remove most of the head rail in some doors, and where this type of leaf is proposed, it is a condition of this approval that the selected door type **must have been included in a fire test when incorporating a concealed overhead closer of similar size** to the proposed Ryobi concealed closers. This will demonstrate that the inclusion of a large mortice to incorporate the closer will not be detrimental to the overall fire performance of the door construction.

5.3.2 Approved alternative door types/specifications

The Ryobi CO-53 and COU-53 series concealed closers may be fitted into any of the following door leaf types, provided that it can demonstrate, through test or assessment to EN1634-1:2014, that it can provide either 30 or 60 minutes fire resistance, as appropriate, when tested as a full size leaf, in the appropriate configuration with a similar sized concealed closer in an unlatched configuration.

Door types:

- Timber framed with flaxboard core
- Timber framed with particleboard core
- Timber framed with mineral core
- Laminated timber core (with or without rails)
- Solid particleboard (unframed slab)

Minimum specifications apply to certain elements of door assemblies when fitted with concealed closers within the scope of this Assessment Report, as defined below. If the test or assessment evidence for the selected door type requires a higher specification than that defined below, then that should be employed. Other elements of the doors, frames and intumescent seals shall be as tested or assessed for the relevant construction.

Assemblies to provide 30 minutes fire resistance

Leaf thickness:	<ul style="list-style-type: none"> Minimum 44mm for COU models and minimum 54mm for CO models A hardwood lipping must be fitted at the leaf head (minimum 8mm thick and minimum density 630kg/m³) ^{Note 1}
Frames:	<ul style="list-style-type: none"> Minimum section size 90 x 32mm (excluding stop) Minimum 15mm deep stop (pinned, screwed or rebated) Softwood or Hardwood (minimum density 510kg/m³)
Intumescent seals:	<ul style="list-style-type: none"> Minimum 1no. 15 x 4mm graphite or Lorient 617 type seal, centrally fitted in the frame head (interrupted by the guide rail) The intumescent seals in jambs to be as tested/approved for the selected door type

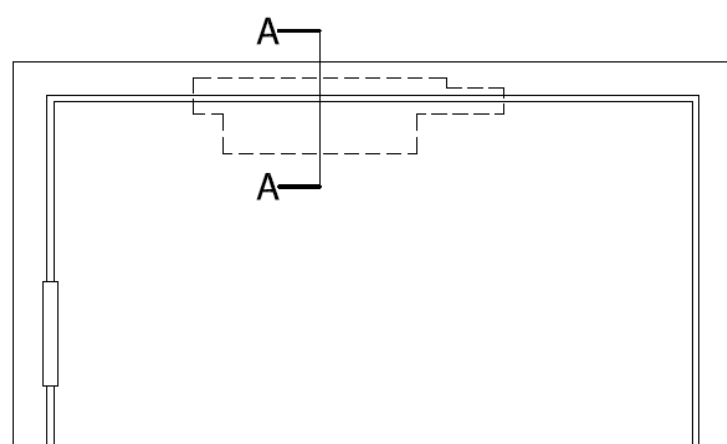
Assemblies to provide 60 minutes fire resistance

Leaf thickness:	<ul style="list-style-type: none"> Minimum 54mm A hardwood lipping must be fitted at the leaf head (minimum 8mm thick and minimum density 630kg/m³) ^{Note 1}
Frames:	<ul style="list-style-type: none"> Minimum section size 90 x 32mm (excluding stop) Minimum 15mm deep stop (pinned, screwed or rebated) Hardwood (minimum density 640kg/m³)
Intumescent seals:	<ul style="list-style-type: none"> Minimum 2no. 15 x 4mm graphite or Lorient 617 type seals, centrally fitted, spaced 10mm apart in the frame head (partially interrupted by the guide rail) The intumescent seals in jambs to be as tested/approved for the selected door type

Note 1: If the door type has test evidence or has been assessed for leaves fitted with a concealed closer without lippings fitted to the leaf head, then it is permitted for the lipping to the leaf head to be omitted.

5.3.3 Intumescent protection to concealed closers

The tested doorsets were fitted and installed with bespoke intumescent gasket kits around the closer body and guide rail (see **Figure 1**). It is a requirement of this Assessment Report that the identical kits are included with all closer models; irrespective of the fire rating and door type.



These details apply to the following
closer models:

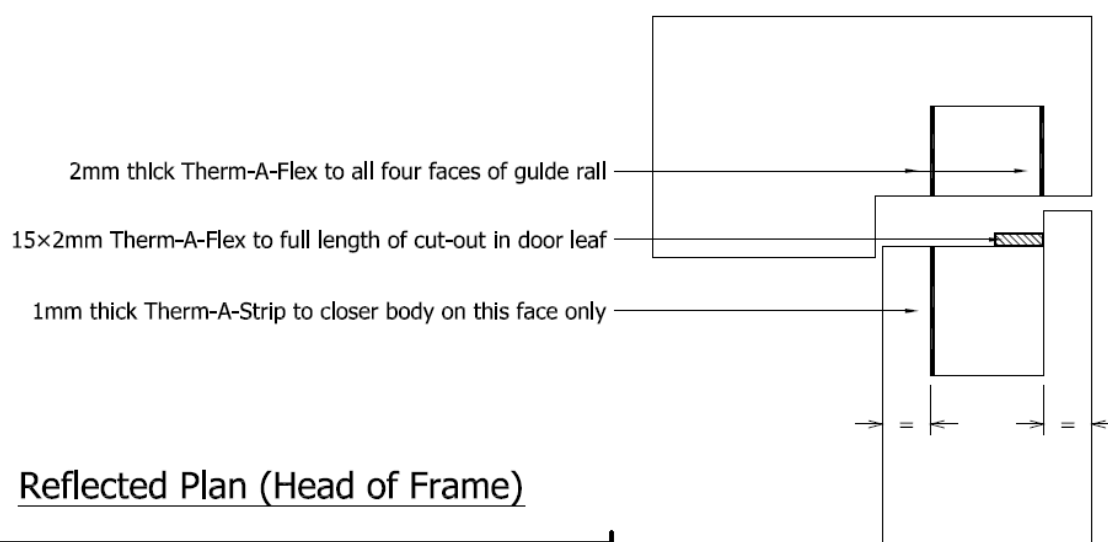
COU-53

CO-53/CO-54

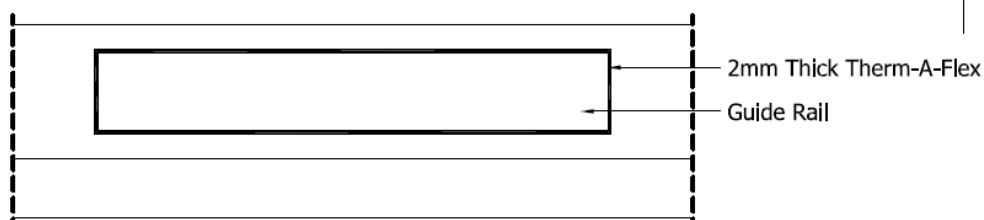
Refer to Ryobi Installation Instructions
for dimensions and locations of
cut-outs.

Refer to Text of Report for
Specifications of Doors and Frames.

Section A-A



Reflected Plan (Head of Frame)



Plan View (Top of Door)

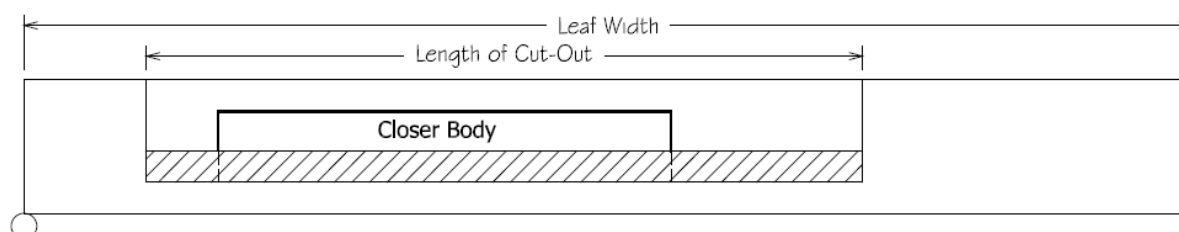


Figure 1 – Intumescent protection to closer body and guide rail

5.4 Alternative Door Configurations

The primary function of a door closer is to return a door leaf to a closed position within a frame reveal, and, during exposure to fire conditions, offer restraint against any thermally induced deflection until such time as the pressure forming intumescent seals become activated and effective.

Although the tested assemblies were single leaf doorsets, it is the evaluation of IFC that the closing function of the proposed concealed closers will not be adversely affected by inclusion within double leaf assemblies (see also Section 5.5 regarding maximum permitted leaf sizes).

The specimens summarised in the fire test summarised in Appendix A included doors installed on hinges. It is proposed that doors may alternatively be installed using 'offset', or 'centre-hung' pivots; but still in 'single-acting' mode. This is acceptable, subject to the following limitations:

- Only door types that have been previously tested with both a concealed closer and a pivot of similar size and specification to that proposed are covered, using the same perimeter intumescent seal specification to that tested in this configuration.
- The pivots must be of a type proven for use with timber doors and must be fitted in accordance with test evidence or assessment for the selected door type, including continuity of intumescent seals and additional intumescent protection.
- The length of the pivots must be such that they will fit in the space between the door edge and the end of the recess for the concealed closer, without omitting any intumescent protection for the closer.
- Even though doors may be installed with 'centre-hung' pivots, they must still be in 'single-acting' mode and include a 15mm thick stop across the frame head. It is acceptable for the stop to be cut-away at the pivot point, to allow the edge of the door to 'swing', but the door stop must be continuous alongside the full length of the closer.

5.5 Leaf Size

5.5.1 Maximum leaf sizes

The tested specimens included leaves that measured 2040mm high x 826mm wide with a maximum door weight of 59.5kg. The test demonstrated that the closers were able to keep the leaf in the closed position and afforded adequate restraint to keep the leaf head within the frame reveal.

It is the evaluation of IFC that the COU-53 and CO-53 models could be used on doors with the following parameters:

- Maximum leaf size up to 2100 x 950mm wide;
Or
- A maximum weight of 65kg;
(Whichever is the smaller)
- (This is subject to any limitations upon leaf size within the evidence/assessment for the proposed door type)

Ryobi literature states that the CO-54 model is suitable for doors up to 2400 x 1050mm wide with a maximum weight of 85kg.

If the CO-54 closer is to be used in doors of these sizes, it is a condition of this approval that the closer is installed and adjusted so that it will close the door fully into the frame reveal, and that it is able to overcome the friction imposed by any other hardware, or “smoke/acoustic” seals, that may also be fitted. This is also subject to any limitations upon leaf size within the evidence/assessment for the proposed door type.

5.5.2 Minimum leaf sizes

The concealed closers include a long recess in the door head for the closer body and a long guide rail machined into the frame head. Inclusion of a concealed overhead door closer interrupts the intumescent seal in the head of the door assembly which can result in increased distortion of the leaf, since one of the functions of the seal is to generate pressure and reduce levels of leaf distortion.

The test summarised in Appendix A proved that inclusion of concealed closers did not adversely affect the clamping action of the intumescent seals fitted in the tested door designs. The tested doors were 826mm wide which resulted in approximately 200mm of uninterrupted intumescent seals fitted in the frame head between the guide rail and the closing edge of the door.

If fitted in narrower doors than tested, it is perceived that any reduction in the level of intumescent seal continuity could adversely affect the clamping action provided to the leaf head, which could allow the door deflection to increase due to a reduction in the efficacy of the seals interrupted by the closer components.

It is thus a condition of this report that, when fitted with the proposed concealed closers, there shall be at least 100mm between the end of the recess for the guide rail in the frame head and the closing edge of the door leaf. This will require a minimum leaf width for leaves fitted on hinges to be 726mm with a minimum width for leaves fitted on pivots to be 800mm.

In addition, there shall be no other hardware recessed into the door/frame head between the end of the recess for the guide rail in the frame head and the closing edge of the door, (except for flush bolts, where approved) since this would otherwise cause further interruptions to the intumescent seals.

5.6 Hardware

The proposed Ryobi concealed closers shall be fitted in accordance with Ryobi installation instructions. During installation, it is essential that the closer is adjusted such that it will close the door fully into the frame reveal, and engage the latch, from any angle of opening, against the friction of the latch bolt and smoke seals, if fitted.

The closers were tested on leaves without latches, to demonstrate the efficacy of the closer. The closers may be fitted to doors with, or without latches; subject to the test evidence/assessment for the configuration with the relevant door type.

All other items of hardware shall be selected and installed in accordance with the test evidence/assessment for the relevant door type.

5.7 Installation, Supporting Construction and Door Edge Gaps

The door frames must be fixed back to the supporting construction with steel fixings at centres not exceeding 600mm on the vertical edges (minimum 200mm from the top and bottom), and a minimum of one fitted centrally across the width of the frame head of double doors. Screws shall be of sufficient length to penetrate the wall by at least 40mm, and shall be positioned such that they are not exploited by charring of the frame, irrespective of the direction of test exposure; (this may necessitate a twin line of screws). Packers shall be used at all fixing positions.

The supporting construction may be timber or steel stud plasterboard partition, blockwork, brickwork or concrete walls, but shall be of a type that has been tested or assessed to provide in excess of 30 or 60 minutes fire resistance, as applicable, at the required size, when incorporating door openings. If fitted into timber or steel stud partitions, the method of forming the door assembly aperture must be as tested by the partition and/or door assembly manufacturer.

Note Reference to steel stud partitions is in the context of permanent elements, such as those designed and proven by the plasterboard manufacturers, with plasterboard on both faces of the studs. This report does not approve use of the proposed door assemblies in proprietary 'demountable' partitions, which must be subject to a full and independent appraisal of the particular system and door assemblies therein.

No part of the rear of the frame section shall be exposed once installed and leaves must not project beyond the exposed face of the door frame.

This report only applies to scenarios where the frame is fully aligned within the plane of the fire-resisting wall/partition. The approval in this report does not apply where the wall/partition includes decorative 'cladding' on the face of the fire-resisting construction, (e.g. timber panelling on battens, or plasterboard on studs/dabs), such that any part of the frame is aligned within the plane of this decorative cladding. This detail is likely to adversely affect the fire resistance of the door assembly, and IFC should be consulted for specific advice, to determine upgrading measures that will be required in such cases.

The gap sealing between the supporting construction and timber frames should follow the recommendations given in Section 9.4 of [BS8214: 2016, 'Timber-based fire door assemblies – Code of practice'](#), using a product proven in such timber applications.

The gap between the door and the frame or between meeting stiles (and between any door and overpanel, where applicable) shall be 1.5–4mm. Gaps under the door(s) shall not exceed 6mm for fire performance, although, if smoke control is also required, these gaps shall only be 3mm, or smoke seals shall be included.

The door assembly design shall be such that, when closed, single acting leaves are fully flush within the frame. The face of leaves in double door assemblies shall be flush with each other at meeting stiles, when closed.

5.8 Intumescent Seals

Graphite based or Lorient 617, pvc encased, seals manufactured by Mann McGowan Fabrications Ltd, Lorient Polyproducts Ltd, Intumescent Seals Ltd, Pyroplex or Sealed Tight Solutions may be employed across the complete range of door sizes and configurations approved herein. (Although options of product/manufacturer are approved, all seals in each door assembly must be the same brand.) It is recommended that the intumescent seals are manufactured or supplied by members of the Intumescent Seals Association (IFSA) or that the product is included in a Third Party Certification scheme, such as that provided by IFC Certification, to ensure product quality and consistency.

The intumescent seal specification for each period of fire resistance should, as a minimum, comprise that outlined in Section 5.3.2, based upon tested details.

Intumescent protection is required for the Ryobi concealed closers and this is detailed in Section 5.3.3 based upon details tested.

6. Conclusion

Based upon the available test evidence, and subsequent analysis performed by International Fire Consultants Ltd, if the proposed concealed Ryobi door closers outlined in Section 2 of this assessment report were fitted into single-acting door assemblies that have been proven to achieve 30 or 60 minutes fire resistance, as applicable, when previously tested with a similar sized concealed closer to BS EN1634-1: 2014, and installed in accordance with the limitations of this Field of Application Report and tested for fire resistance, then the closer would not adversely affect the fire resistance of the door assembly.

This Field of Application Report considers that the door assemblies within the scope approval, herein, may be installed in either orientation and so be exposed to fire conditions from either face.

7. Declaration by the Applicant

Kiwa IFC Engineering Assessment Report	PAR/ 14472/01 Revision A
Client	Ryobi Ltd
Project Address	Annex of Tokyo Head Office 5-2-8 Toshima Kita-Ku Tokyo 114 - 8518 Japan
We the undersigned confirm that we have read and complied with the obligations placed on us by the	
<div style="border: 1px solid black; padding: 5px; text-align: center;"> Passive Fire Protection Forum (PFPF) - Industry Standard Procedure 2021 'Guide to Undertaking Technical Assessments of Fire Performance of Construction Products Based on Fire Test Evidence' </div>	
<ul style="list-style-type: none"> We confirm that any changes which are 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. 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 affect the conclusions of this assessment. If we subsequently become aware of any such information, we agree to ask the assessing authority to withdraw the assessment. 	
Signature	
Name	
Position	
Company Name	Ryobi Ltd
Date	

8. Limitations

This report addresses itself solely to the ability of the specified concealed door closers for fitment to door assemblies which satisfy the criteria of the fire resistance test and does not imply any suitability for use with respect to other unspecified criteria.

It is the responsibility of others to establish whether the proposed product meets any other relevant requirements, including any other requirements for fire performance and life safety, as defined in documents such as the Building Regulations, and the Fire Strategy/Risk Assessment for the project.

This report does not constitute an assessment of any particular door assembly and is limited to the effect that the proposed concealed closers might have upon the fire resistance of a proven timber-based fire door assembly, which has previously been tested to the stated standard. All other aspects of the door assembly must be as otherwise tested or assessed. Any change in the specification of the items which have been assessed will invalidate this assessment.

The Ryobi concealed closers must be fitted and adjusted in accordance with the manufacturer's recommendations appropriate to the size and weight of leaf, and the configuration being employed in the particular application. In all cases, the closer must be adjusted to ensure that it will close the door fully into the frame reveal, from any angle of opening; and against the force of the latch, and smoke seals, if fitted.

This assessment is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available to International Fire Consultants Ltd (IFC) 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.

As per the guidance outlined in the [Passive Fire Protection Forum \(PFPF\): 'Guide to undertaking technical assessments of fire performance of construction products based on fire test evidence, 2021, Industry Standard Procedure'](#), appropriate action has been taken to mitigate the risk of a conflict of interest arising during the preparation of this report. All individuals involved in the production, or subsequent review, of this assessment have declared any perceived conflicts of interest, with regards to the sponsor or subject(s) of this report, prior to working on this project.

The assessor and reviewer have been deemed suitable for involvement in the production of this assessment in accordance with the guidance outlined in the [Passive Fire Protection Forum \(PFPF\): 'Guide to undertaking technical assessments of fire performance of construction products based on fire test evidence, 2021, Industry Standard Procedure'](#).

Where the constructional information in this report is taken from details provided to International Fire Consultants Ltd (IFC) and/or from fire resistance test reports referenced herein, it is, therefore, limited to the information given in those documents. It is necessarily dependent upon the accuracy and completeness of that information. Where constructional or manufacturing details are not specified, or discussed, herein, it should not, therefore, be taken to infer approval of variation in such details from those tested or otherwise approved.

The analysis and conclusions within this report are based upon the likely fire resisting performance of a complete door assembly that is manufactured and installed in accordance with this document, and offered for fire resistance testing in 'perfect' condition. In practice, management procedures must be in place in any building where the door assemblies are installed, to ensure that no parts of the assembly are damaged or faulty. Further, the doors must open and close without the use of undue force. The edge gaps/alignment of door leaves must be in accordance with the tolerances defined, herein, when the doors are closed. Any such shortfalls in respect to the condition of the assemblies will invalidate the approval by IFC, and may seriously affect the ability of the assemblies to provide the required level of fire resistance performance. Determination of what constitutes wear or damage, and any corrective

actions in order to return assemblies to the required condition, should only be carried out following consultation with the manufacturer and IFC.

This report is not intended to be a complete specification for the proposed products and it is the responsibility of others to ensure that the products are suitable for the intended purpose; whilst incorporating the requirements of this report. Further, the products must be manufactured/installed by experienced/trained personnel using appropriate and established working practices/techniques.

Where the assessed constructions have not been subject to an on-site audit by International Fire Consultants Ltd, it is the responsibility of anyone using this report to confirm that all aspects of the assemblies fully comply with the descriptions and limitations, herein.

Any materials specified in this report have been selected and judged primarily on their fire performance. IFC do not claim expertise in areas other than fire safety. Whilst observing all possible care in the specification of solutions, we would draw the reader's attention to the fact that during the construction and procurement process, the materials used should be subjected to more general examination regarding the wider Health and Safety, and CoSHH Regulations. Designers, manufacturers and installers are reminded of their responsibilities under the CDM Regulations; but particularly with regard to installation and maintenance of heavy or inaccessible items.

This assessment considers the fire resistance performance of the door assemblies when tested with the leaves in the closed position, within the frame reveal; either retained by the latch, or self-closing device, or locked shut, as applicable. The door assemblies will only provide the assessed fire performance when in a similar configuration; and it is the responsibility of the building occupants/owner to ensure that this is the case.

This Report is provided to the sponsor on the basis that it is a professional independent engineering evaluation as to what the fire performance of the construction/system would be should it to be tested to the named standard. It is IFC's experience that such an evaluation is normally acceptable in support of an application for building approvals, certainly throughout the UK and in many parts of Europe and the rest of the world.

However, unless IFC have been commissioned to liaise with the Authorities that have jurisdiction for the building in question for the purpose of obtaining the necessary approvals, IFC cannot assure that the document will satisfy the requirements of the particular building regulations for any building being constructed.

It is, therefore, the responsibility of the sponsor to establish whether this evidence is appropriate for the application for which it is being supplied and IFC cannot take responsibility for any costs incurred as a result of any rejection of the document for reasons outside of our control. Early submittal of the Report to the Authorities will minimise any risks in this respect.

9. Validity

This Field of Application Report has been prepared based on International Fire Consultants Ltd's present knowledge of the products described, the stated testing regime and the submitted test evidence. For this reason, anyone using this document after July 2027 should confirm its ongoing validity.

This Field of Application Report is not valid unless it incorporates the declaration by the applicant given in Section 7 duly signed by the applicant.

Prepared by:

A handwritten signature in black ink, appearing to read 'Chris Houchen'.

Chris Houchen

BSc. AIFireE

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Reviewed by:

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David Cooper

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Appendix A Summary of Fire Test Evidence

Summary of Primary Fire Test Evidence

TEST LAB AND REPORT NO.	TEST DATE	CONFIGURATION TESTED	LEAF SIZE TEST	TEST STANDARD	INTEGRITY	CONSTRUCTION DETAILS
Cambridge Fire Research CFR1411251	25 November 2014	A - ULSASD	2040 x 826 x 54mm	BS EN 1634-1: 2014	55mins*	<ul style="list-style-type: none"> • Leaf – Halspan Optima particleboard door blank lipped vertical edges only with sapele • Frame – 90x32mm sapele (no density declared) + 15mm planted stop • Hinges – Royde & Tucker H101 Hi-Load hinges (2mm Interdens) • Closer – Ryobi CO-53 concealed closer (1mm Interdens to bottom of body rebate and to the ‘push’ face of the closer. 15x2mm Therm-A-Flex for full length of closer arm rebate) • Closer Guide Arm Channel – 528x19x29mm (2mm Therm-A-Flex to vertical edges of guide arm channel) • Intumescent – 2no. 15x4mm Intumescent Seals Ltd Therm-A-Seal strips, centrally fitted in the frame reveal spaced 10mm apart
		B - ULSASD	2040 x 826 x 44mm		42mins	<ul style="list-style-type: none"> • Leaf – Halspan Optima particleboard door blank lipped vertical edges only with sapele • Frame – 90x32mm European redwood (no density declared) + 15mm planted stop • Hinges – Royde & Tucker H101 Hi-Load hinges (2mm Interdens) • Closer – Ryobi COU-53 R concealed closer (1mm Interdens to bottom of body rebate and to the ‘push’ face of the closer. 15x2mm Therm-A-Flex for full length of closer arm rebate) • Closer Guide Arm Channel – 528x19x29mm (2mm Therm-A-Flex to vertical edges of guide arm channel) • Intumescent – 1no. 15x4mm Intumescent Seals Ltd Therm-A-Seal strip, centrally fitted in the frame reveal

*The failure at 55minutes was attributable to a failed cotton pad integrity test performed at the bottom closing corner of the door leaf but there was no failure in the vicinity of the concealed closer prior to 65minutes.

ULSASD = Unlatched, Single Acting. Single leaf Door assembly

The test evidence referenced in this Engineering Assessment Report is more than 5 years old. In accordance with industry practice, IFC have reviewed this test evidence, and have concluded that the evidence is still valid, and suitable to form the basis of this approval.