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Title:

The Fire Resistance Performance Of Timber/Mineral-Based Doorsets When Fitted With NEXT 120 S Automatic Door Operators

WF Assessment Report No:

436636 Issue 3

Prepared for:

Label S.p.A.

Via Ilariuzzi 17/A
43126 Parma PR
Italy

Date:

24th May 2021

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Foreword

This assessment report has been commissioned by Label S.p.A. and relates to the fire resistance of automatic door operators.

This assessment 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, as appropriate.

This assessment uses established empirical methods of extrapolation and experience of fire testing similar products, in order to extend the scope of application by determining the limits for the design based on the tested constructions and performances obtained. The assessment is an evaluation of the potential fire resistance performance, if the elements were to be tested in accordance with EN1634.

This assessment has been written using appropriate test evidence generated at a UKAS accredited laboratory to the relevant test standard. The supporting test evidence has been deemed appropriate to support the manufacturer's products and is summarised within the assessment.

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

This assessment has been prepared and checked by product assessors with the necessary competence, who subscribe to the principles outlined in the Guide to undertaking technical assessments of the fire performance 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 in lieu of fire tests for building control and other purposes.

The PFPF guidelines are produced in association with the major fire testing, certification bodies and trade associations in the UK and are published by the PFPF, the representative body for the passive fire protection industry in the UK.

This report is not intended for use in support of EN 15269-2 and EN 15269-3 (Extended application of test results for fire resistance and/or smoke control for door, shutter and openable window assemblies, including their elements of building hardware.), or CE Marking of Doorset to EN 16034 (Pedestrian doorsets, industrial, commercial, garage doors and openable windows. Product standard, performance characteristics. Fire resisting and/or smoke control characteristics).

Executive Summary

Objective

This report presents an appraisal of the fire resistance performance of timber/mineral-based door assemblies, when fitted with NEXT 120 S automatic door openers.

Report Sponsor

Label S.p.A.

Address

Via Ilariuzzi 17/A
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Summary of Conclusions

Should the recommendations given in this report be followed, it can be concluded that single-acting timber/mineral-based door assemblies, which have previously been successfully fire tested by a UKAS accredited laboratory (or assessed by Warringtonfire, BM TRADA or Chiltern International Fire), to have achieved up to 120 minutes integrity and insulation performance in accordance with BS EN 1634-1, as discussed in this report, may be fitted with NEXT 120 S automatic door openers, without detracting from the overall achieved performance of the doorset.

This assessment represents our opinion as to the performance likely to be demonstrated on a test in accordance with EN1634-1, on the basis of 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

24th May 2026

Introduction

This report presents an appraisal of the fire resistance performance of timber/mineral-based door assemblies, when fitted with NEXT 120 S automatic door openers.

FTSG

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.

Assumptions

Doorsets

It is assumed that the units will be fitted to doorsets which have been previously shown to be capable of providing the required fire resistance performance when tested in accordance with EN 1634-1, in the proposed configuration i.e. single-leaf or double-leaf, single-action.

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.

Uninsulated glass shall not be included directly beneath the operator body or sensor.

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.

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/assessed doorset. In addition, it is assumed that the door leaves will be in the closed position.

Closer Installation

The NEXT 120 S automatic door opener shall only be fixed to the frame head/transom or partition/wall/lintel directly above the doorset.

The units shall be installed with fixings appropriate for the application, frame/supporting construction. Bolt-through fixings shall not be used.

Where the units are fitted to door leaves or frames that are manufactured from mineral-based materials, or low-density cellulosic- based material, the door assembly shall have previously been shown capable of accommodating the installation of units at the head of the doorset, without detriment to the door assembly's performance.

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.

Proposal

This report presents an appraisal of the fire resistance performance of timber/mineral-based door assemblies, when fitted with NEXT 120 S automatic door openers.

The proposed doorsets fitted with NEXT 120 S automatic door openers, are required to provide a fire resistance performance of up to 120 minutes integrity for insulated timber/mineral-based door assemblies, with respect to EN 1634-1.

Basic Test Evidence

WF Report No. 436685

The test report referenced WFRC No. 436685 and described briefly in the supporting data section of this report, relates to the fire resistance performance of two single-acting, single-leaf doorsets, tested in accordance with BS EN 1634-1:2014 + A1:2018.

The doorsets were typical 30 minute timber-based single-acting, single-leaf doorsets which was unlatched, incorporated the NEXT 120 S automatic door opener which was fixed to the frame head on the exposed and unexposed side of the specimens in an slide arm configuration.

The test demonstrated the ability of the doorsets to provide 36 minutes integrity/insulation performance.

Assessed Performance

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.

General

Once the power has been disengaged/cut, the unit acts as a mechanical self-closing device and the automatic opening function becomes redundant.

The main function of a surface mounted mechanical self-closing devices, when used on unlatched timber/mineral-based doorsets subjected to fire resistance testing is to maintain the door in the fully closed position up until the intumescent in the leaf to frame clearance gaps has been given sufficient time to react. The door closer is not intended to remain in position for the test duration.

After a period between 10 and 15 minutes of the test, the intumescent seals will have reacted, thereby providing friction between the leaf and frame and inhibiting the tendency of the door leaf to swing open. It is therefore essential that the closer remains in position and operable up until this point.

Aluminium bodied surface mounted units, typically be expected to become detached under test conditions after 10-30 minutes, as the aluminium reaches its melting point. Within this time the force exerted by aluminium units also diminishes on a roughly lineal basis.

Whilst in place the unit does offer some resistance to thermally induced distortion at the top edge of the door leaf.

It is proposed that NEXT 120 S automatic door openers provide a fire resistance performance of up to 120 minutes integrity and insulation with insulated timber/mineral-based door assemblies, with respect to EN 1634-1.

NEXT 120 S automatic door openers were incorporated on the doorsets within the test referenced WF report No. 436685. Both were 2118 mm high by 1025 mm wide unlatched, single-action, single-leaf typical 30 minute doorsets incorporating 2040 mm high by 928 mm wide by 44 mm thick multi-layered chipboard doors, lipped on the vertical edges with hardwood, hung within a softwood frame, incorporating a single 15 x 4 mm perimeter intumescent fire seal positioned centrally within the frame rebate.

Doorset A opened away from the heating conditions with the operator and slide arm mounted on the unexposed face; Doorset B opened towards the heating conditions with the operator and slide arm mounted on the exposed face. Both NEXT 120 S automatic door openers were mounted such that the body was fitted to the frame head and the aluminium guide rail fitted to the door face.

Observations contained within the test report identify that doorset B achieved 34 minutes integrity, at which time a cotton pad failure was recorded at the top hinge location; Doorset A achieved 36 minutes integrity, at which time a cotton pad failure was recorded at the at the bottom hanging corner. There was no visible tendency of the door leaf to open for the duration of the test. It is therefore considered that the closer performed effectively during the test and positively contributed to the performance achieved.

It is also considered that should the NEXT 120 S automatic door opener be fitted to timber/ mineral based doorsets designed to provide up to 120 minutes fire resistance; they would remain active for a similar period, enabling the intumescent seals to effectively react.

The use of NEXT 120 S automatic door opener is positively appraised for use on timber/mineral-based door assemblies, of up to 120 minutes integrity and insulation with respect to EN 1634-1.

Arm configuration

The tested units were fitted to the frame head on the exposed side of the doorset, with a BDT 670 mm x 20 mm high x 23 mm deep aluminium slide rail fitted to the pull face of the door, in conjunction with an aluminium arm.

It is proposed that the units be additionally approved with alternative slide arm and projecting articulated/elbow arm application mounted on the pull or push face, as follows:

NEXT120 - BDT	Slide arm - Pull face (inswing)
NEXT120 - BDS	Slide arm - Push face (Outswing)
NEXT120 - BAS	Articulated arm – Push face (Outswing)
NEXT120 - B150	Elbow slide arm – Pull face (inswing)
NEXT120 - B250	Elbow slide arm – Pull face (inswing)

In all cases the operator body will be fixed to the frame head/transom or partition/wall/lintel directly above the doorset.

As the slide arm variant tested incorporates an aluminium guide rail and plastic runner, these elements are most at risk of melting and impacting negatively on the ability of the closer to retain the door in the closed position. However, the test has proven the ability of the slide arm application in general terms and, as the other variants of the slide arm are manufactured from the same materials and are of a similar design, they would be expected to perform in a similar manner.

With regards the scissor arm (projecting arm) variants, these are predominately of aluminium construction, therefore both applications are expected to perform in a similar or improved manner under fire test conditions with regards melting/flaming.

In all applications it is assumed the unpowered door operator shall be capable of providing a minimum EN size 3 closing force (minimum 18.5 Nm) as defined by EN1154 or EN17372.

Therefore the alternative arms/applications are positively appraised for use on timber/mineral-based door assemblies, of up to 120 minutes integrity and insulation with respect to EN 1634-1.

Alternative doorsets

To enable the use of the door units on a range of doorsets, it is necessary to address the available information on the proposed doorset. As this appraisal is intended to be used on a general basis and not restricted to any particular manufacturer of fire resisting doorsets, the following points are given to enable the units to be used safely:

a) For timber doorsets applications, the doorset, including the door frame and associated ironmongery should have achieved up to 120 minutes integrity and insulation performance, when tested by a UKAS approved laboratory (or assessed by Warringtonfire, BM TRADA or Chiltern International Fire) to EN 1634-1.

b) Where the units are fitted to door leaves or frames that are manufactured from mineral-based materials, or low-density cellulosic-based material, the door assembly shall have previously been shown capable of accommodating the installation of arms at the head of the doorset, without detriment to the door assembly's performance.

c) If the proposed doorset is to be used in double-leaf configurations, the test or assessment evidence should be applicable to double-leaf configurations.

d) Likewise, if the proposed doorset is to be used in unlatched configurations then the available test evidence should be applicable to unlatched doorsets.

e) The size and weight of the door leaf of the proposed doorset should be compatible with the power rating of the unit.

The fitting of the NEXT 120 S automatic door operators onto alternative doorsets, on the basis of compliance with the conditions given above, is therefore considered to be acceptable.

Conclusions

Should the recommendations given in this report be followed, it can be concluded that single-acting timber/mineral-based door assemblies, which have previously been successfully fire tested by a UKAS accredited laboratory (or assessed by Warringtonfire, BM TRADA or Chiltern International Fire), to have achieved up to 120 minutes integrity and insulation performance in accordance with BS EN 1634-1, as discussed in this report, may be fitted with NEXT 120 S automatic door operators, without detracting from the overall achieved performance of the doorset.

Validity

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 Warringtonfire the assessment will be unconditionally withdrawn and Label S.p.A. will be notified in writing. Similarly, the assessment should be re-evaluated, if the assessed construction is subsequently tested since actual test data is deemed to take precedence. The assessment is valid initially for a period of five years i.e. until 24th May 2026, after which time it is recommended that it be returned for re-evaluation.

The appraisal is only valid provided that no other modifications are made to the tested construction other than those described in this report.

This assessment represents our opinion as to the performance likely to be demonstrated on a test in accordance with EN1634-1, on the basis of 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.

Summary of Primary Supporting Data

WF Report No. 436685

The test report referenced WF No. 436685 describes the fire resistance performance of 2No. single-acting, single-leaf doorsets, incorporating tested 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 1025 mm wide by 2118 mm high, incorporating a single door leaf with overall dimensions of 928 mm wide by 2040 mm high by 44 mm thick. The door leaf comprised a Halspan Prima leaf lipped with 6 mm Sapele and hung on 3 No. Royde and Tucker mild steel H101 hinges. Self-closing was achieved using a Label SPA, NEXT 120S overhead type closer. The doorset was hung such that the leaf opened out away from the furnace heating conditions.

Doorset B had overall nominal dimensions of 1025 mm wide by 2118 mm high, incorporating a single door leaf with overall dimensions of 928 mm wide by 2040 mm high by 44 mm thick. The door leaf comprised a Halspan Prima leaf lipped with 6 mm Sapele and hung on 3 No. Royde and Tucker mild steel H101 hinges. Self-closing was achieved using a Label SPA, NEXT 120S overhead type closer. The doorset was hung such that the leaf opened in towards the furnace heating conditions.

The operators were not independently sampled by Warringtonfire.

The doorset achieved the following results:

Test Results:		**Doorset A**	**Doorset B**
Integrity	**Sustained flaming**	36 minutes	44 minutes*
	Gap gauge	44 minutes*	44 minutes*
	Cotton Pad	36 minutes	34 minutes
Insulation		36 minutes	34 minutes

*No failure

The test was discontinued after 44 minutes.

Test date : 10th February 2021

Test Sponsor : Label S.p.A.

Declaration by Label S.p.A.

We the undersigned confirm that we have read and complied with the obligations placed on us by the UK Fire Test Study Group Resolution No. 82: 2001.

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 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.

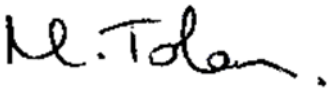
Signed:

For and on behalf of:

Signatories

Responsible Officer

R Anning* - Principal Certification Engineer



Approved

M. Tolan* - Senior Certification Engineer

* For and on behalf of Warringtonfire.

Report Issued: 24th May 2021

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

Revision History

Issue No: 1	Issue Date: 24th May 2021
Written By: R. Anning	Approved By: M. Tolan

Issue No: 2	Re-issue Date:1st June 2021
Revised By: R.Anning	Approved By: M. Tolan
Reason for Revision: Minor modifications to text	

Issue No: 3	Re-issue Date: 14th July 2022
Revised By: R.Anning	Approved By: M. Tolan
Reason for Revision: Arm material corrected	