

Title:

The Fire Resistance
Performance Of Timber Or
Mineral Based Insulated
Doorsets When Fitted
With NEPTIS Automatic
Swing Door Operators
With A Self-Closing
Function

Report No:

WF 347090 Issue 4

Prepared for:

LABEL spa

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Date:

11th December 2014

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Foreword

This assessment report has been commissioned by LABEL spa and relates to the fire resistance of NEPTIS automatic swing door operators with a self-closing function.

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 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 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 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 by the UK Fire Test Study Group (FTSG) an association of the major fire testing laboratories 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 insulated, single-acting timber and mineral based doorsets when fitted with a of NEPTIS automatic swing door operators with a self-closing function, if tested in accordance with BS EN 1634-1.

Report Sponsor LABEL spa

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Summary of Conclusions Should the recommendations given in this report be followed, it can be concluded that the LABEL spa NEPTIS automatic swing door operators with a self-closing function may be fitted to previously tested or assessed (by Warringtonfire) timber and mineral based insulated doorsets, to provide up to 120 minutes integrity and insulation performance, if tested in accordance with BS EN 1634-1.

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.

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Introduction

This report presents an appraisal of the fire resistance performance of single-acting insulated (timber or mineral) doorsets when fitted with a of NEPTIS automatic swing door operators with a self-closing function. The doorset, onto which the closer is to be fitted, may be of single-leaf or double-leaf configuration.

The NEPTIS SLT is a door operator designed to both open and close the door leaves of doorsets. The concern of this appraisal is only to consider the performance of the unit in terms of its ability to maintain an unlatched door in the closed position under standard fire test conditions, without detracting from the previously proven fire performance of the doorset. The unit will be referred to as a door closer for the purpose of the appraisal.

The NEPTIS LET is identical to the NEPTIS SLT with the exception that the control unit's software limits the loading capacity to 120kg as opposed to a maximum loading capacity of 250kg supported by the NEPTIS SLT.

The NEPTIS PLUS 'NB-SLT' and 'NB-LET' variants are mechanically identical to the 'SLT and LET' variants, but incorporate brushless motors.

The proposed doorsets are required to provide a fire resistance performance of up to 120 minutes integrity and insulation with respect to 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

Doorset details

It is assumed that the LABEL spa NEPTIS automatic swing door operators with a self-closing function will be fitted to an insulated doorset (timber or mineral) which has been previously shown to be capable of providing the required fire resistance performance when tested in accordance with BS EN 1634-1 in the proposed configuration i.e. single-leaf or double-leaf.

Supporting wall

It is also assumed that the construction of the wall, which supports the proposed doorsets and the operator, 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 or the operator 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 doorset. In addition, it is assumed that the door leaves will be in the closed position.

Operator Installation

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.

The units shall be fixed with screws suitable for the required substrate/application. Bolt-through fixings shall not be used.

Doors shall not include uninsulated glass above 20% of their total area. Uninsulated glass shall not be included directly beneath the door operator body

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 considered applicable to all versions of EN1634-1 issued prior to the issue of this assessment.

Proposals

It is proposed that a LABEL spa NEPTIS SLT or NEPTIS LET door closer may be fitted onto a previously tested (in accordance with BS EN 1634-1) insulated timber or mineral based doorset which has been shown to be capable of providing up to 120 minutes integrity and insulation in the same configuration as that proposed i.e. single-leaf or double-leaf.

Basic Test Evidence

WF No. 340092 issue 2

The test referenced WF No. 340092 issue 2 included two fully insulated, single-leaf, timber doorsets.

Doorset A was fitted with various items of door hardware including a NEPTIS SLT mounted on the pull side of the doorset.

The doorset was orientated such that the door leaf opened towards the heating conditions of the test and was rendered unlatched for the duration of the test.

The specimen continued to satisfy the test requirements for the test duration of 32 minutes.

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 there are no changes.
- The client has confirmed that there has been no change to the design or material specification of the hardware tested originally.

- 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.
- The original test sponsor has confirmed that this test data may still be used in support of this revalidation.

Assessed Performance

It is proposed that previously fire tested (or assessed by Warringtonfire) timber or mineral based insulated doorsets may be fitted with a LABEL spa NEPTIS automatic swing door operators with a self-closing function in order to provide up to 120 minutes integrity, without detracting from the performance of the doorset.

General

Where a doorset is fitted with a surface mounted door closer, required to provide an essential retaining function, it is usually required to retain a timber based door leaf up until the time at which the intumescent seals react. After a test period of 10 -15 minutes the intumescent seals would be expected to have reacted and provide retention of the door leaf and, as such, the restraint offered via the closer is deemed to be superfluous to requirements.

NEPTIS SLT

WF No. 340092 issue 2 is cited to provide direct evidence on the ability of the proposed NEPTIS SLT operator to be capable of retaining a door leaf for the required period and that it may be installed into the referenced doorset constructions without detracting from the integrity performance of the doorset for the required period.

Review of the observations taken during the test shows that the tested closer demonstrated its ability to retain the unlatched door leaf within its frame for the required period. The unit was recorded as beginning to fall away from the doorset after a period of 20 minutes.

The doorset was of a 60 minute designation and, although integrity failures did occur prior to the required period, these were not as a consequence of the presence or performance of the closer unit. The test is therefore considered to provide direct evidence relating to the ability of the proposed closer to contribute towards the fire performance of 60 minutes in terms of both its ability to maintain the door leaf in the closed position and to contribute positively towards the integrity performance of the doorset for in excess of 60 minutes.

It is also considered that should the proposed closer be fitted to timber or material based, insulated doorsets designed to provide up to 120 minutes fire resistance; it would remain in place for a similar period, thereby enabling the intumescent seals to react and effectively take over the restraint of the door leaf.

The tested unit was mounted to the face of a masonry wall on the pull side of the doorset and connected to the door leaf via a 'BDT2' slide pull arm.

It is therefore a requirement of this appraisal that the unit shall be similarly mounted on the pull side of the doorset and fitted with the same 'BDT2' arm arrangement.

NEPTIS LET

The construction of the NEPTIS LET model is identical to the tested NEPTIS SLT model, with the exception that the software installed in the NEPTIS LET control unit, limits the loading capacity to 120kg. The software limitation isn't expected to have any impact on the required integrity and insulation performance, where the size and weight of the doorset is compatible with the closers rating.

NEPTIS PLUS Operators

It is further proposed that previously fire tested (or assessed by Warringtonfire) timber or mineral based insulated doorsets may be fitted with a LABEL spa NEPTIS PLUS 'NB-SLT' and 'NB-LET' automatic swing door operators with a self-closing function in order to provide up to 120 minutes integrity, without detracting from the performance of the doorset.

The NEPTIS PLUS 'NB-SLT' and 'NB-LET' variants are mechanically identical to the 'SLT and NLT' products approved above; the difference being the NEPTIS brush motor has been upgraded on the NEPTIS PLUS operators to brushless motors.

It is considered reasonable to assume that these changes will have no detrimental impact on the performance of the operators under fire test conditions, as:

1. The motor change has no impact on the ability of the operators mechanical self-closing function.
2. The operators are only approved for use on fully insulated doorsets, consequently any changes to the electronics will not be subjected to excessive heat on the unexposed face, and consequently there is no increase in the risk of ignition or flaming .

The use of LABEL spa NEPTIS PLUS 'NB-SLT' and 'NB-LET' automatic swing door operators are therefore approved for use with previously tested or assessed (by Warringtonfire) timber and mineral based insulated doorsets, to provide up to 120 minutes integrity and insulation performance.

Proposed Doorsets

As stated in this report, the doorset, in the required configuration, will be previously tested (or assessed by Warringtonfire) and its performance is therefore not in doubt.

To enable the use of the door operators 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 closer to be used safely:

- a) The doorset shall carry valid certification or the doorset, including the door frame and associated ironmongery should have achieved up to 120 minutes (as relevant) integrity, when tested by a UKAS approved laboratory (or assessed by Warringtonfire) to BS EN 1634-1.
- b) If the proposed doorset is to be used in double-leaf configuration the test or assessment evidence should be applicable to double-leaf configurations.
- c) Likewise, if the proposed doorset is to be used in unlatched configurations then the available test evidence should be applicable to unlatched doorsets.
- d) The size and weight of the proposed doorset should be compatible with the power rating of the closer.

The fitting of the door closers 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 the LABEL spa NEPTIS automatic swing door operators with a self-closing function may be fitted to previously tested or assessed (by Warringtonfire) timber and mineral based insulated doorsets, to provide up to 120 minutes integrity and insulation performance, if tested in accordance with BS EN 1634-1.

The fitting of the door closer to alternative doorsets, on the basis of compliance with the conditions given in this report, is therefore considered to be acceptable.

Review (11th December 2019)

It has been confirmed by LABEL spa that there have been no changes to the specification, materials or manufacturing location of the NEPTIS SLT or NEPTIS LET door operators considered in the original appraisal referenced WF Assessment Report No. 347090 issue 2 issued 12th January 2015.

The original assessment has been written using appropriate test evidence generated at accredited test laboratories. The supporting test evidence has been deemed appropriate to support the manufacturers stated design.

The defined scope presented in the original assessment report relates to the behaviour of the proposed design 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 Drive Units in use.

This revalidation has been prepared and checked by product assessors with the necessary competence, who subscribe to the principles outlined in the PFPF guidelines to undertaking assessments in lieu of fire tests. 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 by the UK Fire Test Study Group (FTSG) an association of the major fire testing laboratories in the UK and are published by the PFPF, the representative body for the passive fire protection industry in the UK.

The data used for the original appraisal has been re-examined and found to be satisfactory. The procedures adopted for the original assessment have also been re-examined and are similar to those currently in use.

Therefore, with respect to the assessment of performance given in WF Assessment Report No. 347090 issue 2, the contents should remain valid for a further 5 years.

This review is based on information used to formulate the original assessment. No other information or data has been provided by LABEL spa which could affect this review.

The original appraisal report was performed in accordance with the principles of the UK Fire Test Study Group Resolution 82: 2001. This review has therefore also been conducted using the principles of Resolution 82: 2001.

Validity

This assessment is issued on the basis of test data and information available at the time of issue. If contradictory evidence becomes available to Warringtonfire the assessment will be unconditionally withdrawn and **LABEL spa** will be notified in writing. Similarly the assessment is invalidated if the assessed construction is subsequently tested because actual test data is deemed to take precedence over an expressed opinion. The assessment is valid initially for a period of five years i.e. until 7th January 2025, after which time it is recommended that it be returned for re-appraisal.

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 No. 340092 issue 2

The EN1634-1 test referenced WF No. 340092 included two single-leaf timber based doorsets. The doorsets were referenced as 'Doorset A' and 'Doorset B' for the purpose of the test. Doorset A was of a single-acting configuration and Doorset B was of a double-acting configuration.

Doorset A had overall nominal dimensions of 2100 mm high by 1000 mm wide and incorporated a door leaf with dimensions of 2060 mm high by 920 mm wide by 54 mm thick. The door leaf was of a solid graduated density chipboard construction, with hardwood lippings to all edges and was hung within a hardwood frame, on pivots. The doorset included various items of door hardware including a LABEL spa NEPTIS SLT door operator mounted on the exposed side of the doorset.

The doorset was orientated such that the doorset opened towards the heating conditions of the test and was rendered unlatched for the duration of the test.

The specimen satisfied the test requirements for the following periods:

		Doorset A
Integrity	Sustained Flames	32 minutes
	Gap Gauge	43 minutes
	Cotton Pad	32 minutes
Insulation		32 minutes

The test was discontinued after a period of 63 minutes.

Test date : 2nd May 2014

Permission has been provided for this test report to be utilised for the purposes of this appraisal.

Declaration by LABEL spa

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:

BRUNO BARON TOALDO

Position:

CEO


Company:


LABEL spa - ITALY

Date:

18/02/2022

Signatories


Responsible Officer R Anning* - Principal Certification Engineer


Approved M. Tolan* - Senior Certification Engineer
Report Issued: 11 th December 2014

* For and on behalf of Warringtonfire.

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

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Revision History

Issue No: 1	Issue Date: 11 th December 2014
Written By: D Forshaw	Approved By: A Kearns
Issue No: 2	Re-issue Date: 12 th January 2015
Revised By: S Gilfedder	Approved By: A Kearns
Reason for Revision: Inclusion of the NEPTIS LET model.	
Issue No: 3	Re-issue Date: 8 th January 2020
Revised By: R Anning	Approved By: M Tolan
Reason for Revision: Review/revalidation + general format/content update.	
Issue No: 4	Re-issue Date: 18 th February 2022
Revised By: R Anning	Approved By: M Tolan
Reason for Revision: Inclusion of the NEPTIS PLUS 'NB-SLT' and 'NB-LET' models + general update of format and content.	