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Title:

The Fire Resistance Performance of Previously Fire Tested Insulated Timber/ Composite Doorsets When Fitted With NHN No. 80V Series Overhead Surface Mounted Door Closers

WF Assessment Report No:

326423

Prepared for:

Kenwa Co. Ltd.

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JAPAN

Date:

March 2013

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Executive Summary

Objective	This report presents an appraisal of the fire resistance performance of previously tested (or assessed by Exova Warringtonfire) fully insulated, single-acting, timber or composite based doorsets in single or double leaf configurations when fitted with NHN No. 80V Series overhead door closing devices
Report Sponsor	**Kenwa Co. Ltd.**
Address	12th Floor, Tower West, Umeda Skybuilding 1-30 Oyodonaka 1-chome, Kita-ku, OSAKA 531-0076 JAPAN
Summary of Conclusions	Should the recommendations given in this report be followed, it can be concluded that fully insulated doorsets which have previously been successfully fire tested by a UKAS accredited laboratory, or assessed by Exova Warringtonfire, 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 the NHN No. 80V Series door closers detailed within this report, without detracting from the overall achieved performance of the doorset.
Valid until	March 2018

Introduction

This report presents an appraisal of the fire resistance performance of previously tested (or assessed by Exova Warringtonfire) fully insulated, single-acting, timber or composite based doorsets in single or double leaf configurations when fitted with NHN No. 80V Series overhead door closing devices.

The doorsets onto which the closers are to be fitted shall be latched or unlatched and may be of single-leaf or double-leaf configuration.

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

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

Supporting construction

It is assumed that the construction, which supports the proposed doorset assembly, will have been the subject of a separate test and its performance 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 doorset and in any case shall not exceed 3.0 mm.

Doorset details

It is assumed that the proposed door closers will be fitted to timber based door leaves which have previously been shown to be capable of providing 30 to 120 minutes integrity and insulation performance in the same configuration as that proposed, with regard to:

a) Single-acting, single or double-leaf

b) Latched or unlatched

The closers will only be installed in projecting arm or parallel arm configuration.

Proposals

It is proposed that the overhead, surface mounted door closers, referenced NHN No. 80V Series, are fitted to fully insulated doorsets, the specification of which has previously been successfully fire tested by a laboratory appropriately accredited by UKAS (or previously assessed by Exova Warringtonfire), for periods of integrity and insulation performance of up to 120 minutes.

It is proposed that the doorsets may be of single or double-leaf, single-acting configurations.

Basic Test Evidence

WF Report No. 308321B

The WF Report No. 308321B describes a test conducted in accordance with BS EN 1634-1: 2008 on two specimens of unlatched, single-acting, single-leaf, timber based doorset.

Doorset A incorporated an 'NHN 87VP' overhead surface mounted closer fitted in parallel arm application on the exposed face of the doorset. Doorset B incorporated an 'NHN 83VP' overhead surface mounted closer, also fitted in parallel arm application on the exposed face of the doorset.

Doorset A provided 45 minutes integrity and insulation performance and Doorset B provided 15 minutes integrity and insulation performance.

Assessed Performance

General

The main function of a door closer, when used on unlatched doorsets subjected to such a test, 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.

Integrity failure of Doorsets A occurred after 45 minutes, and was well in excess of the performance of 30 minutes required from the doorset. An early integrity failure to Doorset B occurred after 15 minutes of testing, however, the cause of this integrity failure was identified as localised distortion and flaming of the door leaf, and not due to the presence or performance of the 'NHN 83VP' closer. No other instance of integrity failure which could be contributed to the performance of the door closer occurred within the required 30 minute period. The performance of the closer was therefore deemed to have been satisfactory.

Observations contained within the report referenced WF Report No. 308321B indicate that the closers to both leaves remained in position for the required period and had fallen after 21 minutes of testing, which was sufficient to maintain the door in the closed position. During this period there was no visible tendency of the door leaf to open. It is therefore considered that the closers performed effectively during the test and positively contributed to the fire performance.

It is also considered that should the proposed closers be fitted to other timber or composite material based doorsets designed to provide 30 minutes, 60 minutes, 90 minutes or 120 minutes fire resistance, they would remain in place for a similar period, enabling the intumescent seals to effectively react.

NHN No. 80V Series Range

The purpose of the fire test was to approve the entire No. 80V Series family of closers, the tested devices were deemed to represent typical examples from the Series and can be considered to cover the 83, 85 and 87 closer models. Variations such as different covers, finishes and colours are included in the extensive range and the product codes currently used should not be considered to be an exhaustive list of the models included in the range as new model designations are always being added.

Where new versions remain within the parameters of this appraisal, i.e. different covers, finishes or colours these variations are all considered to be purely aesthetic and will have no influence on the performance of the door closer. In all instances, the closers shall only be fitted in the approved fitting applications detailed in the following section and when fitted with standard steel scissor arms and parallel arm brackets, where applicable, as included in the fire test and supplied by the manufacturer. The proven performance of these closers is therefore deemed to confer compliance of the full range.

Regular arm application

It is recognised that the fitting application of a door closer may affect its performance in terms of its contribution to the performance of the doorset. The fitting of the closers included in the fire test in parallel arm is recognised to be a more onerous application than projecting arm. It is therefore considered acceptable to positively appraise the use of the closers when mounted in parallel arm arrangement (Figure 6), as tested, or in projecting arm (Figure 1).

Alternative Doorsets

To enable the use of the door closers 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 closers to be used safely:

a) The doorset, including the door frame and associated ironmongery should have achieved up to 30, 60, 90 or 120 minutes integrity and insulation performance, when tested by a UKAS approved laboratory (or assessed by Exova Warringtonfire) to BS EN 1634-1.

b) If the proposed doorset is to be used in double-leaf configurations, 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

Fully insulated doorsets which have previously been successfully fire tested by a UKAS accredited laboratory, or assessed by warringtonfire, 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 the NHN No. 80V Series door closers, without detracting from the overall achieved performance of the doorset.

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 Kenwa Co. Ltd. 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 1st March 2018, 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.

Summary of Primary Supporting Data

WF Report No. 308321B

A fire resistance test conducted in accordance with BS EN 1634-1: 2008 on two specimens of unlatched, single-acting, single-leaf, timber based doorset.

Doorset A incorporated an 'NHN 87VP' overhead surface mounted closer fitted in parallel arm application on the exposed face of the doorset. Doorset B incorporated an 'NHN 83VP' overhead surface mounted closer, also fitted in parallel arm application on the exposed face of the doorset.

Doorset A provided 45 minutes integrity and insulation performance and Doorset B provided 15 minutes integrity and insulation performance.

Test date : 9th August 2011

Test sponsor : Kenwa Co. Ltd.

Declaration by Kenwa Co. Ltd.

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 Exova Warringtonfire to withdraw the assessment.

Signed: BY KENJI HANAOKA

For and on behalf of:

KENWA CO.,LTD.

12TH FLOOR,UMEDA SKYBUILDING TOWER WEST,
1-30,OYODONAKA 1-CHOME,KITA-KU,
OSAKA,JAPAN

Signatories

Responsible Officer

D Forshaw * - Principal Certification Engineer

Approved

A Kearns * - Technical Manager

* For and on behalf of Exova Warringtonfire.

Report Issued: 6th March 2013

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