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Title:

The Fire Resistance Performance Of Timber/Mineral-Based Doorsets When Fitted With Surface-Mounted Maglocks

WF Assessment Report No:

432748

Prepared for:

Securefast Plc.

Unit 6,
The Cedars Business Centre,
Avon Road,
Cannock,
Staffordshire,
WS11 1QJ

Date:

27th October 2020

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Foreword

This assessment report has been commissioned by Securefast Plc. and relates to the fire resistance of surface-mounted maglocks.

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 maglocks under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the maglocks 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. 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 considers the fire resistance performance of single-acting, insulated timber/mineral-based doorsets, when fitted with Securefast surface-mounted maglocks.

Report Sponsor

Securefast Plc.

Address

Unit 6,
The Cedars Business Centre,
Avon Road,
Cannock,
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WS11 1QJ

Summary of Conclusions

Should the recommendations given in this report be followed, it can be concluded that the Securefast surface-mounted maglock bodies, armatures or brackets incorporating bolt-through armatures, as detailed within this report, may be fitted to previously tested or assessed (by Warringtonfire, BM TRADA or Chiltern International Fire) timber/mineral-based doorsets to provide up to 60 minutes integrity and insulation performance, without detracting from the overall performance of the doorset, with respect to EN 1634-1 or BS 476: Part 22: 1987.

Additionally should the recommendations given in this report be followed, it can be concluded that the Securefast surface-mounted maglock bodies, armatures or brackets incorporating surface armature plate housings, as detailed within this report, may be fitted to previously tested or assessed (by Warringtonfire, BM TRADA or Chiltern International Fire) insulated timber/mineral-based doorsets to provide up to 120 minutes integrity and insulation performance, without detracting from the overall performance of the doorset, with respect to EN 1634-1 or BS 476: Part 22: 1987.

Valid until

27th October 2025

This assessment represents our opinion as to the performance likely to be demonstrated on a test in accordance with EN 1634-1 or BS 476: Part 22: 1987, 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.

Introduction

This report presents an appraisal of the fire resistance performance of single-acting timber/mineral-based doorsets when fitted with a range of Securefast surface-mounted maglock bodies, armatures or brackets. The doorset, onto which the proposed surface-mounted maglocks is to be fitted, may be of single-leaf or double-leaf configuration.

Where bolt-through armatures are used the proposed doorsets are required to provide a fire resistance performance of up to 60 minutes integrity and insulation performance for timber/mineral-based doorsets, with respect to EN 1634-1 or BS 476: Part 22: 1987.

Where surface armature plate housings are used the proposed doorsets are required to provide a fire resistance performance of up to 120 minutes integrity and insulation performance for timber/mineral-based doorsets, with respect to EN 1634-1 or BS 476: Part 22: 1987.

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

Doorset Specification

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

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

Latching

As the magnetic locks considered by this report do not incorporate a self-latching mechanism, the doorsets must have been proven for the required period without the restraint of a latch/lock and will be fitted with a self-closing device capable of returning the door leaves to the fully closed position

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.

Installation

It is assumed that the doorsets will be installed in a similar manner to that of the previously tested assembly by competent installers.

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.

Proposals

It is proposed that the Securefast surface-mounted maglocks, as referenced within this report, may be fitted into a previously tested (in accordance with EN 1634-1 or BS 476: Part 22: 1987) or assessed (by Warringtonfire, BM TRADA or Chiltern International Fire) timber/mineral-based doorsets which have been shown to be capable of providing up to 60 or 120 minutes integrity and insulation performance, in the same configuration as that proposed i.e. single-leaf or double-leaf.

This evaluation relates to the products as identified in the Annex.

The bolt-through armatures which has been subject to 30 minute and 60 minute fire tests from both direction are as follows:

Reference	Description
AEM10001	Steel 185 x 38 x 12 mm; fixed with 12 mm diameter dome nut
AEM12100	Steel 185 x 61 x 16 mm; fixed with 12 mm diameter dome nut

Basic Test Evidence

WF Test Report No. 417165

2No. simulated timber doorsets incorporating a range of hardware were subjected to a test which utilised the heating and pressure conditions given in BS EN 1634-1:2014 + A1:2018, to determine its fire resistance performance.

The test demonstrated the ability of the doorsets to provide 43 and 45 minutes integrity and insulation performances for doorsets A and B respectively.

Assessed Performance

Bolt-Through Armatures

It is proposed that previously fire tested (or assessed Warringtonfire, BM TRADA or Chiltern International Fire) fully insulated timber/mineral-based doorsets may be fitted with the Securefast surface-mounted maglock bodies, bolt-through armatures or brackets identified above, without detracting from the performance of the doorset.

WF Report No. 417165 relates to testing undertaken to evaluate the AEM10001 and AEM12100 bolt-through armatures to both the exposed face and unexposed face. The testing was small-scale testing of simulated 30 minute and 60 minute doorsets.

Doorset A included a single acting, single leaf doorset with a 44 mm thick multi-layered chipboard door with 6 mm thick hardwood lippings. The leaf was hung within a softwood frame which incorporated a single 15 x 4 mm perimeter intumescent fire seal and opened towards the heating conditions.

Doorset B included in test WF Report No. 417165 was a single acting, single leaf doorset with a 54 mm thick multi-layered chipboard door with 6 mm thick hardwood lippings. The leaf was hung within a hardwood frame which incorporated 2No. 15 x 4 mm perimeter intumescent fire seals set 9 mm apart. The door opened towards the heating conditions.

On reviewing the observations taken from the test report, it's clear that there were no integrity failures associated with the any of the armatures from either direction fitted:

- Doorset A (E30) – No failure of the AEM10001 and AEM12100 bolt-through armatures for a test duration of 46 minute, at which time the doorset was blanked off to allow the testing of the Doorset B (E60) to continue.
- Doorset B (E60) – No failure of the AEM10001 and AEM12100 bolt-through armatures for the test duration of 66 minute, at which time the test was terminated.

The AEM10001 bolt-through armatures were fixed at an approximate simulated height of 2300 mm on both doors, with the upper armature plate on the unexposed face/dome bolt to exposed face, and directly below this with the armature plate on the exposed face/dome bolt to unexposed face.

The AEM12100 bolt-through armatures were fixed at an approximate simulated height of 2000 mm on both doors, with the upper armature plate on the unexposed face/dome bolt to exposed face, and directly below this with the armature plate on the exposed face/dome bolt to unexposed face.

In all cases the bolts were sleeved in 1 mm Interdens material for the full thickness of the door. It is therefore a requirement of this report that this intumescent protection be maintained on all bolt-through armatures for both 30 minute and 60 minute applications.

Alternative maglocks

None of the maglock bodies, armatures or brackets is recessed into the edge or face of the door or frame; consequently there is no increased risk of burn-through of the leaf or frame associated with this hardware.

As a result no fixings penetrate the full door thickness, with the exception of the bolt-through armature fixed to the housing by a single 12 mm coachbolt.

All of the proposed surface-mounted armatures are of identical materials to the examples tested.

Where the hardware is wholly surface mounted, with no element recessed into the face/edge of the door, no fixing penetrating the total door thickness, and the surface-mounted maglocks is not required to restrain the door for fire resistance reasons, it is considered that there is no risk associated with the use of these products on fully insulated timber/mineral-based doorsets.

It is the case that any surface-mounted element on the exposed face is likely to fall away early in the test, and surface-mounted elements on the unexposed face will be insulated from the effects of the heating conditions by the timber/mineral-based doors and frames.

On this basis the use of the prosed full range of maglock bodies, armatures or brackets is approved with 30 and 60 minute insulated timber/mineral-based doorsets.

Surface Armature Plate Housings

It is additionally proposed that the armatures are fixed to the door via separate Surface Armature Plate Housings, referenced AEMBR in the Annex.

The component is fitted to the face of door leaves using steel screws which penetrate no more than two thirds of the thickness of the leaf, thus prohibiting conducted heat along the screws from causing premature ignition of the protected face of the door leaf.

The armature is bolted directly to this element, thus negating the need to bolt-through the door thickness.

This detail is considered less onerous than the tested detail as the surface-mounted element on the exposed face is likely to fall away early in the test, and surface-mounted elements on the unexposed face will be insulated from the effects of the heating conditions by the timber/mineral-based doors and frames.

On this basis it is considered reasonable to permit this detail on 30, 60, 90 and 120 minute timber/mineral-based doorsets which are fully insulated in accordance with EN 1634-1 or BS 476: Part 22 for the required classification period.

Required Doorset specifications

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

To enable the use of the Securefast surface-mounted maglocks discussed 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 minimum specification is given to enable the hardware to be used safely:

a) The doorset shall carry valid certification or the doorset, including the door frame and associated ironmongery should have achieved the required integrity and insulation up to a maximum of 60 minutes (bolt-through armatures) or 120 minutes (surface armature plate housings), when tested by a UKAS approved laboratory (or assessed by Warringtonfire, BM TRADA or Chiltern International Fire) to EN 1634-1 or BS 476: Part 22: 1987.

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

Conclusions

Should the recommendations given in this report be followed, it can be concluded that the Securefast surface-mounted maglock bodies, armatures or brackets incorporating bolt-through armatures, as detailed within this report, may be fitted to previously tested or assessed (by Warringtonfire, BM TRADA or Chiltern International Fire) timber/mineral-based doorsets to provide up to 60 minutes integrity and insulation performance, without detracting from the overall performance of the doorset, with respect to EN 1634-1 or BS 476: Part 22: 1987.

Additionally should the recommendations given in this report be followed, it can be concluded that the Securefast surface-mounted maglock bodies, armatures or brackets incorporating surface armature plate housings, as detailed within this report, may be fitted to previously tested or assessed (by Warringtonfire, BM TRADA or Chiltern International Fire) insulated timber/mineral-based doorsets to provide up to 120 minutes integrity and insulation performance, without detracting from the overall performance of the doorset, with respect to EN 1634-1 or BS 476: Part 22: 1987.

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 Securefast Plc. 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 27th October 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 EN 1634-1 or BS 476: Part 22: 1987, 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 Test Report No. 417165

Test report relating to an investigation which utilised the heating and pressure conditions given in BS EN 1634-1:2014 + A1:2018 the full requirements of the Standard were not, however, complied with. The information is provided for the test sponsor's information only and should not be used to demonstrate performance against the Standard nor compliance with a regulatory requirement.

The purpose of the test was to provide an indication of the performance of the following Securefast hardware under fire test conditions, when fitted to 30 and 60 minute fire rated timber based doorsets. Both doorsets were fitted with the following:

1No. SBL320 Digital Locks with tubular latch/strike (engaged) – with pushbutton key pad on the exposed face and handle/turn on the unexposed face (Key to figures: 12).

1No. SBL320 Digital Locks with tubular latch/strike (engaged) – with pushbutton key pad on the unexposed face and handle/turn on both faces (Key to figures: 13).

1No. SBL330 Digital Locks with tubular latch/strike (engaged) – with pushbutton key pad on the exposed face (Key to figures: 14).

1No. SBL365 Digital Locks with tubular latch/strike (engaged) – with pushbutton key pad on the exposed face (Key to figures: 15).

1No. Electromagnetic lock AEM10001 Armature on the exposed face (Key to figures: 16).

1No. Electromagnetic lock AEM10001 Armature on the unexposed face (Key to figures: 17).

1No. Electromagnetic lock AEM12100 Armature on the exposed face (Key to figures: 18).

1No. Electromagnetic lock AEM12100 Armature on the unexposed face (Key to figures: 19).

1No. SED993/SE Push Pad Emergency fitted on the exposed face with 1No.SED990/SEKNC OAD fitted on the unexposed face (Key to figures: 20).

1No. SED993/SE Push Pad Emergency fitted on the unexposed face with 1No.SED990/SEKNC OAD fitted on the exposed face (Key to figures: 21).

The test assembly consisted of two small scale single leaf timber doorsets which for test purposes were referenced as Doorsets A and B.

Doorset A had overall dimensions of 1440 mm high by 700 mm wide incorporating a door leaf with overall dimensions 1400mm high x 613mm wide x 44mm thick. The leaf comprised a solid graduated density chipboard construction, with 6 mm hardwood lippings to the vertical edges. The leaf was mounted in a softwood frame.

Doorset B had overall dimensions of 1440 mm high by 700 mm wide incorporating a door leaf with overall dimensions 1400mm high x 613mm wide x 54mm thick. The leaf comprised a solid graduated density chipboard construction, with 6 mm hardwood lippings to the vertical edges. The leaf was mounted in a hardwood frame.

The test assembly formed the front vertical face of a 1.5 metre wide by 1.5 metre high by 2 metre deep gas fired furnace chamber, the temperature rise of which was controlled to conform to the relationship given in BS EN 1363-1: 2012. The furnace atmospheric pressure was controlled so that it simulated a pressure of 13 Pa 1m up from the furnace floor.

The specimen satisfied the test requirements for the following periods:

Integrity	Doorset A	Doorset B
Sustained flaming	43 minutes	46 minutes
Gap gauge	46 minutes*	66 minutes#
Cotton Pad	43 minutes	45 minutes

*Doorset blanked off to allow the test to continue.

#The test duration. The test was discontinued after a period of 66 minutes.

The hardware was selected and sampled by Warringtonfire Certification on the 30th July 2019.

Test date : 23rd August 2019

Test Sponsors : Securefast Plc.

Declaration by Securefast Plc.

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.

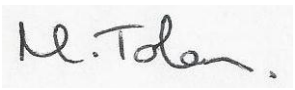
If we subsequently become aware of any such information we agree to cease using the assessment and ask Warringtonfire to withdraw the assessment.

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: 27th October 2020

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

Annex

DEEDLOCK SLIMLINE FACE TO FACE FIXED ELECTRO-MAGNETS LOCKS	
AEM10001	Slimline/Mini Single Magnet Unmonitored
AEM10001/KIT	Slimline/Mini Single Magnet Unmonitored complete with AEMBR089 Z & L Bracket
AEM10002	Slimline/Mini Single Magnet Monitored
AEM10002/DS	Slimline/Mini Single Magnet with Read Switch - Monitored
AEM10003	Slimline/Mini Double Magnet Unmonitored
AEM10004	Slimline/Mini Double Magnet Monitored
AEM10004/DS	Slimline/Mini Double Magnet with Read Switch - Monitored
AEM10001T	Slimline/Mini Single Magnet Unmonitored with Timer Delay (0 - 90 seconds)
AEM10002T	Slimline/Mini Single Magnet Monitored with Timer Delay (0 - 90 seconds)
AEM10003T	Slimline/Mini Double Magnet Unmonitored with Timer Delay (0 - 90 seconds)
AEM10004T	Slimline/Mini Double Magnet Monitored with Timer Delay (0 - 90 seconds)
DEEDLOCK MIDI FACE TO FACE FIXED ELECTRO-MAGNETS LOCKS	
AEM80001	Midi Single Magnet Unmonitored
AEM80002	Midi Single Magnet Monitored
AEM80003	Midi Double Magnet Unmonitored
AEM80004	Midi Double Magnet Monitored
DEEDLOCK STANDARD FACE TO FACE FIXED ELECTRO-MAGNETS LOCKS	
AEM10010	Standard Single Magnet Unmonitored
AEM10020	Standard Single Magnet Monitored
AEM10020/DS	Standard Single Magnet with Read Switch - Monitored
AEM10030	Standard Single Magnet Double Monitored
AEM10060	Standard Double Magnet Unmonitored
AEM10040	Standard Double Magnet Monitored
AEM10040/DS	Standard Double Magnet with Read Switch - Monitored
AEM10050	Standard Double Magnet Double Monitored
AEM10010T	Standard Single Magnet Unmonitored with Timer Delay (0 - 90 seconds)
AEM10020T	Standard Single Magnet Monitored with Timer Delay (0 - 90 seconds)
DEEDLOCK SUPERIOR FACE TO FACE FIXED ELECTRO-MAGNETS LOCKS	
AEM12100	Superior Single Magnet Unmonitored
AEM12200	Superior Single Magnet Monitored
AEM12200/DS	Superior Single Magnet with Read Switch - Monitored

DEEDLOCK SURFACE ARMATURE PLATE HOUSING	
AEMBR018	For use on Slimline Electro-magnetic locks
AEMBR018/DS	For use on Slimline Electro-magnetic locks with Read Switch Monitoring
AEMBR016	For use on Standard Electro-magnetic locks
AEMBR016/DS	For use on Standard Electro-magnetic locks with Read Switch Monitoring
AEMBR020	For use on Superior Electro-magnetic locks

Annex

DEEDLOCK 200 SERIES SLIMLINE MAGNETS IN FULL LENGTH HOUSINGS 12/24V DC	
AMG201/AT	Mortice Magnet Monitored for 200 series housings
AMG201/UM	Mortice Magnet Unmonitored for 200 series housings
AMG202/AT	1 Metre Transom housing with one Magnet Monitored
AMG202/UM	1 Metre Transom housing with one Magnet Unmonitored
AMG203/AT	320mm Transom housing with one Magnet Monitored
AMG203/UM	320mm Transom housing with one Magnet Unmonitored
AMG204/AT	1.5 Metre Transom housing with two Magnets Monitored (to suit door and half leaf)
AMG204/UM	1.5 Metre Transom housing with two Magnets Unmonitored (to suit door and half leaf)
AMG205/AT	2 Metre Vertical housing with two Magnets Monitored
AMG205/UM	2 Metre Vertical housing with two Magnets Unmonitored
AMG206/AT	2 Metre Transom housing with one Magnets Monitored
AMG207/AT	2 Metre Transom housing with two Magnets Monitored
AMG207/UM	2 Metre Transom Housing with two Magnets Unmonitored
DEEDLOCK 200 SERIES L BRACKETS	
AMH592/L1	1 Metre L Bracket for 1 Metre Transom Housing
AMH592/L2	2 Metre L Bracket for 2 Metre Transom Housing
AMH592/L320	320mm L Bracket for AMG203 Transom Housing
DEEDLOCK 210 SERIES STANDARD MAGNETS IN FULL LENGTH HOUSINGS 12/24V DC	
AMG211/AT	1 Metre Transom housing with one Magnet Monitored
AMG215/AT	2 Metre Transom housing with two Magnet Monitored
AMH593/L1	Adjustable L Bracket to suit AMG211/AT
AMH593/L2	Adjustable L Bracket to suit AMG215/AT
DELAYED EXIT MAGNET	
ADX100	Delayed Exit Slimline Magnet 12V DC in 1 Metre Transom Housing with timer, Buzzer & on/off switch, Designed to work with most micro switched panic devices