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Title:

The Fire Resistance Performance Of Timber Or Mineral Composite Based Insulated Doorsets When Fitted With 'HOPPE' and 'ARRONE' Lever and Pull Handles

Report No:

WF No. 165796, Issue 10

Prepared for:

Hoppe (UK) Limited

Gailey Park, Gravelly Way
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Date: 25th July 2007

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Executive Summary

Objective	This report presents an appraisal of the fire resistance performance of timber or mineral composite based doorsets when fitted with 'HOPPE' and 'ARRONE' lever and pull handles, if tested in accordance with BS EN 1634-1.
Report Sponsor	Hoppe (UK) Limited
Address	Gailey Park, Gravelly Way Standeford Wolverhampton WV10 7GW
Summary of Conclusions	Timber or mineral composite based doorsets that have previously been successfully fire tested by a UKAS accredited laboratory (or assessed by Exova Warringtonfire) which have achieved up to 60 minutes integrity as discussed in this report, may be fitted with a lockset including 'HOPPE' and 'ARRONE' lever handles, or may be fitted with 'HOPPE' pull handles, without detracting from the overall performance of the doorset.
Valid until	1 st April 2017

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Introduction

This report presents an appraisal of the fire resistance performance of single-acting insulated (timber or mineral composite) doorsets when fitted with a lockset including 'HOPPE' and 'ARRONE' lever handles. The doorset, onto which the proposed hardware is to be fitted, may be of single-leaf or double-leaf configuration.

Additionally the report also provides an appraisal of the fire resistance performance of insulated (timber or mineral composite) doorsets when fitted with 'HOPPE' pull handles. The doorset, onto which the proposed hardware is to be fitted, may be of single-leaf or double-leaf configuration.

The proposed doorsets will be constructed of timber or mineral composite and are required to provide a fire resistance performance of up to 60 minutes integrity 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

It is assumed that the 'HOPPE' and 'ARRONE' lever handles will be fitted in conjunction with a previously tested lockset. Additionally it is assumed that the lever handles and pull handles 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 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, 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 doorset. In addition, it is assumed that the door leaves will be in the closed position.

Proposals

It is proposed that 'HOPPE' pull handles and 'HOPPE' and 'ARRONE' lever handles (fitted in conjunction with a previously tested lockset) may be fitted onto a previously tested (in accordance with BS EN 1634-1) insulated timber or mineral composite based doorset which has been shown to be capable of providing up to 60 minutes integrity in the same configuration as that proposed i.e. single-leaf or double-leaf.

Basic Test Evidence

The test referenced WF No. 164687 included two single-acting, single-leaf timber based doorsets, one of a 30 minute fire resisting design and the other of a 60 minute fire resisting design. The doorsets were each fitted with various items of hardware including lever handle sets.

The 30 minute fire doorset was referenced Doorset A and included a lever handleset referenced AR200S/10-SP-SAA, whilst Doorset B was of the 60 minute fire resisting construction and included a lever handleset referenced 1138/42K-SP-SAA.

The doorsets achieved in excess of their intended 30/60 minutes integrity performances, the test eventually being discontinued for each doorset after 35 and 68 minutes respectively.

Assessed Performance

General

It is proposed that previously fire tested (or assessed by Exova Warringtonfire) timber or mineral composite based insulated doorset may be fitted with a lockset including 'HOPPE' and 'ARRONE' lever handles and 'HOPPE' pull handles in order to provide up to 60 minutes integrity, without detracting from the performance of the doorset.

Lever handles

The performance of the doorsets during the test referenced WF No. 164687 is cited to display the ability of the proposed items to contribute towards the required fire resistance performance of timber or mineral composite based insulated doorsets when used in conjunction with a suitable lockset and doorset.

The test included insulated (timber based) door leaves and upon examination of the test report, it can be seen that there were no modes of integrity failure, which were either attributable to or co-incident with the performance or presence of the proposed items.

As the proposed items are of the same basic construction formed from either aluminium (HOPPE range) with the same plastics understructure beneath the roses as tested or stainless steel (ARRONE range), of all stainless steel construction. The ranges listed within Annex A are deemed acceptable.

Quickfit lever handles

The 'Quickfit' range of lever handle comprises various styles of levers on roses manufactured from brass, aluminium or stainless steel. The basic construction and operation of the 'Quickfit' range are not considered to be any more onerous than any of the other lever handles sets considered by this report. The 'Quickfit' range is therefore positively appraised and detailed within Annex A.

Pull handles

The 'HOPPE' pull handles considered by this report comprise a range of steel cored, Nylon coated or solid Nylon handles. They vary in fixing centres from 150 to 300 mm (solid Nylon), with the largest two sizes being 425 & 600 mm (steel cored).

The pull handles come in three fixing options; concealed fix, bolt fix or back to back. All fixing methods require a mounting bolt to pass through the thickness of the door leaf to secure the handle or connect it to the opposite handle.

The securing bolts used are relatively small in diameter at 8-10 mm and by themselves are unlikely to cause a significant thermal path through the door leaf which could result in a localised integrity failure. All sizes below 425 mm are a solid Nylon construction and so would burn and fall away from the exposed side of the door leaf during the first few minutes of exposure to the heating conditions of the test leaving only the fixing bolt in place.

For the two larger sizes the Nylon material would again burn away but would also leave behind the steel core. Whilst this additional amount of conductive metal would be likely to transfer more heat into the door leaf, it is considered that providing the bolt connection with a wrapping of intumescent sheet material would be sufficient to arrest the accelerated, local erosion such that the inclusion of the pull handle does not detract from the previously proven performance of the door leaf.

It shall be a requirement of this appraisal that in all instances, the bolt fixing passing through the door leaf shall be wrapped at least once with a 1 mm thickness of a Mono Ammonium Phosphate (MAP) based intumescent sheet material. The wrapping shall extend for the full length of the bolt.

Based on the above discussion, the HOPPE range of pull handles listed within Annex A are deemed acceptable.

Proposed Doorsets

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

To enable the use of the hardware 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 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 up to 60 minutes integrity 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 configuration the test or assessment evidence should be applicable to double-leaf configurations.

Conclusions

Doorsets that have previously been successfully fire tested by a UKAS accredited laboratory (or assessed by Exova Warringtonfire) which have achieved up to 60 minutes integrity, as discussed in this report, may be fitted with a lockset including 'HOPPE' or 'ARRONE' lever handles or 'HOPPE' pull handles without detracting from the overall 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 Exova Warringtonfire the assessment will be unconditionally withdrawn and Hoppe (UK) Limited 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 August 2012, 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 No. 164687 Test report relating to the performance of two fully insulated, single-acting, single-leaf, timber doorsets incorporating various items of building hardware, when subjected to a test in accordance with BS EN 1634-1: 2000 to determine their fire resistance performance.

Doorset A had overall nominal dimensions 2085 mm high by 1007 mm wide and incorporated a door leaf of dimensions 2037 mm high by 926 mm wide by 44 mm thick hung within a softwood frame. The doorset incorporated various hardware items including an aluminium based lever handle set referenced AR200S/10-SP-SAA.

Doorset B had overall nominal dimensions 2084 mm high by 1010 mm wide and incorporated a door leaf of dimensions 2043 mm high by 942 mm wide by 52 mm thick hung within a hardwood frame. The doorset incorporated various items of hardware including a lever handleset referenced 1138/42K-SP-SAA.

The doorsets were mounted within a masonry wall such that the door leaves opened towards the heating conditions of the test. The doorsets were latched for the test duration.

The doorsets were installed such that they opened towards the heating conditions of the test.

The specimens satisfied the test requirements for the following periods:

Test Results:		Doorset A	Doorset B
Integrity performance	Sustained flaming	36 minutes	68 minutes*
	Gap gauge	36 minutes	68 minutes*
	Cotton Pad	35 minutes	68 minutes*
Insulation performance	Insulation	36 minutes	68 minutes*

The test was discontinued after a period of 68 minutes.

* The test duration.

Test date : 31st May 2007

Test sponsor : Hoppe (UK) Limited

Declaration by Hoppe (UK) Limited

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:

For and on behalf of:

Signatories


Responsible Officer
D. Forshaw* - Certification Engineer


Approved
A. Kearns* - Technical Manager

* For and on behalf of Exova Warringtonfire.

Report Issued: 25 th July 2007

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

Issue 2 Amendment of product codes (13th August 2007)

Issue 3 Inclusion of 304 grade stainless steel leversets (14th December 2007)

Issue 4 Inclusion of additional, miscellaneous leversets and accessories (25th February 2009)

Issue 5: Inclusion of pull handle appraisal (24th September 2009)

Issue 6: Inclusion of AR103, AR104 and 'Quickfit' lever range (21st March 2012)

Issue 7: Inclusion of further 'Quickfit' lever handle references and Grade 201 stainless steel levers (16th May 2012)

Issue 8: Amendment of aluminium lever handle set references on page 11 from AR220 to AR210 (30th May 2012)

Issue 9: Inclusion of 304 grade solid stainless steel leversets; AR971 scrolled lever on rose and AR972 shaped lever on rose (22nd November 2012)

Issue 10: Inclusion of additional aluminium lever handle sets and accessories. (28th June 2013)

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Annex A – Permitted Hardware

Aluminium Leversets

'Paris' Series 138S/42K

AR200S/10-SP
AR200S/10-SP
AR200S/10-UN
AR200S/10-SP-HALF-LH
AR200S/10-UN-ASSA
AR200S/10-SP-HALF-RH

AR180/10-SP

AR210/10-SP
AR210/10NL-SP
AR210/10-SP-HALF-LH
AR210/10-SP-HALF-RH
AR210/10-UN-ASSA
AR210/10-UN

'Marseille' Series 1138/42K

1138/42K-SP
1138/42K-UN

'Bonn' Series 197L/42K

AR230/10-SP
AR230/10-UN
AR230/10-SP-HALF-LH
AR230/10-SP-HALF-RH
AR230/10-UN-ASSA

'Verona' Series 1510/42K

AR280/10-SP
AR280/10-UN
AR280/10-SP-HALF-LH
AR280/10-SP-HALF-RH
AR280/10-UN-ASSA

'Luxembourg' Series 199/42K

AR299/10-SAA
AR299/10-SP-HALF-LH
AR299/10-SP-HALF-RH

'London' Series 113/42K

AR170/10-SP
AR170/10-SP

'Tokyo' Series 1710/42K

1710/42K

'Amsterdam' Series 1400/42K

1400/42K
1400/42K-F1/2
1400/42K-F9/2
1400/42K-F1/F69

'Bedford' Series 114L/42K

114L/42K-F1

'Stockholm' Series 1140/42K

1140/42K-F1

'Vitoria' Series 1515/42K

1515/42K-F1

Contract Aluminium Leversets

AR103 Contract lever on latch plate
AR104 Contract lever on lock plate
AR104P Contract lever on lock plate
AR104U Contract lever on lock plate

SAA and GAA finishes are approved for all of the above product references.

All of the above products (excluding Contract Aluminium Leversets) are available as fixed lever on rose and Quickfit variants.

Annex A - continued

Aluminium Leversets

Lever on Rose Products

168L/17K	SEATTLE
1107/17K	DUBAYY
1171/17K	IBIZA
1766/17K	MARIBOR
1124/843K	DUBLIN

Lever on Backplate Products

168L/266	SEATTLE
168L/267	
1107/266	DUBAYY
1107/267	
1171/266	IBIZA
1171/267	
1766/266	MARIBOR
1766/267	
1124/266	DUBLIN
1124/267	

Escutcheons & Bathroom Turns

17K	Euro
17K	Lock
17K	Turn/Release
843K	Euro
843K	Lock
843K	Turn/Release

Annex A - continued

Grade 316 Stainless Steel Leversets

AR361/10-SP*	AR365/60-SP*
AR361/10-UN*	AR365/60-SP*
AR361/10-SP*	AR365/60-UN*
AR361/60-SP*	AR366/60-SP*
AR361/60-SP*	AR366/60-SP*
AR361/60-UN*	AR366/60-UN*
AR361/60-UN*	AR366/60-UN*
AR362/60-SP*	AR367/60-SP
AR362/60-SP*	AR367/60-SP
AR362/60-UN*	AR368/60-SP
AR362/60-UN*	AR368/60-SP
AR363/10-SP*	AR369/60-SP
AR363/60-SP*	AR369/60-SP
AR363/60-SP*	AR370/60
AR363/60-UN*	AR370/60
AR363/60-UN*	
AR364/10-SP*	AR374/60
	AR374/60
AR364/60-SP*	
AR364/60-SP*	AR375/60
AR364/60-UN*	AR375/60
AR364/60-UN*	

SSS and PSS finishes are approved for all of the above product references.

* Available as fixed lever on rose and Quickfit variants.

Annex A - continued

Grade 304 Stainless Steel Leversets

AR961/10-SP	AR966/60-SP
AR961/10-UN	AR966/60-UN
AR961/60-SP	AR967/60-SP
AR961/60-UN	AR968/60-SP
AR962/60-SP	AR969/60-SP
AR962/60-UN	AR970/60-SP
AR963/10-SP	AR974/60-SP
AR963/60-SP	AR975/60-SP
AR963/60-UN	AR461/10-SP-PVD
AR964/10-SP	
AR964/60-SP	
AR964/60-UN	
AR965/60-SP	
AR965/60-UN	

SSS and PSS finishes are approved for all of the above product references.

Grade 304 Solid Stainless Steel Leversets

AR971 - Scrolled lever on rose AR972 - Shaped lever on rose

SSS, PSS and PVD finishes are approved for the above product references.

Grade 201 Stainless Steel Leversets

Reference	Description
NB321/10	Return to door lever with 8 mm deep rose
NB321/60	Return to door lever with 6 mm deep rose

SSS and PSS finishes are approved for the above product references.

Quickfit Leversets

Series	Description	Material
Marseille	E1138Z	Stainless Steel
Stockholm	E1140Z	Stainless Steel
Trondheim	E1430Z	Stainless Steel
Las Vegas	E1440Z	Stainless Steel
Amsterdam	E1400Z	Stainless Steel
Bonn	E150Z	Stainless Steel
Paris	E138Z	Stainless Steel
Antwerpen	E1420Z	Stainless Steel

Annex A - continued

Quickfit Leversets (continued)

Series	Description	Material
Bilbao	E1365Z	Stainless Steel
Denver	E1310Z	Stainless Steel
Goteborg	E1410Z	Stainless Steel
Verona	E1800Z	Stainless Steel
Dallas	E1643Z	Stainless Steel
Vitória	M1515	Brass
Atlanta	M1530	Brass
Cannes	M1545	Brass
Acapulco	M1558	Brass
Genova	M1535	Brass
Capri	M1950	Brass
Verona	M151	Brass
Dallas	M1643	Brass
Houston	M1623	Brass
Rodos	M1603	Brass
Monte Carlo	M1550	Brass
Athinai	M156	Brass
Phoenix	M1640	Brass
Bergen	M1602	Brass
Bruxelles	M129	Brass
Tokyo	M1710RH	Brass
Brisbane	1670	Aluminium
Melbourne	1672	Aluminium
New York	1810	Aluminium
Dallas	1643	Aluminium

Miscellaneous Leversets

Reference	Description
E138F/42	Stainless Steel Lever on Steel underconstruction
E138Z/42	Stainless Steel Lever on Nylon underconstruction
138S Series	Solid Aluminium Lever on Nylon underconstruction
AR600/20	Steel Cored Nylon Lever on Nylon underconstruction (Various RAL Colours available)

Annex A - continued

Miscellaneous Accessories

Reference	Description
AR228A	Lever handle spindle for use with escape lock
AR228B	Lever handle spindle for use with escape lock
AR228C	Lever handle spindle for use with escape lock
AR228D	Lever handle spindle for use with escape lock
AR228E	Lever handle spindle for use with escape lock
AR228F	Lever handle spindle for use with half lever handle set and escape lock

HOPPE Pull Handles

Reference	Description
AR602 – Straight pull handle	Concealed fix, bolt fix & back to back
AR603 – Cranked pull handle	Concealed fix, bolt fix & back to back
AR604 – 'V' shaped pull handle	Concealed fix, bolt fix & back to back
AR605 – Semi-circular pull handle	Concealed fix, bolt fix & back to back

Available finishes: Diamond white, Viridian Green, Black, Sienna Brown, Flint Grey, Manhattan Grey, Midnight Blue, Rouge Red, Claret Red and Golden Yellow.