Warringtonfire
Suite 302
The Genesis Centre
Birchwood
Warrington
WA3 7BH

T: +44 (0)1925 655 116
info.warrington@warringtonfire.com
warringtonfire.com

Title:

The Fire Resistance Performance of Timber Based Doorsets Incorporating 'HOPPE' and 'ARRONE' Lever Handles

Report No:

WF No. 165796 Issue 19

Prepared for:

Hoppe (UK) Limited

Gailey Park, Gravelly Way
Standeford
Wolverhampton
WV10 7GQ

Date:

25 July 2007

Revalidation Date:

28 March 2024

Expiry Date:

28 March 2029

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Foreword

This assessment report has been commissioned by Hoppe (UK) Ltd and relates to the fire resistance of door handles.

The 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*.

This report uses established empirical methods of extrapolation and experience of fire testing similar door handles, in order to extend the scope of application by determining the limits for the designs based on the tested constructions and performances obtained. The scope is an evaluation of the potential fire resistance performance, if the elements were to be tested in accordance with EN 1634-1:2014+ A1:2018.

This scope document cannot be used as supporting documentation for either a CE marking application for doorsets, nor can the conclusion be used to establish a formal classification against EN 13501-2.

The scope presented in this report relates to the behaviour of the proposed doorsets under the particular conditions of the test; they are not intended to be the sole criterion for considering the potential fire hazard of the door handles in use.

This report has been prepared and checked by product assessors with the necessary competence, who subscribe to the principles outlined in the Passive Fire Protection Forum (PFPF) '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 for building control and other purposes.

Executive Summary

Objective

This report considers the fire resistance performance of doorsets, when fitted with 'HOPPE' and 'ARRONE' lever handles, as referenced in Annex A.

Report Sponsor

Hoppe (UK) Limited

Address

Gailey Park, Gravelly Way
Standeford
Wolverhampton
WV10 7GQ

Summary of Conclusions

Should the recommendations given in this report be followed, it can be concluded that previously fire tested timber based doorsets which have achieved up to 60 minutes integrity and insulation performance in accordance with BS EN 1634-1: 2014 +A1: 2018, as discussed in this report, may be fitted with 'HOPPE' and 'ARRONE' lever handles as detailed in Annex A, without detracting from the overall integrity performance (and insulation where relevant) of the doorset.

This assessment represents our opinion as to the performance likely to be demonstrated on a test in accordance with BS EN 1634-1: 2014 +A1: 2018, based on 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

28 March 2029

Introduction

This report considers the fire resistance performance of doorsets, when fitted with Hoppe (UK) Limited lever handles, as referenced in the Annex of this report.

It is proposed that the timber based doorsets are required to provide a fire resistance performance of up to 60 minutes integrity and insulation with respect to BS EN 1634-1: 2014 +A1: 2018.

The doorset, onto which the proposed hardware is to be fitted, may be of single-leaf or double-leaf configuration.

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

It is assumed that the proposed lever handles will be fitted to timber based doorsets which have previously been shown to be capable of providing up to 60 minutes integrity and insulation performance when tested in accordance with BS EN 1634-1: 2014 +A1: 2018 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.

Doorset Details

The lever handle will always be used in combination with a lock/latch, and it is therefore assumed that the tested doorset will have been tested or assessed when incorporating a lock/latch.

The spindle hole should be as small as possible, allowing for the operation of the handle, but shall be a maximum 16 mm in diameter.

Installation

This appraisal does not consider the implications of installing a specific lock within a fire door construction and only considers the influence of the lever handle furniture. The suitability of the door leaf and latch/lock should be demonstrated by separate test/assessment evidence, including any additional intumescent protection included either side of the lock case where applicable.

The intumescent protection included either side of the lockcase shall be as tested/approved for the specific lockcase.

The lever handles shall not be fitted higher than 1100 mm from the centre of the spindle to the finished floor level of the surrounding floors.

EN1634-1

EN 1634-1 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 EN 1634-1 issued prior to the issue of this assessment.

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.

Proposals

It is proposed that previously tested timber based doorsets which have achieved up to 60 minutes integrity and insulation performance, as discussed later in this report, may be fitted with Hoppe (UK) Limited lever handles, in accordance with recommendations given in this report without detracting from the overall performance of the doorset.

It is also proposed that the doorsets may be of single or double-leaf configurations. Details of the proposed range of handles are as identified in Annex A.

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.

Lever Handles

This range consists of all the lever handles specified within Annex A.

Fire doors often incorporate locking/latching devices either to retain the doorset in the closed position during a fire or simply for keeping the doorset closed/locked in normal use.

The introduction of a lock/latch case into a timber-based leaf can increase the risk of localised integrity failure, via either the mortise removing enough leaf material that premature burn through can occur, or by interruption of the intumescent seals around the leaf perimeter by the strike/forend plate.

This appraisal does not however consider the implications of installing a specific lock, within a specific timber-based fire door construction and only considers the influence of the lever handle furniture, the suitability of the door leaf and latch/lock should be demonstrated by sperate test/assessment evidence.

The proposed lever handles are manufactured from either aluminium, brass or steel and are fixed with bolt through fixings. All of the lever handles require the removal of material to accommodate up to a 16 mm diameter hole. There are multiple variations of shapes and finishes applied to the proposed handles. There is no interruption of intumescent seals around the leaf perimeter, this already being a consequence of the inclusions of the door lock or latch.

The impact of the handles melting or deforming on the exposed face, and possible ignition on the unexposed face of plastic or other flammable elements associated with the handles also has to be considered.

The hierarchy of melting temperatures is as follows:

1. Aluminium alloy (approx. 462-671^{o}C)
2. Brass alloy (approx. 930^{o}C)
3. Steel (approx. 1425-1540^{o}C)

The effect of the minor changes in handle shape associated with each handle would be expected to be negligible and no reduction in performance would be anticipated as a consequence of these variations. On this basis, testing with products of a lower melting point will cover the handles with a higher melting point.

The performance of Doorset B during the test referenced WF Test Report No. 525485 is cited to display the ability of the lever handles to contribute towards the required fire resistance performance of 30 minutes integrity and insulation.

Doorset B included in WF Test Report No. 525485 was a 2102 mm high x 1016 mm wide single-acting single-leaf doorset with a 2040 mm high x 926 mm wide x 44 mm thick 'Strebord 44' door leaf core and 6 mm thick hardwood lippings to all four edges. The leaf was hung within a softwood frame with 1 No. 4 mm x 15 mm 'Pyrostrip P500' intumescent seal.

Doorset B incorporated various items of hardware. For the purposes of this assessment, we will only consider the 'Arrone' aluminium lever handle referenced 'AR200S/10-SP' which was fitted in conjunction with a tubular latch and has a small amount of internal plastic elements fitted inside the rose.

Doorset B achieved an integrity and insulation performance of 38 minutes before a cotton pad integrity failure at the top hinged corner of the doorset, the doorset was then blanked off at 40 minutes to allow the test to continue.

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 lever handles referenced 'AR200S/10-SP' during the test duration.

The performance of the doorsets during the test referenced WF No. 164687 is cited to display the ability of the lever handles to contribute towards the required fire resistance performance of 60 minutes integrity and insulation.

Doorset A included in WF Test Report No. 164687 was a 2085 mm high x 1007 mm wide single-acting single-leaf doorset with a 2037 mm high by 926 mm wide by 44 mm thick flaxboard door leaf core and 10 mm thick hardwood lippings to the vertical edges only. The leaf was hung within a softwood frame with 1 No. 15 mm x 4 mm 'Pyrostrip 100PSS' intumescent seal.

Doorset A incorporated various hardware items including an aluminium based lever handle set referenced AR200S/10-SP-SAA.

Doorset A achieved an integrity performance of 35 minutes and an insulation performance of 36 minutes.

Doorset B included in WF Test Report No. 164687 was a 2084 mm high by 1010 mm wide single-acting single-leaf doorset with a 2043 mm high by 942 mm wide by 52 mm thick flaxboard door leaf core and 10 mm thick hardwood lippings to the vertical edges only. The leaf was hung within a hardwood frame with 1 No. 25 mm x 4 mm 'Pyrostrip 100PSS' intumescent seal.

Doorset B incorporated various hardware items including an aluminium based lever handle set referenced 1138/42K-SP-SAA.

Doorset B achieved an integrity and insulation performance of 68 minutes.

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 lever handles referenced 'AR200S/10-SP-SAA' and '1138/42K-SP-SAA' during the test duration.

The other lever handles in the proposed range are less onerous due to the higher melting point; therefore, it is the aluminium lever handle which is considered the most vulnerable because of the low melting point. The models that are entirely surface mounted do not require any additional removal of timber within the leaf (with the exception of the spindle and fixing holes) or interruption of intumescent seals around the leaf perimeter, these already being a consequence of the inclusion of the door lock or latch.

The aluminium lever handles discussed previously is therefore considered suitable test data to support the use of the full range of proposed lever handles listed in Annex A of this report, for use with timber doors of up to 60 minutes integrity and insulation performance.

The hardware is supplied in a range of applied finishes as described in Annex A. The change of finish from the proposed hardware is not considered to have any negative influence on the performance of the hardware when used in the proposed applications because the fundamental material does not change. The proposed hardware with an alternative finish is therefore positively appraised.

Quickfit lever handles

The 'Quickfit' range of lever handle comprises various styles of levers on roses manufacturer 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 handle sets considered by this report. The 'Quickfit' range is therefore positively appraised and detailed within Annex A.

Sertos lever handles

The 'Sertos' range of lever handle comprises levers on roses manufactured from 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 handle sets considered by this report. The 'Sertos' range is therefore positively appraised and detailed within Annex A.

E1388Z/17K

It is proposed that the E1388Z/17K lever handles be added to the current range considered within this report.

As the proposed items are of the same basic construction formed from 304 stainless steel with the same plastics under structure beneath the roses, the E1388Z/17K lever handles are deemed acceptable.

Proposed Doorsets

As stated in this report, the doorset, in the required configuration, will be previously tested, 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 point 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 performance, when tested by a laboratory accredited to IS/IEC 17025 (under International Laboratory accreditation Cooperation (ILAC) membership), to EN 1634-1.

B) The leaves of the proposed doorset shall be of a minimum thickness of 44 mm for 30 minute doorsets and 54 mm for 60 minute doorsets.

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

All door hardware is subject to the acceptance by the chosen door assembly supplier's tested, assessed or certificated scope, which generally identifies the types of hardware approved, the required specification/design based on the key materials/ maximum size (e.g. spindle hole) and the application of any additional intumescent protection.

On this basis approval should be sought from the specific door assembly supplier to ensure compliance based on this assessed/certificated scope.

Conclusions

Should the recommendations given in this report be followed, it can be concluded that previously fire tested timber based doorsets which have achieved up to 60 minutes integrity and insulation performance in accordance with BS EN 1634-1: 2014 +A1: 2018, as discussed in this report, may be fitted with 'HOPPE' and 'ARRONE' lever handles as detailed in Annex A, without detracting from the overall integrity performance (and insulation where relevant) of the doorset.

This assessment represents our opinion as to the performance likely to be demonstrated on a test in accordance with BS EN 1634-1: 2014 +A1: 2018, based on 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.

Review

It has been confirmed by Hoppe (UK) Limited that there have been no changes to the specification, materials or manufacturing location of the products considered in the original appraisal referenced WF Assessment Report No. 165796 Issue 18 issued 21st April 2021.

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 lever handles 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. 165796 Issue 19, 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 Hoppe (UK) Limited 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

The assessment is initially valid for five years after which time it is recommended to be submitted to Warringtonfire for re-appraisal.

This assessment report is not valid unless it incorporates the declaration given below duly signed by the applicant.

Test Evidence

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 any variations would have no detrimental impact on the performance of the doorset and hardware under test
- The client has confirmed that there has been no change to the design or material specification of the hardware tested originally, consequently.
- 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.
- Where the test data is not the property of assessment report sponsor the original test sponsor has confirmed that this test data may still be used in support of this revalidation.

Summary of Primary Supporting Data

WF Report No. 525485

Test report relating to the performance of two single-acting, single-leaf timber based doorsets incorporating various items of building hardware, when subjected to a test in accordance with BS EN 1634-1: 2014 +A1: 2018 to determine their fire resistance performance.

Doorset A had overall dimensions 2102 mm high by 1016 mm wide and incorporated a door leaf of dimensions 2040 mm high by 926 mm wide by 54 mm thick hung within a hardwood frame. The doorset incorporated various hardware items including an aluminium based lever handle set referenced 'AR200S/10-SP'.

Doorset B had overall nominal dimensions 2102 mm high by 1016 mm wide and incorporated a door leaf of dimensions 2040 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'.

The doorsets were mounted within a low-density concrete wall such that the leaves opened towards the heating conditions of the test. The doorsets were latched for the test duration.

The specimen satisfied the test requirements for the following periods:

Test Results:		**Doorset A**	**Doorset B**
Integrity performance	Sustained flaming	72 minutes	38 minutes
	Gap gauge	72 minutes	38 minutes

	Cotton Pad	72 minutes	38 minutes
Insulation performance	Insulation	72 minutes*	38 minutes*

*Insulation failure due to integrity failure. The test was discontinued after a period of 73 minutes.

Warringtonfire was not involved in any selection or sampling procedures of the specimen or any of the components.

Test date : 22 November 2022

Test sponsor : Falcon Panel Products

Summary of Secondary Supporting Data

WF Report 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 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 duration. The test was discontinued after a period of 68 minutes.

Warringtonfire was not involved in any selection or sampling procedures of the specimen or any of the components.

Test date : 31 May 2007

Test sponsor : Hoppe (UK) Limited

Declaration by Hoppe (UK) Limited

We the undersigned confirm that we have read and comply with 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 Industry Standard Procedure

We confirm that any changes to a component or element of structure, which are the subject of this assessment, have not to our knowledge been tested to the standard against which this assessment has been made.

We agree to withdraw this assessment from circulation should the component or element of structure, or any of its component parts be the subject of a failed fire resistance 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 affect the conclusions of this assessment. If we subsequently become aware of any such information, we agree to ask the assessing authority to withdraw the assessment.

(In accordance with the principles of FTSG Resolution 82:2001)

Signature:

.....

Name:

.....

Position:

.....

Date:

.....

For and on behalf of:

Limitations

The following limitations apply to this assessment:

We confirm that any changes to a component or element of structure which are the subject of this assessment have not to our knowledge been tested to the standard against which this assessment has been made.

We agree to withdraw this assessment from circulation should the component or element of structure, or any of its component parts be the subject of a failed fire resistance test to the standard against which this assessment is being made.

1. This report addresses itself solely to the elements and subjects discussed and do not cover any other criteria or modifications. All other details not specifically referred to should remain as tested or assessed.

2. This report 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 the applicant will be notified in writing. Similarly, the assessment evaluation is invalidated if the assessed construction is subsequently tested since actual test data is deemed to take precedence.

3. This field of application has been carried out in accordance with Fire Test Study Group Resolution No. 82: 2001.

4. Opinions and interpretation expressed herein are outside the scope of UKAS accreditation.

5. This field of application relates only to those aspects of design, materials and construction that influence the performance of the element(s) under fire resistance test conditions against the ISO 834 time/temperature curve that is stipulated in the standard this assessment concludes to. It does not purport to be a complete specification ensuring fitness for purpose and long-term serviceability. It is the responsibility of the client to ensure that the element conforms to recognised good practice in all other respects and that, with the incorporation of the guidance given in this field of application, the element is suitable for its intended purpose.

6. This report represents our opinion as to the performance likely to be demonstrated on a test in accordance with EN1634-1, on the basis of the test evidence referred to in this report. We express no opinion as to whether that evidence, and/or this report would be regarded by any Building Control authorities or any other third parties as sufficient for that or any other purpose.

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8. The version/revision stated on the front of this report supersedes all previous versions/revisions and must be used to manufacture the assessed systems from the stated validity date on this front cover. Previous revisions of the report cannot be used once an updated report has been issued under a new revision.

Signatories

Responsible Officer
A. Green-Morris* - Product Assessor

Approved (Issue 19)
R. Anning* - Principal Product Assessor

* For and on behalf of Warringtonfire.

Report Issued: 25 July 2007

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

Revision History

Issue No: 1	Issue Date: 25 July 2007
Written By: D Forshaw	Approved By: A Kearns

Issue No: 2	Re-issue Date: 14 August 2007
Revised By: D Forshaw	Approved By: A Kearns
Reason for Revision: Amendment of product codes.	

Issue No: 3	Re-issue Date: 14 December 2007
Revised By: D Forshaw	Approved By: A Kearns
Reason for Revision: Inclusion of 304 grade stainless steel leversets.	

Issue No: 4	Re-issue Date: 25 February 2009
Revised By: D Forshaw	Approved By: A Kearns
Reason for Revision: Inclusion of additional, miscellaneous leversets and accessories.	

Issue No: 5	Re-issue Date: 24 September 2009
Revised By: D Forshaw	Approved By: A Kearns
Reason for Revision: Inclusion of pull handle appraisal.	

Issue No: 6	Re-issue Date: 21 March 2012
Revised By: D Forshaw	Approved By: A Kearns
Reason for Revision: Inclusion of AR103, AR104 and 'Quickfit' lever range.	

Issue No: 7	Re-issue Date: 22 May 2012
Revised By: D Forshaw	Approved By: A Kearns
Reason for Revision: Inclusion of further 'Quickfit' lever handle references and Grade 201 stainless steel levers.	

Issue No: 8	Re-issue Date: 30 May 2012
Revised By: D Forshaw	Approved By: A Kearns
Reason for Revision: Amendment of aluminium lever handle set references on page 11 from AR220 to AR210.	

Issue No: 9	Re-issue Date: 22 November 2012
Revised By: D Forshaw	Approved By: A Kearns
Reason for Revision: Inclusion of 304 grade solid stainless steel leversets; AR971 scrolled lever on rose and AR972 shaped lever on rose.	

Issue No: 10	Re-issue Date: 04 July 2013
Revised By: D Forshaw	Approved By: A Kearns
Reason for Revision: Inclusion of additional aluminium lever handle sets and accessories.	

Issue No: 11	Re-issue Date: 02 May 2014
Revised By: D Forshaw	Approved By: A Kearns
Reason for Revision: Inclusion of lever handles 138/42K-SP, 138/42K-UN, 1138/2600-72, AR361/13-72, AR461/13-72, AR600/23-72, split-follower details amended, and HS-Plate added.	

Issue No: 12	Re-issue Date: 30 May 2014
Revised By: D Forshaw	Approved By: A Kearns
Reason for Revision: Inclusion of lever handle Paris AR200S/33-72 removal of AR370/60 and AR978/60, AR375/60 amended to AR978/60.	

Issue No: 13	Re-issue Date: 19 August 2016
Revised By: R Anning	Approved By: M Tolan
Reason for Revision: Inclusion of 189N/266 and 189N/267U lever handles.	

Issue No: 14	Re-issue Date: 14 September 2017
Revised By: R Anning	Approved By: A Kearns
Reason for Revision: 5-year review and revalidation.	

Issue No: 15	Re-issue Date: 09 March 2018
Revised By: M Tolan	Approved By: R Anning
Reason for Revision: Inclusion of Dallas 1644 and E1644 lever handle sets.	

Issue No: 16	Re-issue Date: 30 January 2019
Revised By: R Anning	Approved By: M Tolan
Reason for Revision: Dublin 1124/24K reference corrected.	

Issue No: 17	Re-issue Date: 21 May 2019
Revised By: R Anning	Approved By: M Tolan
Reason for Revision: Inclusion of E1388Z/17K lever handle sets.	

Issue No: 18	Re-issue Date: 21 April 2021
Revised By: R Anning	Approved By: M Tolan
Reason for Revision: AR200S handle variants added.	

Issue No: 19	Re-issue Date: 28 March 2024
Revised By: A.Green-Morris	Approved By: R Anning
Reason for Revision: Full re-write of assessment – 5-year review and revalidation. Omission of pull handles. New test evidence used as basis of assessment.	

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

'Paris' Series 138/42K
138/42K-SP
138/42K-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 the above product references.

All 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
1124/24K	DUBLIN

Lever on Backplate Products	
168L/266	SEATTLE
168L/267	
189N/266	EDINBURGH
189N/267	
1107/266	DUBAYY
1107/267	
1171/266	IBIZA
1171/267	
1766/266	MARIBOR
1766/267	
1124/266	DUBLIN
1124/267	
1138/2600-72	MARSEILLE
AR200S/33-72	PARIS
AR200S/11	
AR200S/12	
AR200S/13	
AR200S/14	
AR200S/15	

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*
AR361/10-UN*

AR361/60-SP*
AR361/60-UN*

AR362/60-SP*
AR362/60-UN*

AR363/10-SP*

AR363/60-SP*
AR363/60-UN*

AR364/10-SP*

AR364/60-SP*
AR364/60-UN*

AR365/60-SP*
AR365/60-UN*

AR366/60-SP*
AR366/60-UN*

AR367/60-SP

AR368/60-SP

AR369/60-SP

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

* Available as fixed lever on rose and Quickfit variants.

Lever on Backplate Products

AR361/13-72

Annex A – continued

Grade 304 Stainless Steel Leversets

AR961/10-SP
AR961/10-UN

AR961/60-SP
AR961/60-UN

AR962/60-SP
AR962/60-UN

AR963/10-SP
AR963/60-SP
AR963/60-UN

AR964/10-SP
AR964/60-SP
AR964/60-UN

AR965/60-SP
AR965/60-UN

AR966/60-SP
AR966/60-UN

AR967/60-SP

AR968/60-SP

AR969/60-SP

AR970/60-SP

AR974/60-SP

AR975/60-SP

AR978/60

AR461/10-SP-PVD

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

Lever on Backplate Products

AR461/13-72

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
AR261/10	Return to door lever with 8 mm deep rose
AR261/60	Return to door lever with 6 mm deep rose

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

Annex A – continued

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
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

Sertos Leversets

Dallas	1644	Aluminium
Dallas	E1644	Stainless Steel

Annex A – continued

Miscellaneous Leversets

Reference	Description
E138F/42	Stainless Steel Lever on Steel underconstruction
E138Z/42	Stainless Steel Lever on Nylon underconstruction
E1388Z/17K	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)
AR600/23-72	Steel Cored Nylon Lever on backplate - Nylon underconstruction (Various RAL Colours available)

Miscellaneous Accessories

Reference	Description
AR228A	8 x 100 mm Lever handle spindle for use with escape lock
AR228B	8 x 120 mm Lever handle spindle for use with escape lock
AR228C	8 x 140 mm Lever handle spindle for use with escape lock
AR228D	8 x 160 mm Lever handle spindle for use with escape lock
AR228E	8 x 180 mm Lever handle spindle for use with escape lock
AR228F	Half spindle for use with half lever handleset and escape lock
HS-PLATE	Used in conjunction with AR228F half-spindle