Warrington Office:
Unit 722, The Quadrant
Birchwood Park
Warrington
WA3 6FW
T: +44 (0)1925 655 116
W: www.warringtonfire.com

Title

The fire resistance performance of timber-based doorsets and steel-based doorsets when fitted with 'd line' door hardware in accordance with EN 1634-1:2014+A1:2018.

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d line A/S
Jyllingevej 59
kld 2720 Copenhagen
Denmark

Registered Office: Warringtonfire Testing and Certification Limited, 3rd Floor, Davidson Building, 5 Southampton Street, London, WC2E 7HA, United Kingdom
Reg No. 11371436

Signatories and Revision History

Issue No.	Date	FM No.	Report scope and Signatures
1	21/11/2014	345970	Initial report issued to d line A/S
2	03/12/2019	421251	Review and revalidation + address change.
3	20/01/2022	510224	Add decorative finishes to currently assessed products.
4	26/01/2022	510224	Products removed.
5	18/02/2025	546872	5-year review/revalidation (general updates to scope and format) + add 14.9251.02.600 escape lock.

Assessor	Reviewer
Name: ***R. Anning**	Name: ***M. Tolan**
Signature: Signed by: 144229DE9F3343A...	Signature: Signed by: 2DFEB73A7D2249D...

*For and on behalf of Warringtonfire

Executive summary

This report presents an assessment of the fire resistance performance of the ‘d line’ door hardware as fire tested and described in report annex, with additional scope as detailed in Section 3 of this report.

The proposed modification includes consideration of the associated family of products.

This assessment report is subject to the requirements and limitations described in Sections 2 and 8.

The assessment in Section 5 of this report found that if the ‘d line’ door hardware, as tested and described in the annex had been modified as proposed, it is expected that it would have been capable of up to 120 minutes of integrity and insulation in timber-based doorset, and up to 240 minutes with predominantly steel-based doorsets, if tested in a similar manner to EN 1634-1:2014+A1:2018.

This report represents our opinion as to the performance likely to be demonstrated on a test in accordance with the test standard specified above, 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.

Contents

1. Introduction

This report presents an assessment of the fire resistance performance of the ‘d line’ door hardware as fire tested and described in the annex and when modified as detailed in Section 3 of this report.

2. Assessment framework

An assessment is an opinion of the likely performance of the door hardware if subjected to a standard fire test.

This assessment report has been carried out in accordance with the Passive Fire Protection Forum (PFPF) ‘Guide to Undertaking Technical Assessments of the Fire Performance of Construction Products Based on Fire Test Evidence - 2021’ and has been written in accordance with the general principles outlined in BS EN 15725: 2023; *Extended application reports on the fire performance of construction products and building elements, as applicable.*

This scope document cannot be used as supporting documentation for either a CE or UKCA marking application for doorsets, nor can the conclusion be used to establish a formal classification against EN13501-2).

The scope presented in this report relates to the behaviour of the element 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 assembly 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.

This report uses established empirical methods of extrapolation and experience of fire testing similar elements, 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 variations specified herein were to be tested in accordance with test standard specified.

This report has been written using appropriate test evidence generated at UKAS accredited laboratories, to the relevant test standard. The supporting test evidence has been deemed appropriate to support the stated design and is summarised in Section 3 and Appendix A.

3. Description of the specimen and proposed modifications

3.1 Description of the ‘d line’ door hardware

The exact scope of use for each product is detailed within the following sections and it should not be assumed that all products are appraised for all doorset types and fire resistance durations. The various product ranges are discussed in the following sections which will include the requirements and limitations of their use. Individual product references within each product range are listed in the tables of approved products given in Appendix B of the report.

- The items covered by this appraisal are:
- d line door lever handles
- BASE door lever handles
- d line mortice lock cases
- BASE flush bolts and dust socket
- d line hinges
- d line escutcheons complete with bolt and bush
- BASE escutcheons complete with bolt and bush
- d line profile lock cylinders
- BASE 19 mm pull handles
- d line 19 mm pull handles
- Fixing bolts for pull handles
- d line panic exit devices
- products available in powder coated and PVD coated finishes in addition to the standard finishes identified

Summary of the proposed modifications/designs

Table 1 Summary of proposed modifications

Item	Proposed modifications
	This report presents an appraisal of the fire resistance performance of single-acting insulated timber-based doorsets when fitted with the various items of door hardware discussed and detailed in Appendix B. The doorset, onto which the proposed hardware is to be fitted, may be of single-leaf or double-leaf configuration.
	The proposed timber-based doorsets are required to provide a fire resistance performance of up to 120 minutes integrity, and where applicable insulation, with respect to EN 1634-1, subject to the requirements and limitations detailed within this report.
	This report also presents an appraisal of the fire resistance performance of single-acting uninsulated steel based doorsets when fitted with various items of door hardware discussed and detailed in Appendix B. The doorset, onto which the proposed hardware is to be fitted, may be of single-leaf or double-leaf configuration.
	The proposed steel based doorsets are required to provide a fire resistance performance of up to 240 minutes integrity, with respect to EN 1634-1, subject to the requirements and limitations detailed within this report.

4. General requirements and assumptions

- 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.

- 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.
- If the proposed doorset is to be used in double-leaf configurations, the test or assessment evidence should be applicable to double-leaf configurations.
- 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. The application of increased perimeter gaps in accordance with the Field of Direct application of test results, in accordance with BS EN 1634-1: 2014 + A1: 2018 is therefore not permitted in conjunction with this assessment report. It is assumed that the door leaves will be in the closed position.
- It is assumed that the doorsets will be installed in a similar manner to that of the previously tested assembly by competent installers.
- Recessing for locks shall result in a tight fit, allowing for any intumescent protection where required.
- The tested spindle hole for the d-line lever handles was a maximum 25 mm diameter, therefore the associated doorset shall have suitable supporting evidence for spindle holes of this size or greater.
- For lever handles, 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/knob 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 mortice lock/latch range shall not be fitted higher than 1100 mm from the spindle to the finished floor level of the surrounding floors.
- Where zinc latchbolts are used, these locks may only be fitted to doorsets where they are not required to provide an essential latching function. Therefore they shall only be fitted to a previously proven as unlatched doorset fitted with a suitable surface mounted overhead door closer.
- Where a lock considered by this report does not incorporate a self-latching mechanism e.g. deadlocks, they shall only be fitted to a previously proven as unlatched doorset fitted with a suitable surface mounted overhead door closer.
- Panic exit devices shall only be fitted to a previously proven as unlatched doorset fitted with a suitable surface mounted overhead door closer. The purpose of the appraisal is only to consider the influence of fitting the proposed panic hardware to a doorset, and not its ability to provide an essential latching/restraint action.
- The use of Outside Access Devices with panic hardware (OAD's) is not covered by this report.
- 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 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.
- EN1634-1 was issued originally in 2000, with amended versions issued in 2008, 2014 and 2018. The differences between each version are mainly procedural and are not considered to have a practical impact on the performance of the samples under test. On this basis this evaluation is consider applicable to all versions of EN1634-1 issued prior to the issue of this assessment.
- It is assumed that the end user will have a full understanding of the tested specification as defined in the relevant test report(s) summarised in Appendix A.
- If a design variation or extension to scope is not explicitly detailed within the assessment it should not be assumed to be acceptable by omission.

5. Assessment of proposed modifications

5.1 Lever handles

5.1.1 Proposal

This report presents an appraisal of the fire resistance performance of single-acting timber-based and predominately steel-based doorsets when fitted with a range of d line lever handles detailed in Appendix B. The doorset, onto which the proposed hardware is to be fitted, 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 performance for timber-based doorsets and up to 120 minutes integrity performance for predominantly steel-based doorsets, with respect to EN 1634-1.

5.1.2 Discussions

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.

d line range

Support for the proposed use of the range of lever handles is taken from the various fire resistance tests detailed earlier. Lever handles from the d line range have been fitted to locksets included in timber-based doorsets for up to 120 minute fire resistance performances and predominately steel-steel based doorsets for fire resistance performances of in excess of 240 minutes.

Review of the observations taken during each of the tests shows that in every instance, the fitted lever handles provided a positive contribution to the performance of the doorset. In those instances where a premature integrity failure of the doorset did occur, the performance of the lever handles continued to be maintained for in excess of the required performance.

Based on the positive results of the tested models, it is reasonable to consider other models from the proposed range based on the similarity of their constructions and method of installation.

All d line lever sets considered by this appraisal share the same basic construction having a ball bearing base rose of aluminium or stainless steel with grade 316 stainless steel snap-on cover rose, solid stainless steel ball bearing rose or stainless steel back plate with stainless steel lever handles. All models mount to the door using the same bolt and bush components and require the same door leaf preparation.

Considering the similarity of all of the proposed models, it can be reasonably concluded that all of the d line lever handle models listed in the table in Appendix B are therefore suitable for installation, with an appropriate lock case, to timber-based doorset construction for fire resistance performances of up to 120 minutes and steel-based doorset constructions for fire resistance performances of up to 240 minutes, without detracting from the performance of the doorset.

It was noted during the steel doorset test that the aluminium base rose melted away from the lever handles during the test. However, it was also confirmed that the snap-on stainless steel roses remain in place on both the lever handle and the lock cylinder escutcheon on the exposed side of the doorset after the total test duration of 261 minutes.

The lever handle sets are therefore positively appraised.

The tested spindle hole for the d-line lever handles was 25 mm diameter, therefore the associated doorset shall have suitable supporting evidence for spindle holes of this size or greater.

IKONS lever handles

The IKONS lever handles are architect designed lever handle models. These are again based on the d line standard construction of ball bearing rose, either solid or with snap-on cover, and stainless steel lever handles constructed of grade 316 stainless steel.

Based on the similarity of the proposed models to those of the d line range already discussed above, it is considered reasonable to conclude that, those models from the IKONS range listed in the table in Appendix B are suitable for use with the same scope of approval as the d line lever handles.

BASE lever handles

The BASE range of lever are again similar to the d line range, but with a less complex range of options. All of the models proposed for appraisal comprise stainless steel levers with an aluminium ball bearing base rose with 304 grade stainless steel snap-on cover, or alternatively a solid stainless steel ball bearing rose or stainless steel back plate.

Doorset A included in the test referenced WF No. 340092 included a pair of BASE 28-1816.02.010 return to door levers. Whilst early integrity failures of the doorset did occur prior to the required 60 minute performance, no instance of integrity failure associated with the presence or performance of the lever handles was recorded in the 63 minute duration of the test.

Given the positive performance of the tested lever handle model, and the similarity of this model with all other proposed models detailed in the table in Appendix B, it is considered acceptable for the BASE lever handles to be fitted, in conjunction with a suitable lockset, to previously proven timber-based doorsets required to provide fire resistance performances of up to 60 minutes without detracting from the performance of the doorset.

5.2 D line mortice locks

5.2.1 Proposal

This report presents an appraisal of the fire resistance performance of single-acting timber-based and predominately steel-based doorsets when fitted with a range of d line mortice locks detailed in Appendix B. The doorset, onto which the proposed hardware is to be fitted, 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 performance for timber-based doorsets and up to 120 minutes integrity performance for predominantly steel-based doorsets, with respect to EN 1634-1.

The proposed range includes sash locks, latches, dead locks, WC locks, panic and escape locks.

All lock cases are of the same basic design having forend dimensions of 24 mm wide by 235 mm high, case dimensions of 165 mm high by 98 mm (maximum) wide and 15 mm thick. Standard locks include latch and/or dead bolts of Zamak alloy, panic/escape locks include stainless steel latch and dead bolts.

5.2.2 Discussions

The critical aspects of the locks in terms of their impact on the performance of the doorset are considered to be the lock material, the case dimensions, the strike/forend dimensions and the intumescent material incorporated around the lock. The tested locksets were chosen to be representative of the range of locks considered by this appraisal in terms of overall sizes and was judged to reflect the most onerous lock options.

Consideration is required of the following key aspects:

- In terms of the lock material, it is critical that materials which are combustible or have a lower melting point are not utilised since materials which melt or ignite may advance the burn through of the leaf and therefore lead to a premature integrity failure.
- It is critical that the lock dimensions are not increased since the increased mortice required for a large case may lead to an earlier burn through of a timber-based leaf or increased strike/forend dimensions may lead to the penetration of flames/hot gases at the leaf edge due to further interruption of intumescent seals and/or an increase in conducted heat.
- In timber-based doorsets, in terms of the intumescent protection, it is critical that this is not reduced from that tested, as the reaction of this material, when subjected to the heating conditions of the test, is essential in limiting the burn through of the leaf and at the leaf to frame gap at the lock position.

30 and 60 minute timber-based door applications

The details of the doorsets included in the test referenced WF No. 144134/B is cited in support of the proposed use of the locks with 30 and 60 minute timber-based doorsets. Doorset A was of a typical 30 minute construction and Doorset B was of a 60 minute timber doorset construction with 4.5 mm non-combustible sub-facings to the leaf. Both doorsets were provided with a d line mortice lock.

- Doorset A included a 14.9012.02.600 bathroom lock with a 235 x 24 x 3 mm forend, 165 x 85 x 13.5 mm case and 170 x 24/40 x 1.5 mm strikeplate (latchbolt disengaged). Fitted in conjunction with stainless steel lever handles, thumb turn (Doorset A)
- Doorset B included a 14.9010.02.600 sashlock with a 235 x 24 x 3 mm forend, 165 x 85 x 13.5 mm case and 170 x 24/40 x 1.5 mm strikeplate (latchbolt disengaged). Fitted with and euro profile double cylinder (Doorset B) and stainless steel escutcheons.

Both lock cases were provided with intumescent protection enveloping the lock case and behind their forends and strike plates. The protection used was a 1 mm thickness of mono ammonium phosphate sheet intumescent in the 30 minute doorset and a 2 mm thickness of the same material in the 60 minute doorset.

Based on the performance of the tested assemblies it is reasonable to conclude that the performance of the tested models would be the same for any of the other proposed model, if fitted in the same manner.

Based on this test data, where the d line range of locks are incorporated in 60 minute applications, the doors shall be a minimum 54 mm thick and incorporate a minimum 4.5 mm thick non-combustible sub-face to both sides.

As the tested locks included intumescent protection as part of their installation, it is prerequisite that in all instances the same level and type of intumescent protection is included with the lockset.

As the latchbolts were disengaged on both doorsets, empirical data identifies that only models incorporating a steel latchbolt with a minimum 11 mm throw may be considered suitable for providing a restraining function, this is on the basis that the steel bot will not melt or deform sufficiently to disengage from the strikeplate.

Where zinc latchbolts/deadbolts are used, these locks may only be fitted to doorsets where they are not required to provide an essential latching function. Therefore they shall only be fitted to a previously proven as unlatched doorset fitted with a suitable surface mounted overhead door closer.

<u>90-120 minute timber-based door applications</u>

Evidence in support of the proposed use of locksets with 120 minute timber-based doorsets is cited as the test referenced WF No. 340091.

The doorset was 990 mm wide x 2095 mm high, incorporating a 898 x 2040 x 65 mm thick leaf, with a 37 mm thick multi-layered chipboard core, with 10 mm mineral core sub-facing and MDF facing. The door was lipped on all edges with a 3 mm thick 650 kg/m^3 hardwood lipping and hung in a sapele hardwood frame on 3No. steel hinges. 2No. 20 x 4 mm permitter intumescent seals were fitted with the frame rebate (set 9 mm apart), with a single 38 x 2 mm seal in the top edge of the door and a single 15 x 2 mm seal in the lock and hanging edge.

The doorset was provided with a d line 14.9050.02.658 Panic escape lock complete with d line 14.1836.02.013 stainless steel lever handles, a d line 04.100.303.0081.SCP brass euro profile cylinder with thumb turn and d line 14.3435.02.215 stainless steel escutcheons. The lockset was engaged such that it provided a retaining function to the doorset.

The lockset was provided with intumescent protection in the form of 2 mm thick Interdens sheet enveloping the lock case and bedded behind the forend and strike plate. The permitter intumescent fire seals by-passed the strikeplate by 12.5 mm on each side (except at the latchbolt lip).

The test observations show that initial integrity failure of the doorset occurred after 98 minutes of testing, however, this mode of failure was not related to the presence or performance of the lockset or its associated items. The test continued for a total of 122 minutes with no instance of integrity failure attributed to the lockset.

Based on the performance of the tested lock model, it is reasonable to conclude that the lock provided a positive contribution to the performance of the doorset for in excess of 120 minutes. All lock models considered for use in this 120 minute application are Panic escape locks of the same construction as the tested Panic escape lock and differ from each other only in that they are handed or have radius or square forends. All models considered for this 120 minute application include the same stainless steel latch bolt as the tested model. As the lockset did provide an essential latching function to the tested doorset, this appraisal is restricted to only the panic escape locks having the same stainless steel bolts. The approved models are detailed in the table given in Appendix B.

As the tested lock included intumescent protection as part of its installation, it is prerequisite that in all instances the locks will be installed with the same 2 mm thick Interdens intumescent sheet protection to the lock case and behind the forend and strike plate, and the perimeter fire seals shall by-pass the strikeplate by a minimum of 12 mm (except at the latchbolt lip).

Based on this test data, where the d line range of locks are incorporated in 90-120 minute applications, the doors shall be a minimum 65 mm thick and incorporate a minimum 10 mm thick non-combustible sub-face to both sides.

240 minute steel door applications

The doorset included in the test referenced WF No. 340086 was of an uninsulated steel based construction and was a single-acting, double-leaf configuration. The doorset was fitted with various items of door hardware including a d line 14.9111.02.600 sash lock complete with 14.1816.02.016 lever handles, a d line 14.DPS.KD.31K31 brass euro profile cylinder with thumb turn and stainless steel d line 14.34.02.215 escutcheons.

Initial integrity failures of the doorset occurred prior to the required 240 minutes, but none was attributable to the lockset installation. The test continued for a period of 261 minutes without any instance of integrity failure related to the presence or performance of the lockset or its associated items.

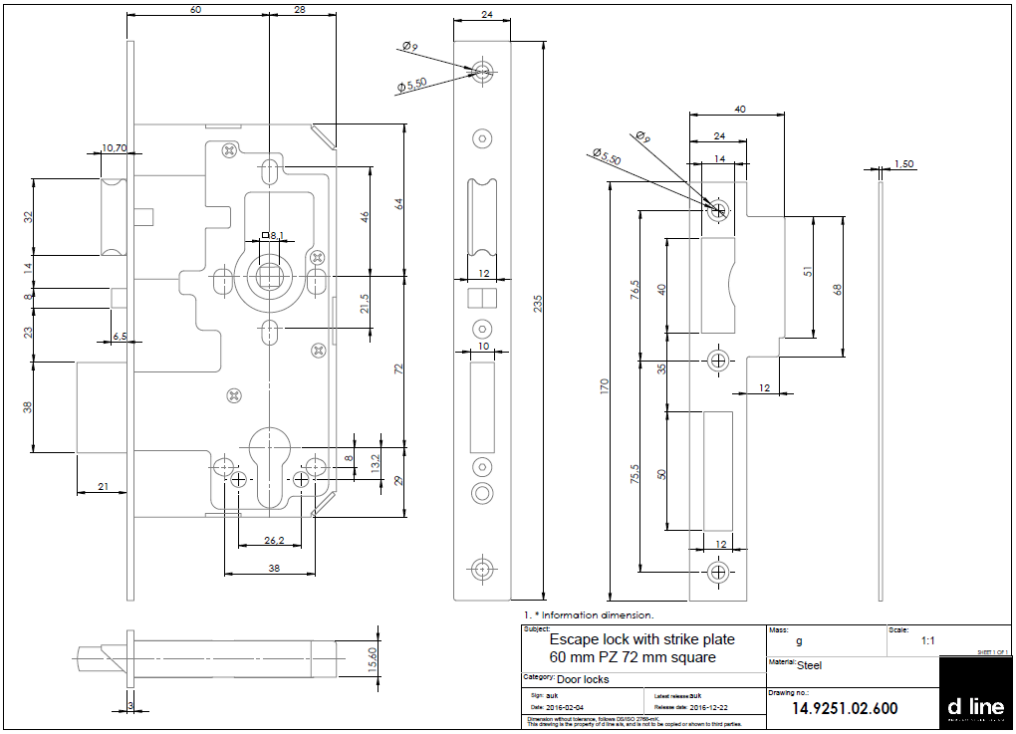
The test is therefore considered to provide justification of the suitability of the installation of the locks within steel based door constructions for integrity performances of up to 240 minutes.

Whilst the performance of the tested lockset is considered to have demonstrated the suitability of the range of locksets in this application, the tested model included a Zamak alloy latch bolt. Due to the relatively low melting point of Zamak it is unlikely that the lock provided a positive latching action for the duration of the test, therefore, it is necessary to restrict the use of all lock models including the same bolt material.

This appraisal limits the use of all lock models, with the exception of the Panic escape models which incorporate steel latchbolts, such that they shall only be fitted to steel based doorsets which are previously proven unlatched and will not be reliant on the retention afforded by the latch bolt of these locks.

14.9251.02.600 escape lock - all applications

It has been further requested that the 14.9251.02.600 escape lock be added to the range of approved lock:



This lock is identified as being similar to the 14.9051.02.658 panic lock currently approved, with a similar size forend, case and strikeplate with a steel latchbolt. It is therefore reasonable to assume on this basis, the proposed locks are of identical materials and will utilise the same level of intumescent protection and doorset specifications detailed above and therefore they may be positively appraised for the full range of applications.

5.3 BASE flush bolts

5.3.1 Proposal

This report presents an appraisal of the fire resistance performance of single-acting predominately steel-based doorsets when fitted with a range of BASE flushbolts detailed in Appendix B. The doorset, onto which the proposed hardware shall be double-leaf configuration.

The proposed doorsets are required to provide a fire resistance performance of up to 240 minutes integrity performance for predominantly steel-based doorsets, with respect to EN 1634-1.

5.3.2 Discussions

The test report referenced WF No. 340086 details a test conducted on a single-acting, double-leaf uninsulated steel based doorset. The passive leaf of the doorset was provided with d line 28.5092.02.200 flush bolts to its head and base.

Review of the observations taken during the test shows that whilst early integrity failures did occur on the doorset prior to the required 240 minutes, none was associated with the presence or performance of the flush bolts fitted to the doorset. No instance of failure of integrity relating to the flush bolts occurred within the 261 minute duration of the test.

The tested bolt is the 200 mm length taken from a range of bolts which are all of the same design and grade 304 stainless steel construction. The tested model is the shortest from the range; the largest has a length of 600 mm. All models include the same 12 mm diameter bolt and have the same bolt throw.

As the bolts are all intended for use with steel based doorsets, the variation of length is not considered likely to have any influence on performance of the bolt when installed within this type of doorset construction; therefore the performance of the tested bolt is acceptable justification for the use of all bolts from the range.

The range is complemented by an optional dust socket, BASE reference 28.5090.02.020. This socket is of an all steel construction and intended for mounting into the threshold below a doorset for the engagement of bottom mounted bolts. This unit is considered acceptable based on its materials and location remote from the doorset.

5.4 d line single-axis hinges

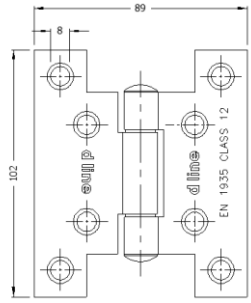
5.4.1 Proposal

This report presents an appraisal of the fire resistance performance of single-acting predominately steel-based doorsets when fitted with a range of d line single-axis hinges detailed in Appendix B. The doorset, onto which the proposed hardware is to be fitted, may be of single-leaf or double-leaf configuration.

The proposed doorsets are required to provide a fire resistance performance of up to 240 minutes integrity performance for predominantly steel-based doorsets, with respect to EN 1634-1.

5.4.2 Discussions

The d line hinges considered are all of the same design, size and construction. Further reference to the fire test report WF No. 340086 is made in support of this proposal. The report details a test conducted on a single-acting, double-leaf uninsulated steel based doorset which was fitted with d line 14.5003.02.001 hinges.



Review of the test observations has shown that the hinges continued to support the door leaves for the full 261 minute duration of the test, notwithstanding the earlier integrity failures of the doorset.

All hinges proposed are constructed of grade 316 stainless steel and are essentially identical to the tested hinge model on terms of sizes and fixing and differ only in options for square or radius corners and finish.

It is therefore reasonable to conclude that all hinge models can be positively appraised for use with steel based doorsets for fire resistance performances of up to 240 minutes.

The range of approved hinges is detailed in the table given in Appendix B.

5.5 d line and BASE escutcheons

5.5.1 Proposal

This report presents an appraisal of the fire resistance performance of single-acting timber-based and predominately steel-based doorsets when fitted with a range of D line and BASE escutcheons detailed in Appendix B. The doorset, onto which the proposed hardware is to be fitted, 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 performance for timber-based doorsets and up to 120 minutes integrity performance for predominantly steel-based doorsets, with respect to EN 1634-1.

5.5.2 Discussions

Both of these ranges comprise aluminium base roses, stainless steel snap-on covers and brass fixing bolts and bushes.

Versions of these escutcheons have been included with the tested d line locksets included in timber, mineral composite and steel based doorsets for fire resistance performances of up to 240 minutes. No instance of integrity failure of any of the tested doorsets has been as a result of the installation of the escutcheons, or their method of fixing, it is therefore considered that a positive assessment of these items can be made, subject to their installation in conjunction with a suitable, proven lockset.

The range of approved items is detailed in the table given in Appendix B.

5.6 d line Euro profile cylinders

5.6.1 Proposal

This report presents an appraisal of the fire resistance performance of single-acting timber-based and predominately steel-based doorsets when fitted with a range of d line Euro profile cylinders detailed in Appendix B. The doorset, onto which the proposed hardware is to be fitted, 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 performance for timber-based doorsets and up to 120 minutes integrity performance for predominantly steel-based doorsets, with respect to EN 1634-1.

5.6.2 Discussions

All the proposed lock cylinders are of a euro profile design manufactured from brass. The range includes cylinders with thumb turns, double cylinders and single cylinders.

Like the escutcheons, the lock cylinders have been included with d line lock cases in all of the referenced tests and in all instances have not contributed to any mode of integrity failure of the lockset, or ultimately the doorset.

The most onerous lock cylinders of this type would be double or cylinder and turn models as these fully penetrate through the door leaf. As this type of cylinder were included in each of the referenced tests, it is considered acceptable that these, and the other models proposed, may be fitted without detracting from the performance of the doorset.

Single Euro cylinders provide less penetration through the face of the door leaf and so are positively appraised on the basis that they are a less onerous configuration for the lockset. It is assumed the hole in the door face for single cylinders will only penetrate through only half the thickness of the door leaf.

All Euro cylinders may be manufactured from brass or steel and must not contain components with a melting point of less than 840^{o}C.

Oval and round cylinders are not permitted.

Positive appraisal of the lock cylinders for use with timber based doorsets for fire resistance periods of up to 60 minutes, mineral composite based doorsets for up to 120 minutes and steel based doorsets for up to 240 minutes, when fitted in conjunction with a previously proven lockset, is therefore considered acceptable.

The range of approved cylinders is detailed in the table given in Appendix B.

5.7 d line panic exit devices

5.7.1 Proposal

This report presents an appraisal of the fire resistance performance of single-acting timber-based doorsets when fitted with a range of d line panic exit devices detailed in Appendix B. The doorset, onto which the proposed hardware is to be fitted, 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, with respect to EN 1634-1.

Panic exit devices shall only be fitted to a previously proven as unlatched doorset fitted with a suitable surface mounted overhead door closer. The purpose of the appraisal is only to consider the influence of fitting the proposed panic hardware to a doorset, and not its ability to provide an essential latching/restraint action.

5.7.2 Discussions

The test referenced WF No. 340091 included a single-leaf, single-acting mineral composite based doorset fitted with a d line 3-point surface mounted push bar panic exit device.

The tested assembly was surface mounted and was attached to the exposed side of the door leaf. Review of the test observations shows that the panic exit assembly had detached from the door after a period of 33 minutes and therefore had no further influence in the performance of the doorset beyond that time.

On the basis that the tested and proposed models are all entirely surface mounted, it is considered acceptable that these items may be positively appraised for use with timber-based fully insulated doorsets for fire resistance periods of up to 120 minutes.

This appraisal covers only those items included in the table given in Appendix B and does not approve the use of any form or outside access device used in conjunction with the hardware.

5.8 Powder coated and PVD coated finishes

5.8.1 Proposal

It is proposed that all the products shown in Appendix B of this report be available in powder coated and PVD coated finishes in addition to the standard finishes identified.

5.8.2 Discussions

Empirical data suggest that surface coatings of this type have no detrimental effect on the performance of the hardware under fire test conditions; the use of powder coated and PVD coated

finishes is therefore approved on all products in Appendix B (as appropriate), for all applications covered by this report.

5.9 Required doorset specification

As stated in this report, the doorset, in the required configuration, will be previously tested and its performance is therefore not in doubt.

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 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.

To enable the use of the d line 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 locks to be used safely.

30-120 Minute Timber Based Doorsets

a. The doorset shall carry valid certification or the doorset, including the door frame and associated hardware should have achieved the required integrity, and where relevant insulation, when tested by a laboratory accredited to IS/IEC 17025 (under International Laboratory accreditation Cooperation (ILAC) membership), to BS EN 1634-1.

b. The doorset, onto which the proposed hardware is to be fitted, may be of single-leaf or double-leaf configuration, on the basis the scope is supported by the test data/Field of Application for the doorset proposed.

c. The leaves of the proposed doorset shall be of a minimum thickness of 44 mm for 30 minute doorsets, 54 mm for 60 doorsets, and 65 mm for 90-120 minute doorsets.

d. Door leaves shall be of solid lignocellulosic construction in the lock area encompassing the entire lock case.

e. 60-120 minute doors shall include non-combustible sub-facings:

   - 60 minutes – 4.5 mm minimum thickness to each face of the door leaf.
   - 90-120 minutes - 10 mm minimum thickness to each face of the door leaf.

f. The leaves shall incorporate hardwood lippings of a minimum thickness of 6 mm and minimum density 650kg/m^3.

g. Door frame density –

   - 30 minutes – Minimum 450 kg/m^3
   - 60-120 minutes – Minimum 650 kg/m^3

h. Additionally, the amount of interruption to the intumescent seal specification at the door leaf to frame perimeter clearance gaps should be replicated or reduced from that originally specified for the tested doorset.

i. For panic hardware the doorset should be of a proven unlatched configuration and fitted with a suitable self-closing device.

Predominantly steel-based doorsets

a. The doorset shall carry valid certification or the doorset, including the door frame and associated hardware should have achieved integrity as required (up to 240 minutes), when tested by a laboratory accredited to IS/IEC 17025 (under International Laboratory accreditation Cooperation (ILAC) membership), to BS EN 1634-1 or BS 476: Part 22: 1987 as required.

b. The doorset, onto which the proposed hardware is to be fitted, may be of single-leaf or double-leaf configuration, on the basis the scope is supported by the test data/Field of Application for the doorset proposed.

c. The leaves of the proposed doorset shall be a minimum thickness of 45 mm.

d. No additional intumescent protection is required.

6. Conclusions

Should the recommendations given in this report be followed, it can be concluded that timber-based doorsets, which have previously been successfully fire tested to EN 1634-1 by a laboratory accredited to IS/IEC 17025 (under International Laboratory accreditation Cooperation (ILAC) membership), and have achieved up to 120 minutes, as discussed in this report, may be fitted with d line door hardware as detailed within Appendix B of this report, without detracting from the overall integrity performance (and insulation where relevant) of the doorset.

Additionally, should the recommendations given in this report be followed, it can be concluded that predominantly steel-based doorsets, which have previously been successfully fire tested to EN 1634-1 by a laboratory accredited to IS/IEC 17025 (under International Laboratory accreditation Cooperation (ILAC) membership), and have achieved up to 240 minutes, as discussed in this report, may be fitted with d line door hardware as detailed within Appendix B of this report, without detracting from the overall integrity performance (and insulation where relevant) of the doorset.

7. Declaration

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 No. 82: 2001)

Signed: Signed by: Gytautas Balevicius CA01BBE9313A4BC...

Name: Alius Jakušovas

Position: Head of Products

Date: 25-Mar-2025

For and on behalf of: **d line A/S**

8. Limitations

This assessment report:

- Does not provide an endorsement by Warringtonfire of actual products supplied.
- Has been prepared based on information provided by the Applicant. Warringtonfire has not verified the accuracy or completeness of that information and will not be responsible for any errors or omissions that might be incorporated into this report as a result.
- Any figures included in this report are provided for illustrative purposes only and may not fully reflect the actual scope being assessed. Warringtonfire cannot guarantee the accuracy of the drawings against the scope being assessed. The scope of this report is limited to assessments of the modifications to the tested systems as described in Section 3.
- 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.
- 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 should be re-evaluated if the assessed construction is subsequently tested since actual test data is deemed to take precedence.
- This assessment has been carried out in accordance with Fire Test Study Group Resolution No. 82: 2001.
- Opinions and interpretation expressed herein are outside the scope of UKAS accreditation.
- This assessment report relates only to those aspects of design, materials and construction that influence the performance of the element(s) under fire resistance test conditions that are 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 assessment, the element is suitable for its intended purpose.
- This report represents our opinion as to the performance likely to be demonstrated on a test in accordance with the standard to which this assessment concludes, 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.
- This report may only be reproduced in full. Extracts or abridgements of reports shall not be published without permission of Warringtonfire. All work and services carried out by Warringtonfire Testing and Certification Limited are subject to, and conducted in accordance with, the Standard Terms and Conditions of Warringtonfire Testing and Certification Limited, which are available at https://www.element.com/terms/terms-and-conditions or upon request.
- Previous versions of the report(s), if applicable, are withdrawn from the date of the up-issued assessment report with immediate effect. That means that they may no longer be relied upon in support of any products being placed on the market (or for the stated project/address where applicable) from the issue date stated on the front cover of this report. The withdrawal of an assessment report does not affect any reliance placed on the report up to the issue date stated on the front cover of this assessment; however, going forward, the up-issued report must be referenced in any literature or product specifications in place of the previous versions of the assessment.

9. Validity

This assessment report is not valid unless signed by all signatories identified within the Signatories and Revision History section of this report.

This assessment report is not valid unless it incorporates the declaration given in Section 7 duly signed by the applicant.

The assessment is valid initially for a period of five years after which time it is recommended that it be submitted to the assessing authority for re-evaluation.

Appendix A
Summary of supporting data

The summaries in this section are for information only. It is assumed that the end user will have a full understanding of the tested specification as defined in the relevant test report.

All of the test evidence used in the evaluation is over 5 years old. In accordance with industry guidance, the evidence has been reviewed to consider its suitability. Warringtonfire are satisfied that there have been no significant revisions to the relevant test standards which would render the evidence irrelevant.

A.1 Primary Evidence

Test Report Reference WF No. 144134/B Issue 1	
Report sponsor	d line A/S Hardware Ltd (Project FM314837)
Test laboratory	Warringtonfire
Test date	12th January 2005
Test standard	BS EN 1634-1: 2000
Specimen summary	The test included two single-acting, single-leaf timber based doorsets. The doorsets were referenced as 'Doorset A' and 'Doorset B' for the purpose of the test. Doorset A had overall nominal dimensions of 2080 mm high by 1010 mm wide and incorporated a door leaf of overall nominal dimensions 2043 mm high by 941 mm wide by 44 mm thick. The doorset included a softwood door frame and a door leaf comprising softwood stiles and rails, a flaxboard core, MDF facings and was lipped with hardwood on the vertical edges. Doorset B had overall dimensions of 2180 mm high by 1010 mm wide and incorporated a leaf of overall dimensions 2037 mm high by 928 mm wide by 54 mm thick. The leaf was installed within a hardwood frame and comprised softwood stiles and rails, a flaxboard core, with non-combustible board sub-facings, hardwood lippings to the vertical edges and MDF outer facings. Each doorset incorporated a 'D-Line' Surface mounted, overhead closer referenced on their exposed face. The doorsets each incorporated a 'D-Line' lock mechanism. Doorset A was orientated such that it opened away from the heating conditions of the test. Doorset B was orientated such that it opened towards the heating conditions of the test. Each doorset was rendered unlatched for the duration of the test.
	Warrington Fire Research Centre was not involved in any selection or sampling procedures of any of the building hardware.
Test results – Doorset A	Integrity: 38 minutes Insulation: 38 minutes
Test results – Doorset B	Integrity: 54 minutes Insulation: 54 minutes

Test Report Reference WF No. 340086 Issue 1	
Report sponsor	d line A/S Hardware Ltd
Test laboratory	Warringtonfire
Test date	26th April 2014
Test standard	BS EN 1634-1: 2014
Specimen summary	The test referenced WF No. 340086 included an uninsulated single-acting, double-leaf steel based doorset. The doorset had overall dimensions of 2800 mm high by 2500 mm wide consisting of a double leaf doorset with an over panel. Each leaf had overall dimensions of 2452 mm high by 1205 mm wide by 48 mm thick. The over panel was 300 mm high by 2500 mm wide. The door leaves were formed from mild steel sheet skins with a paper honeycomb core. The door leaves were each hung within a profiled mild steel frame on four stainless steel hinges. Both leaves incorporated a vision panel. The active leaf (Leaf B) was fitted with a latch and handle set just below mid-height and the inactive leaf was fitted with top and bottom flush bolts. Both leaves were fitted with surface mounted overhead closers. The doorset was latched for the duration of the test.
	Exova Warringtonfire was not involved in any selection or sampling procedures of the specimen or any of the components.
Test results	Integrity: 12 minutes Insulation: 4 minutes

Test Report Reference WF No. 340091 Issue 1	
Report sponsor	d line A/S Hardware Ltd
Test laboratory	Warringtonfire
Test date	16th May 2014
Test standard	BS EN 1634-1: 2014
Specimen summary	The test referenced WF No. 340091 included an insulated single-acting, single-leaf timber/mineral composite based doorset. The doorset had overall dimensions of 2095 mm high by 990 mm wide incorporating a leaf with overall dimensions of 2040 mm high by 898 mm wide by 65 mm thick. The door leaf consisting of 4 mm thick MDF outer facings, 10 mm thick mineral board inner facings and a 37 mm thick particle core. The leaf was hung within a hardwood frame on five d line stainless steel hinges. A d line concealed closer was fitted into the head of the leaf with its guide rail mounted into the head of the door frame. The doorset also incorporated a d line mortise lock at approximately mid height of the door leaf complete with d line handles, lock cylinder and escutcheons. A d line surface mounted push bar panic bolt assembly was fitted to the exposed face of the leaf. The doorset was installed such that it opened away from the heating conditions of the test and the latch and panic bolt were engaged for the duration of the test.
	Exova Warringtonfire was not involved in any selection or sampling procedures of the specimen or any of the components.
Test results	Integrity: 12 minutes Insulation: 4 minutes

Test Report Reference WF No. 340092 Issue 2	
Report sponsor	d line A/S Hardware Ltd
Test laboratory	Warringtonfire
Test date	2nd May 2014
Test standard	BS EN 1634-1: 2014
Specimen summary	The test referenced WF No. 340092 included two single-leaf timber based doorsets. The doorsets were referenced as 'Doorset A' and 'Doorset B' for the purpose of the test. Doorset A was of a single-acting configuration and Doorset B was of a double-acting configuration. Doorset A had overall nominal dimensions of 2100 mm high by 1000 mm wide and incorporated a door leaf with dimensions of 2060 mm high by 920 mm wide by 54 mm thick. The door leaf was of a solid graduated density chipboard construction, with hardwood lippings to all edges and was hung within a hardwood frame, on pivots. The doorset included various items of d line door hardware including an overhead closer, a mortice cased lockset complete with lever handle set, cylinder and escutcheons and a cranked pull handle mounted back to back with another pull handle. Doorset B had overall dimensions of 2100 mm high by 1000 mm wide and incorporated a door leaf with dimensions of 2060 mm high by 920 mm wide by 54 mm thick. The door leaf was of a solid graduated density chipboard construction, with hardwood lipping to all edges and was hung within a hardwood frame on the floor mounted spring and pivots. The doorset also included a pull handle mounted on its exposed side.
	Warrington Fire Research Centre was not involved in any selection or sampling procedures of any of the building hardware.
Test results – Doorset A	Integrity: 32 minutes Insulation: 32 minutes
Test results – Doorset B	Integrity: 32 minutes Insulation: 32 minutes

Appendix B Approved Hardware

Hardware approved for use with timber-based doorsets for up to 120 minutes and steel based doorsets for up to 240 minutes.

DOOR LEVER d line

ARTICLE NO	DESCRIPTION
14.0416.02.011	14L on Ø50mm alum. rose with SSS-316snap on cover,
14.1016.02.011	16L on Ø50mm alum. rose with SSS-316 snap on cover,
14.1616.02.010	19L on Ø50mm alum. rose with SSS-316 snap on cover,
14.0016.02.010	22L on Ø50mm alum. rose with SSS-316 snap on cover,
14.0516.02.017	14U on Ø50mm alum. rose with SSS-316 snap on cover,
14.1216.02.017	16U on Ø50mm alum. rose with SSS-316 snap on cover,
14.1816.02.016	19U on Ø50mm alum. rose with SSS-316 snap on cover,
14.0116.02.010	22U on Ø50mm alum. rose with SSS-316 snap on cover,
14.2616.02.010	16Con Ø50mm alum. rose with SSS-316 snap on cover,
14.2316.02.010	19C on Ø50mm alum. rose with SSS-316 snap on cover,
14.0916.02.010	19C2 on Ø50mm alum. rose with SSS-316 snap on cover,
14.0616.02.010	16U2 on Ø50mm alum. rose with SSS-316 snap on cover,
14.0816.02.010	19U2 on Ø50mm alum. rose with SSS-316 snap on cover,
14.1316.02.015	16M on Ø50mm alum. rose with SSS-316 snap on cover,
14.1916.02.014	19M on Ø50mm alum. rose with SSS-316 snap on cover,
14.1416.02.010	16UF on Ø50mm alum. rose with SSS-316 snap on cover,
14.2016.02.010	19UF on Ø50mm alum. rose with SSS-316 snap on cover,
14.1516.02.010	16LF on Ø50mm alum. rose with SSS-316 snap on cover,
14.2116.02.010	19LF on Ø50mm alum. rose with SSS-316 snap on cover,
14.2416.02.010	19B on Ø50mm alum. rose with SSS-316 snap on cover,
14.2516.02.010	19FF on Ø50mm alum. rose with SSS-316 snap on cover,
14.0216.02.010	19FFG on Ø50mm alum. rose with SSS-316 snap on cover,
14.0316.02.010	19FFU on Ø50mm alum. rose with SSS-316 snap on cover,
14.2716.02.010	19.O on Ø50mm alum. rose with SSS-316 snap on cover,

DOOR LEVER d line

Panic lock/fire door lever set according to EN179	
ARTICLE NO	DESCRIPTION
14.2036.02.010	19UF Ø50mm SS rose and cover, 9mm spindle DIN18273
14.1836.02.013	19U Ø50mm SS rose and cover, 9mm spindle DIN18273 (used in conjunction with 14.9251.02.600 escape lock)

Hardware approved for use with timber-based doorsets for up to 120 minutes and steel based doorsets for up to 240 minutes.

IKONS DOOR LEVER d line

ARTICLE NO	DESCRIPTION
12.4054.74.038	Arne Jacobsen, 111mm SSS 304
12.4044.74.038	Arne Jacobsen, 97mm SSS 304
12.4141.74.038	PLH design, SSS 304
12.4091.02.038	Aarstiderne, SSS 304
12.4181.02.038	Jean Nouvel SSS 304
12.4191.02.038	Cubo SSS 304
12.4028.74.038	Classic SSS 304
12.4160.74.380	SHL SSS 304
12.4131.74.038	Onen SSS 304
12.4065.74.038	HL SSS 304
12.4412.02.010	Triangle SSS 304
12.4212.02.010	Cubo Cut SSS 304

All d line door levers can be mounted on:
1: Ø50mm ball bearing rose with aluminium base rose and SS snap on cover
2: Ø50mm ball bearing rose with SS base rose and SS snap on cover,
for spindles 9mm DIN 18273
3: Ø50mm ball bearing rose SS solid stainless steel, 3mm
4: 30x 65mm ball bearing rose with aluminium base rose and SS snap on cover
5: 30x 65mm ball bearing rose with SS base rose and SS snap on cover
for spindles 9mm DIN 18273
6: 30x 65mm ball bearing rose solid SS, 3mm
7: Back plates in the sizes: 60x170x2mm, 60x210x2mm, 60x240x10/4mm, 42x210x2mm, 30x210x3mm, 30x240x10/4mm, 52x240x10/4mm, 175x175x2mm

Note: The above product approvals are subject to their installation with a suitable lockset as detailed in the report. All lever handles are approved for standard installation with 25 mm diameter recessing for spindle hole preparation to the door. Scandinavian installation method is not approved by this report.

Hardware approved for use with timber-based doorsets for up to 60 minutes.

DOOR LEVER BASE

ARTICLE NO	DESCRIPTION
28.1016.0.2010	16L on Ø50mm alum. rose with SSS-304 snap on cover,
28.1616.02.010	19L on Ø50mm alum. rose with SSS-304 snap on cover,
28.1216.02.010	16U on Ø50mm alum. rose with SSS-304 snap on cover,
28.1816.02.010	19U on Ø50mm alum. rose with SSS-304 snap on cover,
28.2516.02.010	19FF on Ø50mm alum. rose with SSS-304 snap on cover,

All BASE door levers can be mounted on:

1: Ø50mm ball bearing rose with aluminium base rose and SS snap on cover

2: Ø50mm ball bearing rose solid SS, 3mm

3: Back plates in the sizes: 55x210x2mm, 30x210x3mm and 175x175x2mm

Note: The above product approvals are subject to their installation with a suitable lockset as detailed in the report.

Hardware approved for use with timber-based doorsets for 30 minutes, 60 minutes and up to 120 minutes and steel based doorsets for up to 240 minutes.

LOCK d line

ARTICLE NO	DESCRIPTION
14.9113.02.600	WC sash lock Sq. forend
14.9115.02.600	Latch lock Sq. forend
14.9117.02.600	Dead lock Sq. forend
14.9119.02.600	WC dead lock Sq. forend
14.9051.02.658	Panic lock 65mm, Sq. LH
14.9051.02.659	Panic lock 65mm, Sq. RH
14.9251.02.600	Escape lock 60 mm, Sq. forend (used in conjunction with 14.1836.02.013 handle for EN179)

Notes

1. In all applications, where zinc latchbolts/deadbolts are used, these locks may only be fitted to doorsets where they are not required to provide an essential latching function. Therefore they shall only be fitted to a previously proven as unlatched doorset fitted with a suitable surface mounted overhead door closer.
2. In all applications, as only the panic locks incorporate steel latchbolts, only these products are approved for use with any application where an essential latching function is required.
3. The above product approvals are subject to their installation with the specified intumescent protection (where relevant) as detailed in the report.

Hardware approved for use with steel based doorsets for up to 240 minutes.

FLUSH BOLTS BASE

ARTICLE NO	DESCRIPTION
28.5092.02.200	Flush bolt-304, Steel doors, 200mm
28.5092.02.250	Flush bolt-304, Steel doors, 250mm
28.5092.02.300	Flush bolt-304, Steel doors, 300mm
28.5092.02.450	Flush bolt-304, Steel doors, 450mm
28.5092.02.600	Flush bolt-304, Steel doors, 600mm
28.5090.02.020	Dust socket BASE

HINGES d line

ARTICLE NO	DESCRIPTION
14.5003.02.000	Hinge Ø leaf, SSS-316 89x102x3mm
14.5003.02.001	Hinge Sq.leaf, SSS-316 89x102x3mm
16.5003.01.000	Hinge Ø leaf, polished SS-316 89x102x3mm
16.5003.01.001	Hinge Sq. leaf, polished SS-316 89x102x3mm

Hardware approved for use with timber and mineral composite based doorsets for up to 120 minutes and steel based doorsets for up to 240 minutes.

PROF. ESCUTCHEON+BOLT/BUSH d line

ARTICLE NO	DESCRIPTION
14.3435.02.215	PZ rose d line SSS snap on cover on Alu. base rose
14.2961.74.107	M4x110mm section bolt/bush. Brass/Nickel pltd

PROF. ESCUTCHEON+BOLT/BUSH BASE

ARTICLE NO	DESCRIPTION
28.3435.02.215	PZ rose BASE, SSS snap on cover on Alu. base rose
28.3235.02.804	Key hole rose
28.3245.02.800	Blind rose

PROFILE CYLINDERS d line

ARTICLE NO	DESCRIPTION
04.100.303.0081.	Euro cylinder
14.DPS.KD.31K31	d line EPS Cylinder with thumb turn
14.DPS.DKA.3131	Double cylinder DPS-6 KA 3131
14.DPS.DKA.3636	Double cylinder DPS-6 KA
14.DPS.DKD.3131	Double cylinder DPS-5 KD 140D
14.DPS.EKD.3131	Escape cylinder DPS-5 KD 140D
14.DPS.EMK.3131	Escape cylinder DPS-5 MK
14.DPS.SKA.032	Single Cylinder DPS-5 KA
14.DPS.SKD.027	Single cylinder DPS-5 KD
14.DPS.SKD.032	Single cylinder DPS-5 KD
14.DPS.SKD.037	Single cylinder DPS-5 KD

Note: The above product approvals are subject to their installation with a suitable lockset as detailed in the report.

Hardware approved for use with timber and mineral composite based doorsets for up to 60 minutes.

Ø19mm PULL HANDLES AISI-304 BASE

ARTICLE NO	DESCRIPTION
28.4212.0.2304	Straight. thread M8, CC300 mm
28.4214.02.303	Straight, bush, CC300 mm
28.4212.02.657	Straight. thread M8, CC650 mm
28.4214.02.656	Straight, bush, CC650 mm
28.4232.02.301	Cranked, thread M8, CC300mm
28.4234.0.2301	Cranked, bush, CC300mm
28.4232.02.654	Cranked, thread M8, CC650mm
28.4234.02.653	Cranked, bush, CC650mm

Ø19mm PULL HANDLES AISI-316 d line

ARTICLE NO	DESCRIPTION
14.4212.02.126	Straight, thread M8, CC125mm
14.4212.02.207	Straight, thread M8, CC200mm
14.4212.02.304	Straight, thread M8, CC300mm
14.4212.02.405	Straight, thread M8, CC400mm
14.4212.02.450	Straight, thread M8, CC450mm
14.4212.02.657	Straight, thread M8, CC650mm
14.4214.02.125	Straight, bush, CC125mm
14.4214.02.206	Straight, bush, CC200mm
14.4214.02.303	Straight, bush, CC300mm
14.4214.02.404	Straight, bush, CC400mm
14.4214.02.450	Straight, bush, CC450mm
14.4214.02.656	Straight, bush, CC650mm
14.4218.02.301	Straight, thread M8/bush, CC300mm
14.4218.02.654	Straight, thread M8/bush, CC650mm
14.4232.02.123	Cranked, thread M8, CC125mm

Hardware approved for use with timber and mineral composite based doorsets for up to 60 minutes.

Ø19mm PULL HANDLES AISI-316 d line (continued)

ARTICLE NO	DESCRIPTION
14.4232.02.301	Cranked, thread M8, CC300mm
14.4232.02.405	Cranked, thread M8, CC400mm
14.4232.02.654	Cranked, thread M8, CC650mm
14.4234.02.122	Cranked, bush, CC125mm
14.4234.02.301	Cranked, bush, CC300mm
14.4234.02.404	Cranked, bush, CC400mm
14.4234.02.653	Cranked, bush, CC650mm
14.4222.02.125	FF, thread M8 CC125mm
14.4222.02.200	FF, thread M8 CC200mm
14.4222.02.300	FF. thread M8 CC300mm
14.4222.02.400	FF, thread M8 CC400mm
14.4222.02.650	FF, thread M8 CC650mm
14.4224.02.125	FF, bush, CC125mm
14.4224.02.200	FF, bush, CC200mm
14.4224.02.300	FF, bush, CC300mm
14.4224.02.400	FF, bush, CC400mm
14.4224.02.650	FF, bush, CC650mm
14.4228.02.300	FF, thread M8/bush, CC300mm
14.4228.02.650	FF, thread M8/bush, CC650mm

FIXING BOLTS FOR PULL HANDLES d line

ARTICLE NO	DESCRIPTION
14.4915.92.380	M8x30mm Fixing bolt for 19mm pull handles
14.4915.92.584	M8x58mm Fixing bolt for 19mm pull handles
14.4915.92.983	M8x98mm Fixing bolt for 19mm pull handles
14.4915.92.991	M8x120mm Fixing bolt for 19mm pull handles
14.4920.02.306	M8x30mm pig nose bolt
14.4920.02.608	M8x60mm pig nose bolt
14.4920.02.900	M8x90mm pig nose bolt

Hardware approved for use with timber and mineral composite based doorsets for up to 120 minutes.

PANIC EXIT DEVICE d line

ARTICLE NO	DESCRIPTION
14.5122.02.001	Panic exit device, One point locking
14.5122.02.002	Panic exit device, Two point locking
14.5122.02.003	Panic exit device. Three point locking

Note: Products not approved for use with any type of external access device.

All hardware approved for use with timber and mineral composite based doorsets for up to 120 minutes and steel based doorsets for up to 240 minutes.

The use of powder coated and PVD coated finishes are approved on all products in Appendix B (where appropriate), for all applications covered by this report.