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Title:

Field of Application for: Falcon Stredor 44 Doorsets

For 30 Minutes Fire Resistance

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

11 Hardware

11.1 General

The following section details the permitted scope and constraints for fitting hardware to this door design. The following items of hardware must also bear the UKCA or CE Mark in addition to the requirements outlined in the following sections. The UKCA or CE mark must indicate that the hardware is suitable for fire doors in the classification code and declaration of performance issued by the hardware manufacturer:

- Locks & Latches: Test Standard EN 12209
- Single axis hinges: Test Standard EN 1935
- Controlled door closing devices: Test Standard EN 1154
- Electrically powered hold-open devices: Test Standard EN 1155
- Door co-ordinators: Test Standard EN 1158
- Emergency exit hardware: Test Standard EN 179
- Panic exit hardware: Test Standard EN 1125.

Where an item of hardware is not covered by the scope of a relevant harmonised or designated standard, and cannot therefore be UKCA or CE Marked, inclusion of the hardware is not permitted within the doorset design, unless it is specifically identified within the appropriate section of this Field of Application. All items of hardware must be fitted in accordance with requirements of this assessment.

The following sections consider what alternative items of essential hardware can be used on these doorsets.

Each item of hardware is considered in each section giving the items of hardware which:

- Have been tested
- Can be used as a result of an assessment of the appropriateness of the item of hardware, based on test evidence not commissioned by Falcon Panel Products
- Can be used as a result of the Certifire approval of the item of hardware

Each section will consider the named item of hardware and detail if there are any limitations associated with:

- Leaf size
- Configuration
- Intumescent seals
- Intumescent protection
- Frame

No item of hardware at the hanging stile and head should be within 200mm of another item of hardware unless there is test evidence to demonstrate they can be closer.

11.2 Essential Hardware

The table of essential hardware is given for each door assembly configuration, as a baseline for the doorset described. Changes to hardware can affect the intumescent specification and frame details which are considered for each item of hardware as listed in the following sections.

The following table details the essential hardware for each permitted door leaf configuration. In some cases, it may be possible to apply hardware to a doorset that is not essential for the doorsets operation or configuration (e.g. fitting a lock into a double acting doorset).

Essential Hardware		
Configuration	Hardware	
LSASD	 Latch Hinges Overhead face fixed closer 	
ULSASD	HingesOverhead face fixed closer	
DASD	Top pivot / bottom strapFloor spring	
LSADD	 Latch Hinges Overhead face fixed closer Flush bolt Door selector (if astragal fitted) 	
ULSADD	 Hinges Overhead face fixed closer Flush bolt Door selector (if astragal fitted) 	
DADD	Top pivot / bottom strapFloor spring	

11.3 Locks & Latches

11.3.1 Locks & Latches: Single Point

Single point locks and latches which have been successfully tested in the Stredor doorset design for 30 minute applications are detailed in section 3 alongside the associated test reference and are therefore approved for use with the Stredor doorset design.

This Field of Application also considers locks and latches tested in similarly constructed timber-based door assemblies where the evidence is made available to the sponsor and listed these items in sections 19.3 alongside the associated test reference.

Single point locks and latches are permitted for use in:

Leaf Types: 1

FrameTypes: All types

The lock and latch must comply with the following.

Based on the maximum size of locks tested in the Stredor doorset design, alternative locks and latches which meet the following specification are acceptable, providing the lock has been tested to BS 476: Part 22: 1987 or BS EN 1634-1 in a timber door assembly incorporating a maximum 44mm thick door leaf that has achieved a minimum of 30 minutes fire resistance.

Lock & Latch Specification		
Element	Specification	
Maximum forend & keep dimensions	235 (h) x 25 (w) x 4mm (t)	
Maximum body dimensions	180 (h) x 100 (w) x 18mm (t)	
Intumescent protection	See section 9.2.1	
Materials	All parts essential to the locking/latching action (including the latch bolt, forend & keep) to be steel or brass (with a melting point ≥800°C)	
Less the 1	Between 750 – 1200mm from the threshold ²	
Location	Between 1201 – 1400mm from the threshold ^{2, 3}	

Alternatively, Certifire approved locks and latches approved for 30 minutes in an ITT door assembly (i.e. a door assembly containing intumescent, a timber frame and a timber leaf) is acceptable providing all the requirements for intumescent and frame are complied with.

Notes:

1 - A maximum of 2 latches or locks may be included within the same leaf provided there is a minimum of 200mm between lock forends or keeps. The locks must be located within the height limitations from the threshold as defined in the table above.

2 – Threshold is defined as finished floor level.

3 – only allowed when lockset has been fitted with intumescent gasket under forend and keep and on all sides of the mortice for the lock

11.3.2 Locks & Latches: Multi Point

Multi-point locks which have been successfully tested in the Stredor door assembly system for 30 minute applications are detailed in section 3 alongside the associated test reference.

This Field of Application also considers multi-point locking systems tested in similarly constructed timber-based door assemblies where the evidence is made available to the sponsor and listed these items in section 19.3.2 alongside the associated test reference.

These locks and latches are permitted for use in:

Leaf Types:

FrameTypes: 1.1 and 2.1, 1.3 and 2.3

1

Configurations: LSASD

Alternative multi-point locking systems are not considered within this Field of Application report. Therefore multi-point locks included within Stredor 30 minute doorset designs are limited to the following:-

- ERA Surefire Classic
- ERA Surefire Heritage
- Glutz Mint 1893
- GU Ferco
- Winkhaus AV2
- Winkhaus AV3
- Yale Lockmaster Autoengage

The top of the face plate must be no closer than 150mm to the top of the leaf.

The multi-point locking devices assessed for use within the Stredor 30 minute door assembly system consist of both auto-engaging and manually-engaged bolts. The tests conducted to generate evidence for manually-engaged multi-point locks were undertaken with the centrepoint engaged but with deadbolts and end latches disengaged, which permits both the auto-engaging and manually engaging bolt options.

Multi-point locks are restricted to leaf sizes and intumescent configurations AS1, AS2 and AS4 only.

See section 9.2.1 for the required intumescent gasket protection when fitting these types of locksets.

It is not permissible to use other assessments or Certificates to fit alternative multipoint locksets within the Stredor doorset design.

Note:

1 – The inclusion of multi-point locking systems within this Field of Application considers resistance to fire performance only and does not infer door assemblies fitted with these systems to support any security performance criteria.

11.3.3 Cylinders

A range of cylinders have been tested the Stredor 44 design as well as other timber based door constructions similar to the Stredor 44 design, in addition to solid timber based doorsets (see section 19.3.4). Based on the testing conducted all of the cylinders listed in section 19.3.4 are assessed for use with leaf type 1.

Providing the hole for the cylinder is cut tight to the shape of the cylinder, no additonal intumescent protection is necessary. However, if an oval shape is cut to receive the cylinder, any resulting gap between the hole cut for the cylinder and the body of the cylinder must be filled with intumescent gasket.

Cylinders can be fitted up to 1400mm from the threshold of the doorset and no closer than 50mm to the leaf edge, or any aperture, groove or recess.

11.4 Hinges and Pivots

11.4.1 Butt & Lift-Off Hinges

Hinges which have been successfully tested in the Stredor door assembly system for 30 minute applications are detailed in section 3 alongside the associated test reference.

This Field of Application also considers hinges tested in similarly constructed timber-based door assemblies where the evidence is made available to the sponsor and these items are isted in section 19.1 alongside the associated test reference.

These hinges are permitted for use in:

Leaf Types: 1 FrameTypes: 1, 2

Based on the dimensions of the hinges tested in the Stredor doorset design, alternative hinges which meet the following specification are acceptable, providing the hinges have been tested to BS 476: Part 22: 1987 or BS EN 1634-1 in a timber door assembly having a maximum 44mm thick door leaf and achieved a minimum of 30 minutes.

Alternative Hinge Specification				
Element		Specification		
Blade heig	ght	90 – 120)mm	
Blade wid (excluding	th 3 knuckle)	28 – 35mm		
Blade thic	kness	2.5 – 4mm		
Fixings		Minimum of 4No. 30 long No. 8 or No. 10 steel wood screws per blade or Tested screw fixings as supplied with the binge		
Materials		Steel or	stainless steel or brass (melting point ≥800°C)	
Hingo	Leaf	Тор	120 – 200mm from head of leaf to top of hinge	
positions	height: <1200mm	Bottom	150 – 300mm from foot of leaf to bottom of hinge	
	Leaf	Тор	120 – 200mm from head of leaf to top of hinge	
	height: 1201-	2 nd	Min - 100mm from top hinge Max - centrally between top and bottom hinge	
	2400mm	Bottom	150 – 300mm from foot of leaf to bottom of hinge	
		Тор	120 – 200mm from head of leaf to top of hinge	
Leaf height: >2401mm	2 nd	Min - 100mm from top hinge Max - centrally between top and 3 rd hinge		
	3 rd	Min – 100mm from bottom hinge Max – centrally between 2 nd and bottom hinge		
		Bottom	150 – 300mm from foot of leaf to bottom of hinge	
Intumescent protection		See sec	tion 9.2.2	

Alternatively, Certifire approved hinges approved for 30 minutes in an ITT door assembly (i.e. a door assembly containing intumescent, a timber frame and a timber leaf) is acceptable providing all the requirements for intumescent and frame are complied with.

Notes:

1 - Additional intermediate hinges may be included within door assemblies inbetween the hinges required for the leaf as specified in the table above, provided there is a minimum 100mm between hinges. Where intermediate hinges are introduced, their positioning may influence 2nd and 3rd hinge parameters. No more than 5 hinges at the hanging edge of doorsets may be fitted and providing the spacing requirements of this assessment can be met

2 – Rising butt hinges are not assessed for the Stredor 30 minute doorset system.

11.4.2 Pivots

This Field of Application considers pivots tested in similarly constructed timber-based door assemblies where the evidence is made available to the sponsor and these items are listed in section 19.7 alongside the associated test reference.

Pivots are permitted for use in:

Leaf Types:	1
FrameTypes:	4 and 5
Configurations:	DASD & DADD.

The frame head dimensions must be a minimum of 100mm wide x 44mm deep (excluding the stop if they are to be used with single acting frames) to accommodate the body of the top pivot.

The body of the pivot in the frame head and the top and bottom strap in the leaf must be fitted with a 1mm intumescent gasket lining all sides of the mortice.

The pivots are to be fitted in accordance with manufacturer's instructions taking into account the necessary details for fire resistance as stated above.

Pivots may be used conjunction with their associated double acting floor spring (supplied by the same manufacturer as the pivot set). The following pivot sets are assessed for use with the Stredor doorset design (offset pivot variations are not allowed by this assessment):

- Hoppe AR700 series pivot set
- Rutland PS 190 pivot set
- Rutland PS 260 pivot set

11.5 **Automatic Closing**

11.5.1 Overhead Face Fixed Closers: Single Acting

Closers which have been successfully tested in the Stredor doorset design for 30 minute applications are detailed in section 3 alongside the associated test reference.

This Field of Application also considers closers tested in similarly constructed timber-based door assemblies where the evidence is made available to the sponsor and these items are listed in section 19.2 alongside the associated test reference.

These closers are permitted for use in:

Leaf Types:

1 All single acting frames FrameTypes:

Based on the range of overhead face fixed closers tested in Stredor doorset design . alternative closers are acceptable, providing the closers have been tested to BS 476: Part 22: 1987 or BS EN 1634-1 in a timber door assembly achieving a minimum of 30 minutes.

Alternatively, Certifire approved overhead face fixed closers approved for 30 minutes in the following:

• A closer that is approved with an ITT door assembly is acceptbale for use with doorsets in timber based door frames (i.e. a door assembly containing intumescent, a timber frame and a timber leaf),

Providing all the requirements for intumescent and frame are complied with.

Note:

1 – Closers with mechanical (i.e. not automatically disengaged through alarm system or similar) back-check/hold-open functionality are not approved for the Stredor 30 minute door assembly system.

11.5.2 Overhead Concealed Closers: Single and Double Acting

Overhead concealed closers which have been successfully tested in the Stredor door assembly system, or assessed based on a fundamentally similar door design, for 30 minute applications are detailed below:

- Rutland ITS 11204 (tested in Stredor)
- Arrone 7383 (tested in Strebord, deemed fundamentally similar to Stredor for the purpose of assessing an alternative concealed closer, based on the tested Rutland ITS 11204, which demonstrated that the Stredor design is capable of tolerating a concealed overhead closer in the head of the leaf when appropriately protected with intumescent gaskets)

These closers are permitted for use in:

1

Leaf Types:

FrameTypes: 1.1, 2.1, 1.3 and 2.3 where the stop is increased to 18mm and minimum density of frame is 510kg/m³ (softwood or hardwood) for Rutland ITS11204 and 640kg/m³ (hardwood) for Arrone 7383.

The required intumescent specification for the approved closers is given in section 9. The closers may be used with a single strip or double strip intumescent arrangement at the head of the doorset providing the associated intumescent protection is fitted to the closer. The single strip must be at least 15 x 4mm.

Note:

1 - Closers with mechanical (i.e. not automatically disengaged through alarm system or similar) back-check/hold-open functionality are not approved for the Stredor 30 minute door assembly system.

11.5.3 Jamb Mounted Concealed Closers: Single Acting

Jamb mounted concealed closers which have been successfully tested in the Stredor door assembly system for 30 minute applications are detailed in section 3 alongside the associated test reference. These are:

• The Astra 4000 Series

This Field of Application also considers closers tested in similarly constructed timber-based door assemblies where the evidence is made available to the sponsor and these items are listed in sections 19.2 alongside the associated test reference.

These closers are permitted for use in:

Leaf Types:

Frame Types: Frames 1.1, 2.1, 1.3 and 2.3

1

For timber based frames the perimeter intumescent must be a minimum of 1 No. 15 x 4mm centrally fitted in the frame reveal or leaf edge or 2No. 10 x 4mm intumescent seals spaced 10mm apart in either the frame reveal or leaf edge.

The closer may be fitted up to 1000mm from the threshold.

11.5.4 Flush Bolts

Flush bolts may be incorporated centrally into the top and bottom of one meeting edge, providing the following maximum mortice dimensions are not exceeded

- 210 long x 22mm deep x 22mm wide,
- Flush bolts must be steel or brass and the mortice must be as tight to the mechanism as is compatible with its operation.
- All edges of the mortices in the frame and leaf must be protected with intumescent gaskets as specified in section 9.2.3.
- Intumescent strips in door leaf edge must be located opposite the flush bolt so that they run continuously to the head of the leaf.
- Bottom flush bolts cannot be used in conjunction with a drop down seal morticed into the bottom edge of the doorset

Alternatively, the hardware manufacturers tested gaskets may be used. See diagram below for example of intumescent protection to flush bolt:

Flush bolt intumescent protection example





11.6 Additional Items of Hardware

11.6.1 Handles

11.6.1.1 Pull handles

Pull handles may be surface-fixed or bolted through the door leaf, providing they are steel or brass and the length is limited to 1200mm between the fixing points. If through-fixed, there must be no more than 1mm clearance between the hole and stud.

11.6.1.2 Lever handles

Lever type handles have been successfully tested with the Stredor doorset design, and they are suitable for use within the following scope:

- Leaf: 1
- Frame: Frames 1, 2, 4, 5
- Configuration: All configurations
- Intumescent protection: none required

Alternative handles are permitted providing they meet the specification given below:

- Steel, stainless steel, brass, aluminium or bronze are permitted
- Surface fixings or through fixings are permitted. If through fixed there must be no more than 0.5mm clearance between the hole and the fixing.
- The design may be either lever on rose or lever on back plate up to the following maximum sizes:
 - \circ $\;$ Lever on rose with a rose diameter up to 54mm $\;$
 - Lever on back plate with a back plate size up to 250mm high x 60mm wide
 - Lever handle length 250mm

The handle must be compatible with the lock/latch, such that the closing action of the doorset is not impeded.

The following handles have been tested in the Stredor doorset design and are approved for use. Alternative handles are permitted providing they meet the specification given above:

Tested Handle Specification		
Product Reference	Manufacturer/Supplier	
(Test Reference)		
Ref. 902.21.010		
Hafele Aluminium lever type handle	Hafele	
(RF16031)		
Ref. Easyclick		
Lever on rose type handle	Apollo	
(WF399749)		
Ref: 908356 TH105		
Altro Stainless Steel lever type handle (WF414781)	Altro	

Tested Handle Specification		
Product Reference (Test Reference)	Manufacturer/Supplier	
Heritage Euro Cylinder Pull (WF426419)	ERA Fab & Fix	
Ref: 1X000 Lever type handle (WF416690)	ERA Fab & Fix	
Ref: ZPZ090SC (EFR-18-H-003671)	Stanza	
Steel lever type handle (WF385685)	Zoo Hardware	
In line steel lever handle (WF432758)	Yale	

11.6.2 Push Plates/Kick Plates

Face-fixed hardware such as push plates and kick plates may be fitted to the doorsets provided that their fitting requires the removal of no part of the door leaf. Based on test experience a limited area of face fixed metal plate has been shown as having no detrimental influence on the fire performance of the timber based fire reisting doorsets, subject to the provisos stated in this section.

Face fixed push plates and kick plates are permitted up to a maximum of 20% of the door leaf area if mechanically fixed and a maximum of 30% if bonded with a thermo-softening contact adhesive. Plates must not return around the door leaf edges.

11.6.3 Panic Hardware

Panic hardware may be fitted, provided that its installation does not require the removal of any timber from the leaf, stop or frame reveal and it in no way interferes with the self-closing action of the door leaf.

11.6.4 Door Security Viewers

Door security viewers with brass or steel bodies of a diameter less than or equal to 15mm may be used provided that the through-hole is bored tight to the case of the viewer (maximum tolerance +1mm). Lenses must be glass and the item must be bedded into a tested intumescent mastic.

The following eye viewer has been tested and is approved for use. Alternative eye viewers are acceptable providing they meet the specification given above:

Tested Security Viewer Specification			
Product Reference	Manufacturer	Dimensions	
(Test Reference)	/Supplier	(mm)	
STS4008	Sealed Tight	Body: Ø14	
(WF426419)	Solutions	Footprint: Ø16	
Fab & Fix Eye Viewer		Body: Ø12	
(WF416690)	ERA Fad & FIX	Footprint: Ø16	

11.6.5 Environmental Seals

The following flame retardant acoustic, weather and dust seals are approved for use with the Stredor doorset design and timber based door frames:

- Fire and Acoustic Seals Ltd: FAS35, FAS39, FAS-Trident, FAS-Twin
- Lorient Polyproducts Ltd: IS1212, IS1511, IS7025, IS7060
- Mann McGowan ACS-1, TD5, Tri-blade
- Norsound Ltd: NOR710, NOR710FR, NOR710SR, NOR710STOP, NOR720
- Raven Products Pty. Ltd: RP120, RP124, RP134, RP150, RP500, RP520, RP670
- Reddiplex Ltd: 9927, 9945, 9946, 10623, 11300, 11301, 11302
- Schlegal: Aquamac 21
- Sealed Tight Solutions Ltd: ST1009, ST1009K
- Sealmaster: Delta, Double Fin Seal, Duxback

It must be ensured that the fitting of the seals listed above does not interfere with the activation of the intumescent seals or hinder the self-closing function of the leaves.

11.6.6 Letter Boxes/Plates

Letter boxes/plates may be fitted providing the product can demonstrate contribution to the required performance of this type of 30 minute door assembly design, when tested to BS 476: Part 22: 1987 or BS EN 1634-1, when installed within a timber based doorset of comparable thickness. Products may be fitted up to 1200mm from floor level and not closer than 100mm to any leaf edge. The area occupied by the letter box/plate must be deducted from the area of glazing, if both elements are fitted.

Letterboxes/plates which have been successfully tested in the Stredor doorset design for 30 minute applications are detailed in section 3 alongside the associated test reference.

This Field of Application also considers letterboxes/plates tested in similarly constructed timber-based door assemblies where the evidence is made available to the sponsor and these items are listed in sections 19.6 alongside the associated test reference.

These letter boxes/plates are permitted for use in:

1

Leaf Types:

Frame Types: All

The letterboxes may be fitted between 400mm and 900mm from the threshold.

The letter boxes must be fitted in accordance with manufacturer's instructions, they must be fitted no closer than 80mm to any other aperture or mortice location within the leaf or any closer than 80mm from any edge of the leaf.

The intumescent rptoection must be fitted to the letterplate as listed below. No other letterplates other than those listed below may be fitted to the Stredor doorset design:

Tested Letter Box/Plate Specification			
Product Reference (Test Reference)	Manufacturer /Supplier	Dimensions (mm)	Hardware Intumescent
ERA Fab & Fix Numail door letter plate with security cowl	ERA	75(h) x 310(w)	40x2mm Sealed tight solutions Limited graphite based intumescent, wrapped twice around letterplate channel
Yale Postmaster Professional	Yale	-	Full graphite intumescent wrap around letter plate and graphite tubes around fixing posts as supplied integral to the letterplate

11.6.7 Threshold

11.6.7.1 Automatic Drop Seals

The following types of automatic threshold drop seals may be recessed into the bottom edge of leaves to this design without compromising the performance, based on test evidence on the Stredor design and other timber based doors that are considered to be fundamentally similar to the Stredor door design.

Threshold Seal Specification		
Product Reference	Manufacturer /Supplier	
Pemko 411_NBL / PKL / RL / SL	Assa Abloy	
Schall-Ex Duo L-15	Athmer	
FAS45	Fire & Acoustic Seals Ltd.	
LAS8001si	Lorient Polyproducts Ltd.	
DD-1703ACU, DD-420S	Mann McGowan Ltd	
NOR810, NOR810S, NOR810dB+	Norsound Ltd.	
RP8Si	Raven	
HID, HEID	Reddiplex Ltd.	
STS 422, STS 422GT	Sealed Tight Solutions Ltd.	
DRP2712	Sealmaster (Dixon International Group Ltd)	

11.6.7.2 Thresholds

The following product has been tested for use (WF426419) with the Stredor 44 design covered by this field of application and is therefore approved for use with single leaf doorsets.

The threshold must be fitted on to a non-combustible flooring with a minimum Reaction to Fire class A2,fl,s1 as tested.

Eler	nent	Туре	Dimensions (mm)	Location
Threshold		Sealed Tight Solutions Limited STH004 aluminium threshold	15 high x 47 deep (overall)	The threshold is to be screwed to the jambs using 2No. 4mmØ x 50mm long woodscrews



Profile of Sealed Tight Solutions Limited STH004 aluminium threshold

11.6.8 Air Transfer Grilles

The following Pyroplex air transfer grilles have been assessed as acceptable for use with the door leaf types 1 referred to in this assessment based on test report WF146520 (held on file by Warringtonfire, under the same file reference as the test report).

The grilles must be fitted 100mm from the edge of the door leaf and 80mm apart if more than one grille is to be fitted. The area occupied by the air transfer grille(s) must be deducted from the percentage of glazing, if both elements are fitted. The grilles may be fitted up to a maximum height of 2200mm from the threshold.

Part No.	Dimensions (mm)	Air Flow (sq. cm)	Compatible Faceplates
ATG 1500	150 x 150	153	FP1500
ATG 1503	150 x 300	307	FP1503
ATG 1300	300 x 300	614	FP1300
ATG 2251	112 x 225	161	FP2251
ATG 2250	225 x 225	323	FP2250

The Pyroplex air transfer grilles must be installed in accordance with the manufacturer's installation details, which include a 6mm thick hardwood aperture liner and Pyroplex intumescent mastic applied around the perimeter of the grille. Full details can be obtained from Pyroplex Ltd.

11.6.9 Escutcheons

Escutcheons are permitted at the lock location and can be bolt through, screw fixed or glued in position. The escutcheon must not remove any material from the door leaf and may be constructed of metal or plastic.

12 Installation

This section considers the installation of the different types of frames and doorset. This section considers:

- the door frame and architrave installation position relative to the wall
- the fire stopping between the frame and the wall
- the fixing requirement including packers
- the requirements for door edge gaps
- the trimming of door edges

The following table details which wall type the frame can be installed into

Frame type	Wall construction
Frames1, 2, 4, 5	Masonry wall
	Timber stud partition
	Steel stud partition

The following sections consider the fire stopping arrangement between door frame and wall.