

High Wycombe Office: Chiltern House, Stocking Lane, High Wycombe, HP14 4ND, United Kingdom T: +44 (0)1494 569750 W: www.warringtonfire.com

#### Title:

Field of Application for:

Falcon Stredor® 54 Doorsets

For 30 & 60 Fire Minutes Resistance

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WF377027 Revision A

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### **Prepared for:**

Falcon Panel Products Ltd. Clock House, Station Approach, Shepperton, Middlesex, **TW17 8AN** 

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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.

Registered Office: Warringtonfire Testing and Certification Limited, 10 Lower Grosvenor Place, London, United Kingdom, SW1W 0EN. Reg No. 11371436

# 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 CE Mark:

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

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:

- 1. Have been tested
- 2. 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
- 3. Can be used as a result of the CERTIFIRE approval of the item of hardware
- 4. Can be used based on the generic guidance or CE marking but final approval will be with another approving body.

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

- 1. Leaf size
- 2. Configuration
- 3. Intumescent seals
- 4. Intumescent protection
- 5. Frame

No item of hardware at the hanging stile and head should be within 200mm of another item of hardware unless there is successful test evidence with the items installed closer together.



# **11.2 Essential Hardware**

The table of essential hardware is given for each doorset configuration, as a baseline for the doorset described. Changes to hardware can affect the intumescent specification and frame details which are considered in section 4.5, section 7 and section 9.1.

The following table details the essential hardware for each permitted door leaf configuration.

Essential Hardware			
Configuration	Hardware		
LSASD	<ul><li>Latch</li><li>Hinges</li></ul>		
	Overhead face fixed closer		
ULSASD	Hinges		
	Overhead face fixed closer		
DASD	Top pivot / bottom strap		
DAGD	Floor spring		
	Latch		
	Hinges		
LSADD	Overhead face fixed closer		
	Flush bolt		
	Selector if rebated meeting stile present		
	• Hinges		
ULSADD	Overhead face fixed closer		
	Flush bolt		
	Selector if rebated meeting stile present		
	Top pivot / bottom strap		
	Floor spring		

### 11.3 Locks & Latches

The different types of locking and latching devices are considered in the following section.

# 11.3.1 Single Point Locks & Latches

The following single point locks and latches have been successfully incorporated in the tests on the Stredor 54 design.

Tested Lock & Latch Specification			
Product Reference	Manufacturer	Dimensions	
(Test Reference) /Supplier		(mm)	
Ref. 376113	Altro Eurospec	Forend: 59 x 25	



tubular steel mortice latch		Keep: 65 x 40
(WF407334)		Case: 61 x 24 x 17
Ref. Not given in test report Electr brass tubular steel mortice latch (BMT/FEP/F16174)	Smith & Locke	Forend: 60 x 32 Keep: 60 x 22
Ref. Not given in test report mortice latch (WF374929B)	Zoo Hardware	Forend: 130 x 22 (case is bigger than forend according to test report) Keep: 180 x 25 Case: 165 x 87 x 14
Ref. Not given in test report Steel mortice latch (WF 392155)	Arrone	Forend: 235 x 20 Keep: 170 x 24
Ref. 12781 Tubular steel mortice latch (WF369336)	Not given in test report	Forend: 60 x 27 Keep: 60 x 22

These locks and latches are permitted for use in:

Leaf 1 + Frame 1 doorsets

Leaf 2 + Frame 1 doorsets

Configuration: LSASD and LSADD

### **Alternative Single Point Locks & Latches**

Locks and latches must either be as tested, or alternatively components with the following specification are acceptable.

Alternative Lock & Latch Specification		
Element	Specification	
Maximum forend & keep dimensions	For Single doorsets:	
	235 (h) x 22 (w) x 4mm (t)	
	For Double doorsets:	
	235 (h) x 22 (w) x 4mm (t)	
Maximum body dimensions	180 (h) x 100 (w) x 18mm (t)	
Intumescent protection	See section 9	
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)	
Location	Between 750 – 1200mm from the threshold	



Certifire approved locks for 60 minutes for ITT classification as long as all of the requirements are complied with are approved.

### 11.3.2 Multi Point Locks & Latches: Leaf 1 Only

For multipoint locks, the tested ERA Surefire Classic multipoint latch may be utilised with Stredor® 54 door designs.

The installed latch must be protected with the tested intumescent protection detailed. It is preferable the latch be kept locked at all 3 locking points when not in active use.

The following locks and latches have been successfully incorporated in the tests on the Stredor 54 design.

Tested Lock & Latch Specification			
Product Reference	Manufacturer	Dimensions	
(Test Reference)	/Supplier	(mm)	
SureFire Classic	ERA	Forend: 1635 (h) x 20 (w)	
3 point auto locking latch (CFR1812191_1)		Centre Lock/Latch Body: 214 (h) x 58 (w) x 14 (d)	
(0		Centre Keep: 189 (h) x 38 (w) x 2 (t) (including tongue of 68 x 14)	
		Hook Box Body: 150 (h) x 40 (w) x 15 (d)	
		Hook Keep: 152 (h) x 38 (d) x 2 (t) (including tongue of 47 x 14)	
SureFire Classic 2 Hook	ERA <sup>1</sup>	Forend: 1635 (h) x 20 (w)	
with ERA auto fire electric		Top & Bottom Keep: 150 (h) x 24 (w)	
motor box		Centre Keep: 190 (h) x 24 (w)	
(WF391032A)		Electric Motor Body: 200 x 48	

These locks and latches are permitted for use in:

Leaf 1 + Frame 1 doorsets

Configuration: LSASD

### Note:

1. ERA auto fire electric motor box is permitted for use in 30 minutes fire resisting doorset <u>only</u>

### 11.4 Hinges

The following hinges have been successfully incorporated in the tests on the Stredor 54 design.

Tested Hinge Specification			
Product Reference	Manufacturer	Dimensions	
(Test Reference)	/Supplier	(mm)	



	-	
HIN1433/13 Bearing butt type hinge (WF374929B)	Eurospec Enduro	Blade: 101 x 30
H101 Lift off type steel hinge (WF392155) (WF391032A)	Royde & Tucker	Blade: 100 x 35
H102 Bearing butt type hinge	Royde & Tucker	Blade: 100 x 35
Ref. 2990G Bearing butt type hinges (WF369636)	Smith & Locke	Blade: 102 x 30
ZHSS43RP Bearing butt type hinge (CFR1812191_1)	Zoo Hardware	Blade: 102 x 31
H2N1103/13/R Bearing butt type hinge (WF407334)	Eurospec EnduroMax	Blade: 100 x 31
Ref. Not given in test report Bearing butt type hinge SL Class 13 (BMT/FEP/F16174)	Smith & Locke	Blade: 100 x 30

These hinges are permitted for use in:

Leaf 1 + Frame 1 doorsets

Leaf 2 + Frame 1 doorsets

Configuration LSASD, ULSASD, LSADD and ULSADD

### **Alternative Hinges**

Hinges must either be as tested, or alternatively components with the following specification below are acceptable.

The door leaves must be hung on a minimum of 3 hinges. Leaves over 2400mm high must fit 4 hinges. Hinges with the following specification are acceptable.

Alternative Hinge Specification		
Element	Specification	
Blade height	90 – 120mm	
Blade width (excluding knuckle)	30 – 35mm	



Blade thickness		2.5 – 4mm			
Fixings		Minimum of 4No. 30 long No. 8 or No. 10 steel wood screws per blade			
Materials		Steel or	Steel or stainless steel or brass (melting point ≥800°C)		
Leaf height: <2400mm positions Leaf height: >2400mm	Тор	120 – 200mm from head of leaf to top of hinge			
	Leaf height: <2400mm	2 <sup>nd</sup>	Minimum 200mm from top hinge OR equal spaced between top & bottom hinges		
		Bottom	150 – 300mm from foot of leaf to bottom of hinge		
	Leaf height: >2400mm	Тор	120 – 200mm from head of leaf to top of hinge		
		2 <sup>nd</sup> & 3 <sup>rd</sup>	Minimum 200mm from top hinge to equispaced between top & bottom hinges		
		Bottom	150 – 300mm from foot of leaf to bottom of hinge		
Intumescent protection		See section 9			

Certifire approved hinges for 60 minutes for ITT classification as long as all of the requirements are complied with are approved.

# 11.5 Automatic Closing

The different types of automatic closing devices are considered in the following section.

# 11.5.1 Overhead Face Fixed Closers: Single Acting

The following overhead face fixed closers have been successfully incorporated in the tests on the Stredor 54 design.

Tested Overhead Faced Fixed Closer Specification			
Product Reference	Manufacturer	Dimensions	
(Test Reference)	/Supplier	(mm)	
AR1500 (WF374929B) (BMT/FEP/F16174)	Arrone	Footprint: 245 x 45 Footprint: 220 x 60	
AR3500 (WF407334)	Arrone	Footprint: 247 x 60	
TS9205 Size 2-5 (CFR1812191_1)	Rutland	Footprint: 269 x 69	
R-11352 Size 3 Cam action slide arm	Rutland <sup>1</sup>	Footprint: 257 x 60	



(WF392155)	

These overhead face fixed closers are permitted for use in:

Leaf 1 and Frame 1 doorsets

Leaf 2 and Frame 1 doorsets

Configuration: LSASD, ULSASD, LSADD and ULSADD

### Note:

1. R-11352 Size 3 is permitted for use in 30 minutes fire resisting doorset only

### Alternative Overhead Face Fixed Closers: Single Acting

Certifire approved Overhead face fixed closers for 60 minutes for ITT classification as long as all of the requirements are complied with are approved.

### 11.5.2 Concealed Closer: Leaf 1 Only

The following concealed closer have been successfully incorporated in the tests on the Stredor 54 design.

Permitted for use in 30 minutes fire resisting doorsets only

Tested Concealed Closer Specification				
Product Reference (Test Reference)	Dimensions (mm)			
ITS11204 (WF 414781)	Rutland	Body: 243mm(l) x 52mm(d) x 32mm(w)		

This concealed closer is permitted for use in:

Leaf 1 and Frame 1 doorsets

Configuration: LSASD, ULSASD, LSADD, ULSADD

### 11.5.3 Floor Spring & Pivot: Double Acting

The following floor springs have been successfully incorporated in the tests on the Stredor 54 design.

Tested Floor Spring Specification		
Product Reference (Test Reference)	Manufacturer /Supplier	Dimensions (mm)
TS7104 Floor spring (WF412601)	Rutland	Body: 274 (l) x 50 (h) x 81 (w) Cover: 290 (l) x 102 (w) x 1.5 (t)



The following pivot have been successfully incorporated in the tests on the Stredor 54 design.

Tested Pivot Specification		
Product Reference	Manufacturer	Dimensions
(Test Reference)	/Supplier	(mm)
Pivot Kit: PS.190	Rutland	Top Strap Pivot:
Strap		175 (w) x 30 (d) x 28.5 (h)
(WF412601)		(with a Ø15mm retractable pivot)
		Top Strap:
		124.5 (w) x 30 (d) x 15.5 (t)
		Bottom Strap:
		235 (w) x 24 (d) x 19.5 (t)

These Floor Springs and Pivots are permitted for use in:

Leaf 1 and Frame 1 doorsets

Leaf 2 and Frame 1 doorsets

Configuration: DASD and DADD

### Alternative Floor Spring & Pivot: Double Acting

Certifire approved Top pivot, bottom strap and floor spring for 60 minutes for ITT classification as long as all of the requirements are complied with are approved.

### 11.6 Flush Bolts

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

- 210mm long x 22mm deep x 22mm wide, and
- Flush bolts must be steel or brass with melting point in excess of 800C for 60 minutes fire resisting doorsets. 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 9.1.
- Intumescent strips in door leaf edge must be located opposite the flush bolt so that they run continuously to the head of the leaf.

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





Figure 11.1 – Flush bolt intumescent protection example

The following flush bolts (shoot bolts) have been successfully incorporated in the tests on the Stredor 54 design.

Tested Flush Bolt Specification			
Product Reference	Manufacturer	Dimensions (mm)	
Ref. 5020J Slide action flush bolt (WF369636) (BMT/FEP/F16174)	Smith & Locke	Footprint: 100 x 22 Keep: 40 x 22	
ZA503 Lever action flush bolt (WF374929B)	Zoo Hardware	Body: 205 x 22 x 40 Keep: 42 x 15	
Ref. 746895 (WF407334)	Smith & Locke	Footprint: 101 x 16	

# **11.7** Additional Items of Hardware

### **11.7.1 Handles / Operating Furniture**

Handles may be surface-fixed or bolted through the door leaf, providing they are steel or brass with melting point in excess of 800C for 60 minutes fire resisting doorsets. 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.

The following handles have been successfully incorporated in the tests on the Stredor 54 design.

Tested Handle Specification		
Product Reference	Manufacturer	Dimensions
(Test Reference)	/Supplier	(mm)



Ref 14000		
Rein 17000	Eab & Eix <sup>1</sup>	240 x 30
	Fad & Fix	240 X 30
(WF391032A)		
Ref. 625900	Not always in toot	
Mitre lever handle on rose	report	Rose: Ø52
(WF407334)		
Ref. 2812H		
Lever on rose type handle		D 970
(WF369636)	Smith & Locke	Rose: Ø50
(BMT/FEP/F16174)		
Ref. Not given in test report		
Union steel lever on rose type	Union	Rose: Ø52
handle		1000.002
(WF374929B)		
700		Handle: Ø19 x 130
		Rose: Ø48 x 7
escutcheon	Zoo Hardware	Escutcheon: Ø51 x 4 (stop face)
(CFR1812191_1)		Ø51 x 8 (hinge knuckle face)
Pof. Not given in test report		, ,
Stool lover type handle	Arrono <sup>1</sup>	Poso: Ø53
	Anone	N058. Ø55
(**F392155)		
Ref. Not given in test report		
Steel lever type handle	Zoo Hardware	Rose: Ø52
(WF374929B)		
Ref. 625900		
Mitre lever handle in rose	Not given in test	Rose: Ø52
(WF407334)	1	

### Note:

1. These handles are permitted for use in 30 minutes fire resisting doorsets only

# 11.7.2 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 <u>no</u> part of the door leaf. Push plates and kick plates must be steel or brass with melting point in excess of 800C for 60 minutes fire resisting doorsets. These items of hardware 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.



# 11.7.3 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.

## 11.7.4 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 in to a tested intumescent mastic.

The following door security viewers have been successfully incorporated in the tests on the Stredor 54 design.

Tested Security Viewer Specification		
Product Reference	Manufacturer	Dimensions
(Test Reference)	/Supplier	(mm)
STS4008	Sealed Tight	Body: Ø14
(WF391032A)	Solutions <sup>1</sup>	Footprint: Ø26

### Note:

1. STS4008 is permitted for use in 30 minutes fire resisting doorsets <u>only</u>

### 11.7.5 Environmental Seals

Flame retardant acoustic, weather and dust seals e.g;

- Fire and Acoustic Seals Ltd: FAS35, FAS39, FAS-Trident, FAS-Twin
- Lorient Polyproducts Ltd: IS1212, IS1511, IS7025, IS7060
- 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
- Sealed Tight Solutions Ltd: ST1009, ST1009K
- Sealmaster: Delta, Double Fin Seal, Duxback

may be fitted to this doorset design without compromising the performance, providing their fitting does not interfere with the activation of the intumescent seals or hinder the self-closing function of the leaves.

# 11.7.6 Letter Boxes/Plates

Letter boxes/plates may be fitted providing the product can demonstrate contribution to the required performance of this type of 30 or 60 minute doorset 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.

The following letter boxes/plates have been successfully incorporated in the tests on the Stredor 54 design.



Tested Letter Box/Plate Specification		
Product Reference (Test Reference)	Manufacturer /Supplier	Dimensions (mm)
STS4001 (WF391032A)	Sealed Tight Solutions <sup>1</sup>	Footprint: 310 x 75

Note:

1. STS4001 is permitted for use in 30 minutes fire resisting doorsets only

### 11.7.7 Threshold 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.

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.	
LAS8001 si	Lorient Polyproducts 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)	

### 11.7.8 Air Transfer Grilles

Air transfer grilles may be fitted providing the product has suitable test evidence to BS 476: Part 22: 1987 or BS EN 1634-1, that demonstrates a minimum 60 minutes integrity performance when installed within a timber based doorset of comparable thickness. Margins to the leaf edges will remain as detailed for glazing and the position of the unit will be dictated by the pressure regime tested in the proving evidence (normally below mid-height). The area occupied by the air transfer grille must not exceed 0.2m<sup>2</sup> and must be deducted from the area of glazing, if both elements are fitted.

# 11.7.9 Cable Loop & Cableway

The following cable loops have been successfully incorporated in the tests on the Stredor 54 design.

The following limitations apply:



- 1. Cable loop is permitted for use in 30 minutes fire resisting doorsets only
- 2. The cableway must be located no higher than 1290mm from bottom of the leaf.
- 3. Cable loop and cableway not permitted with grooves in the door leaf.

Tested Cable Loop Specification		
Product Reference	Manufacturer	Dimensions
(Test Reference)	/Supplier	(mm)
Ref. 633311		Footprint: 290mm x 25mm
Steel cable loop	Sealed Tight Solutions	(including a Ø12mm spring
(WF391032A)		assembly)

