FORZA DOORS

FD60

Ironmongery Suitability Guide

Precision Ingrained

FORZA FD60 - IRONMONGERY SUITABILITY & INSTALLATION GUIDE

1. Single Axis Knuckle Hinges to BS EN 1935.2002

A variety of single axis hinges have been successfully tested with the timber door leaves within timber, aluminium or steel frames. Hinges may be used, subject to compliance with the specifications below.

Hinge type: Fixed pin, washered butt, ball bearing butt, lift-off type or journal supported hinges may be used.

Number of hinges: 2no. (1Pair) per leaf on leaves up to 1981mm high. 3no. (1½ pairs) per leaf on leaves up to 2400mm high. 4no. (2 pairs) per leaf on leaves greater than 2400mm high.

Positions: The top hinge must be positioned 120-180mm down from the head of the leaf to the top of the hinge and the bottom hinge positioned 200-250mm up from the foot of the leaf to the bottom of the hinge. The middle hinge of three must be either equally spaced between the top and bottom hinge (+200mm /-0mm), or 200-250mm below the top hinge. The middle hinges of four must be either equally spaced between the top and bottom hinge (+/-150mm) or 2nd hinge 200-250mm below the top hinge and 3rd hinge equally spaced between the second and fourth (bottom) hinge.

Fixings: Steel screws, as recommended by the hinge manufacturers, but in no case smaller than 32mm long x 3.8mm diameter (no.8) and having thread for the full length.

Hinge blade sizes: 2.5-3.5mm thick by 89-115mm high by 30-36mm width. (These dimensions refer to the blade size, i.e. the part of the hinges that are recessed into the edge of the leaves/frame.)

Hinge materials: Brass, Phosphor Bronze, Steel or Stainless Steel. No combustible or thermally softening materials to be included.

Intumescent protection: Hinge blades to be bedded on 1mm thick low pressure forming graphite material. Partial interruption of intumescent seals is permitted provided a minimum 10mm width of intumescent is continuous past the hardware as per DRW19. Any recess made for the installation of the hinge shall be tightly cut to the size of the blade. Rising butt, non-cranked butts and spring hinges (single or double action) are not suitable for use on Forza doors approved within FD60 PAR/10896/01 rev I, (Such hinges may be suitable on the basis of an individual and project specific fire engineering evaluation. Contact Forza Technical).

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2. Concealed or Invisible Hinges (Timber frame only)

(Ref. European technical assessment (ETA) EAD 0405:March 2017)

A variety of concealed or invisible hinges have been assessed for inclusion within Forza timber leaves and frames. They are:

- SOSS Invisible Hinge Type 218 (Stainless Steel) (Factory prepared leaf and frame only)
- SOSS Invisible Hinge Type 418 (Stainless Steel) (Factory prepared leaf and frame only)
- Tectus Concealed Hinge Type TE526 3d & TE527 3d (Stainless Steel) (Factory prepared leaf and frame only)
- Tectus Concealed Hinge Type TE540 3d (Aluminium & Zinc Alloy) (Factory prepared leaf and frame only)

These hinges may be included in door assemblies subject to compliance with the specification below:

- Screws supplied by the Hinge manufacturer must be used.
- Timber frame (640kg/m3) to have minimum 45mm face width.
- The correct number of hinges are fitted as recommended by the hinge manufacturer, to ensure that the door leaf is supported for the full fire resistance period.
- The slots for the hinges in the door leaf and frame must be cut tightly, such that there are no gaps around the hinge components / intumescent material when the hinges are installed.
- Hinge positions to be set 120-180mm down from leaf head to top of hinge, 200-250mm up from bottom of leaf to bottom of hinge blade third hinge set 200-250mm below top hinge or equi-spaced. Additional hinges equi-spaced.
- All hinge positions must be fitted with intumescent gasket kits supplied by the hinge manufacturer (as per test evidence for the hinge type).

At least 10mm width of intumescent strip must be continuous past the hinge edge and stop.

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3. Mechanically Operated Mortice Locks/Latches to BS EN 12209:2016 (Timber or Steel frames)

A variety of mortice locks/latches may be used, subject to compliance with the specifications below:

Latch/lock types: Mortice latches, tubular mortice latches, sashlocks and deadlocks (cylinders to comply to BS EN 1303)

Positioning: Centred between 800mm - 1200mm above bottom of door.

Maximum dimensions: Timber frame

- **Forend plate**: 235mm long x 25mm wide or 203mm long X 28mm wide, single doors only (see additional protection)
- **Latch body**: 20mm thick x 165mm high x 100mm wide (see additional protection)
- **Strikeplate**: 235mm long x 25mm wide or 203mm long x 28mm wide, single doors only (see additional protection)

Maximum dimensions: Metal frames (See additional protection)

- **Forend plate**: 158mm long x 25mm wide
- **Latch body**: 16mm thick x 108mm high x 74mm wide
- **Strikeplate**: 98mm long x 43mm wide

Materials: Steel based with no essential part of the structure made from polymeric or other low melting point (<800°C) materials, and should not contain any flammable materials.

Additional protection: Timber frame: The mortice for the lock body to be lined and the strikeplate / forend to be bedded on low pressure forming intumescent sheet at least 1mm thick (e.g. Interdens). Steel frame: 1mm Interdens on all faces of latch body and under forend. 2mm Therm-A-Flex under strike plate and lining strike box.

Over-morticing is to be avoided: Mortices should be as tight as possible to the latch. If gaps occur around the case (not exceeding 2mm), then these must be made good with intumescent mastic or sheet material. Holes for spindles or cylinders should be kept as small as is compatible with the operation of the hardware.

Glazing apertures: Where glazing apertures are also incorporated and are positioned such that locks/latches are included in the margin between the aperture and door edge the inner back of the mortice must be at least 50mm from the edge of the aperture. If the mortice latch/lock is fitted in line with a 'rail' between two apertures, no part of the lock mortice shall be closer than 50mm to the edge of any aperture.

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4. Multi-Point Locking Systems (Timber frame only) **(Ref. Pr EN 15685)**

A range of Forza factory prepared multi point locking systems are permitted for FD60 single door assemblies in timber frames. Contact tech@forza-doors.com. Multiple separate locks (including Fire Brigade locks) are permitted, subject to size & position restrictions, in FD60 single door assemblies. Contact tech@forza-doors.com

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5. Mechanical Digital Locks to BS8607 :2014/16 (Timber frame only)

Securefast SBL320 Keypad: H158mm x W45mm. The keypad may be fitted to the exposed or unexposed face of the leaf.

Securefast SBL330 Keypad: H142mm x W41mm & **SBL365** Keypad H178mm x W48mm. The keypad to be fitted to the known exposed face only.

Protection: latch body/ forend /strike box to be wrapped/lined in 1mm thick Interdens.

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6. Controlled Door Closing Devices to BS EN 1154:1997

Where required by regulatory guidance or specific fire strategy each hinged door leaf must be fitted with a self-closing device unless it is normally kept locked shut and labelled as such with an appropriate sign which complies with BS5499-10:2014. It is essential that all closers fulfil the requirements of BS EN 1154: 1997 and are of the correct power rating for the width and weight of the door(s) (minimum power size 3).

The Closer must be fitted according to the manufacturer's instructions and be adjusted so that it is capable of fully closing the door leaf, against any friction imposed by the latch (and smoke seals if fitted) from any position of opening.

Face Fixed: (Timber or Steel frames) A variety of Surface mounted overhead door closers (and accessories such as soffit brackets) that have been tested, assessed or otherwise approved for use on unlatched FD60 timber door leaves in timber or steel frames may be fixed to the exposed or unexposed face of a Forza flush door leaf or vision panelled leaf where the glazed element is 20% or less than the leaf size. Any accessory that is located within the door reveal must have appropriate test or assessment evidence by the closer manufacturer. The following closers may be installed on the exposed or unexposed face of a Forza vision panelled leaf where the glazed element comprises 12mm partially insulating glass up to 50% of the leaf size.

• Dorma TS92 • Frisco 73 series • Hoppe AR5500SD or AR9500SD

Concealed overhead: (Timber frame only) Several types of concealed overhead closers are suitable for inclusion in Forza timber door & frame assemblies as listed overleaf. These are a 'slide arm' type closers with the closer morticed into the head of the leaf and a single arm and roller acting in a slide channel morticed into the frame head.

Door Closers (continued)

- Dorma ITS96 (power 2-4 model)
- Dorint TC320 (power 2-4 model)
- Synergy S1000 (power 2-4 model)
- Rutland ITS.11204 (power size 2-4)
- Synergy S1036 (power 3-6 model).
- Geze Boxer (power 2-4 model)
- Geze Boxer (power 3-6 model)
- Boss Door Controls ITS6224 (power 2-4 model)

These closers have been tested by their manufacturers and subject to the limitations below may be used.

- Minimum stop depth at the head as stipulated by the closer manufacturers tested instructions.
- Inclusion of intumescent gasket kit as tested and supplied by the closer manufacture.
- A minimum of 10mm width of intumescent must be residual alongside the arm recess in the head of the frame or an additional 10 x 2mm strip of graphite intumescent strip must be included in the slide arm channel in the head of the frame.

The body of the concealed closer is not to be fitted in the frame head. Other makes of concealed closers may be suitable for use in leaves approved within the scope of the Forza certification but on the basis of an individual and specific fire engineering evaluation. Contact: tech@forza-doors.com

Concealed Jamb: (Timber frame only) The Perko Powermatic concealed jamb closers (R108) is suitable for inclusion in factory prepared Forza door and timber frame assemblies.

- Protection: The manufacturers intumescent Kit installed as per instructions.
- Maximum height position 1000mm from bottom of leaf to its centre.
- The top/bottom of the closer to be positioned at least 150mm from any hinges.
- Timber frame to have minimum 45mm face width.
- Concealed hinges are not permitted to be used when a Perko R108 is fitted.

Jamb mounted closers are not approved for use with door assemblies comprising of steel frames.

NOTE: When concealed closers are used in conjunction with the Assa Abloy 351 head mounted electronic locks, a minimum separation of 100mm must be observed.

Floor Springs and Accessories: (Timber frame only) Floor springs and accessories may be used, subject to having the manufacturers product fire test or assessment evidence for use on timber door & frame assemblies of similar construction and thickness to that being installed, and the following limitations:

- Incorporation of any intumescent jacket/gaskets used in the test and supplied by the manufacturer;
- Continuation of at least 20mm (total width) of the intumescent edge seals in leaf or frame head (as applicable); either 10mm along both sides of the top strap/pivot for double acting straps, or 20mm on one side for single acting straps;
- Minimum 1mm thick intumescent sheet (e.g. Interdens) must line the mortise of the top strap and pivot in both the door leaf and frame head (or as supplied by the floor spring manufacturer);
- No removal of the timber or intumescent strip at the leaf stile (except for a 6-8mm diameter access hole for the top strap adjustment screw).

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7. Electrically Powered Hold Open Devices to BS EN 1155:1997
(Timber or Steel frames)

Fully surface mounted hold open devices may be installed on leaves subject to:

- Maximum footprint of device on leaf 100mm x 100mm.
- Position to be a minimum 150mm from any glazed aperture.
- No cableway required within the door leaf.

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8. Electrically Controlled Exit Systems to BS EN 13637:2015

For suitability of installation contact the Forza Doors Technical Team: tech@forza-doors.com

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9. Power Operated Pedestrian Door Devices to BS EN 16005:2012
(Timber or Steel frames)

The GU DTN 80 complete with LZR-Flatscan SW sensor and the Label SPA NEXT 120s complete with BEA 4 Safe SW linear safety sensor has been tested and assessed for installation on Forza flush and Vision panelled (FD60/60 25mm glass) leaves.

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10. Double Door Sequence Selectors to BS EN 1158:2002
(Timber or Steel frames)

Face fixed door sequence / co-ordinators that fulfil the requirements of BS EN 1158 are permitted for use on double leaf door assemblies with rebated meeting stiles, to ensure that the leaves close in sequence. Door selectors must not be recessed into the leaf or frame and must not intrude into the door edge interface or interrupt any intumescent strips.

11. Cableway and Cable Loop (Timber frame only)

A Cableway and cable loop to provide a route for the connection of electric locks/strikes with command units are permitted subject to the following:

Permitted cable loops: Assa Abloy EA280, AE281, Securefast ALP101

- The device must be fitted precisely in accordance with the manufacturer's installation instructions.
- The door leaf rebate to be centrally positioned to accept the cable loop box and to be lined with a minimum 2mm thick graphite based (eg STS302) intumescent liner.
- The cover plate for the hole in the frame to be bedded on 2mm graphite based intumescent liner.
- The cableway may be incorporated in the door leaf in one of the following methods:

  A. A maximum of 15mm diameter hole drilled centrally in the door thickness and horizontally across the width of the door at a height of not more than 1200 mm above finished floor level and lined with a 10mm x 1mm STS Cablepro intumescent tube. The cableway must be located to provide for a minimum margin of 100 mm from any aperture in the door leaf.

  B. Forza factory prepared leaf for positioning around a vision panel.

NOTE: STS Cablepro intumescent tube is supplied loose for on site installation.

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12. Electronic Locks & Magnetic Locks (Timber frame only)

Positioning of lock recess / holes / intumescent and permissible leaf sizes as per Forza FZD drawings are available on the Forza website or contact: tech@forza-doors.com.

Electronic Locks to BS EN 14846:2008: A range of electronic locks incorporating battery / keycard reader / mobile access board and or key cylinder are suitable for inclusion in Forza door assemblies on the exposed or unexposed leaf face as listed below and detailed in the noted Forza drawings.

- Assa Abloy Vingcard Essence RFID V2 (FZD5333) FD60 54mm thick leaf
- NSP SMF Duo (FZD5324) FD60 54mm thick leaf
- Salto XS4 (FZD5322) FD60 54mm thick leaf
- NSP 613/614 MiFare (FZD5323) FD60 54mm thick leaf
- Assa Abloy 351U80 & 351M80 Drop bolt (FZD5329) FD60 54mm thick leaf
- Onity Advance Trillium RFID + Euro 5470H (FZD5325) FD60 54mm thick leaf
- Assa Abloy EL560 / 561 / 562 / 563 (FZD5328) FD60 54mm thick leaves
- Assa Abloy EL 520 / 532 (FZD5548) EL 160 / 360 (FZD5549) FD60 54mm thick leaves
- Assa Abloy AL560 & BL560 & card reader handle L100 (FZD5550)
- DormaKaba Saflock Quantum RFID (FZD5580) FD60 54mm thick leaves
- Salto XS4 'One' (FZD5555) FD60 54mm thick leaves
- Salto XS4 Original + (FZD5551) FD60 54mm thick leaves

Electromagnetic Locks: (Ref. Door Hardware Federation - DHF TS 010 :2016/19).

The lock body must have no essential part of the structure made from polymeric or other low melting materials and not contain any flammable material.

A variety of bolt through (via a security cylinder) maglocks (FZD5327) may be through fixed onto the door leaf(s) subject to the following conditions:

- Positioning: armature plate to be a minimum 70mm from leading edge of leaf and minimum 10mm from the head of leaf, maglock fixed to frame to engage with armature plate.
- Maximum dimension of armature plate: L185mm x H61mm x 16mm Thick
- Maximum dimension of maglock body: L288mm x H73mm x 40mm Thick
- Security Cylinder: maximum 12mm diameter surrounded by 1mm graphite intumescent.

A variety of face fixed maglocks (FZD5326) may be installed onto the door leaf(s) subject to the following conditions:

- Positioning: armature plate face fixed to be minimum 70mm from leading edge of leaf and minimum 10mm from head of leaf, maglock fixed to frame to engage with armature plate.
- Maximum dimension of armature plate: L200mm x H61mm x 16mm Thick
- Maximum dimension of maglock body: L305mm x H76mm x 44mm Thick

Face fixed maglocks may be installed with Z or L brackets. Bolt through and face fixed maglocks may be installed on the exposed or unexposed leaf face. Securefast AEMSF300 mortice shear electro magnetic lock Minimum 10mm from top edge and 50mm from side of leaf (FZD5556).

Electronic Digital Locks to EN 16867:2020/21

- Codelocks CL5010 with lever handle (FZD5331): Keypad H198mm x W70mm, Strike plate 57mm x 31mm
- Codelocks CI2255 with lever handle (FZD5332): Keypad H141mm x W41mm, Strike plate 57mm x 31mm

The keypad to be fitted to the known unexposed face only. 1mm Interdens around the 20mm / 25mm diameter holes. Pyroplex intumescent sealant around the 8mm holes.

13. Bolts for Inactive or Slave Leaves to BS EN 12051:2000 (Timber or Steel frames)

Bolts are not necessary for Forza FD60 double doors. However, the extra restraint provided by bolts does have a beneficial effect. Unless Specific fire test evidence is available for use on timber doors and frames, all bolts shall be steel. The following limitations and protection apply:

- Maximum size of flush bolt is 457mm long x 20mm wide and 25mm deep (relates to the deepest element of the bolt when in operation);
- The head of the leaf and/or frame should contain intumescent material local to the bolt/keep plate;
- The body of the bolt should be bedded on non-pressure forming intumescent material (e.g. Interdens) at least 1mm thick;
- Edge fixed bolts shall be positioned centrally in the slave leaf thickness with the meeting style intumescent in the active leaf.
- Flush bolts are not permissible on doors with rebated overpanels, since this will clash with the rebate alignment. Surface mounted bolts may be used; see below;
- Face fixed flush bolts shall be fixed so that there is a minimum of 50mm between the bolt and the door edge;
- Surface mounted barrel bolts shall not exceed 400mm in length, but there is no limitation on their width. Screws for fixing bolts must be at least 25mm long, and have thread for the full screw length. They shall be fixed so that there is a minimum of 50mm between the bolt and the door edge.

14. Pull Handles to BS 8424:2004 (Timber or Steel frames)

Pull Handles of varying length may be fixed to the door assemblies with multiple fixing points provided that the outer fixing points are no greater than 1500mm apart. Pull handles that are fixed through the leaf (steel fixings only) should use clearance holes as close fitting as possible to the bolt. Handles / fixings to be at least 40mm from door edge and any aperture.

15. Lever Handles & Knob Furniture to BS EN 1906:2012 (Timber or Steel frames)

Traditional mechanical metal/alloy lever handles not containing any flammable materials are suitable for Forza door leaves. Holes through the leaf shall be as tight as possible to the spindle. Fixing screws must be steel. Where leaves contain vision panels the fixing screws shall be at least 35mm from the visible edge of the glazing bead.

16. Emergency Exit Devices to BS EN 1125:2008 (Horizontal Bar) & BS EN 179:2008 (lever handle or push pad) (Timber or Steel frames)

Panic hardware may be surface mounted to door leaves provided that the installation does not require the removal of any core material from the door leaf. The panic hardware must not in any way interfere with the self-closing action of the fire door.

17. Push / Kick Plates (Timber or Steel frames)

Plastic, pvc or metal plates may be surface-mounted to the door assemblies, but, if more than 800mm in length by nominally 200mm wide, they must be attached in a way that would prevent them distorting the door leaf, e.g. glued with thermally softening adhesive or screwed with maximum 12mm long screws at minimum 250mm centres and fitted in such a way so they will not be prevented from falling away by being trapped under door stops, glazing beads or handle escutcheons. Factory prepared recessed plates are permitted. Contact: tech@forza-doors.com

18. Identification Plates to BS EN 5499-4 2013 (Timber or Steel frames)

Plastic or metal safety signs that comply with BS5499 may be glued or screwed to the face of the door leaf. A minimum 40mm spacing from leaf edge, hardware or vision panel(s) is required.

19. Letter Plates (Ref. DHF TS008:2015) (Timber or Steel frames)

Various manufacturers' letterboxes/plates that have been tested and assessed for the required period of integrity for use in 54mm thick timber FD60 doors may be installed. They must be fitted in accordance with the manufacturer's instructions, including all intumescent liners and flaps. Plates must not be less than 100mm away from the leaf edge, or any other aperture. Positioning above the finished floor level will depend upon the test evidence for the letterbox/plate.

20. Security Viewers (Ref. DHF TS002: 2009) (Timber or Steel frames)

Door security viewers may be installed subject to the following limitations:

- Viewers must not exceed 15mm diameter, and be made from brass or steel case with a glass lens;
- Holes bored through the door must be no greater than 1mm larger than the bore of the viewer and must be lined with 1mm Interdens sheet;
- The viewer must include an effective shutter/cover plate.

Viewers shall be a minimum 40mm from the door edge and any aperture. Multiple viewers may be installed subject to the following locations:

- Top security viewer: 1500 +/- 200mm from bottom of leaf
- Lower security viewer: 1050mm +/- 200mm from bottom of leaf
- Minimum space between viewers 200mm

21. Security Magnetic Opening Contacts to EN50131-2-6(5-3) (Timber frames only)

The DC 107, 124, 125, 887 and 888 recessed magnetic contacts by Carrier Fire & Security Ltd. are permitted for inclusion in Forza door assemblies. Plugs to be fitted central to the leaf thickness and bedded in intumescent mastic (FZD5334). Leaf Plug L. 40mm x Dia. 22mm. Frame plug L.29mm x Dia. 22mm. Frame cableway hole max. Dia.10mm and lined with intumescent mastic.

22. Automatic Threshold Dropseals (Timber or Steel frames)

The following dropseals may be morticed centrally into the base of Forza door leaves lined with 2mm graphite intumescent either side of the drop seal:

- Sealed Tight Solutions ST422 • Lorient IS8001 • Norseal NOR810S

Surface mounted threshold seals are not permitted.

23. Intumescent Air Transfer Grilles to BS EN1364-5:2017 (Timber or Steel frames)

Fire / Fire & cold smoke containment air transfer grilles tested and assessed for the required period of integrity are permitted for use with 54mm thick timber FD60 doors. They must be fitted fully in accordance with the grille manufacturer's instructions, including all intumescent liners, cloaking grilles/beads, (wire way as per note 11) and must be no larger than that for which test or assessment evidence exists.

The maximum combined aperture size for vision panels and air transfer grilles within a single leaf shall not exceed 0.5 m^2. Forza minimum edge distance for apertures shall take precedence when fitting air transfer grilles i.e from bottom edge of leaf: 200mm, top and side edges of leaf 150mm and between apertures 120mm.

24. Finger Trap Protection Devices to BS 8613:2017

The following finger guards may be used in association with single acting door leaves, installed in timber frames only, approved for exposure from either face subject to the device being fully surface mounted and set a minimum of 200mm from the base of leaf.

- Lorient LAS9050 • Lorient LAS9070 • Athmer NR25