Surehinge ANTI-BARRICADE PIVOT SYSTEM & Sureclose CONCEALED DOOR CLOSER

Installation Instructions

Revision History

Revision	Description	By	Date
2	Maximum gap under the door reduced from 10mm to 8mm for fire compliance. Fire stopping information added - pg 18-19. Exploded diagram part# amendments.	JY	30/01/2023

SAFEHINGE PRIMERA
t: 0330 058 0988
e: info@safehingeprimera.com

Use of Installation Instructions
These guidelines are for use only by parties expressly and directly authorised by Safehinge Limited or its authorised distributors to (a) evaluate the doorset for potential use and/or manufacture and/or (b) manufacture and maintain the doorset. No other use or disclosure of the guidelines is permitted.

Copyright and Patent
No part of this publication may be reproduced or edited in any form or by any means whether electronic, mechanical, photocopying, recording or otherwise, without Safehinge Limited's prior written permission. This document and all other documentation supplied by or on behalf of Safehinge Ltd are also copyright Safehinge Ltd – all rights are reserved.

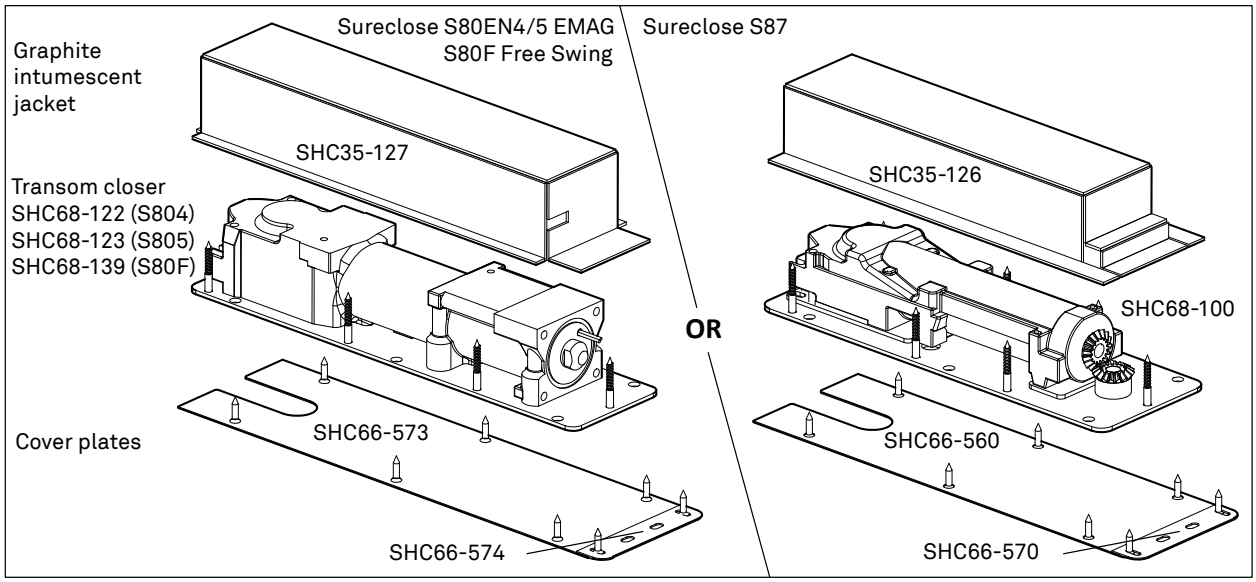
The Safehinge doorset is protected by intellectual property rights and is patent protected.

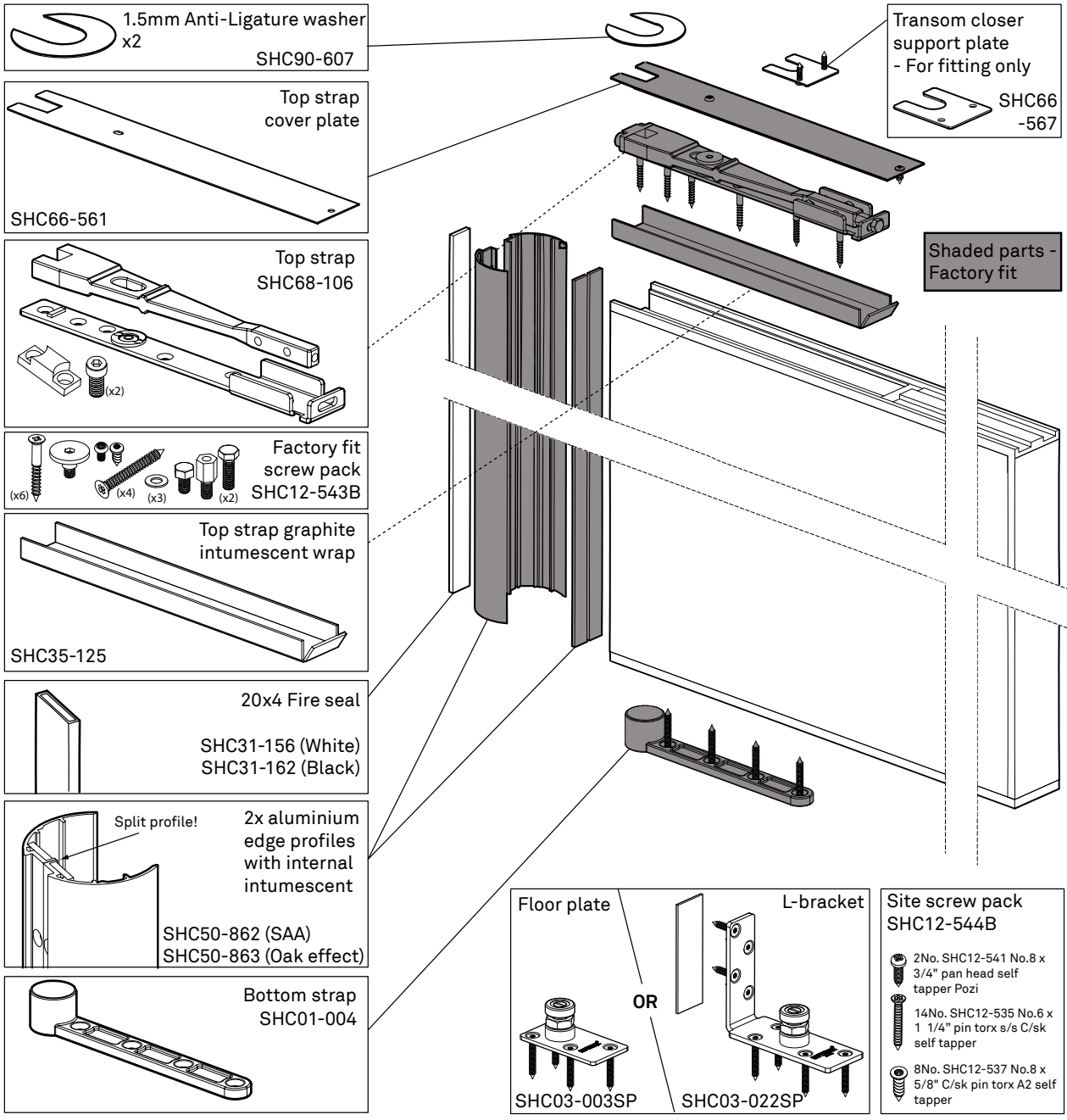
Disclaimer
Other than death or personal injury caused by negligence and other liabilities which may not be excluded or limited by law, Safehinge Ltd excludes any and all liability for (a) failure to follow the guidelines or other technical documentation in any manner; and/or (b) defective or inaccurate manufacture, installation and/or maintenance of the doorset and/or any of its components.

Copyright © 2023
Safehinge Primera Limited

What's in the Surehinge and Sureclose kit?

If you require replacement parts, please contact us.





Check List – Before installation

The points below are critical to accurate installation and product performance. Any deviation from these instructions could impact fire and mechanical performance. If in doubt, please contact Safehinge Primera for technical advice.

How the product is delivered:

1. Doors recommended to be supplied from manufacturer with top strap, bottom strap and aluminium profiles pre-fitted - see exploded diagram for component identification.
2. Safehinge supply intumescent that is in direct contact with Safehinge components. All other frame and door intumescent to be supplied by door manufacturer.

Tools required

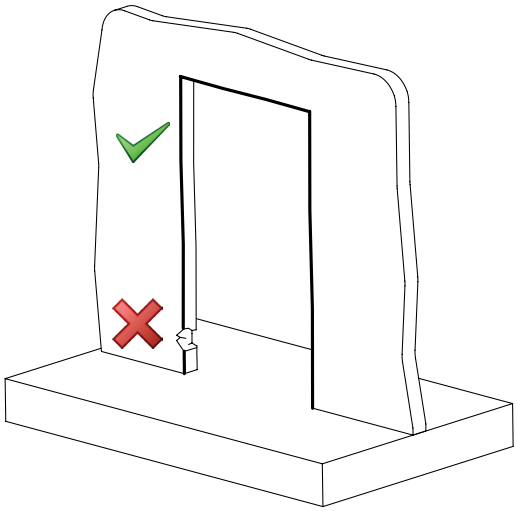
- Drill
- Drill for masonry (if required)
- Laser Level (strongly recommended)
- Pilot hole drill bits
- 5mm Flat head screwdriver
- Adjustable or 14mm and 22mm spanner.
- 5mm allen key (supplied)
- pozi no.2 driver bits
- Security drive pin torx bits - TX10, TX20, TX25 & TX30 - Complete set advised as drive size can vary

Consumables

- Plastic packers (1mm to 10mm range)
- Appropriate fixings for frame installation
- Appropriate back of frame fire stopping materials including timber lining material (if required)

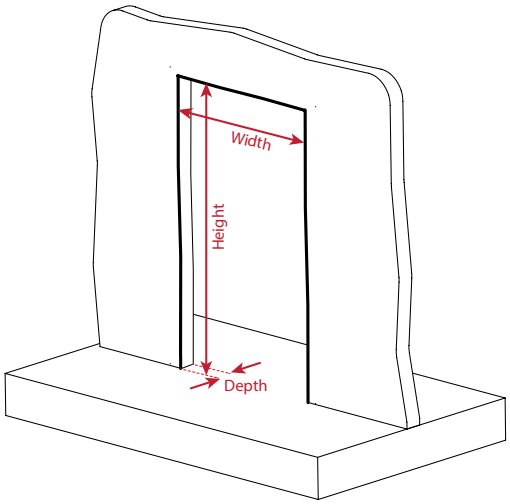
Opening Preparation

1. Remove existing door and frame if required.
2. If required, remove floor spring and fill cavity with cement.
3. Identify opening material and suitability for fixing. It is recommended to repair any large cavities. The opening itself must meet the classification of intended fire performance.
4. Any weakness or dimensional alterations to the structural opening MUST be addressed before installation can begin.



Pre-installation survey

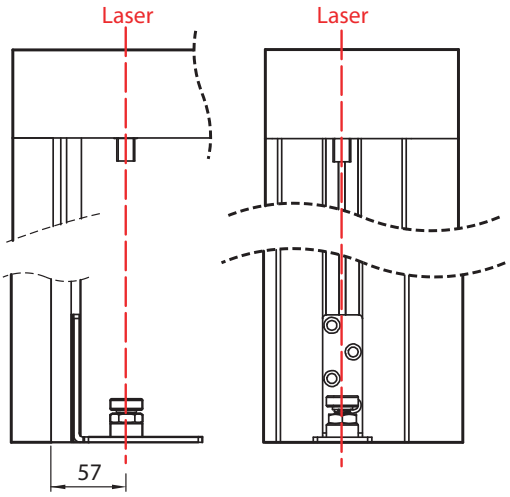
1. Check that the opening width, height and wall depth comply with the frame being installed.
2. The opening, the walls and the floor are suitably level.
3. Plan ahead to ensure the desired threshold gap can be achieved. Max. 8mm for fire performance and Min. 5mm to allow the door to be hung without interference.



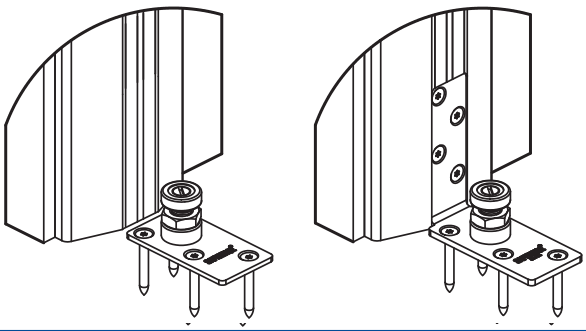
Check List - During installation

The points below are critical to accurate installation and product performance. Any deviation from these instructions could impact fire and mechanical performance. If in doubt, please contact Safehinge for technical advice.

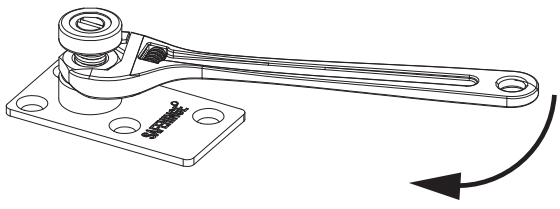
1. The frame and pivot points MUST be precisely level in both axis, 57mm offset from the inside face of the frame. See pages 7, 8 & 9



2. Use ALL Floor plate or L-bracket fixings supplied. The L-bracket MUST be fixed to the frame AND floor. See page 9

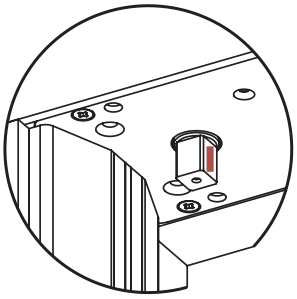


3. Bearing stem lock nut MUST be tightened after height adjustment. See page 10

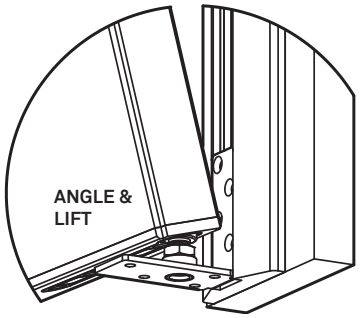


4. **CAUTION** - Installing the door requires 2 people.

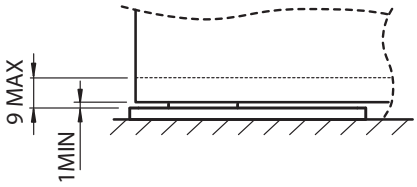
5. Mark closer zero position to ensure correct orientation when hanging the door. See page 12



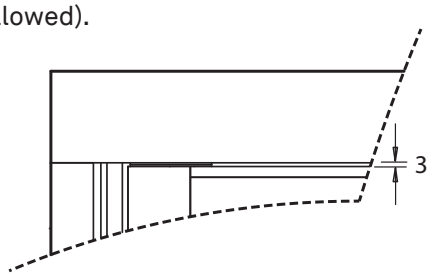
6. To preserve bottom bearing, LIFT the door on and off - AVOID excessive door angle. See page 12



7. If gap between bottom pivot plate and door exceeds 9mm, a long stem bearing MUST be used. See page 11



8. Gaps between door and frame MUST be 3mm (2-4mm allowed).

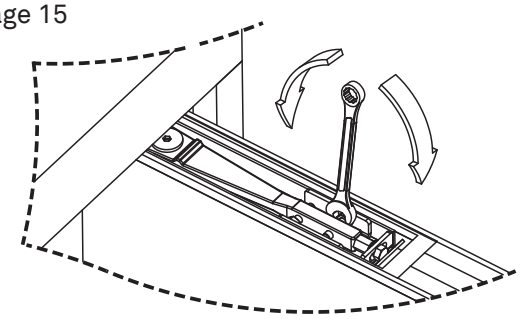


9. All exposed fixings must be security drive pin torx (as supplied). Pozi drive used for applications outside of the Mental Health sector.

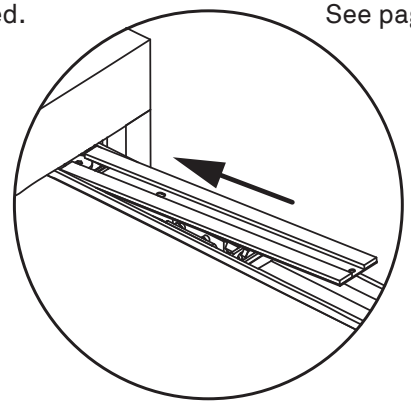
Check List – During installation

The points below are critical to accurate installation and product performance. Any deviation from these instructions could impact fire and mechanical performance. If in doubt, please contact Safehinge for technical advice.

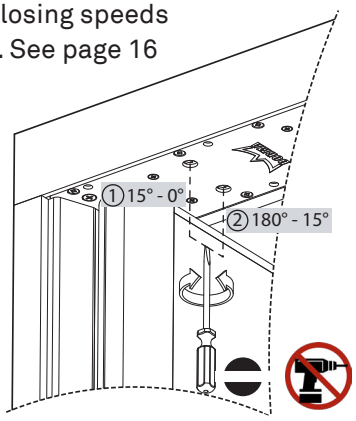
10. Adjust closing angle to suit lock position. See page 15



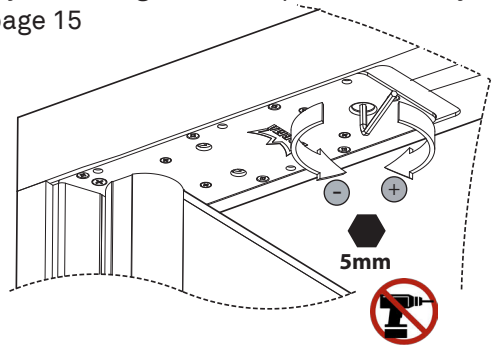
11. Top strap cover plate must be pre-fitted with intumescent strips and secured with 2no. fixings supplied. See page 15



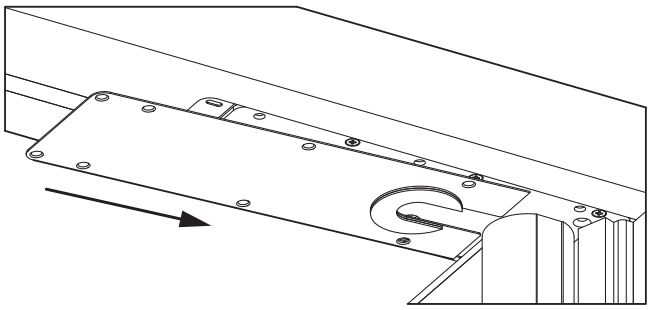
12. Adjust closing speeds accordingly. See page 16



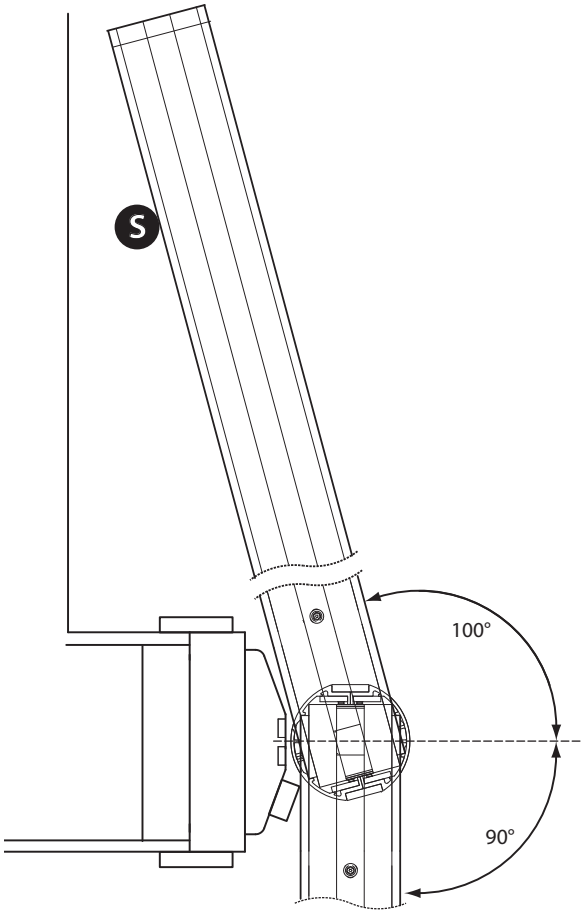
13. Adjust closing force if required (S87 only). See page 15



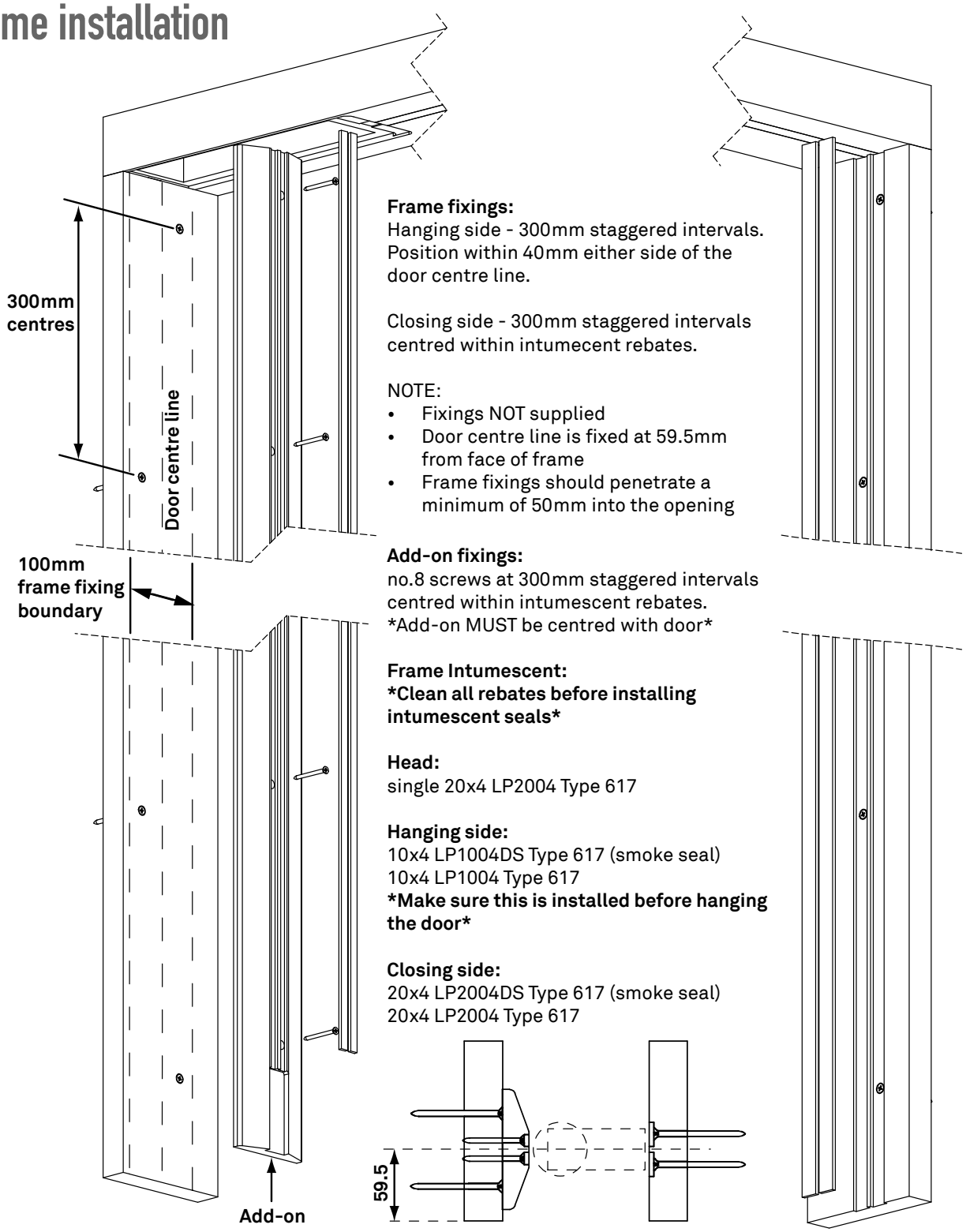
14. Anti-ligature washers MUST be fitted to closer cover plate before installing. See page 17



15. All doors MUST be restricted to 100° opening angle. See page 21



Frame installation



Frame fixings:
Hanging side - 300mm staggered intervals. Position within 40mm either side of the door centre line.

Closing side - 300mm staggered intervals centred within intumecent rebates.

NOTE:
- Fixings NOT supplied
- Door centre line is fixed at 59.5mm from face of frame
- Frame fixings should penetrate a minimum of 50mm into the opening

Add-on fixings:
no.8 screws at 300mm staggered intervals centred within intumescent rebates.
Add-on MUST be centred with door

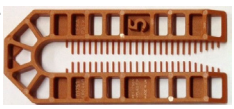
Frame Intumescent:
Clean all rebates before installing intumescent seals

Head:
single 20x4 LP2004 Type 617

Hanging side:
10x4 LP1004DS Type 617 (smoke seal)
10x4 LP1004 Type 617
Make sure this is installed before hanging the door

Closing side:
20x4 LP2004DS Type 617 (smoke seal)
20x4 LP2004 Type 617

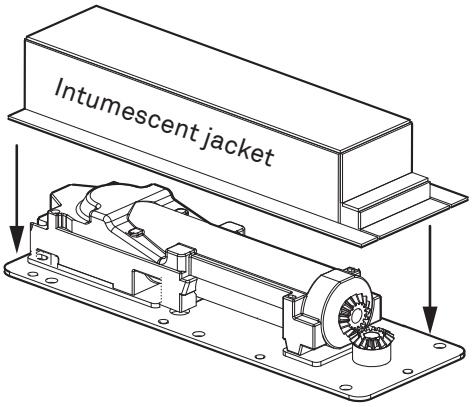
TIPS:
- Pack the frame off the ground with caution, allowing for door head, threshold gaps and floor finish.
- Use frame packers directly at all screw positions.
Safehinge recommend this type -



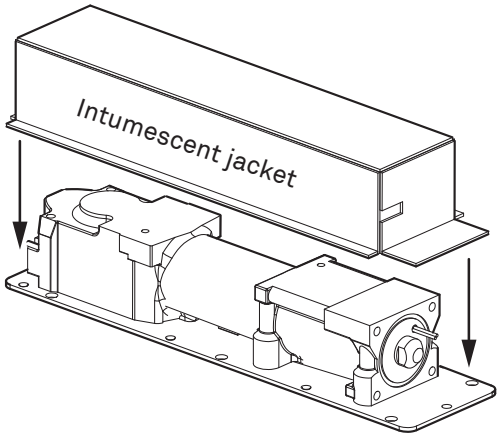
- Use full length timber lining material if fitting tolerances is greater than 10mm.
- Strongly recommend using a laser level at all times.
- Recommend leveling the closing jamb AFTER the door is hung. Allows accurate gapping and even contact with door stop products.

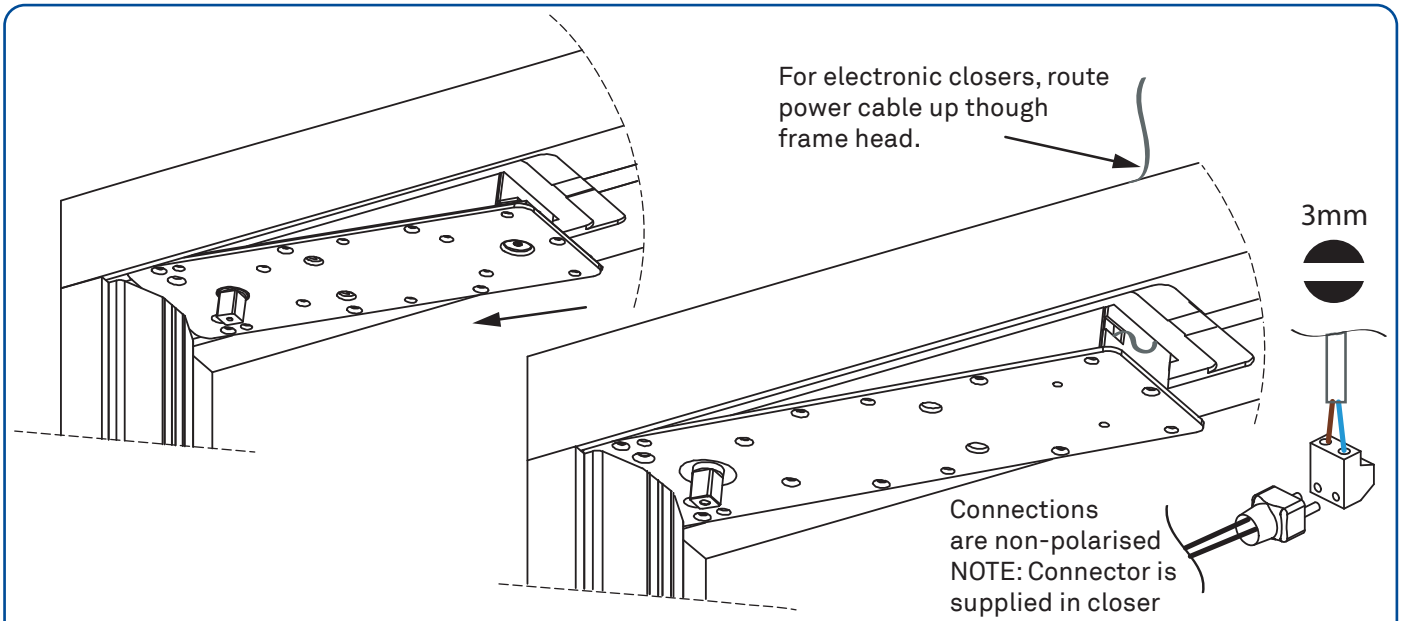
Closer installation

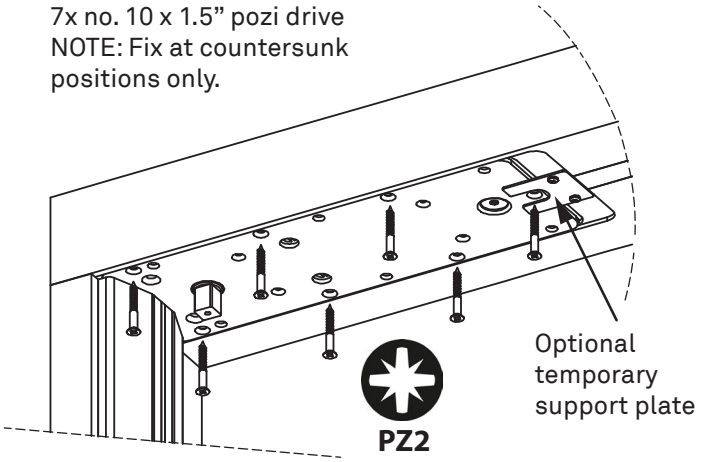
NOTE: No adjustment required at this stage.

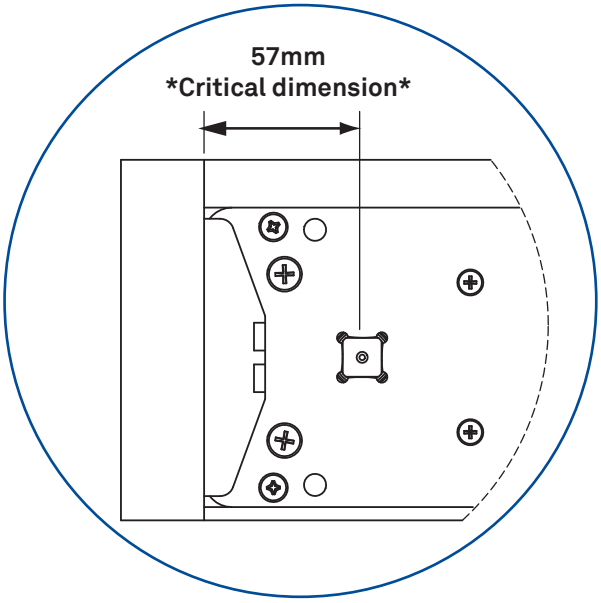


Peel off yellow backing paper and bond to closer as shown





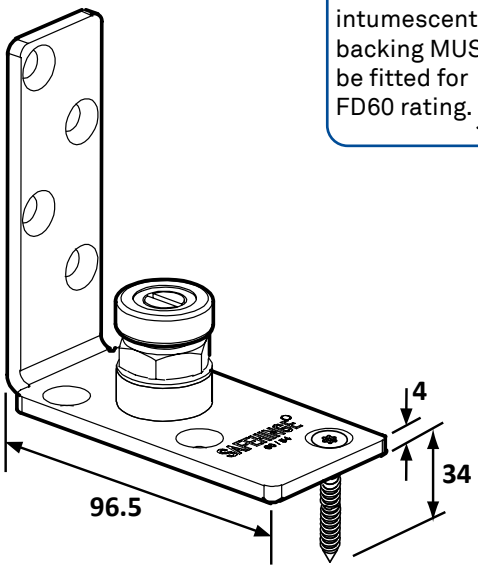




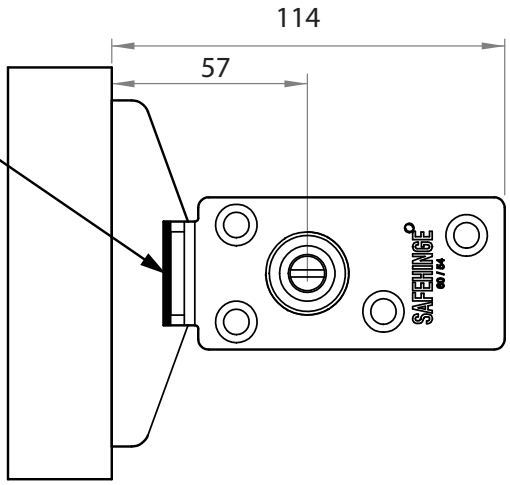
Bottom pivot installation

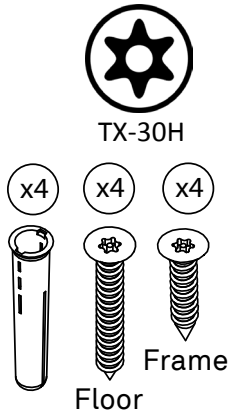
All supplied fixing MUST be used

L-bracket option

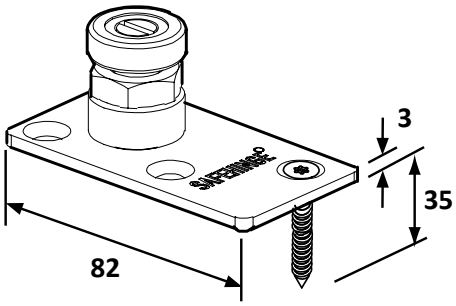


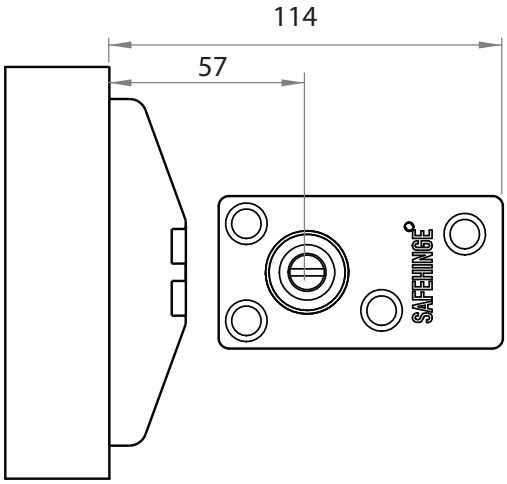
NOTE: 2 mm intumescent backing MUST be fitted for FD60 rating.

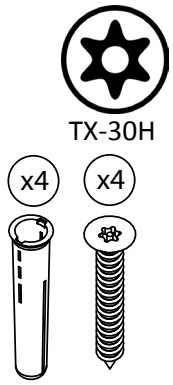


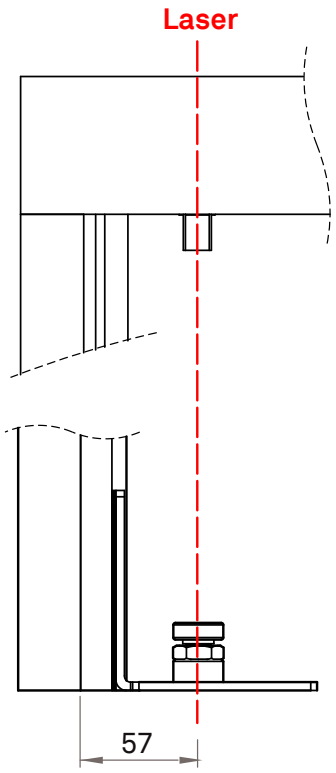


Floor plate option









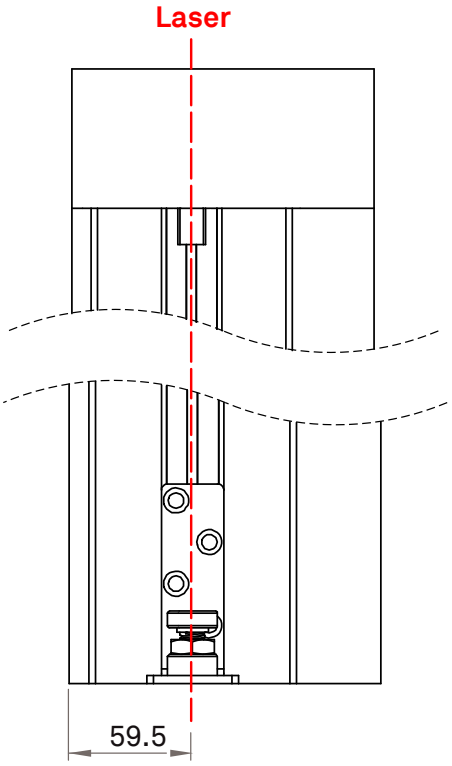
CRITICAL

Before fixing the bottom pivot, use a laser level to verify the bearing is exactly in line with the closer spindle - *Check both axis*

If there is a mis-alignment, it is likely the frame will need adjusted.

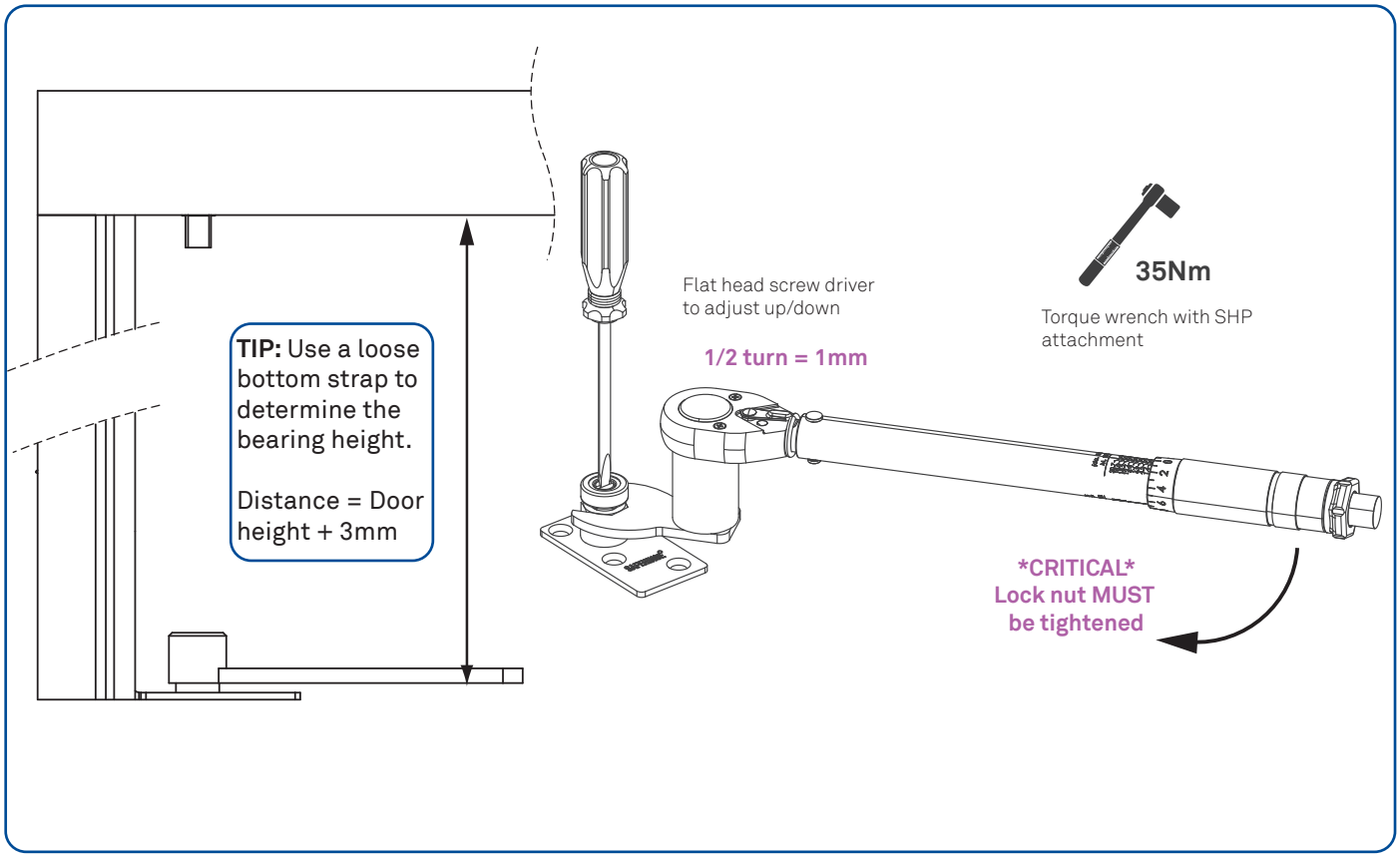
This process will ensure precise door position and performance.

TIP: Fix with 2 screws first - this will allow adjsutment later if required.



Bottom pivot adjustment

Before hanging the door, the bottom pivot MUST be adjusted to the correct height.
NOTE: The door must be removed each time the bearing is adjusted.



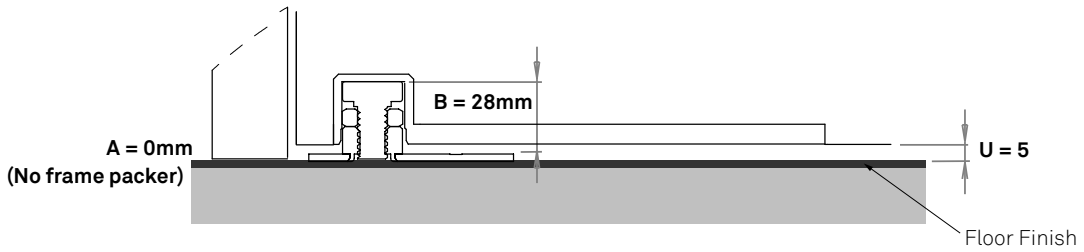
Bottom pivot adjustment

Door are typically manufactured with a 5mm undercut (U) as standard. Check before installation.

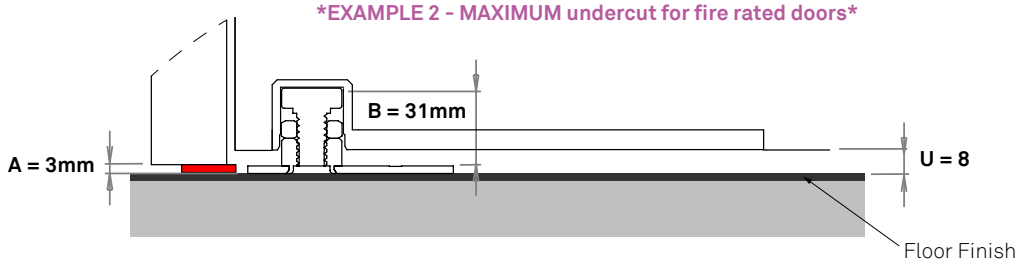
Bearing height (B) = 28 + Distance between the frame and floor plate (A)

Installation and fire compliant range

EXAMPLE 1 - NOMINAL

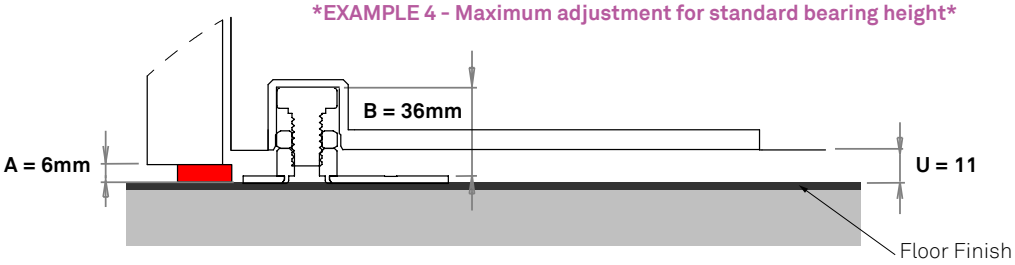


EXAMPLE 2 - MAXIMUM undercut for fire rated doors

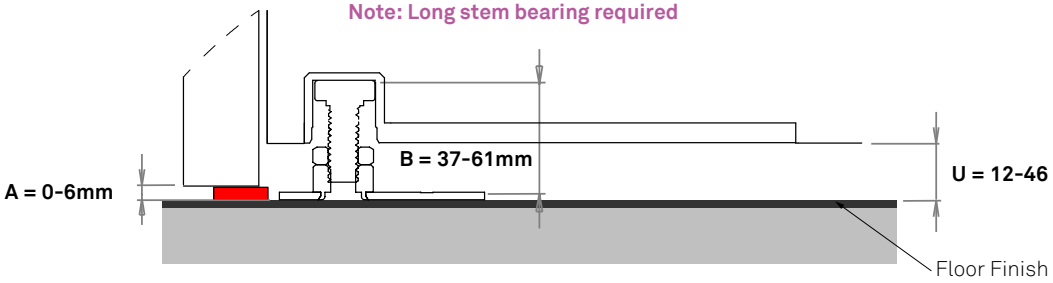


Warning - Non-Fire rated, large undercut range

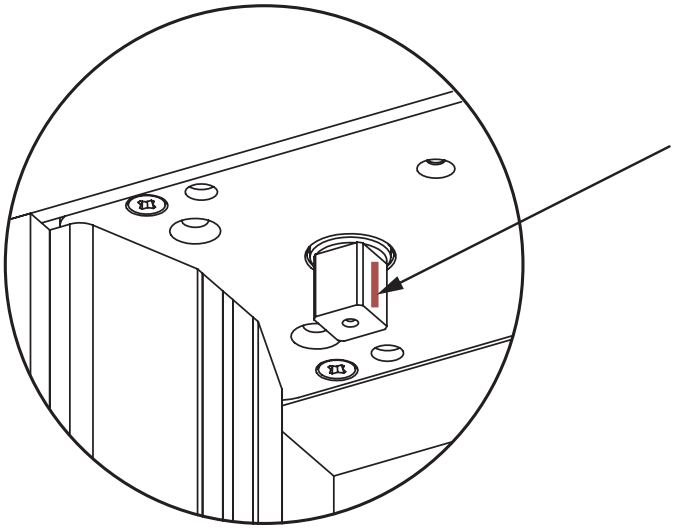
EXAMPLE 4 - Maximum adjustment for standard bearing height



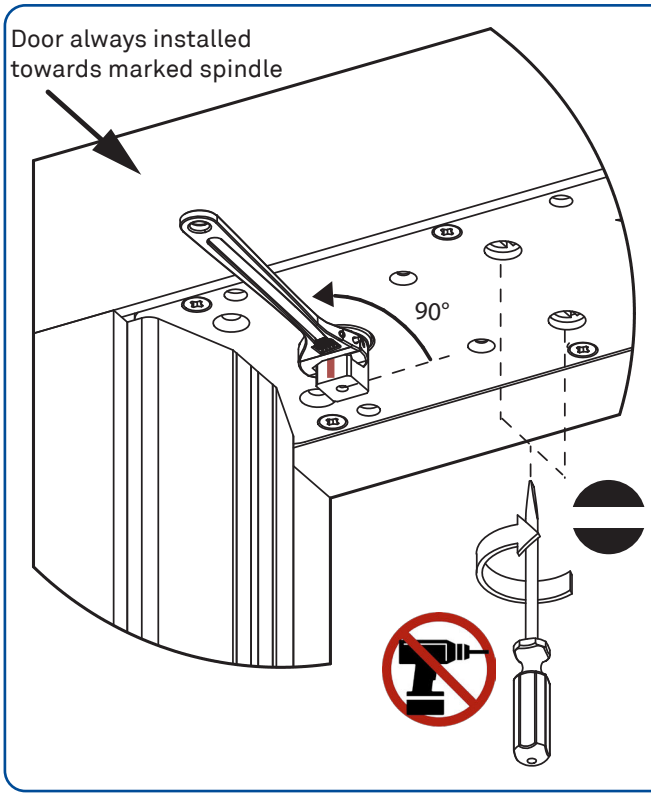
EXAMPLE 5 - Non standard large undercut
Note: Long stem bearing required



Door installation – step by step



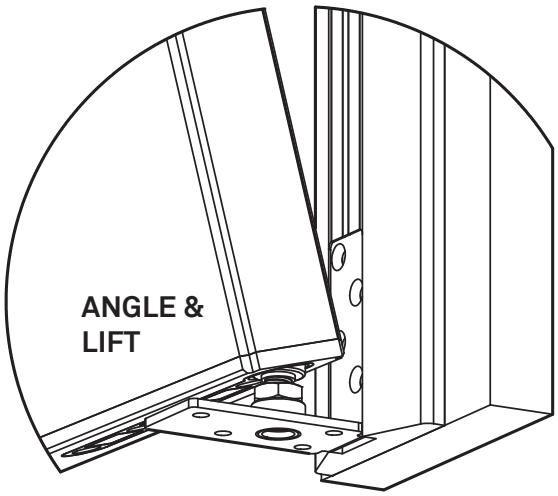
Step 1
Mark spindle zero position - this will help ensure the spindle is in the correct orientation relative to the door.



Step 2
Tighten the closing speed valves using a small flat head screw driver. DO NOT use a power tool

Step 3
Using a 14mm or adjustable spanner, crank the spindle approximately 90° in direction of door hanging. The spindle can creep back slowly so keep an eye on the zero position marked earlier on the spindle.

TIP: It is normally easier to install the door in the direction of closer offset.



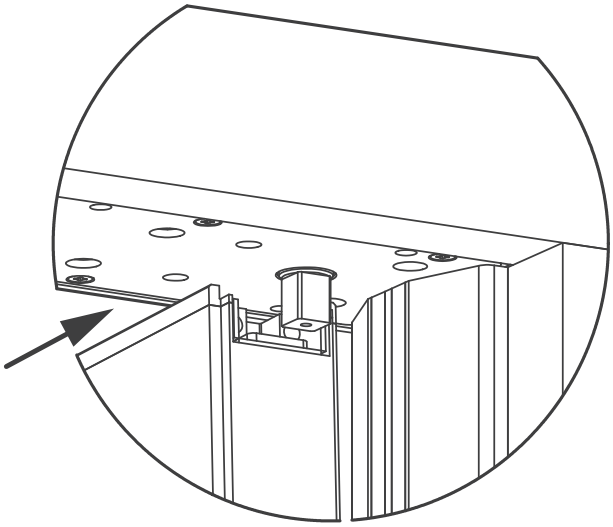
Step 3
Remove aluminium profiles from the door to access the end load top strap. TIP: Mark the top of each profile to remind you which profile fits to which side of the door.

CAUTION: HEAVY DOOR
2 PERSON OPERATION

Step 4
Position the door at 90° to the frame. Angle the door inside the frame and lift onto the bottom pivot.

AVOID excessive door angle as this can damage the bottom pivot bearing.

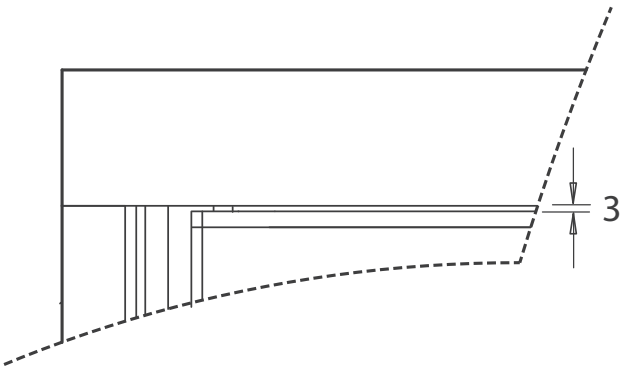
Door installation - step by step



STEP 5

Guide the door onto the closer spindle. Remember to install towards the marked spindle

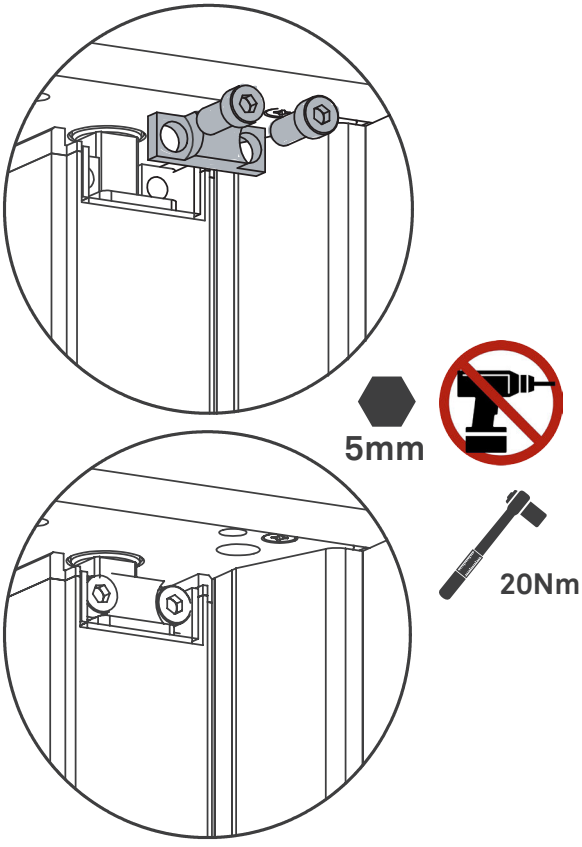
TIP: One person hold the door and the second, guide the door while instructing angle correction



STEP 6

Check the head gap. Adjust the bottom pivot bearing if necessary.

Gap MUST = 3mm (2-4mm allowed)



STEP 7

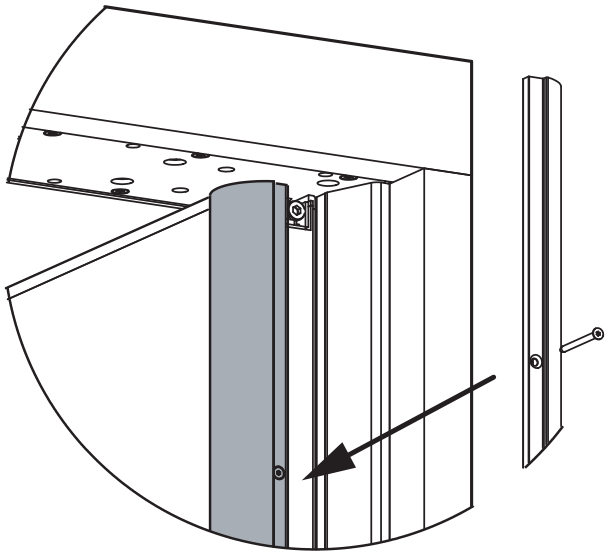
Lock in place with end cap and black machine screws using a 5mm allen key.

TIGHTEN TO 20Nm

STEP 8

Slacken the closing speed valves to allow the door to close.

Door installation – continued

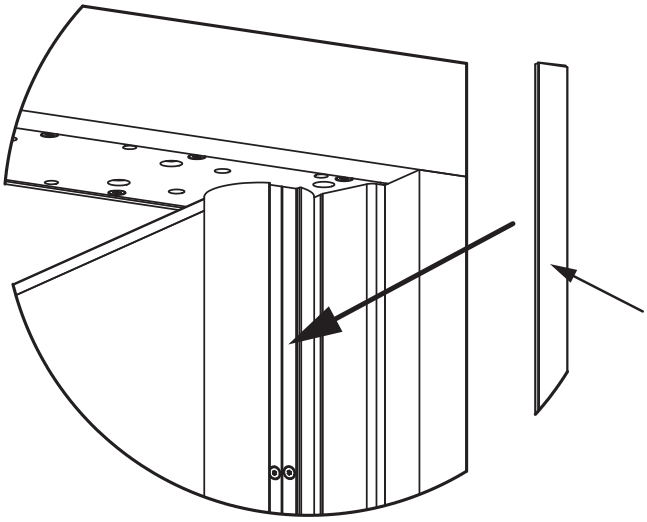


Installing profiles

With door open, re-install the aluminium profiles.
Fix with supplied 12x No.6 x 1 1/ 4" pin torx screws

TX15H

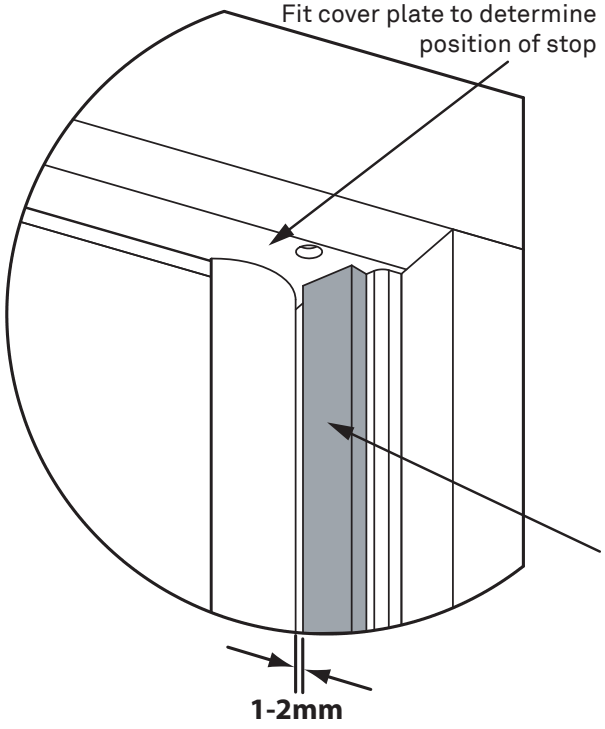
DISCARD ANY SHORTER FIXINGS THAT MAY HAVE BEEN FITTED BY THE DOOR MANUFACTURER.



Installing intumescent

Clean the profile rebate before installing the 20x4 self adhesive intumescent strip.
NOTE: Length = Door height
NOTE: DO NOT fit a smoke seal onto the profile

20x4 LP2004 Type 617



Installing privacy planted stop
Note: Not required on corridor doors

Align the stop with the top of the chamfered add-on piece. Fix at 300mm intervals spaced 1-2mm from the aluminium profiles.

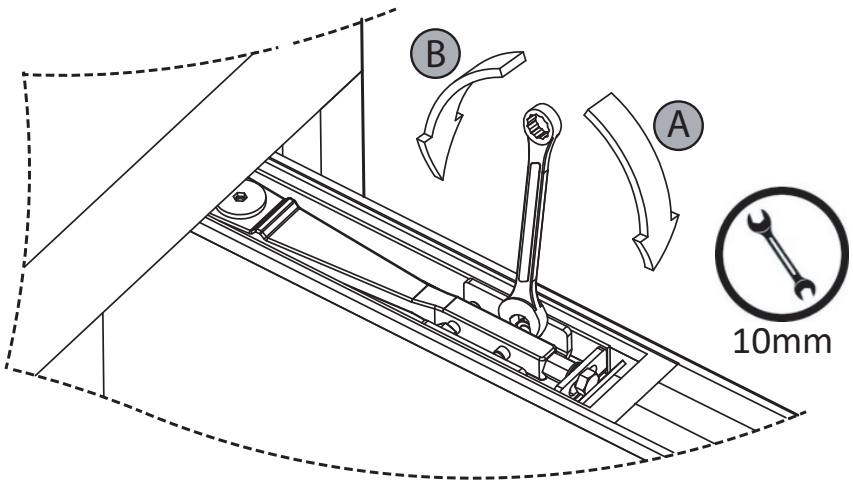
Tip: Temporarily fit closer cover plate and position stop up to meet it. This will ensure the cover plate has the correct clearance to allow accurate final fit later.

Tip: Use a 1-2mm packer to space away from profiles. Use the packer to protect the profiles at fixing locations. This gap is critical for activation of the intumescent seals in the event of a fire.

Fixings NOT supplied

Closing angle adjustment – step by step

NOTE: Only if required

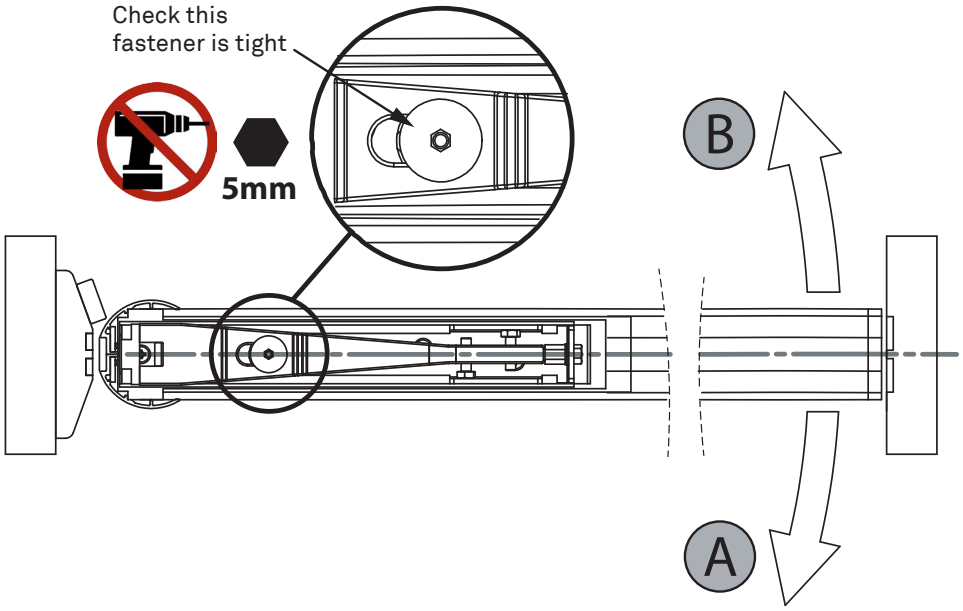


Step 1
Remove top strap cover plate if already fitted.

Step 2
Slacken 10mm bolt at the end of the arm

Never adjust the length of the arm as this will interfere with door rotation

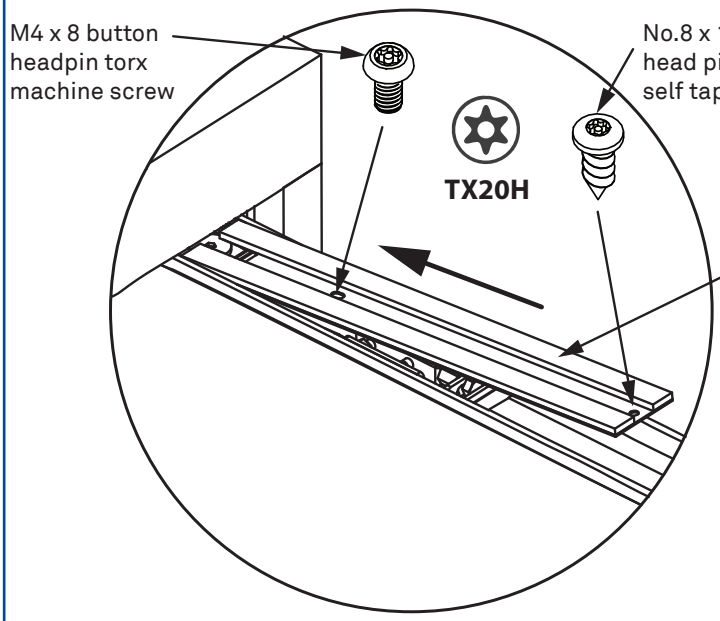
Step 3
Adjust the 10mm bolts in/out to rotate the arm around the spindle.



Step 4
Allow the door to close and check zero position of lock OR against door stop

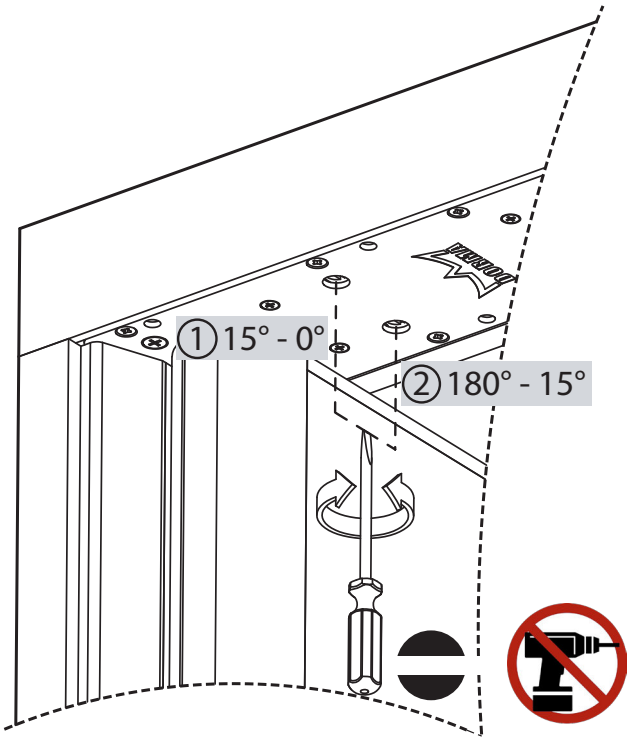
Step 5
Tighten all fixings

TIP: When closing against a door stop, it is best to bias the door against the stop.



Step 6
Refit/install top strap cover plate
MUST be installed with intumescent seals pre-fitted
NOTE: for FD30/60 the door head MUST have continuous seals:
15x4 LP1504DS Type 617 (smoke seal)
15x4 LP1504 Type 617

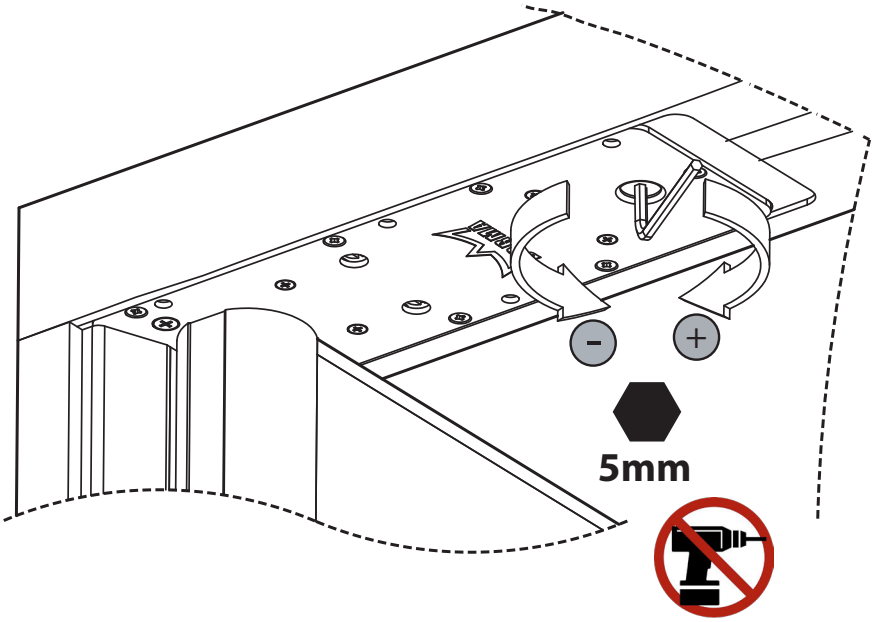
Closing speed & force adjustment



Closing Speed
Adjust by opening/closing closer valves.
1. Closing speed 180° - 15°
2. Latching speed 15° - 0°

NOTE: Smoke seals add friction so it is best to adjust after all seals are installed.

This will form part of the Maintenance Procedure.



Closing Force
NOTE: Only applies to standard closer (S87)

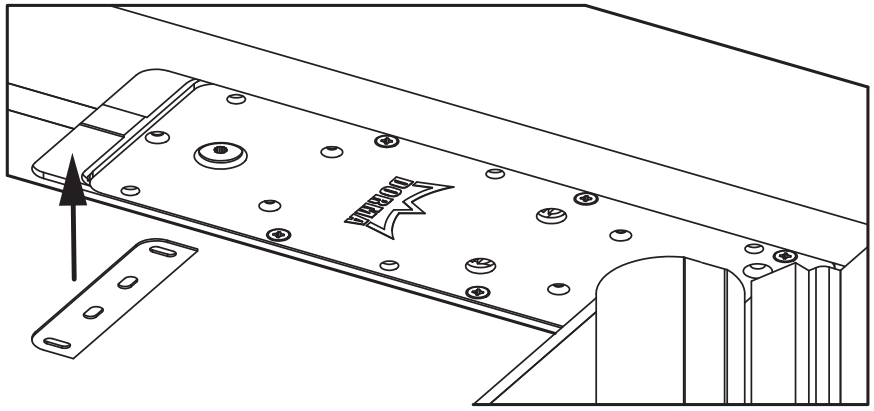
Adjust by tightening/loosening closer spring using a 5mm allen key.

Closer is factory set at EN3 power but can be adjusted from EN1-4
Note Min. EN3 rating is required for fire performance.

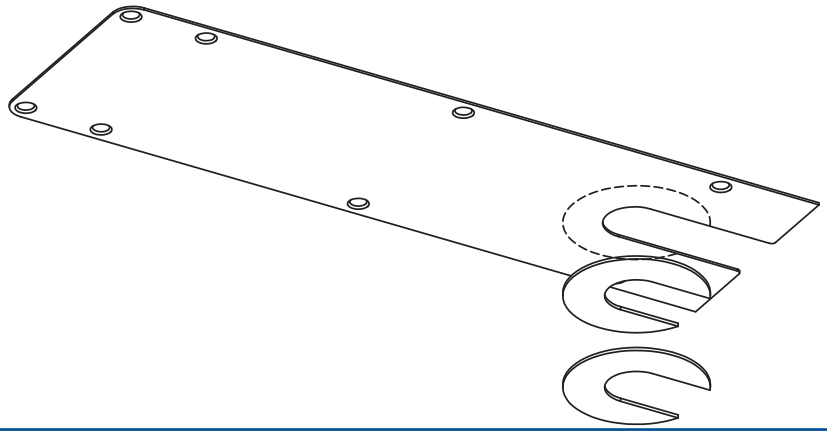
For doors ← 950mm wide adjustment may not be necessary, however opening forces must be considered along with adverse air pressure.

For doors ← 1100mm wide, Safehinge advise increasing the spring force to ensure door closes from any angle, again opening forces must be considered along with adverse air pressure.

Cover plate installation – step by step

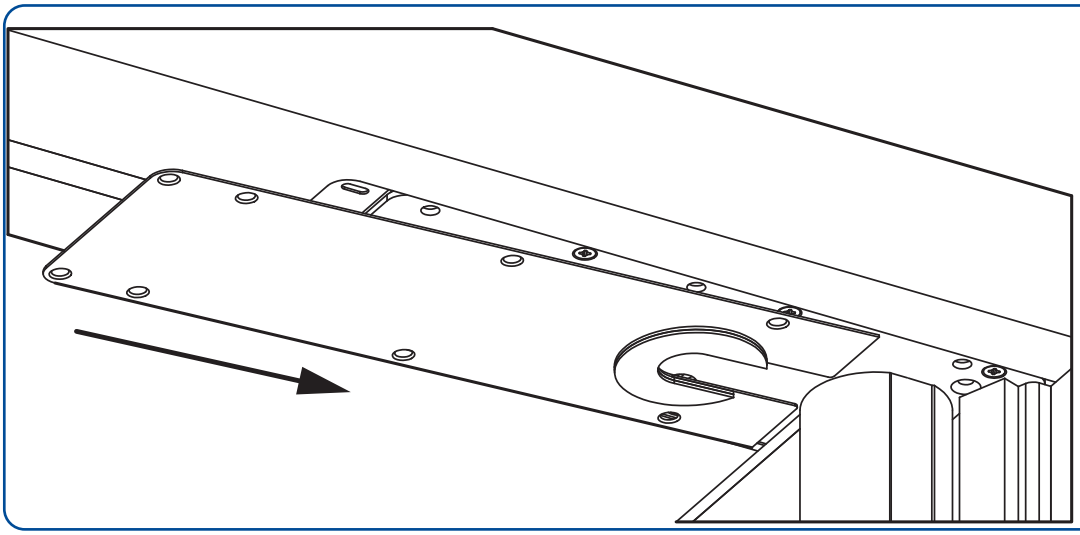


Step 1
Place small cover plate so it underlaps the main cover plate.



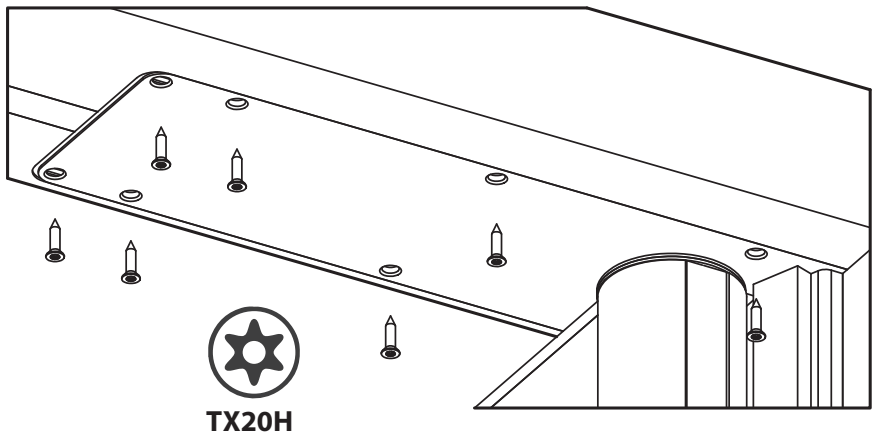
Step 2
Depending on the gap, Fit 1 OR 2no. self adhesive anti-ligature washers to cover plate. Ensure they align neatly with the cut out.

There should be less than 1mm gap between top of door and washer



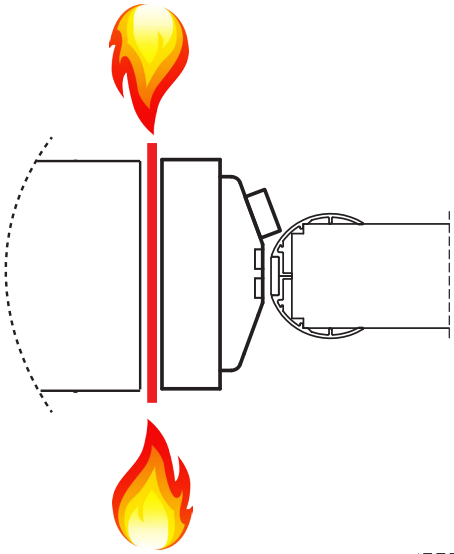
Step 3
Slide cover plate assembly into place. The cover should be flush with the frame head

NOTE: cover plate needs removed for closer adjustment



Step 4
Secure with 8x No.8 x 5/8" C/sk pin torx screws

Firestopping

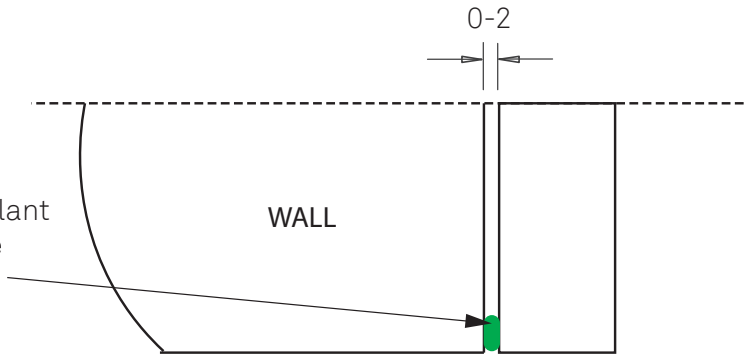


The firestopping requirements between the back of the frame and wall are dependant on the gap size between the substrates. The below information provides the requirements based upon the gap sizes.

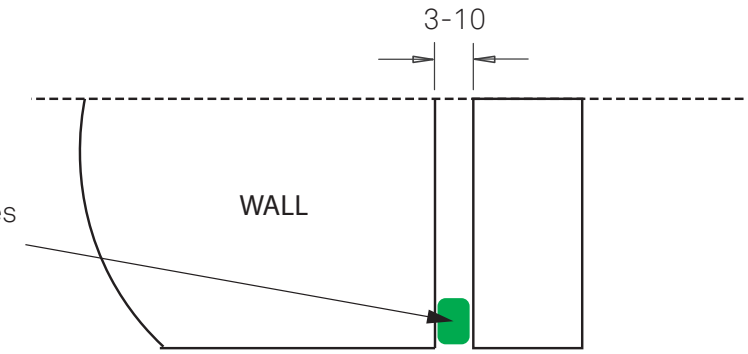
Further guidance for sealing frame to structural opening gaps is also given in BS 8214:1016, Timber based fire door assemblies. COde of practice, thich may be implemented where approporiate.

Note: Architraves are recommended for all installations

Gap = 0-2mm
Bead of acrylic intumescent sealant with architraves covering the junction on both sides

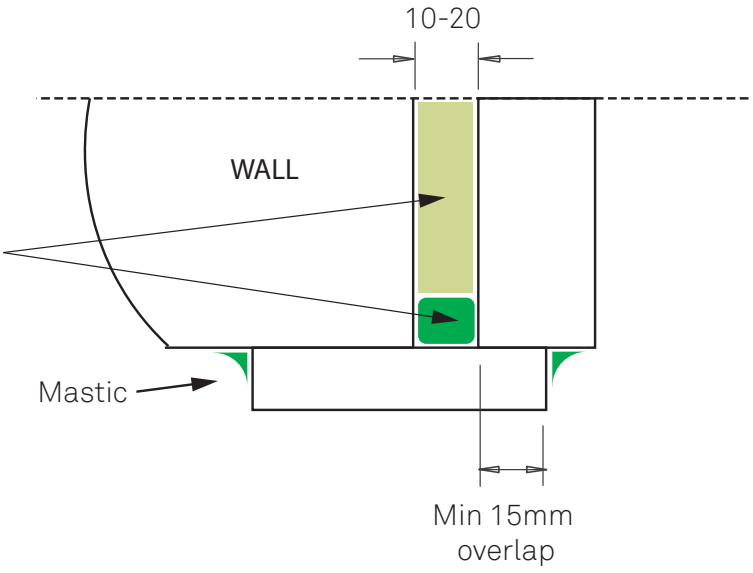


Gap = 3-10mm
10mm thick bead of acrylic intumescent sealant with architraves covering the junction on both sides



Gap = 10-20mm
Tightly packed with mineral fibre capped on both sides with a 10mm thick bead of acrylic intumescent mastic, or full depth expanding PU foam, fire tested for this application to BS476 Part 22:1987 or BS EN 1634-1.

Timber architraves of a minimum 15mm thick must be fitted to both faces, fitted with a minimum 15mm overlap to the door gap.



Firestopping continued

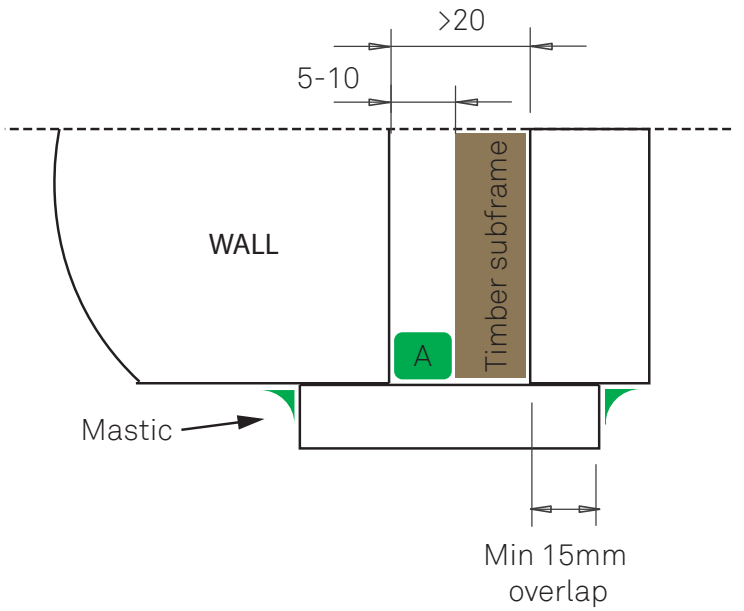
Gap = Greater than 20mm

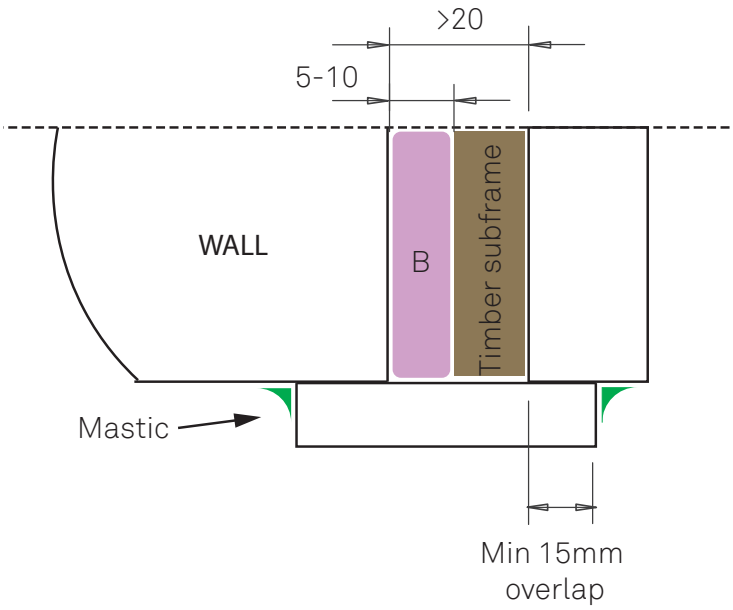
A timber based or non-combustible subframe up to 50mm thick can be inserted and fixed to the wall and the gap between the subframe and wall filled as follows

A) Gaps 5-10mm filled on both sides with a 10mm thick bead of acrylic intumescent mastic, fire tested for this application to BS476 Part 22:1987 or BS EN 1634-1.

B) Full depth expanding PU foam, fire tested for this application to BS476 Part 22:1987 or BS EN 1634-1.

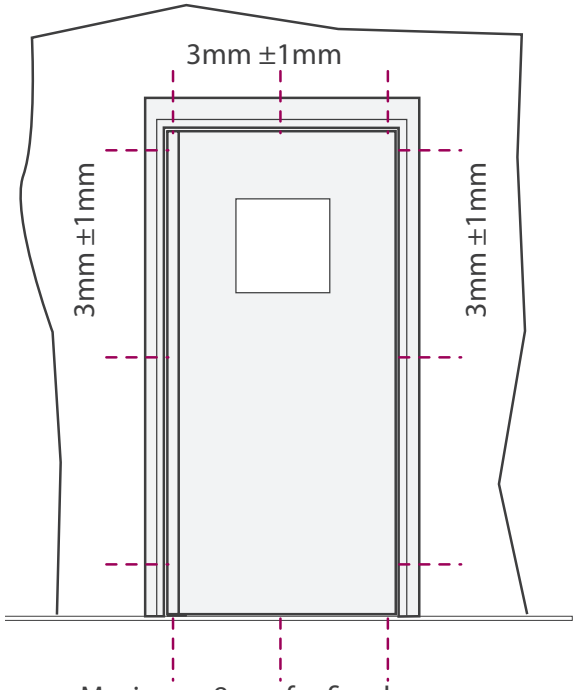
Timber architraves of a minimum 15mm thick must be fitted to both faces, fitted with a minimum 15mm overlap to the door gap.





Door gaps

Consistent and accurate door gaps are critical for doorset function. Check the gaps using gap gauges (or packers) at the points highlighted.

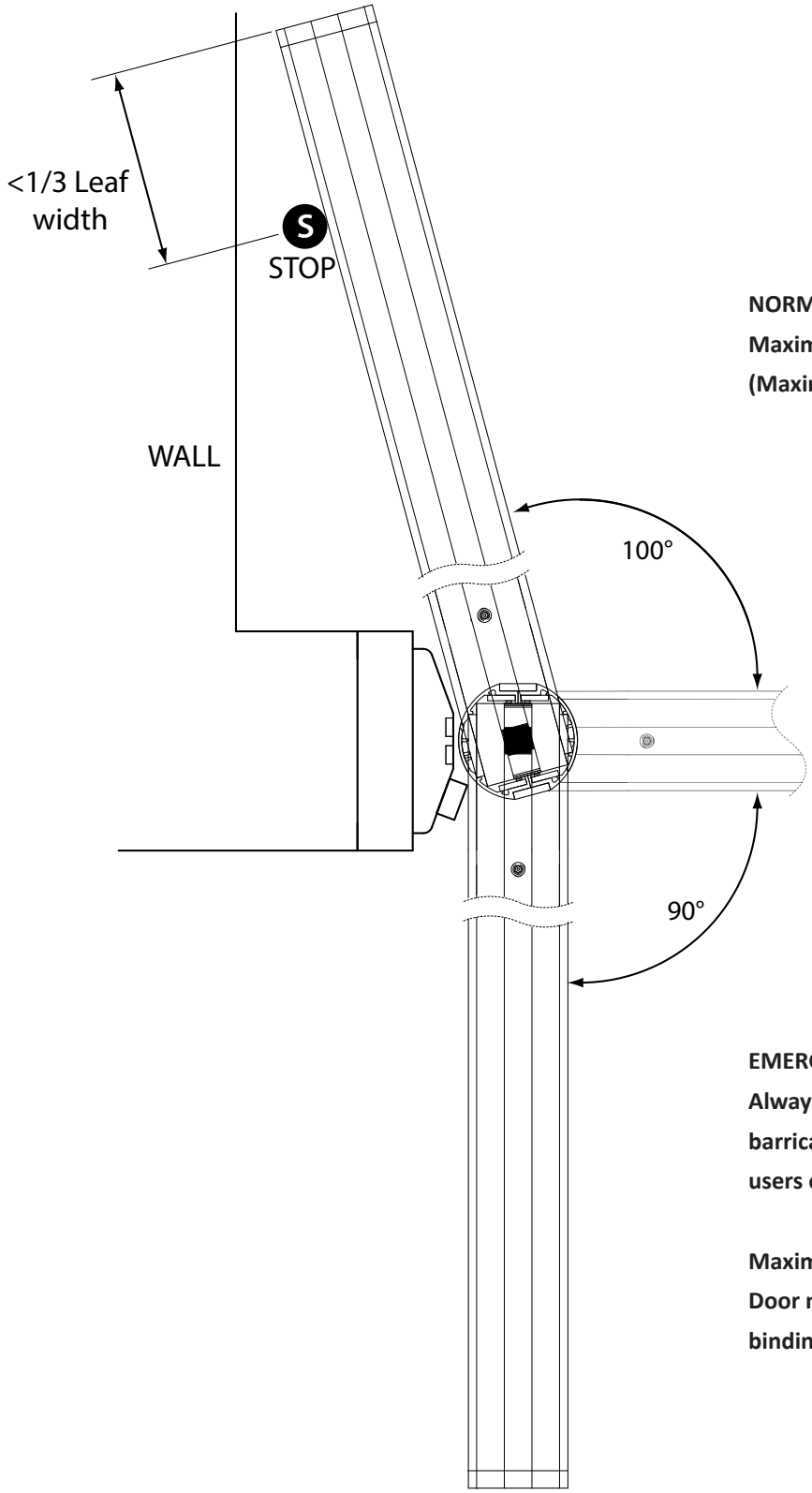


Maximum 8mm for fire doors
Minimum 5mm for door hanging/removal.

Opening angle – *MUST be restricted to 100°*

NOTE All pivot doors have a maximum opening angle beyond which they will “bind” on the door frame. Binding exerts extreme forces on the door, frame and ironmongery and may lead to damage/failure. Sureclose with back check will typically result in a more controlled door however it is critical that measures are taken to prevent binding from occurring. A typical emergency release bedroom door is shown below.

Maximum opening angle 100°



NORMAL OPERATION

Maximum stop angle: 100°

(Maximum opening angle: 110°)

EMERGENCY RELEASE OPERATION

Always controlled by staff members - Anti barricade stops are used to prevent service users opening the door outwards.

Maximum opening angle: 90° before bind. Door must be protected manually from binding as unconstrained in this direction.