



MANUAL OF INSTALLATION

BLOCKCURTAIN EI60

***with tubular drive unit, for wall-mounted or corridor-closure
indirect or direct installation***



1. PREPARATION

1.1. Tools required:

- Hammer drill
- Cordless screwdriver with accessories
- Riveter
- Angle grinder
- Level
- Tape measure

1.2. Essential installation fasteners included:

- List of anchoring components for the shaft bracket ceiling/wall-mounted installation

Fischer FAZ II 10/100 bolt anchor (or equivalent, ref. Table: Bracket anchors)

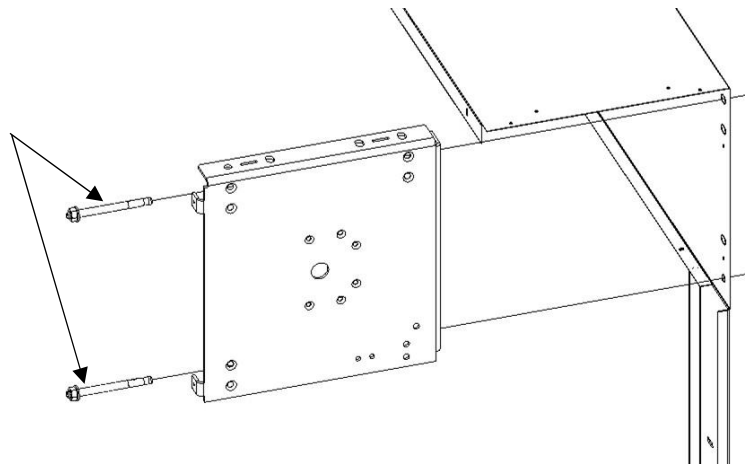



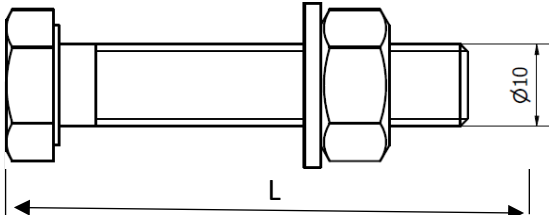


Fig. 1. Shaft bracket installation diagram

<p>– Fischer FAZ II 10/100 bolt anchor (or equivalent)</p>  <p>145 mm</p>	<p>R-f or solid concrete (standard)</p> <p>Quantity: 4</p> <p>– Anchor drilled hole diameter= 10mm – Min. drilling depth= 100mm – Min. substrate thickness= 120mm</p>
<p>– Fischer FIS VS chemical anchor (threaded rod) with injection grout (or equivalent)</p>  <p>145 mm</p>	<p>Solid masonry walls (concrete blocks, silicate blocks, or solid bricks) and hollow masonry walls (hollow blocks, Porothersm blocks, U-type hollow bricks, and Max hollow bricks)</p> <p>Quantity: 4</p> <p>– Min. drilling depth= 100mm – Anchor drilled hole diameter= 18mm – Min. wall thickness = 240mm</p>

<p>- Fischer FPX-I anchor (or equivalent)</p>  <p>75 mm</p>	<p>Cellular concrete block walls (Ytong, Solbet, Siporex, Suporex, etc.)</p>
<p>- M10 bolts</p>  <p>L</p> <p>Ø10</p> <p>- Threaded rods</p>	<p>Quantity: 4</p> <p>- Min. drilling depth= 95mm - Anchor drilled hole diameter= 14mm - Min. wall thickness = 240mm</p> <p>Steel substructures</p> <ul style="list-style-type: none"> • M10 bolt (ISO 4017) class 8.8 • M10 nut (ISO 4032) class 8 • M10 washer (ISO 7091) <p>L – length, varies with the steel substructure thickness</p>

- List of anchoring components for the guide rail wall-mounted installation (the quantity depends on height, H_o):

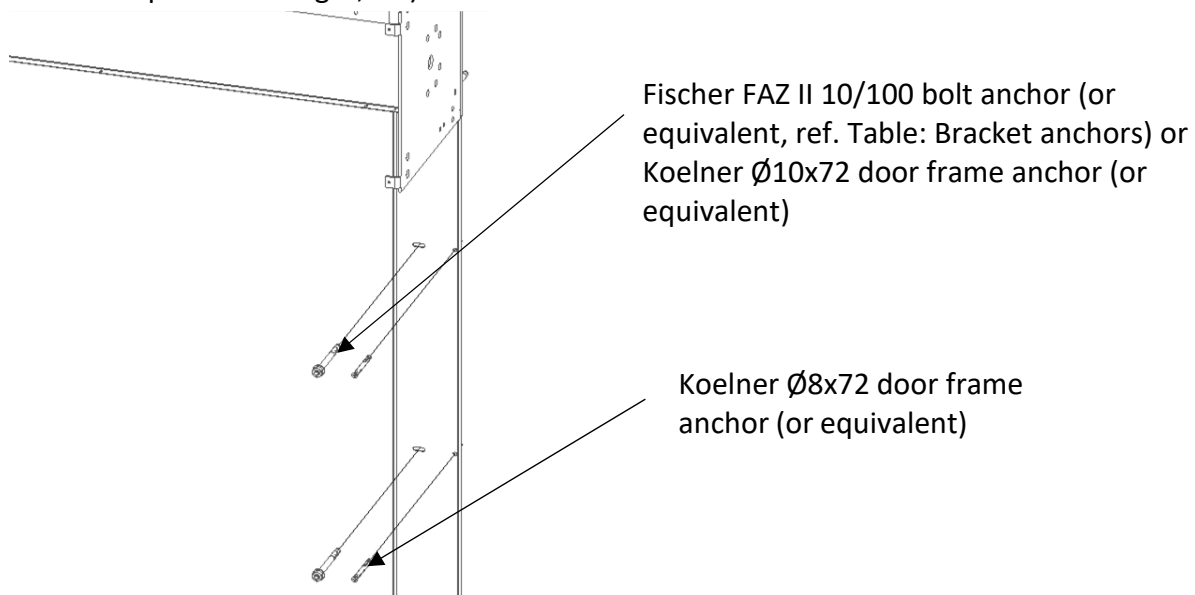

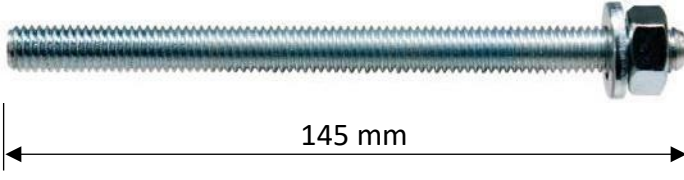
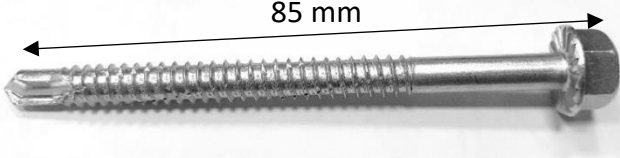


Fig. 2. Installation diagram of the guide rail channel bars

<p>- Fischer FAZ II 10/100 bolt anchor (or equivalent, ref. Table: Bracket anchors)</p> <p>- Koelner Ø8x72 door frame anchor (or equivalent)</p>  <p>72mm</p>	<p>R-f or solid concrete walls</p> <p>Fischer FAZ II 10/100 bolt anchor</p> <p>Door frame anchor</p> <p>Quantity: depends on the quantity depends on the height, one every 500 mm</p>
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<p>– Fischer FIS VS chemical anchor (threaded rod) with injection grout (or equivalent, as shown in Table: Bracket anchors)</p>  <p>145 mm</p>	<p>– Solid masonry walls (concrete blocks, silicate blocks, or solid bricks) and hollow masonry walls (hollow blocks, Porotherm blocks, and U-type hollow bricks)</p>
<p>– Fischer FPX-I anchor (or equivalent as shown in Table: Bracket anchors)</p>	<p>Cellular concrete block walls (Ytong, Solbet, Siporex, Suporex, etc.)</p>
<p>– Hilti S-MD Ø6.3 screws (or equivalent)</p>  <p>85 mm</p>	<p>Steel substructures</p>

(In case the wall construction is unspecified by the customer, **REINFORCED CONCRETE WALL ANCHORS ARE PROVIDED ONLY**)

- Other fasteners:

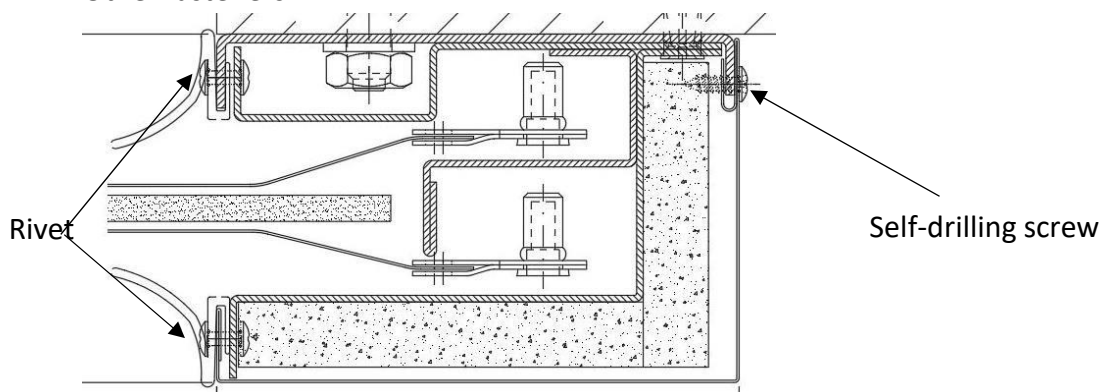


Fig. 3. Installation diagram of screws and rivets

<p>– Ø4 x 14 mm rivets</p> 	<p>– For fascia gaskets</p>
<p>– Ø 4.2 x 13 mm self-drilling screw</p>  <p>13 mm</p>	<p>– For installation of the fascias and the Promat fire-proof panels</p>

1.3. Pre-installation preparation

- Fill out the Installation Report.
- Verify the compliance and quality of the components provided against the CI (Stock Issue Information), especially the KT number (see the KT number sticker underneath the shaft box).
- Verify the fit of the door to the conditions on site (i.e. the installation opening size and parallelism of planes). Report all deviations to the site manager before installation.
- With reference to the dependencies shown in Fig. 5, verify that the ordered door fits the installation conditions on site.
- Verify the motor installation side and the motor mount side. The shaft brackets feature a bearing mounting on the non-driven end and the drive unit mount on the driven end.

1.4. List of parts

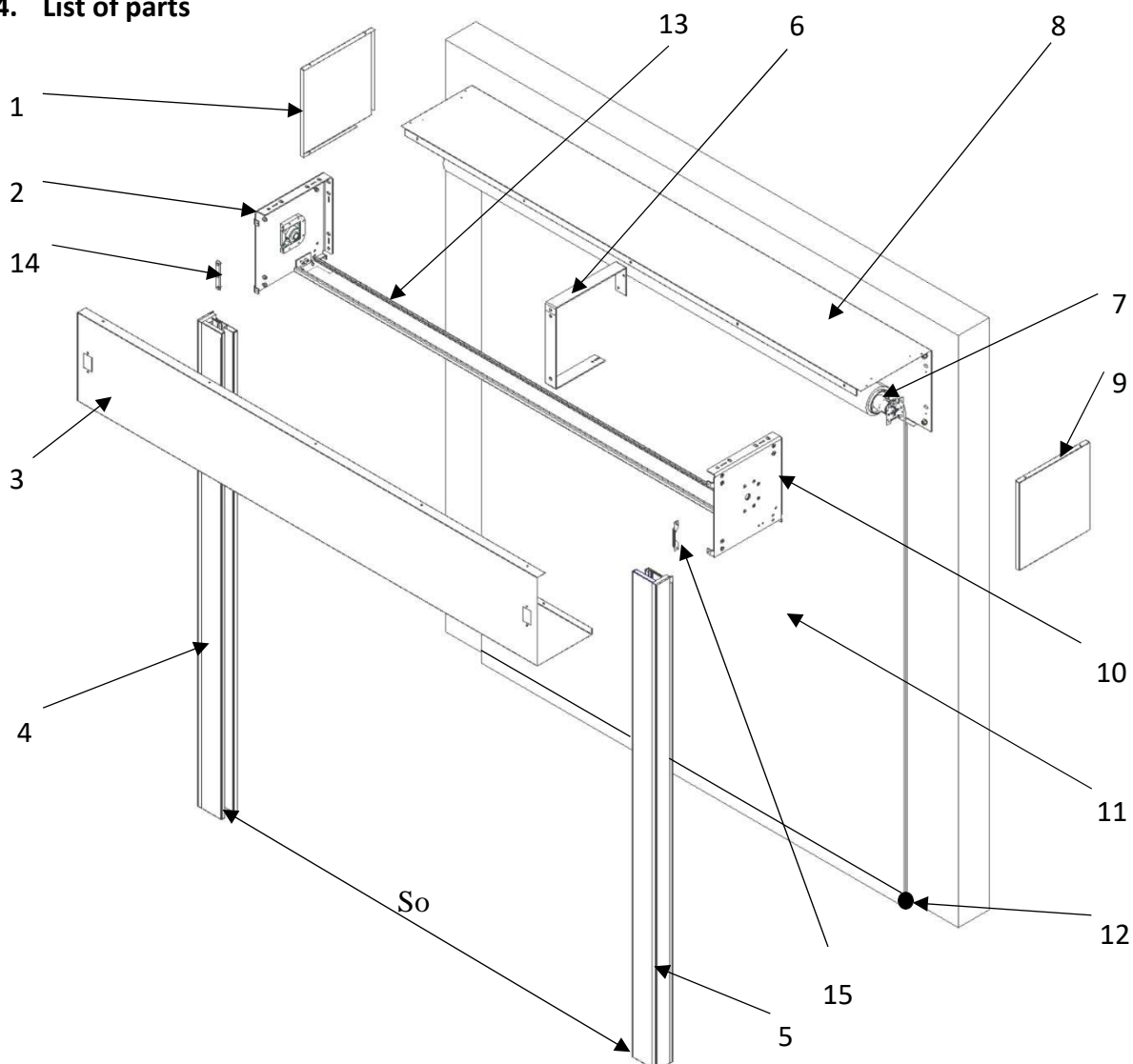
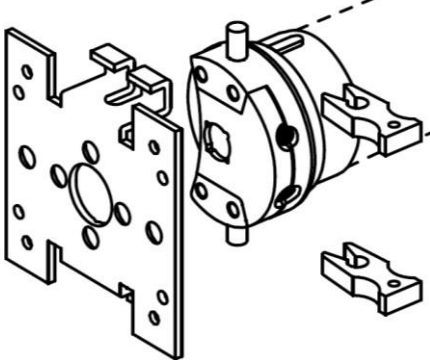
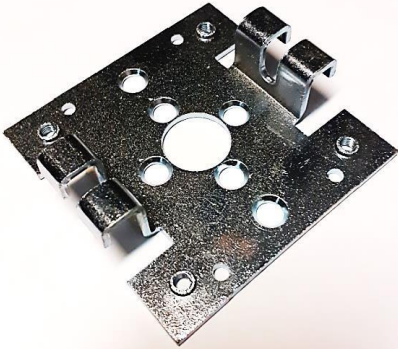

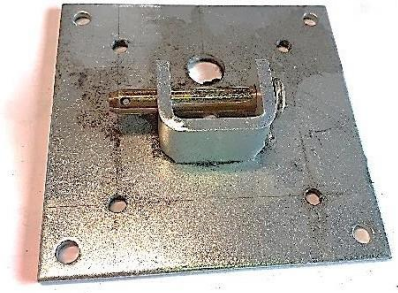



Fig. 4. 1 – Left-hand fascia cover; 2 – Left-hand shaft bracket; 3 – Front fascia cover; 4 – Left-hand guide rail; 5 – Right-hand guide rail; 6 – Middle bracket; 7 – Winding shaft with a tubular motor; 8 – Top fascia cover; 9 – Right-hand fascia cover; 10 – Right-hand shaft bracket; 11 – Curtain sheet; 12 – Curtain sheet counterweight; 13 – Retaining slat; 14 – Bearing retaining plate; 15 – Motor mount retaining plate

1.4.1. List of available motors and brackets with the installation method

MOTOR	MOTOR MOUNT	INSTALLATION
<p>VIC-0403</p> <p>Voltage: 24V DC</p> <p>No gravity descent</p> 	<p>Installation on the driven end bracket; The drive unit mount is inserted into the mount on the bracket and secured with a retaining plate.</p> 	<p>Installation with two cotter pins to retain against lengthwise displacement</p> 
<p>VIC-0101</p> <p>Voltage: 24V DC</p> <p>No gravity descent</p>	<p>Installation within the channel bar</p> 	<p>Motor pin retainer</p> 
<p>VIC-0123</p> <p>Voltage: 230V AC</p> <p>Gravity descent: the descent brake requires this uninterruptible voltage supply: 24V DC</p>		

2. INSTALLATION OF MARC-OK PLUS EI60 TUBULAR DRIVE DOORS

2.1. Direct wall-mounted installation of the door < 4000 mm wide

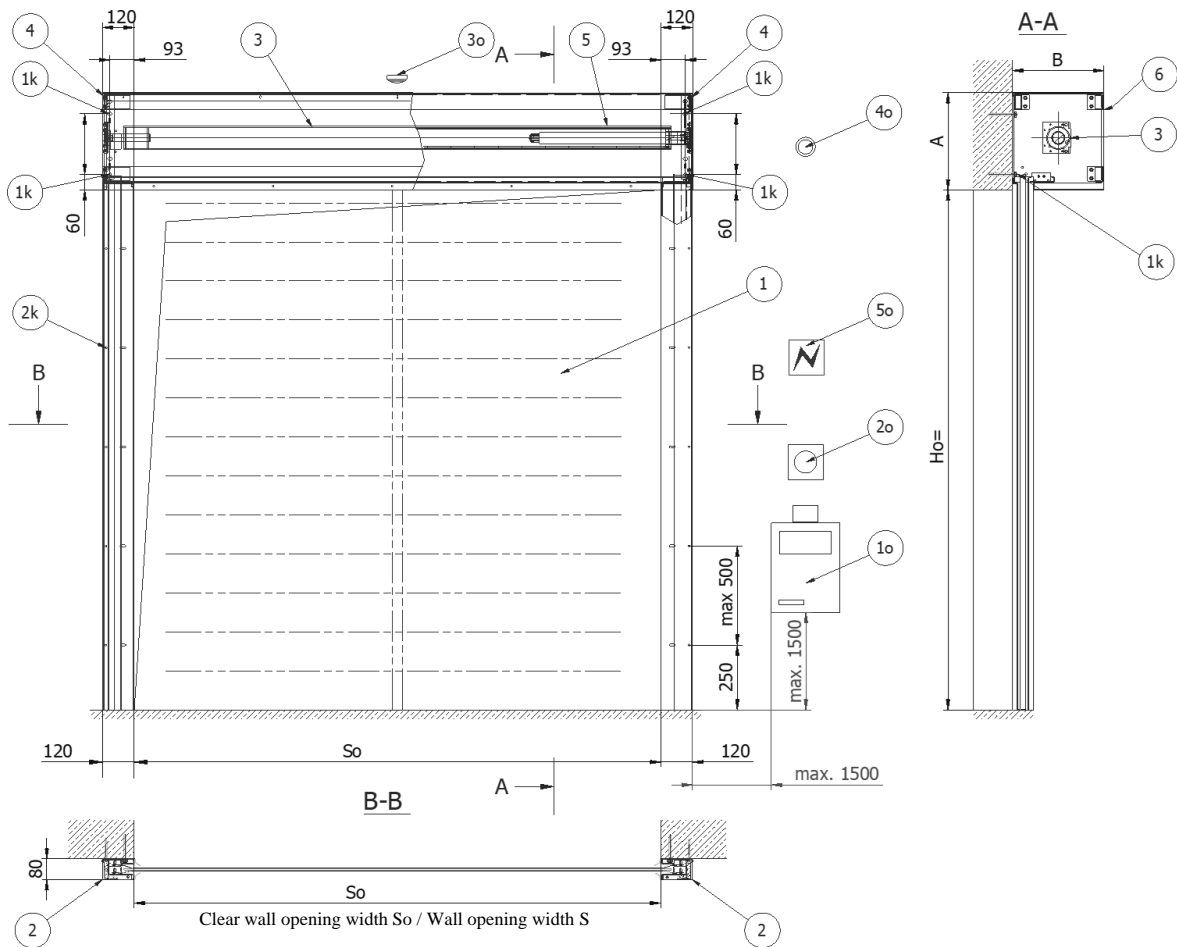


Fig. 5. Direct wall-mounted installation conditions for a standard fire safety curtain door

Designations shown in the curtain door figures		
LIST OF COMPONENTS (basic kitting)	OPTIONAL ACCESSORIES	ANCHORING COMPONENTS
1 – Curtain	1o – Fire alarm panel	1k – Bracket anchoring component, ref. table in Section 1.2
2 – Guide rail	2o – Key switch	2k – Guide rail anchoring component, ref. table in Section 1.2
3 – Winding shaft	3o – Indoor smoke / heat sensor (location, ref. the building emergency egress direction or the smoke extraction plan)	
4 – Shaft bracket	4o – Alarm sounder / beacon	

5 – Electric drive unit	5o – Fire alarm panel power supply
6 – Kit of covers	

The Marc-Ok plus curtain door with a width less than 4000 mm is delivered completely pre-assembled. Install the shaft box as a complete assembly, removing the front cover only.

- 1) Verify the dimensions of the wall opening and the plane to which the door shaft box will be installed (level out to the same plane with washers if required).
- 2) Identify the centre line of the opening. Locate the positions of the guide rail channel bars at a distance of $0.5 \times S_o$ from the wall opening centreline. Verify that the guide rail goes 25mm above the bottom plane of the wall opening header and it is true to the vertical (use a level or a beam plumb laser).
- 3) Trace out and drill $\varnothing 10$ mm holes for the bolt anchors. Bolt down the channel bars of the guide rails without tightening them all the way down to enable horizontal adjustment within the clearance of the fastening slots.

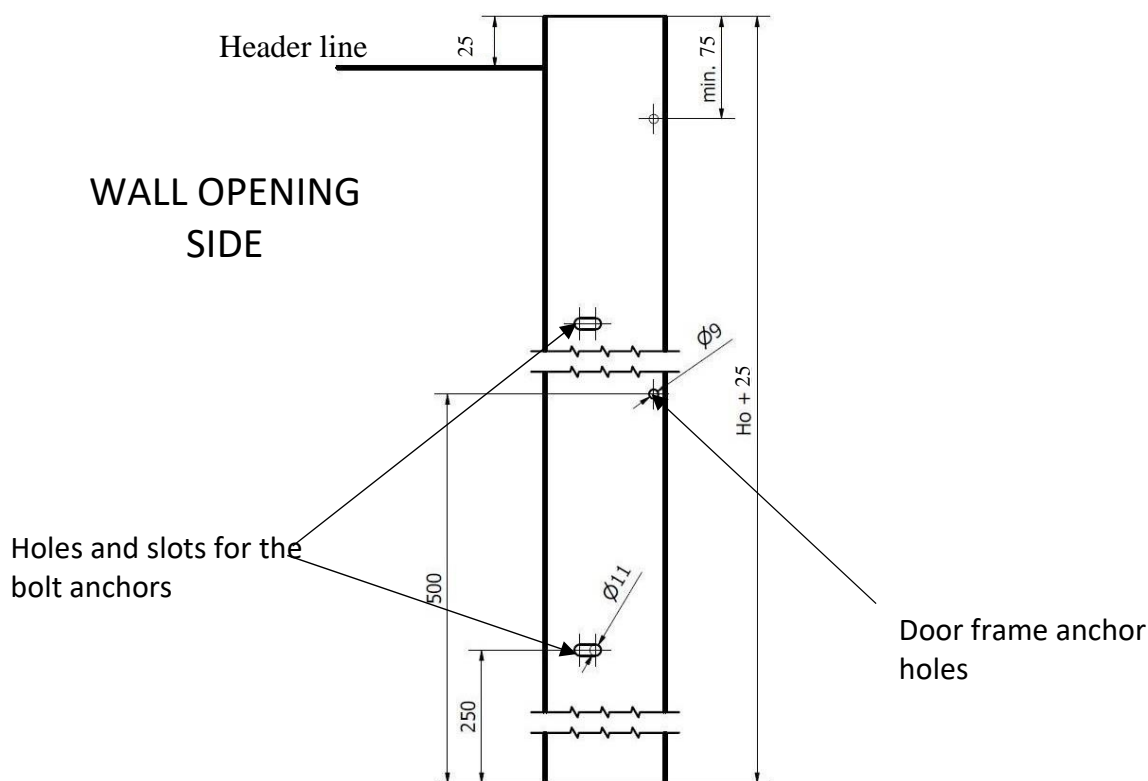
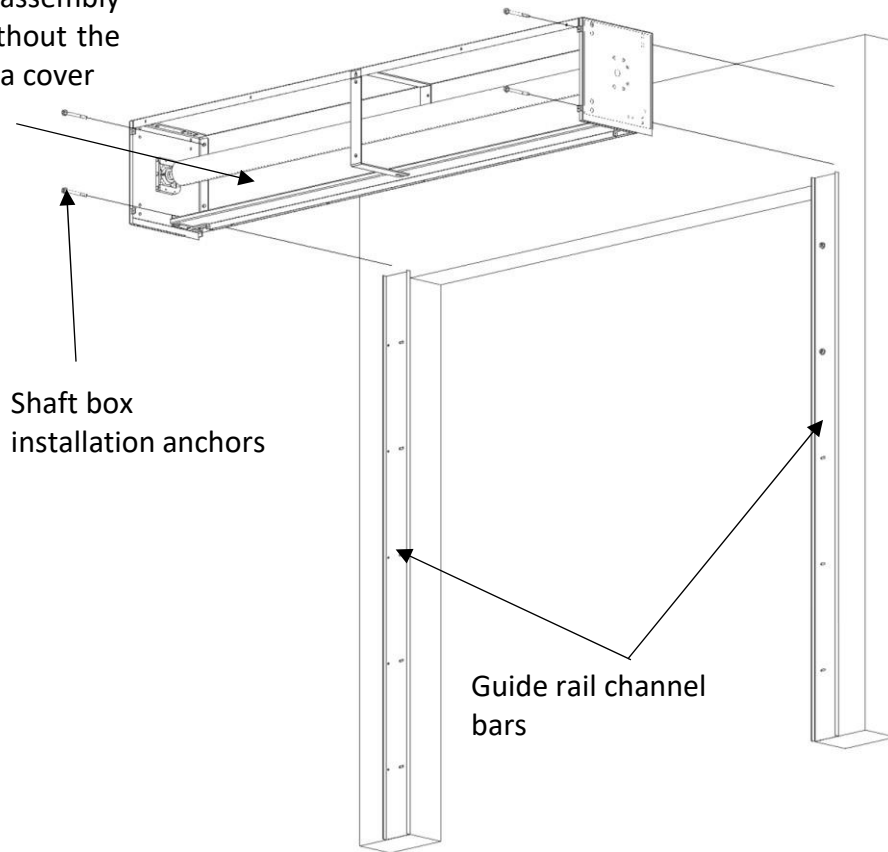


Fig. 6. Guide rail channel bar

- 4) Remove the front fascia cover from the assemble shaft box (Fig. 7).
- 5) Use a level or a beam plumb laser to align the shaft box at the header, over the guide rail channel bars, so that the bottom edge of the bracket is approx. 25 mm above the top edge of the wall opening and flush with the channel bar (Fig. 9, view A). Next, trace out the holes for the bracket anchors.

CAUTION! The shaft box brackets can be properly aligned with the guide rail channel bars with the retaining angle braces (Fig. 7).

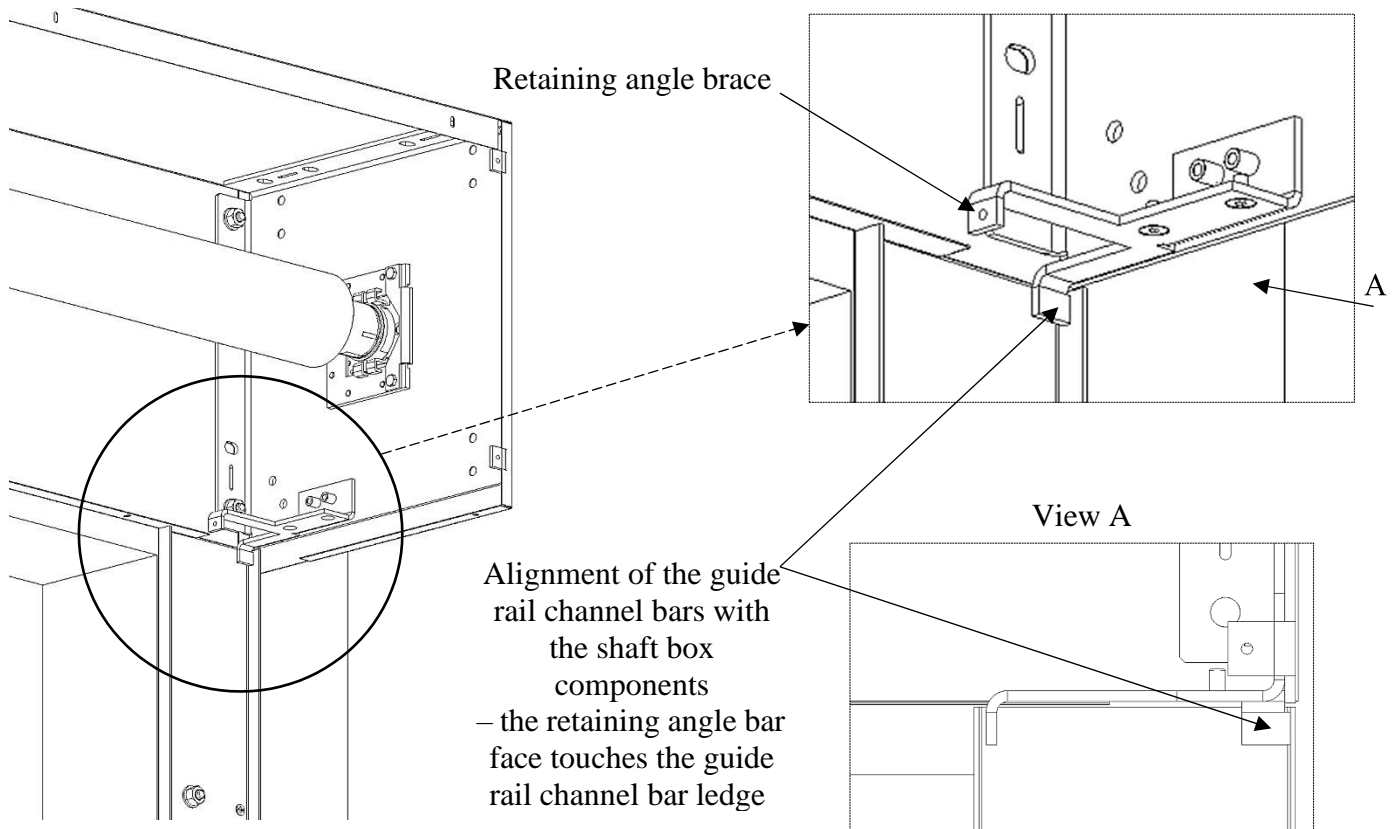
Shaft box assembly
shown without the
front fascia cover



Shaft box
installation anchors

Guide rail channel
bars

Fig. 7. Installation of the Marc-Ok plus door shaft box



Retaining angle brace

Alignment of the guide
rail channel bars with
the shaft box
components
– the retaining angle bar
face touches the guide
rail channel bar ledge

View A

Fig. 8. Alignment of the shaft box components and the guide rail channel bar with the retaining angle brace (shown without the retaining slat)

- 6) Check the alignment of the bracket with the guide rail angle brace (Fig. 9, detail B) and the level of the top fascia cover **and of the winding shaft**.

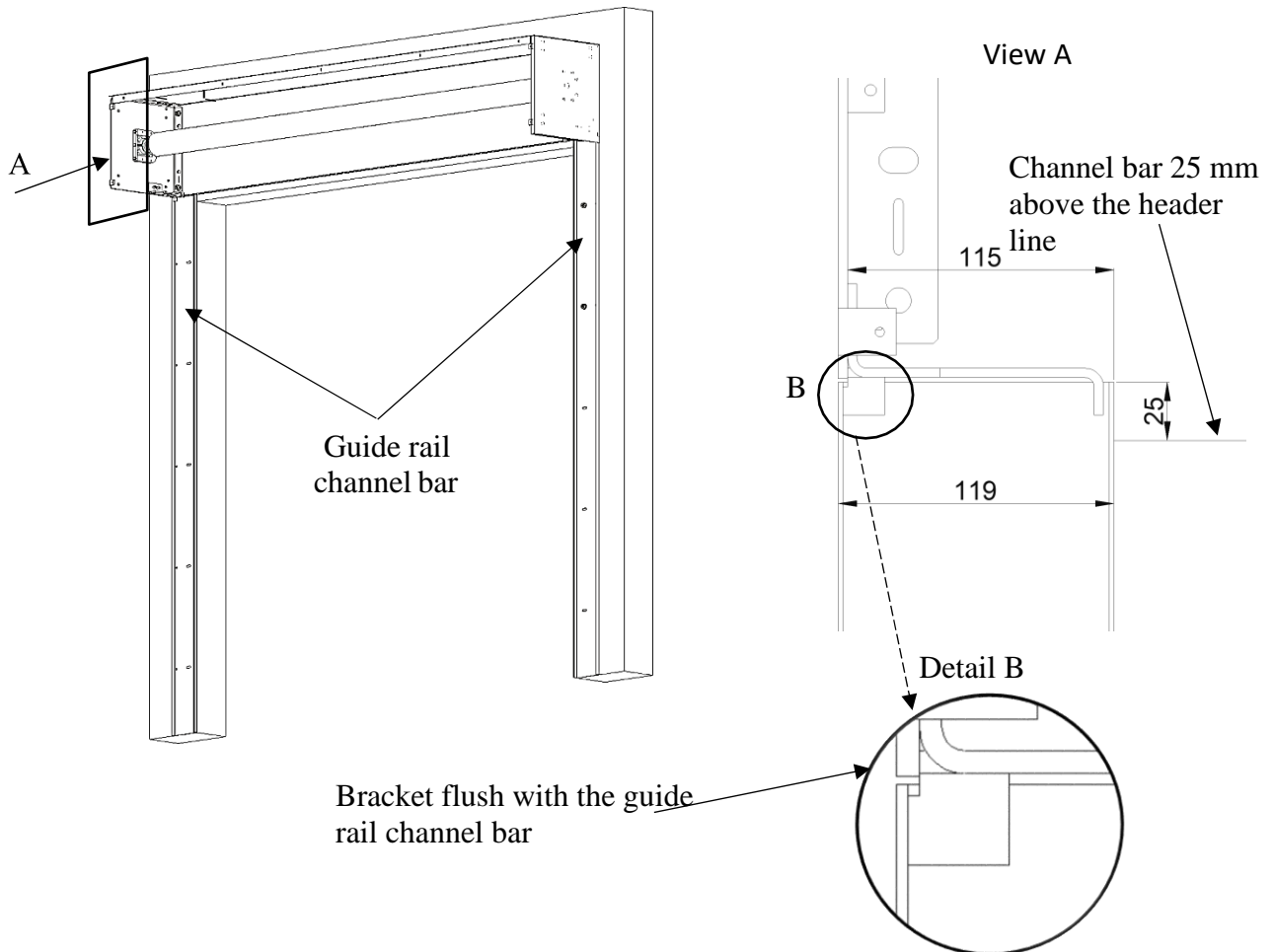


Fig. 9. Installation of the guide rail channel bar with the retaining and the shaft box bracket (shown without the retaining slat)

- 7) Drill $\varnothing 10 \times 160$ holes in alignment with the shaft brackets.
- 8) Mount the shaft box on the anchors (see table in Section 1.2) and tighten to secure.
- 9) **Operate the door curtain sheet with the motor** to close so that the sheet conforms to the winding shaft. With the curtain sheet unwound, verify it is parallel to the channel bars fastened to the wall. Wind up the curtain sheet and operate the motor to close the door again. With the curtain sheet unwound, visually inspect the gap under the counterweight. The curtain sheet should touch the floor along its whole width.
- 10) With the curtain unwound down to the floor surface, mark out the curtain descent mechanical stop (30x30 wide angle bar). Next, turn the shaft to rivet / secure the angle bar (with 4x13 rivets or 4x25 self-drilling screws, depending on the curtain door size).

CAUTION! This Section applies to curtain doors with gravity descent (identified with the blue drive shaft neck; if the drive shaft neck is red, the mechanical stop does not have to be installed, as the motion is controlled by the drive unit).

(a) Marking out the mechanical stop installation location

(b) Turning the shaft and installing the mechanical stop

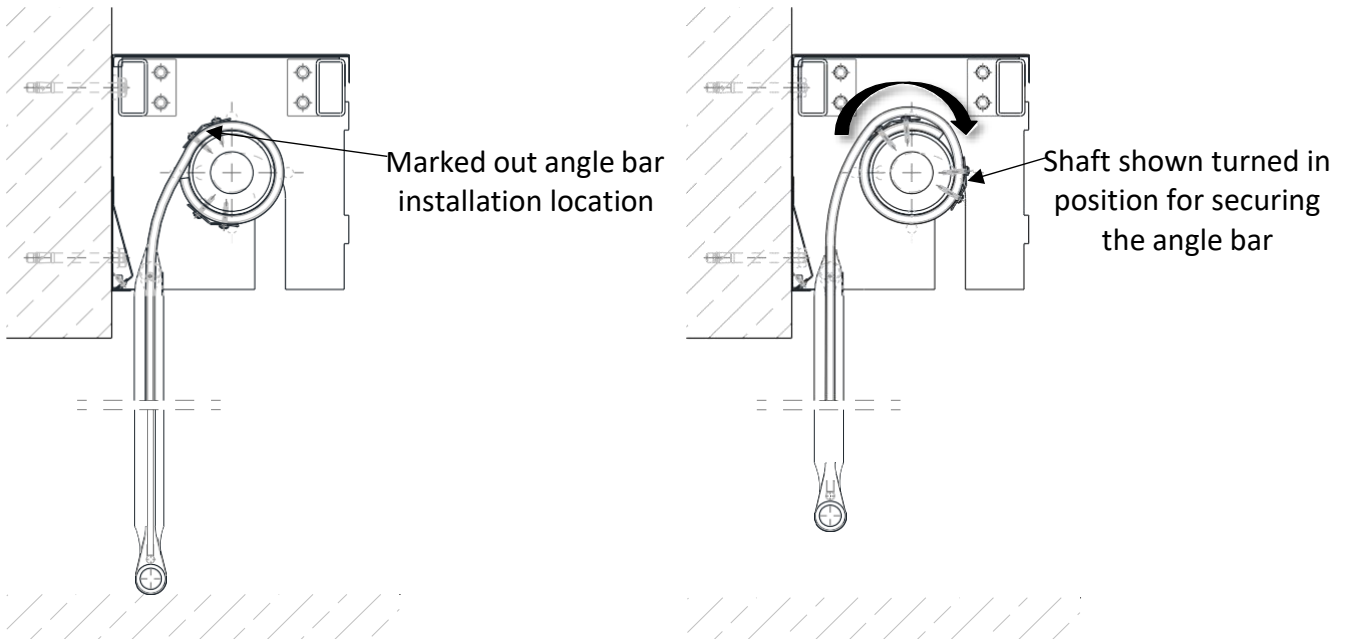


Fig. 10. Installation of the curtain descent mechanical stop (angle bar)

11) Wind the curtain onto the shaft inside of the shaft box.

12) Use the channel bar holes to drill $\varnothing 8$ holes for the door frame anchors (Fig. 12).

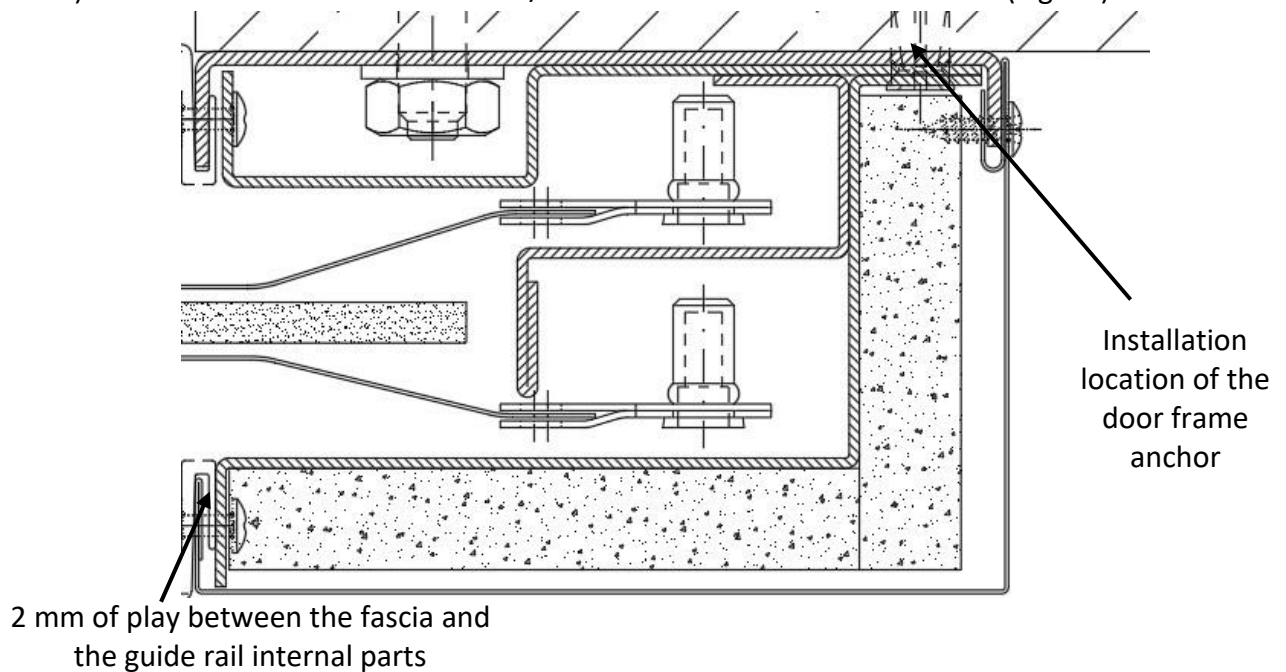


Fig. 11. Installation of the guide rails

13) Assemble the internal parts (2) and (3) of the guide rail (Fig. 13) in the channel bar (4) and secure them with the door frame anchors. Leave 2 mm of play for the fascia gaskets (Fig. 12).

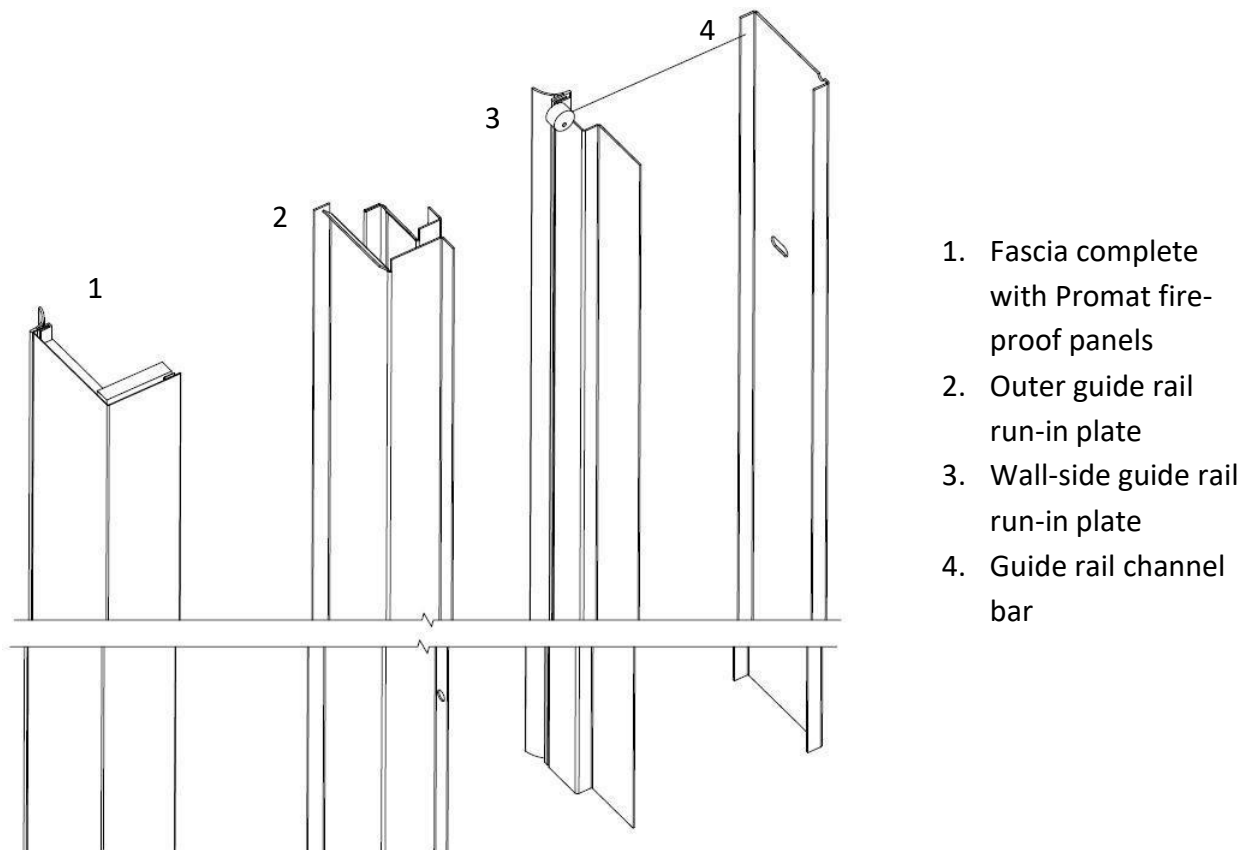


Fig. 12. Installation of the Marc-Ok plus guide rail

- 14) With the guide rail internal parts installed, install the Promat fire-proof panels and the outer fascia (1) (Fig. 13) with the 4.2x13 mm self-drilling screws.
- 15) Insert the curtain into the recesses in the guide rails so that the running shoes are in separate channels (Fig. 14).
- 16) Install the front and side fascia covers.

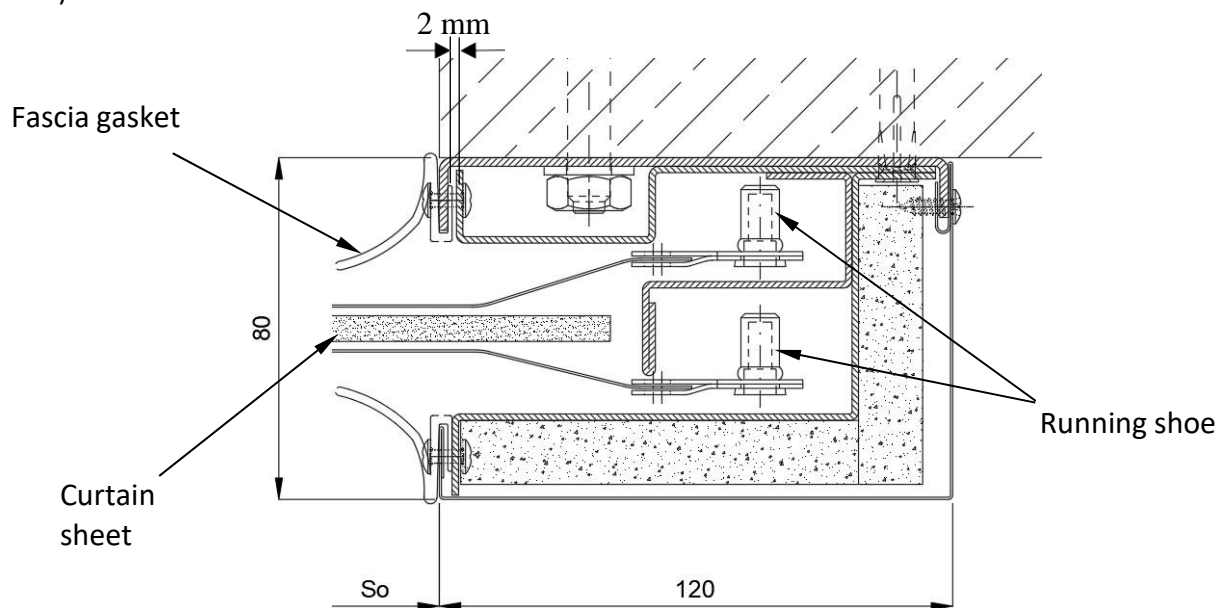


Fig. 13. Cross-sectional view of the guide rail engaged by the curtain

2.2. Direct wall-mounted installation of the door > 4000 mm wide

The Marc-Ok plus curtain door with a width more than 4000 mm is delivered completely pre-assembled. Assemble the door in the sequence of steps listed below.

- 1) First, follow steps 1 to 3 applicable to the doors less than 4000 mm wide.
- 2) With the guide rail channel bars installed, proceed with the shaft box installation. Assemble the shaft box without installing the winding shaft.

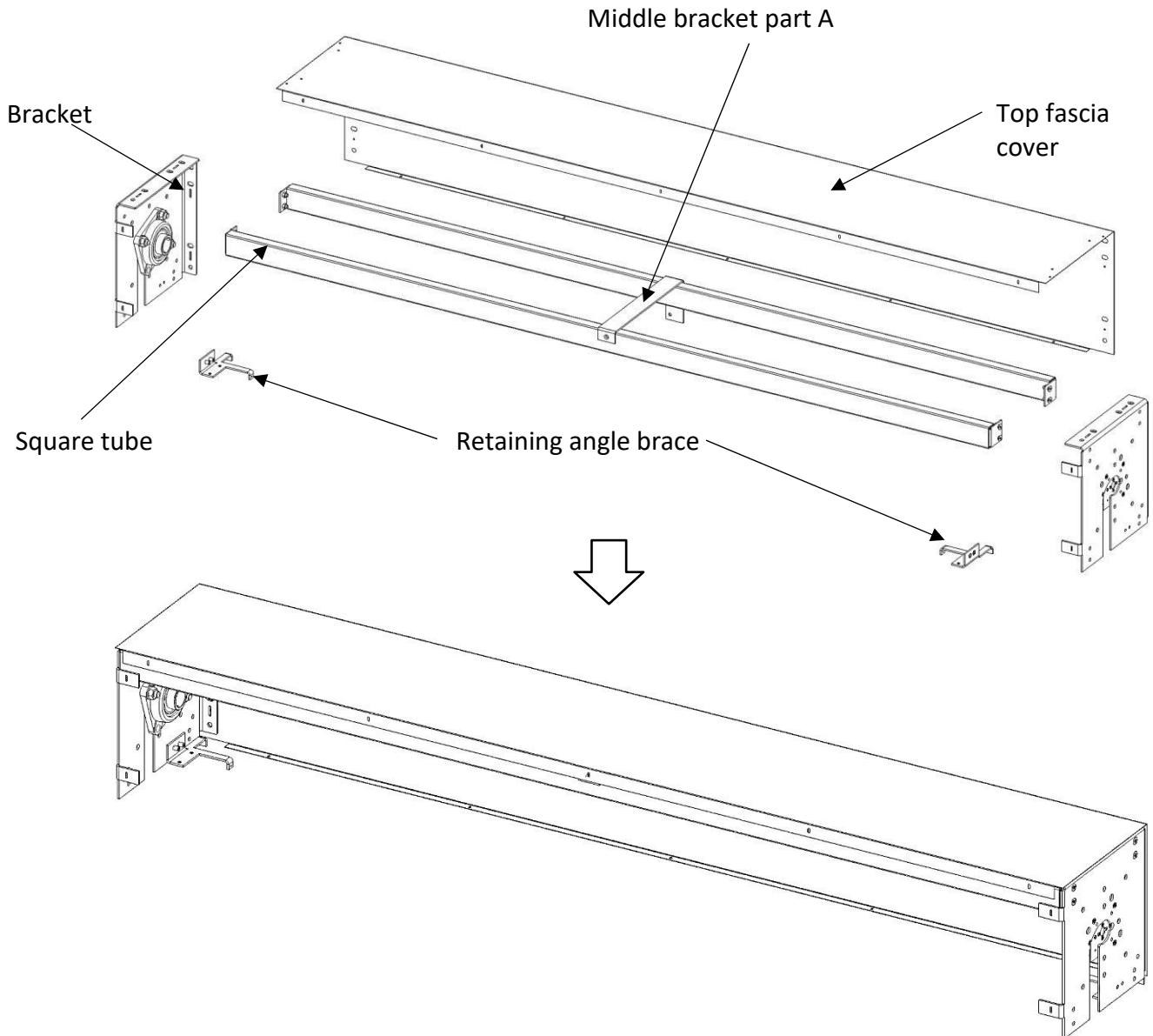


Fig. 14. Installation of the shaft box parts

- a) Fasten the shaft brackets with the M8x25 bolts to both 60mmx30mm two square tubes. For curtain door sizes EI60 So>2500mm, 3 square tubes are provided.
- b) Bolt down the retaining angle braces to the brackets with the M6 countersunk bolts. The angle braces are the reference for the correct orientation of the guide rail channel bars. With the shaft box brackets and the channel bars installed, the angle

braces can be released temporarily to facilitate access to the winding shaft installation.

- c) Fasten the middle brackets (part A) and the top fascia cover with rivets to the bolted-down brackets with the square tubes. If one middle bracket is planned, install it in the centre. If more middle brackets are planned, install them spaced evenly.
 - d) Drill through the top fascia back panel in alignment with the holes in the brackets.
- 3) Follow steps 5 to 8 applicable to the doors less than 4000 mm wide.
 - 4) Tighten the M8 door frame anchors which fasten the middle brackets to the wall – through the rear cover.
 - 5) For door sizes $S_{o} > 6000\text{mm}$, install the additional shaft box supports in the centre from the top (the support pieces are custom designs specified for the actual installation conditions and requires no additional fire-proofing). Install the retaining angle brace with the anchors to the wall and bolt down with the threaded rods, complete with the shaft box, through the square tubes.

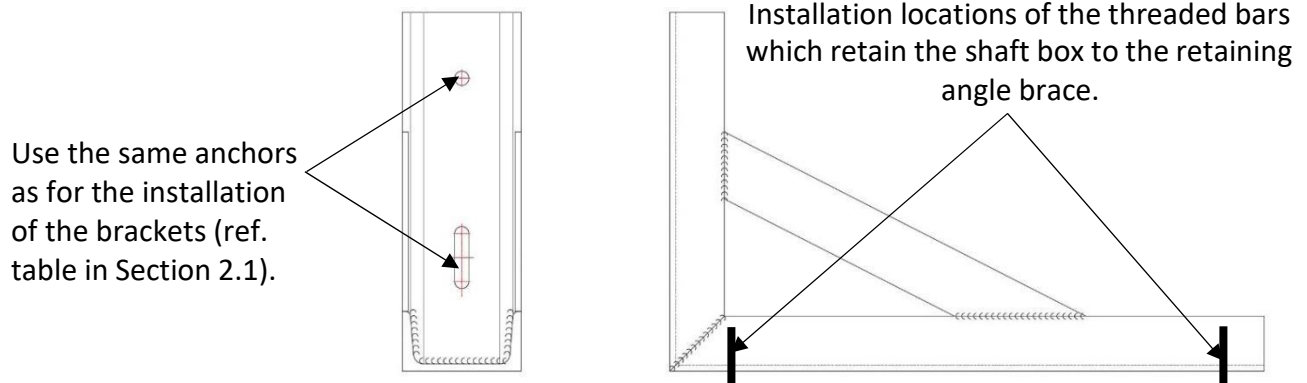


Fig. 15. Middle angle brace

- 6) Install the winding shaft complete with the door curtain.
 - a) Unpack the shaft with the curtain.
 - b) Remove the bearing and the motor mount from the brackets.
 - c) Place the bearing on the shaft neck and the mount on the tubular drive motor end.
 - d) Place the shaft inside of the box, between the brackets, and secure with countersunk head bolts. **Verify that the shaft is level.**

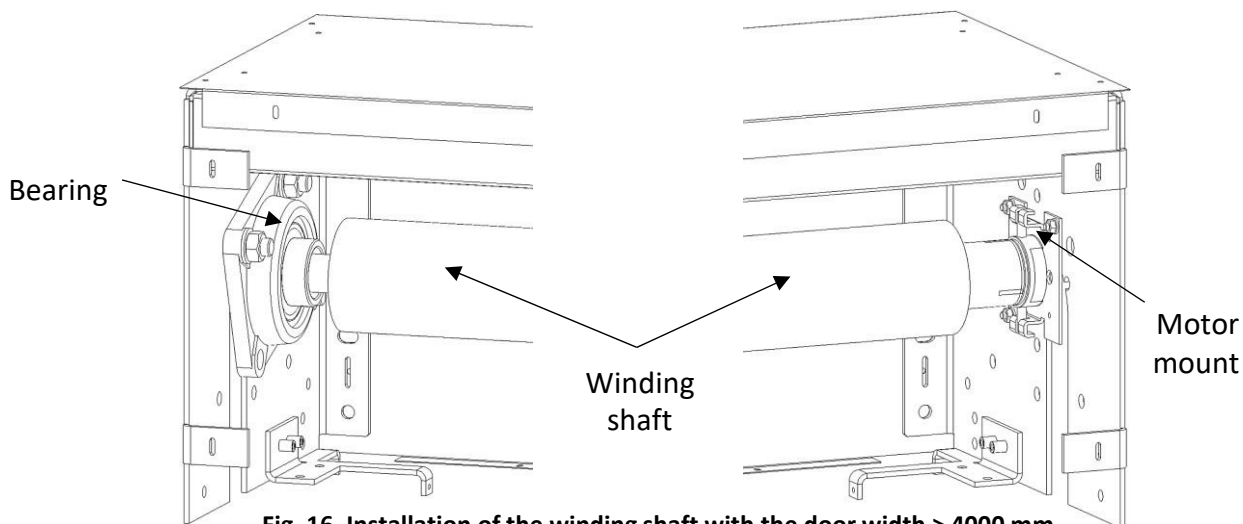


Fig. 16. Installation of the winding shaft with the door width > 4000 mm

7) Install the retaining slat of the curtain.

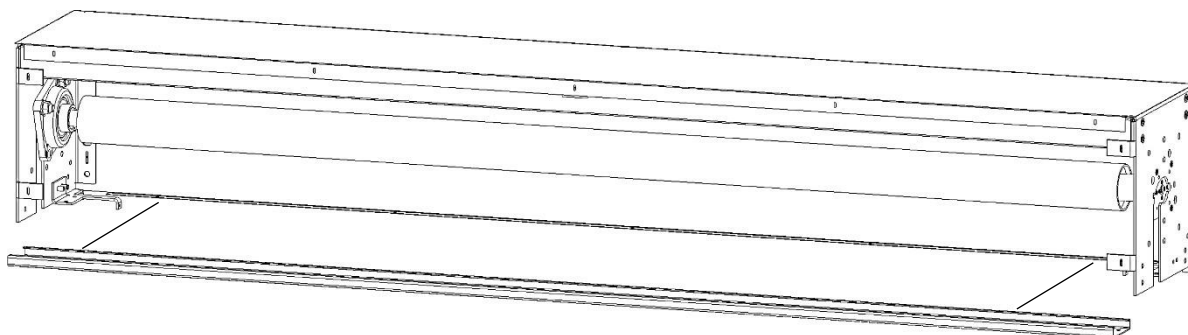


Fig. 17. Installation of the retaining slat

8) Follow steps 9 to 11 applicable to the doors less than 4000 mm wide.

9) Install the third 60mmx30mm square tube.

10) Use the 4.2x19mm countersunk self-drilling screws to secure the middle bracket part B to the square tube.

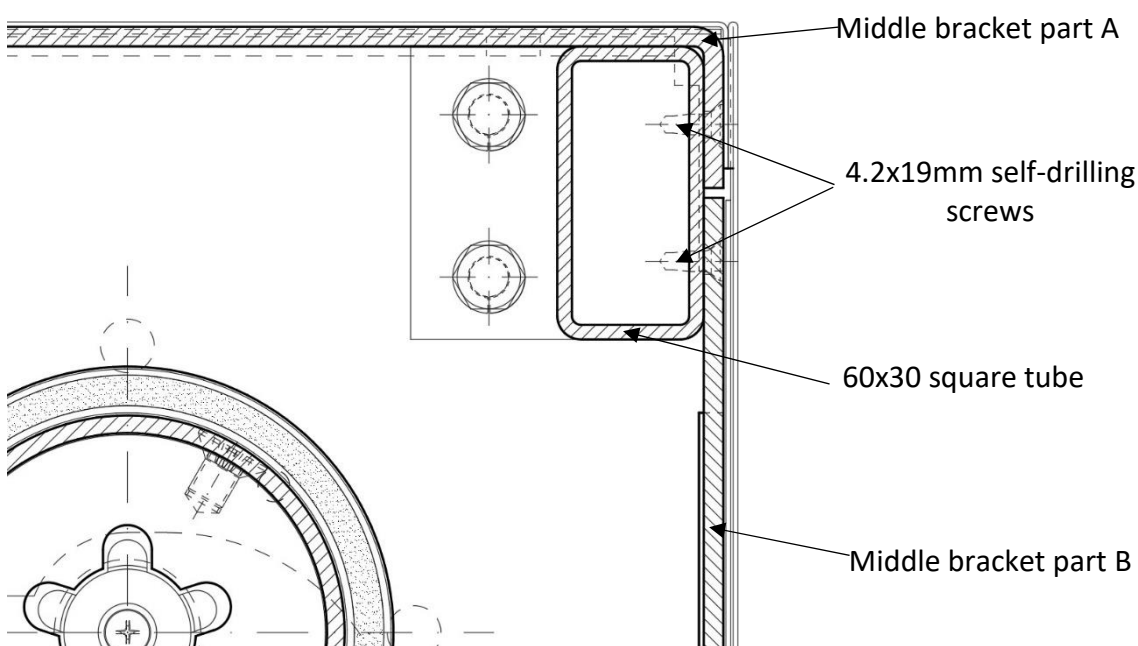




Fig. 18. Installation of the middle bracket – part B

- 11) Follow steps 12 to 16 applicable to the doors less than 4000 mm wide.

2.3. Indirect wall-mounted installation with adjustable offset brackets

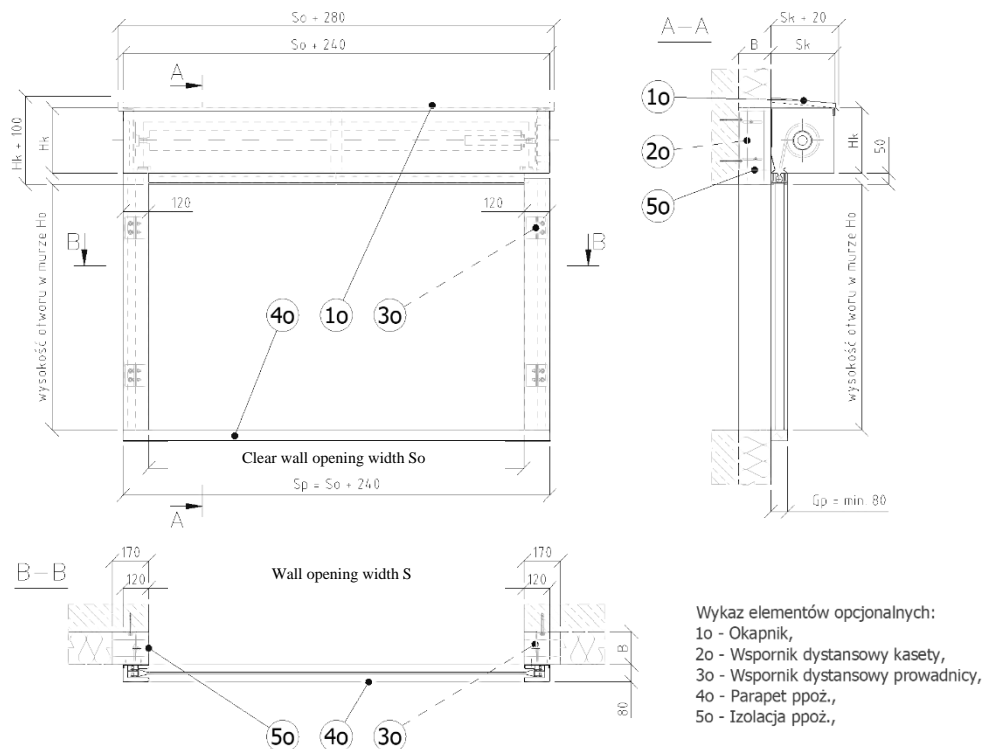


Fig. 19. Indirect wall-mounted installation conditions for a fire safety curtain door

For the indirect installation method, before proceeding from Section 2.1, install the offset brackets on the shaft brackets and guide rails. Secure with M10 countersunk bolts in places where the bolt anchors should be attached.

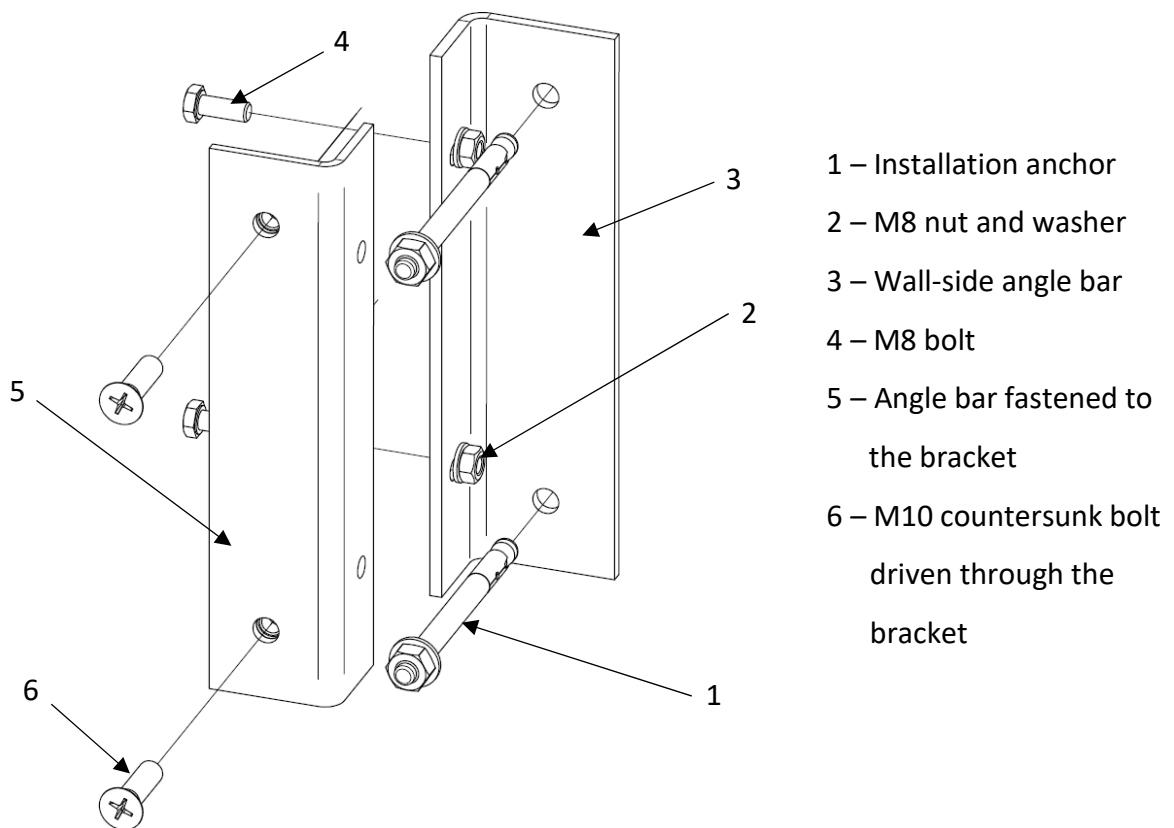


Fig. 20. The kitting of offset brackets for the guide rails and the shaft box

For the indirect installation method, the gap between the shaft box and the guide rails and the wall and the shaft box is to be filled with non-flammable material, e.g. class A1 mineral wool, min. density 170kg/m³, which must cover the offset brackets.

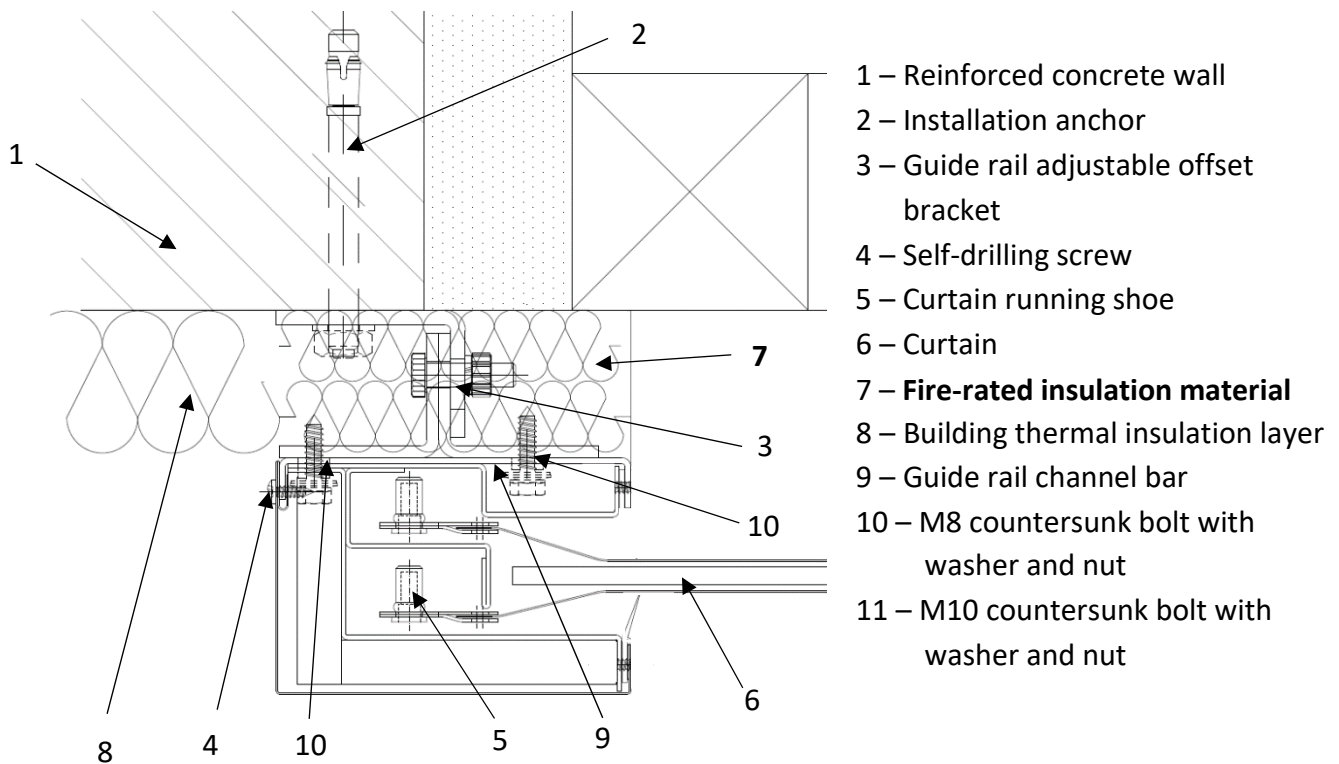
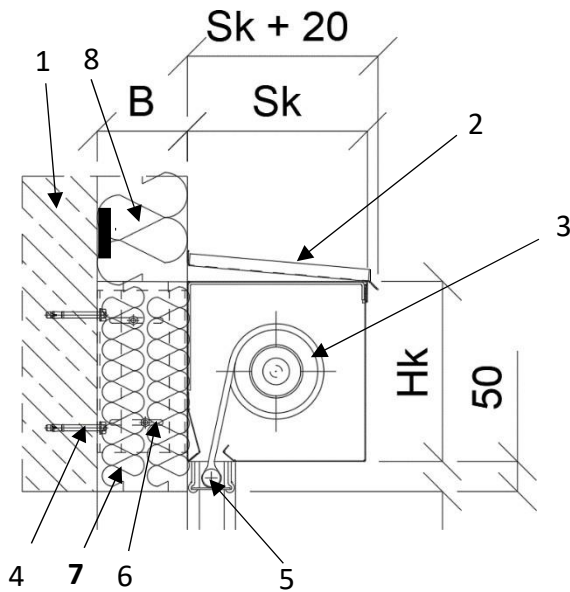


Fig. 21. Wall-mounted installation of the guide rail with fire-proof insulation

2.4. External installation of the Marc-Ok plus EI60 curtain door outside of a shelter

If the curtain door is installed on the building exterior, outside of any shelter, a drip cap must be installed.

For the indirect installation method, secure the drip cap with door frame anchors, if the substrate is reinforced concrete. Remove the building thermal insulation layer between the shaft box and the wall and replace with fire-proof insulation.



- 1 – Reinforced concrete header
- 2 – Shaft box drip cap
- 3 – Shaft complete with the curtain
- 4 – Installation anchors
- 5 – Curtain counterweight
- 6 – Offset bracket
- 7 – Fire-rated insulation material**
- 8 – Building thermal insulation layer

S_k, H_k – Dimensions per the installation conditions

Fig. 22. Indirect installation of the Marc-Ok plus EI60 curtain door shaft box with a drip cap on the reinforced concrete header

2.5. Installation of the Marc-Ok plus EI60 curtain door with a sill

If the curtain is installed above the floor level, an additional sill piece is required which is fire rated as non-flammable as the minimum; the recommended fire rating is EI₂60; the minimum sill size is $S_p \times G_p$ [mm]; the sill height will depend on its materials (Fig. 19).

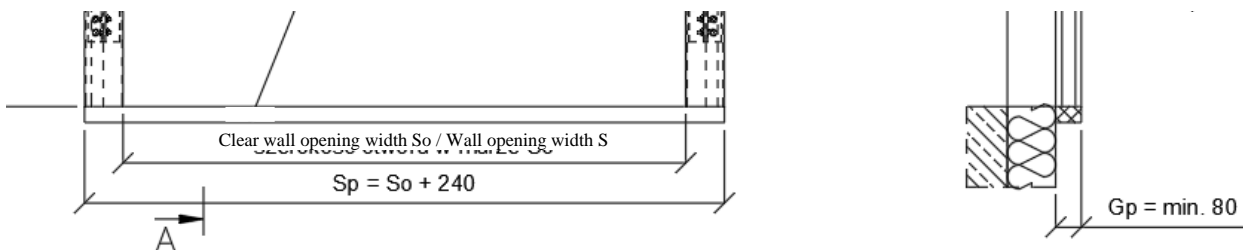


Fig. 23. Installation of the Marc-Ok Plus curtain door with a prefabricated sill

- 3) Drill $\varnothing 10 \times 160$ holes in alignment with the shaft bracket holes.
- 4) Install the shaft box with bolt anchors and tighten to secure.
- 5) Follow from Section 2.1 (9).
- 6) For the ceiling-mounted installation method, embed the threaded rods (not unlike chemical anchors) in the ceiling openings (in the middle of the shaft box) and use these fasteners to attach the square tubes.
- 7) Roll up the curtain and install 20mm thick Promat fire-proof panels on the shaft box curtain extension end (Fig. 22).

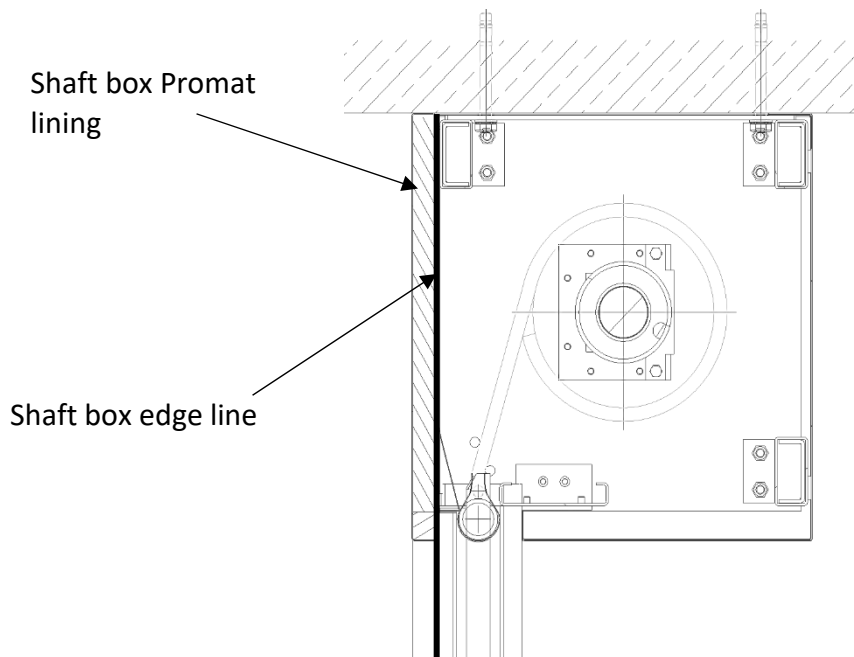


Fig. 26. Installation of Promat fire-proof panels in the back of the shaft box

2.7. Corridor-closure installation of the guide rails

- 1) Align the guide rails flush with the shaft box edge. Use the channel bar holes to drill $\varnothing 8$ holes for the door frame anchors.

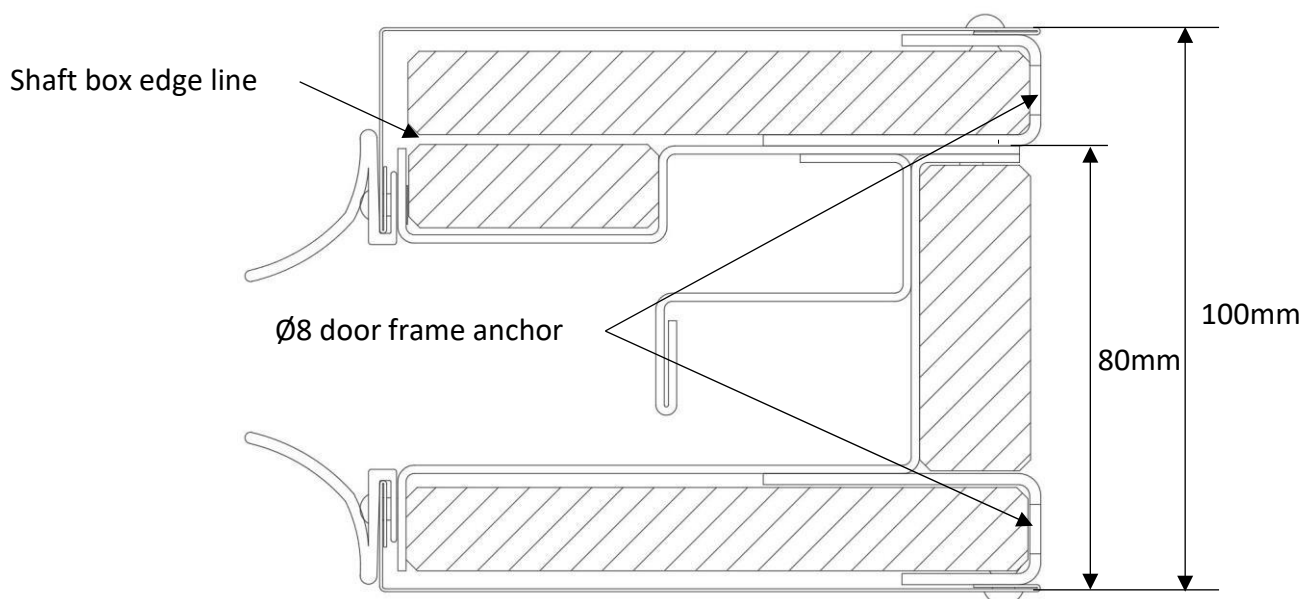


Fig. 27. Installation of



the guide rails

- 2) With the guide rail internal parts installed (as shown in Section 2.1 (15)), install the Promat fire-proof panels and the outer fascia. Leave 2 mm of play for the fascia gaskets.
- 3) With the guide rails installed, insert the counterweight into the curtain pocket.
- 4) Insert the curtain into the recesses in the guide rails so that the running shoes are in separate channels.

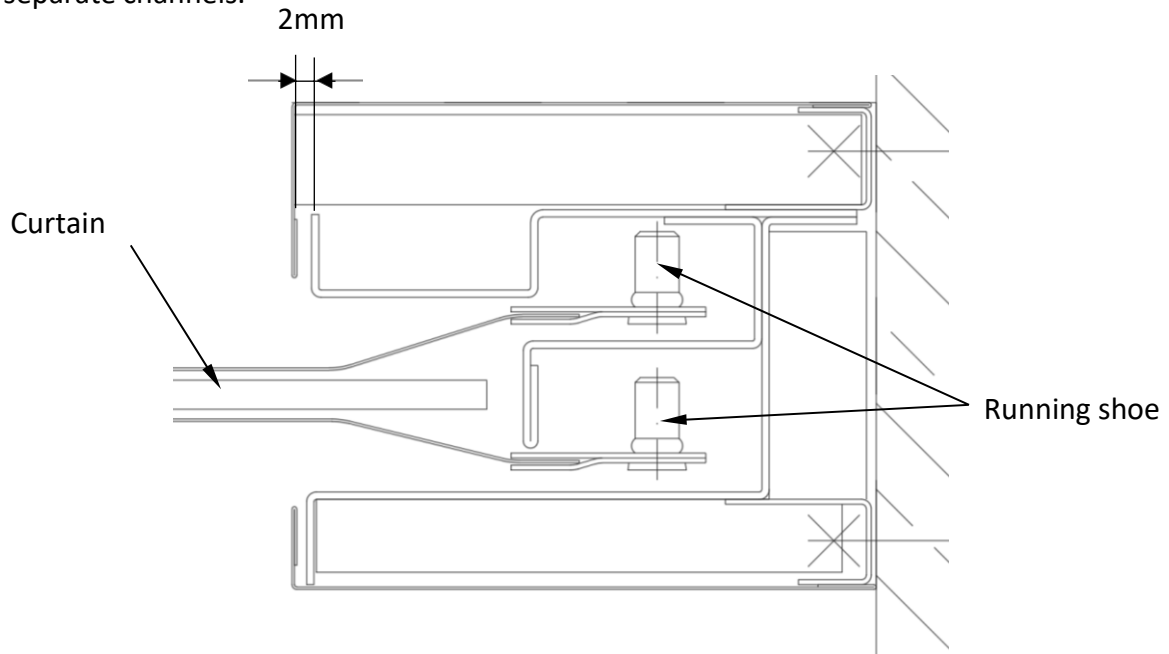


Fig. 28. Cross-sectional view of the guide rail engaged by the curtain for the corridor-closure installation

- 5) Unwind the curtain, adjust the component for correct alignment, and replace the fascia covers as shown in Section 2.8.

2.8. Test unwinding of the curtain and installation of the front fascia cover

- 1) Do a test unwinding of the curtain. The curtain should unwind and descend with the Down arrow key pressed or the key switch operated in the Down direction. The curtain should descend to close off the entire opening. If the curtain fails to come all the way down or too much of the curtain is unwound and the curtain sags, adjust the motor limit switches.

Motor limit switch adjustment procedure:

- Top limit switch adjustment: Press the ▲ key or rotate the key switch in the Up direction to lift the curtain into its top limit position. Turn the limit switch adjustment screw for the Up direction until the correct top limit position is set.
- Bottom limit switch adjustment: Press the ▼ key to unwind the curtain to the bottom limit position. Turn the limit switch adjustment screw until the correct bottom limit position is set.

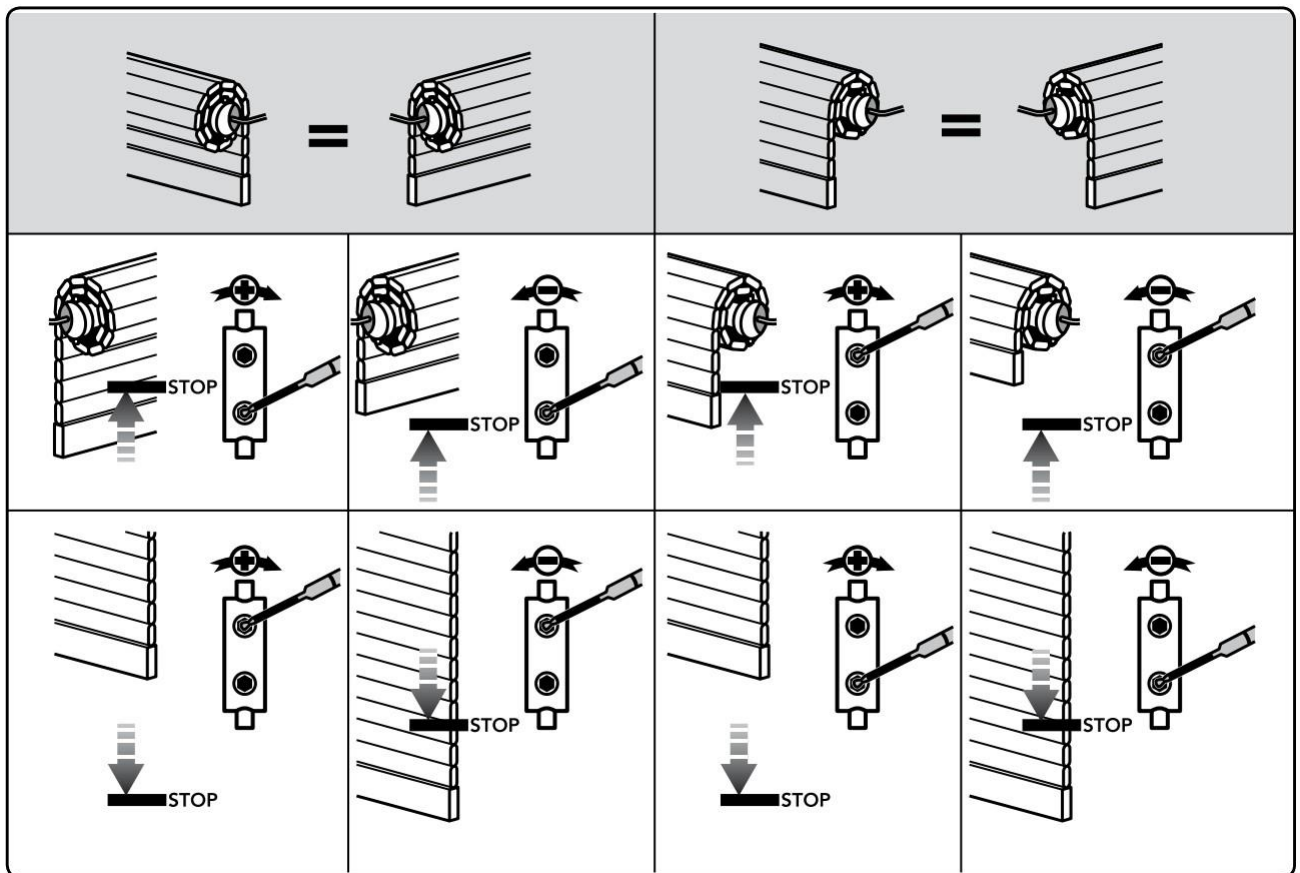


Fig. 29. Curtain descent level adjustment

- 2) With the adjustments done, do a functional test of the curtain to verify operation.
- 3) Install the front fascia cover.

2.9. Installation of the fascia gaskets

- 1) The fascia gaskets are delivered trimmed to the size of the guide rails and pre-installed with clips.
 Drill $\varnothing 4.2$ mm holes in the gaskets at the clip hole locations. Do this by peeling away the widest tongue of the gasket.
 Secure the clips with $\varnothing 4 \times 14$ mm rivets. Verify there are no evident bulges on the fascia gasket.

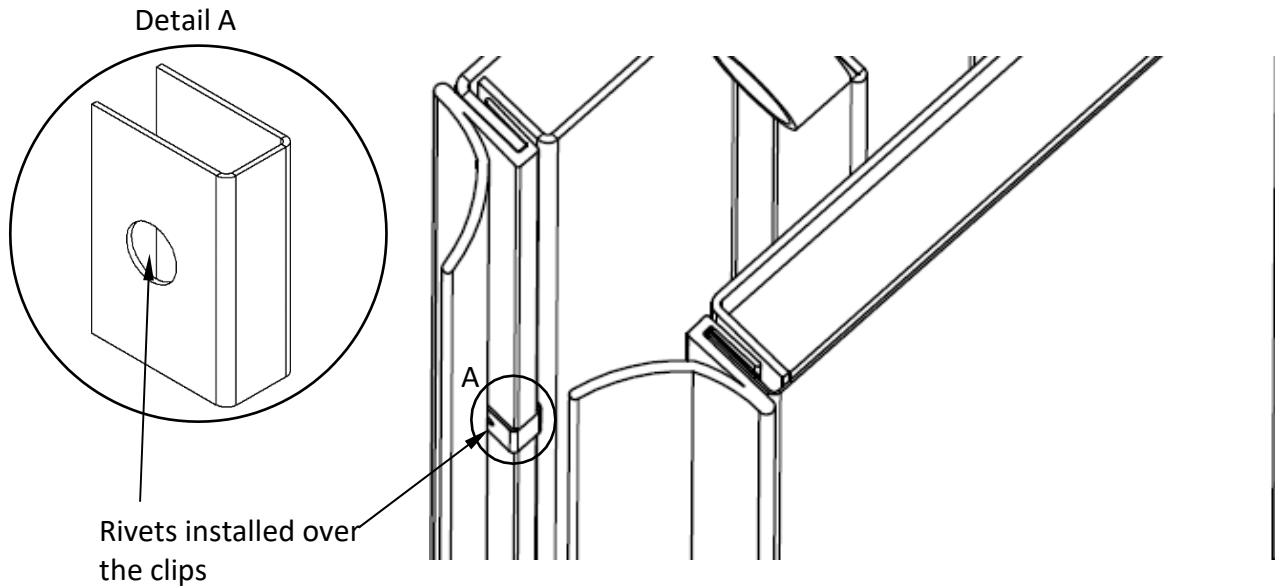


Fig. 30. Installation of the fascia gaskets with rivets

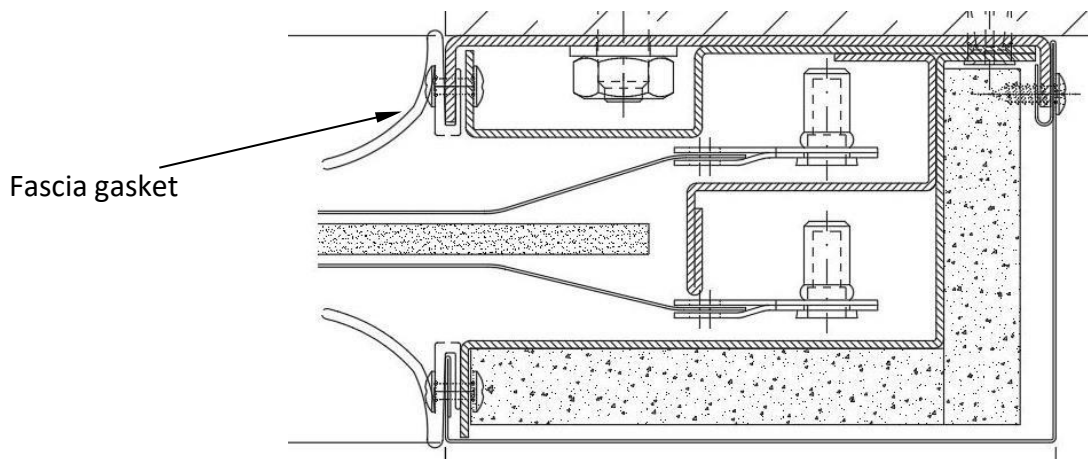


Fig. 31. Cross-sectional view of a guide rail with the fascia gaskets secured with riveted clips