Assembly manual

Fire screen FS EI60 / EW120(EI2 60)

Classification can be guaranteed under the conditions that the mounting surface, mechanical load & constructive load is comparable to the mounting surface during the fire test performed.

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MetacoN Next
fire door solutions

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1. Preface

This manual of the FS EI60 fire protection curtain gate (hereinafter referred to as the device / fire protection gate / fire protection curtain) is a document containing data and instructions for the owner (user) necessary to become familiar with its functioning, use, operation and maintenance. To ensure long-term, safe
use of the device, the user and operating personnel should fully understand and follow the requirements of this manual.
The use of the fire-protection gate, including its operation, maintenance, maintaining the proper technical condition and carrying out periodic inspections, maintenance, replacement of elements and repairs should be carried out in accordance with this manual.
The manual and other technical documents attached to it should be properly stored and available to the operating and service personnel.
We reserve the right to constantly verify the content of the manual and to adapt it to technical progress. We hope that the user understands that its content may be changed without notice. Some of the figures or the content of the manual may differ from the physically delivered device due to its improvement or due to changing regulations and other similar reasons, and the difference does not change the recommendations for its use.
If the manual is lost or damaged, please contact our service department for the same version of the manual.
CAUTION!
Failure by the user to comply with the provisions and instructions contained in this manual releases the manufacturer from all obligations and warranties.
The scope of activities that can be performed by the service and the user is specified further in this manual. Installation, adjustment, replacement of elements, repair and elimination of failures may only be performed by the manufacturer's representative or its authorized service.
The manual covers the standard equipment of the fire protection curtain gate, possible use of optional equipment is described in the commercial contract.
The fire protection rolling gate should be used in accordance with the technical design prepared for the specific structure in which it is to be installed, taking into account:
- applicable standards, technical and construction regulations, in particular:

2. Introduction

The fire-retardant roller screen is an entry delay door and is not suitable for daily use.

This fire-retardant roller screen is intended only to separate linked space in case of fire or smoke development, this in connection with the so-called fire penetration towards adjacent spaces. The fireretardant roller screen could be part of a fire-retardant system.

This could be a fire alarm system.

The fire-retardant roller screen will be operated only by a technician of the installation company. The user himself does not need to operate the fire-retardant roller screen.

Technical specifications:
Below there is a list of the technical specifications of a fire-retardant roller screen.

Fire-retardant roller screen is manufactured from incombustible material:
FS EI60-EW120

Material assembly	Sendzimir galvanized steel.
Locomotor	system Consisting of: 2 guides to which 2 consoles have been assembled, in which bearings and supports were applied containing the tube with the fireretardant roller screen rotating on top. A cross bar ensures that the canvas runs smoothly into the guides, the entire assembly is finished by use of a casing. The related components form a self-supporting structure.
Side guiding	120 mm wide and 80 mm deep.
Top roller construction	Fitted with casing against flash-back.
Motor	Standard failsafe tube motor 230 [V]
Controls	All types that could be required by the fire brigade and/or government.
Fire resistant	EI60 / EW120
Standards	EN 16034; EN 1634-1:2014+A1:2018 (European standards)
Certificate	Report number: 2434-CPR-0160
Options	Emergency battery, smoke/temperature detector, signal transmitters, etc.
Assembly	Executable in RAL color.
Dimensions	Maximum dimension 10.000 x 8.000 mm (Br x Hg) according EXAP EN 15269-11:2018+C1:2019

3. Safety

When assembling the fire-retardant roller screen, the safety regels should always be observed, for instance, personal protective equipment.
The directions in these operating instructions must be strictly followed.
The attachments to this document must be strictly observed during the installation of the electrical devices.
Any damage, injury and the like sustained as a consequence of non-compliance with these operating instructions cannot be recovered from the manufacturer of the fire-retardant roller screen.

Follow the adjustment, maintenance and inspection operations. These activities may be performed only by qualified personnel. Only the original components of the manufacturer may be used. Any deviation from this will cause the responsibility as well as the warranty to expire.

3.1 Safety regulation

- The tube motor is thermally protected; motor protection thermally allows 8 movements 24 hours, pay attention to this when tuning the motor.
- Smoke detectors, temperature detectors, fire alarm system.

3.2 Safety regulations

- In case of fire or smoke development being detected, the fire-retardant roller screen will always “go down”, so the possible presence of persons or objects will not be taken into account.
- In case of maintenance/inspection on the fire-retardant roller screen, the installation must voltage-free.
- The fire-retardant roller screen should not be part of an escape route.

3.3 Other risks

Regular use:
Entrapment could occur when the fire-retardant roller screen is “going down”.
The function of the fire-retardant roller screen does not take account of any persons or objects being present while “going down”.
The risk that a person gets entrapped is unlikely, due to the weight and the pace of “going down”.

4. Product

The fire-retardant roller screen is a vertically closing canvas, intended as a closure of the openings in partitioning walls. Under normal circumstances, the fire-retardant roller screen is rolled up and protected by means of a metal casing. At the side of the wall opening, guide profiles ensure the sealing. A fire-retardant roller screen consists of the following components, see table 1.

4.1 Parts overvieuw.

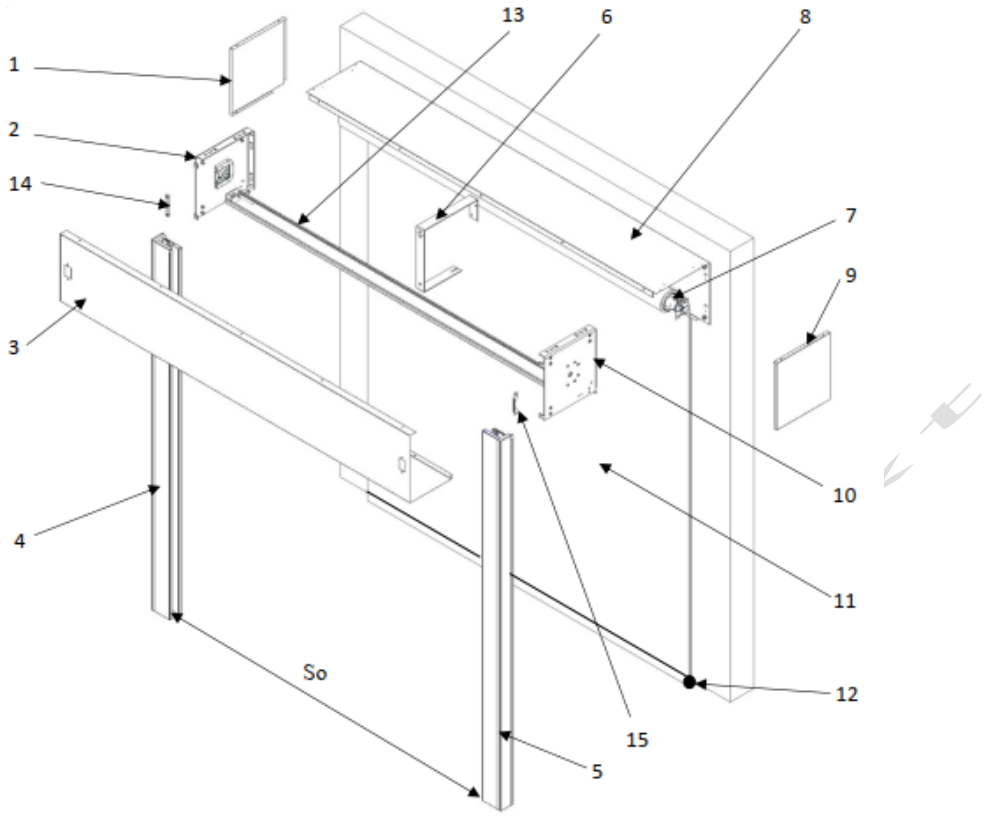


Table 1: Parts overview.

	Description	Number
1	Left bracket cover for the left bracket plate	1
2	Left bracket plate	1
3	Front/under cover	1
4	Left guide	1
5	Right guide	1
6	Middle cover bracket	1
7	Tube with tubular motor and fire-resistant curtain	1
8	Top and back cover	1
9	Right bracket cover for the Right bracket plate	1
10	Right bracket plate	1
11	Fire screen curtain (wall opening)	1
12	Counterweight in the bottom pocket of the curtain	1
13	Guide between the bracket plates	1
14	Locking plate for bearing support	1
15	Locking plate for tublular motor support	1

Different options are available for the fire-retardant roller screen:

1. Emergency battery
2. Smoke detector(s)
3. Temperature detector(s)
4. Key switch
5. Key switch with up-stop-down function
6. Mushroom switch
7. Flashing light RED/GREEN

5. Commissioning/assembly.

Before starting to assembly of the fire-retardant roller screen, you must check the following:

- Check all components by use of the delivery note/order document;
- Check the dimensioning (see delivery note/order confirmation), i.e. structural width and total width, structural height and total height.

5.1 Essential “tools” for assembly

Please find below a list that includes a number of tools:

- Drill hammer with different drills (depending on subsurface, e.g. stone or metal);
- Extension cable;
- Motor adjusting cable;
- Fastening materials for the assembly of the guides on the façade/wand;
- Means to neatly conceal or attach the cable of the motor and the peripheral equipment;
- Stepladder, platform or ladder;
- During the assembly of a wide or high fire-retardant roller screen, make use of hoisting or lifting installations, in connection with the Health & Safety legislation;
- Standard tools;
- Possibly, this list is not exhaustive in your opinion. This overview however, is but a mere indication of the type of tools that could be used..

5.2 Check on the operating area

Before you can start the assembly of the fire-retardant roller screen, you must first check the following:

- Check whether the electrical connections are present;
- Check whether the voltage corresponds with what is stated in the order confirmation;
- Check whether the (structural) width and the (structural) height correspond with the details in the order confirmation;
- Check whether there are obstacles in the area where the fire-retardant roller screen will be placed;
- Check whether there is sufficient room for the installation of the control;
- Check whether the walls are “absolutely” vertical.

Activities on the electrical equipment of the machine may only be performed by electro-technical expert personnel and only in voltage-free conditions (disconnected main switch, interrupted power supply), in accordance with the electrical regulations.

All activities regarding the industrial door, such as maintenance and repair activities, as well as checks, may only be performed during interrupted operation.

Before activating/commissioning the industrial door, you must guarantee that no one can be endangered as a consequence of operating the industrial door.

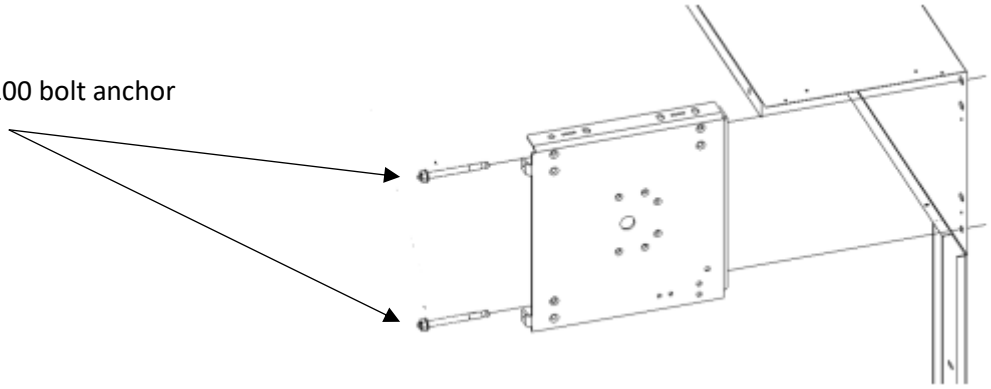
5.3 Assembly sequence

Once paragraph 5.2 has been completed, one can start the assembly of the fire-retardant roller screen. The assembly is subdivided in the following steps:

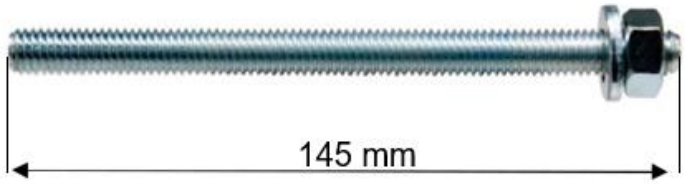
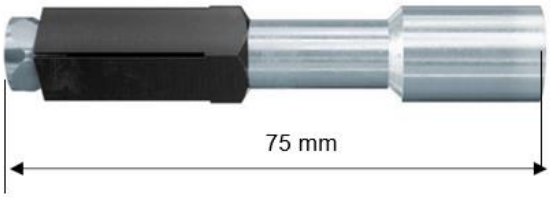
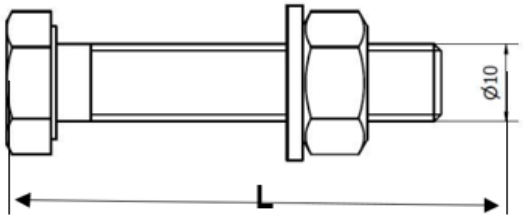
6. Mounting fasteners.

Fasteners required for mounting the supplied fire screen FS EI .

Fischer FAZ II 10/100 bolt anchor
(or equivalent)

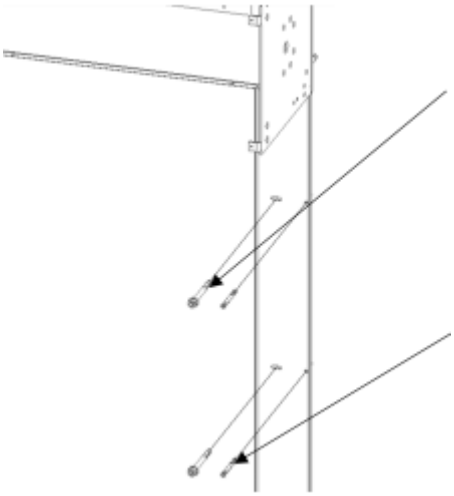


6.1 List for mounting of the bracket plates (Fig.1)

Fischer FAZ II 10/100 bolt anchor (or equivalent) 	R-f or soild concrete (standard) Quantity: 4 • Anchor drilled hole diameter = 10mm • Min.drilling depth = 100mm • Min. Substrate thickness = 120mm
Chemical anchor (threaded rod) with injection grout Fischer FIS CS (or equivalent) 	Solid masonry walls (concrete blocks, silicate blocks, or solid bricks) and hollow masonry walls (hollow blocks, Porotherm blocks, U-type hollow bricks, and Max hollow bricks) Quantity: 4 • Anchor drilled hole diameter = 18mm • Min. Drilling depth = 100mm • Min. Substrate thincness = 240mm
Anchor FPX-I (or equivalent) 	Cellular concrete block walls (Ytong, Solbet, Siporex, Suporex, etc.) Quantity: 4 • Anchor drilled hole diameter = 14mm • Min. Drilling depth = 95mm • Min. Substrate thincness = 240mm
Bolts M10 	Steel substructure Quantity: 4 • M10 bolth ISO 4017 8.8 • M10 nut ISO 4032 8.8 • M10 washer ISO 7091 • L= length varies whith the steel substructure thickness

6.2 List of anchoring components for the guide rail wall-mounted installation.

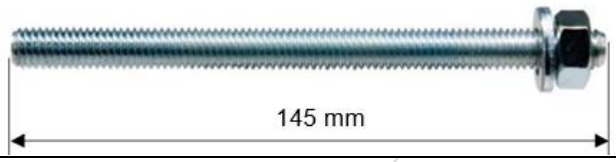
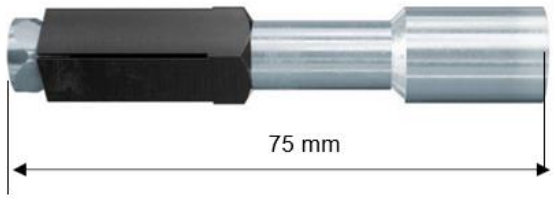
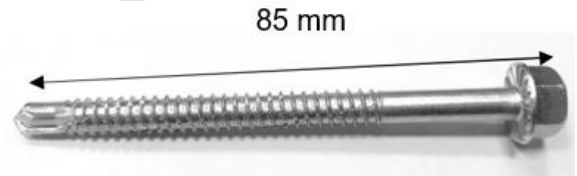
The quantity depends on the height (Ho).



Fischer FAZ II 10/100 bolt anchor
(or equivalent)

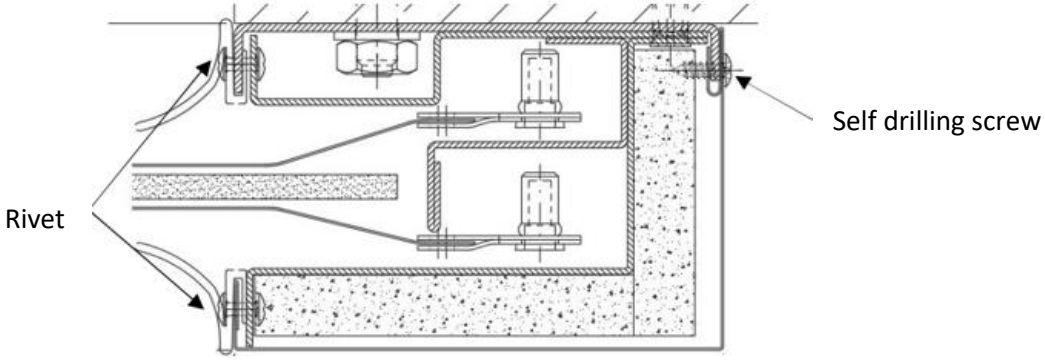
Door frame anchor Ø8x92 (or equivalent)

6.3 Installation diagram of the guide rail channel bars (Fig.2).

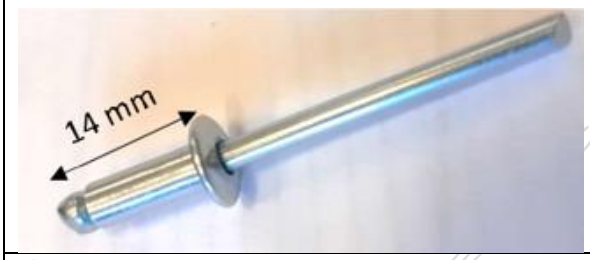
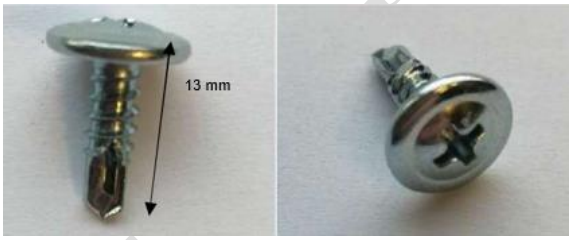
Fischer FAZ II 10/100 bolt anchor (or equivalent)  	R-f or solid concrete walls Door frame anchor Quantity: depends on the quantity depends on the height, one every 500 mm
Fischer FIS CS chemical anchor (threaded rod) with injection grout (or equivalent)  	olid masonry walls (concrete blocks, silicate blocks, or solid bricks) and hollow masonry walls (hollow blocks, Porotherm blocks, and U-type hollow bricks)
Fischer FPX-I anchor (or equivalent)  	Cellular concrete block walls (Ytong, Solbet, Siporex, Suporex, etc.)
Hilti S-MD Ø 6,3 screws (or equivalent)  	Steel substructures

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

6.4 Other fasteners.



6.5 . Installation diagram of screws and rivets (Fig.3)

Ø 4 x 14mm rivets 	For fascia gaskets
Ø 4,2 x 13mm self drilling screw 	For installation of the fascias and the Promat fire-proof panels

7. List of available motors and brackets with the installation method (Fig.4)

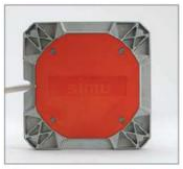
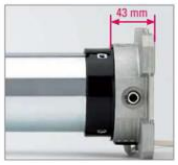
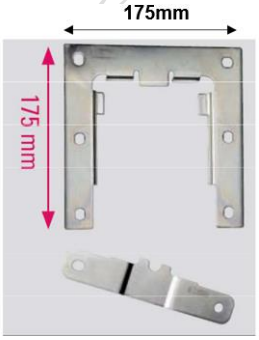
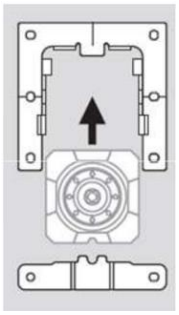
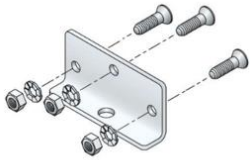
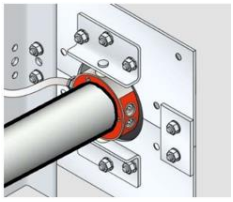
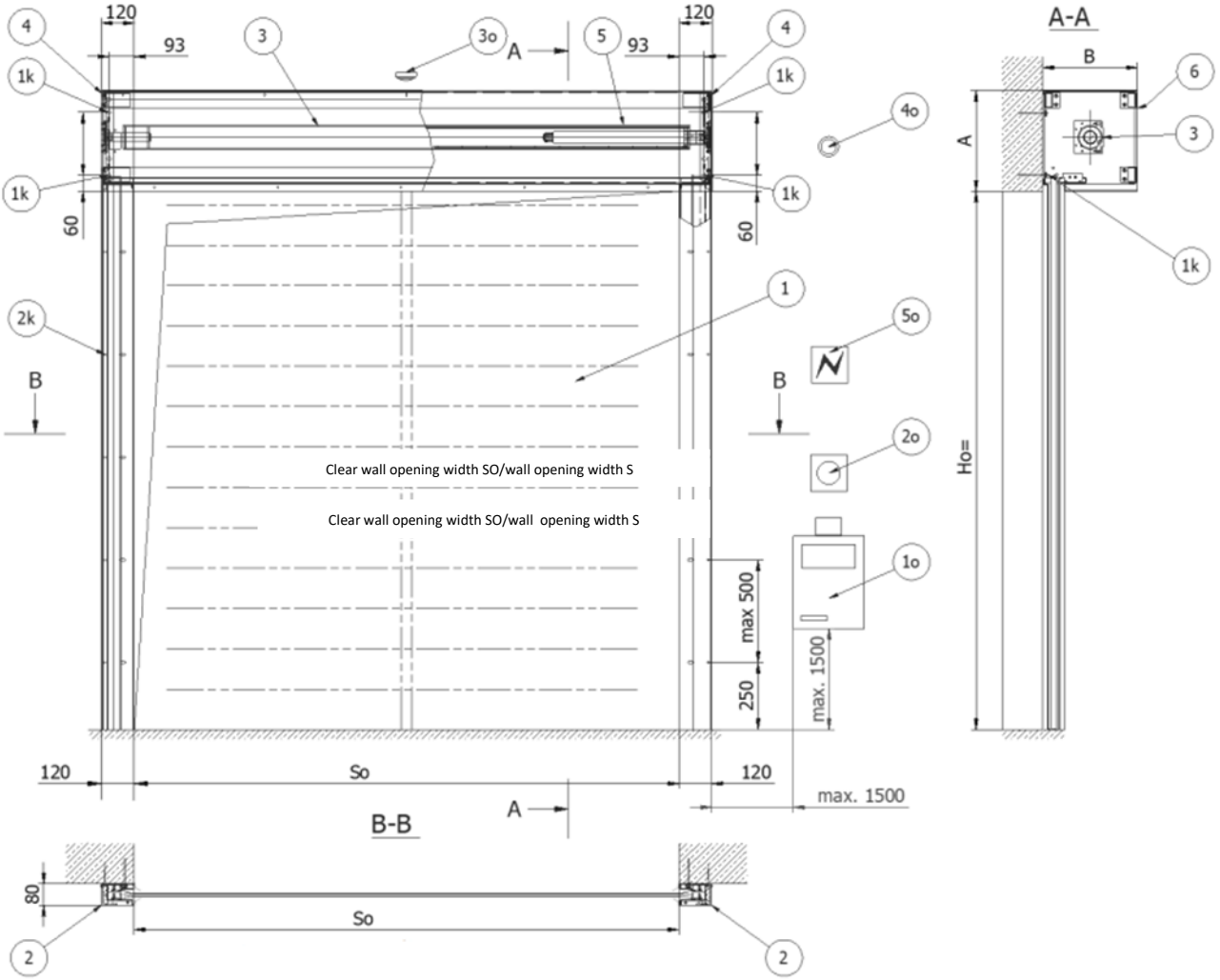
Motor	Motor mount	Installation
Becker type; XL 60 XL 120 XL 200  Power supply 230V AC Gravitair closing at interruption of the 24V DC on the brake	Motor support Becker 	Motor split pin for securing 
Simu type; Various type 6  Power supply 230V AC No Gravitair closing possible	Motor support Simu mounting with 4 piece M6 bolth 	Motor secured by plastic spacer (ring) and clip 
Simu type; Various type 8S   Power supply 230V AC No Gravitair closing possible	 	Motor support wiht 4 piece M10x30 bolth 
	Motor support consists of 2 angle brackets 	support mounting with 6 piece M10 bolth 

Fig.4 List of available motors and brackets with the installation method

8. Installation from EI60/120 firescreen

Direct wall-mounted installation of firescreen door <(less than) 4000mm wide.



Names of the above image

Nr.	Standard part	Nr.	Optional parts	Nr.	Fasteners
1	Curtain	1o	Controlbox MO710AZFNBW.NDS	1k	Anchoring
2	Guide	2o	Key switch	2k	Guide anchoring
3	Aandrijfas	30	Smoke/ Temperature detector (stand alone)		
4	Bearing	4o	Sirene with flash		
5	Tubular motor	5o	Power supply fort he controlbox		
6	Cover				

8.1 Start assembly

- 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)..
- Determine the wall opening centerline. Locate the positions of the guide rail channel bars at distance of 0.5 x So from the wall opening centerline. Verify that the guide rail goes 50 mm above the bottom plane of the wall opening header and it is true to the vertical (use a level or a beam plumb laser) .

- Trace out and drill Ø10 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.

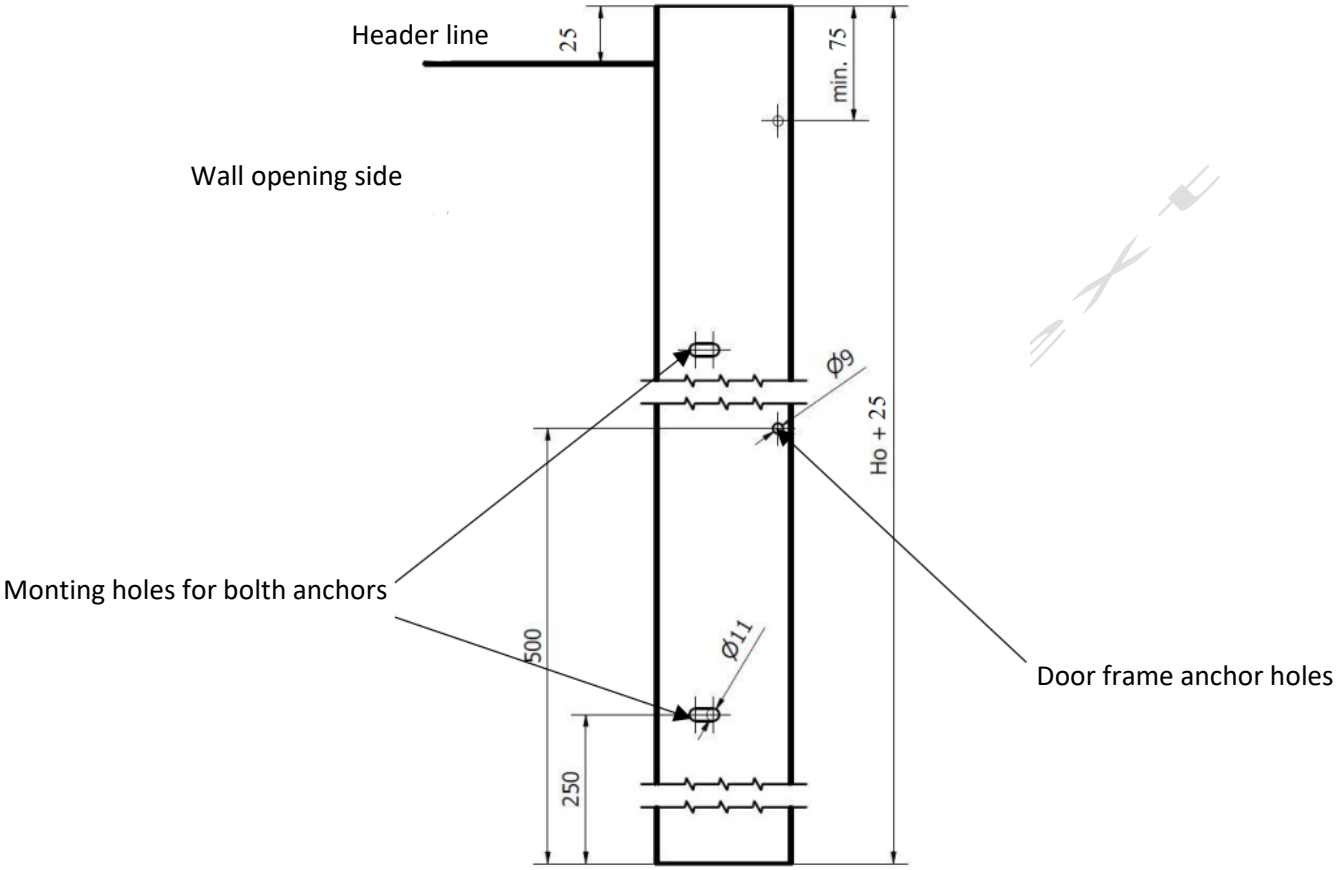


Fig. 6 guide rail

- Remove the front under cover box, see also figure below (7)
- Use a spirit level or a laser level to level the console plates, lower the console plates with rear top box 25mm over the guides so that the opening is flush with the bottom of the back box (see figure 9). Then mark the holes for the drill anchors.
- **Make sure** this is properly aligned with the guide parts (Fig 7)

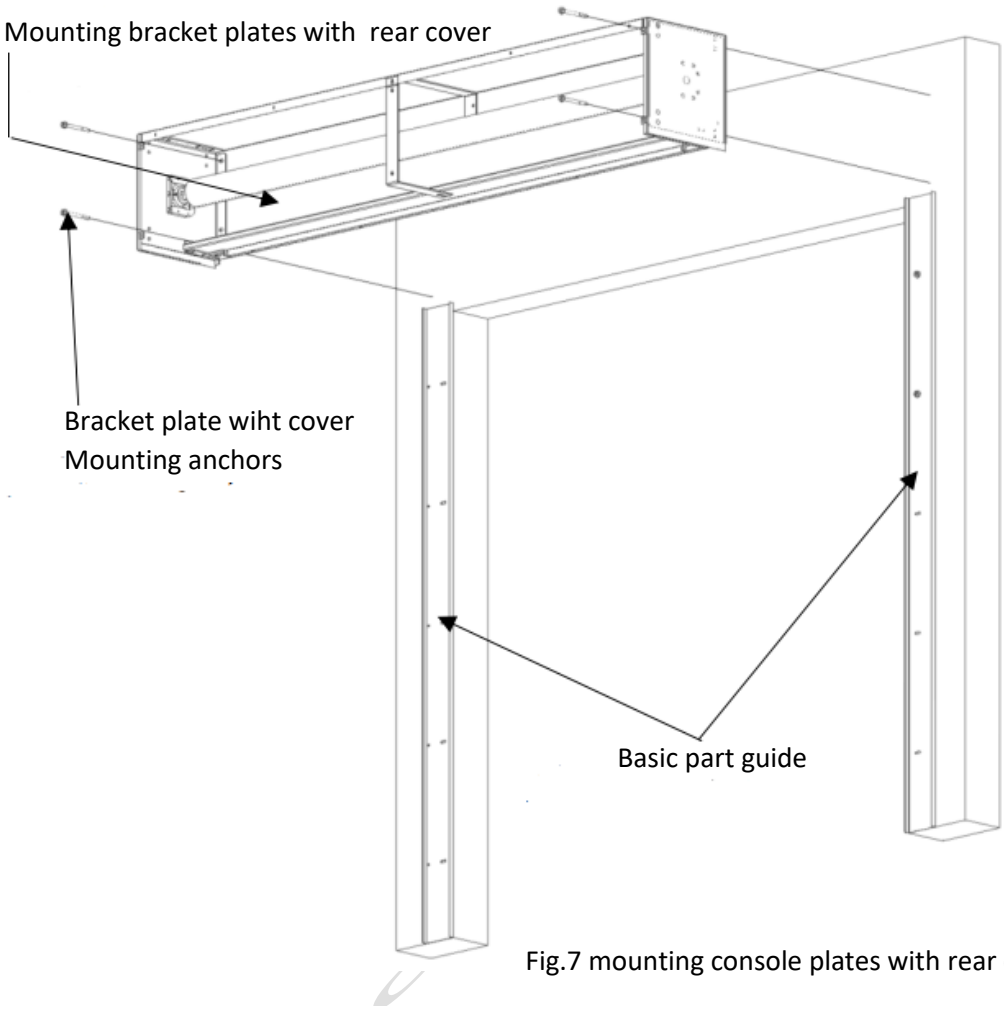


Fig.7 mounting console plates with rear cover

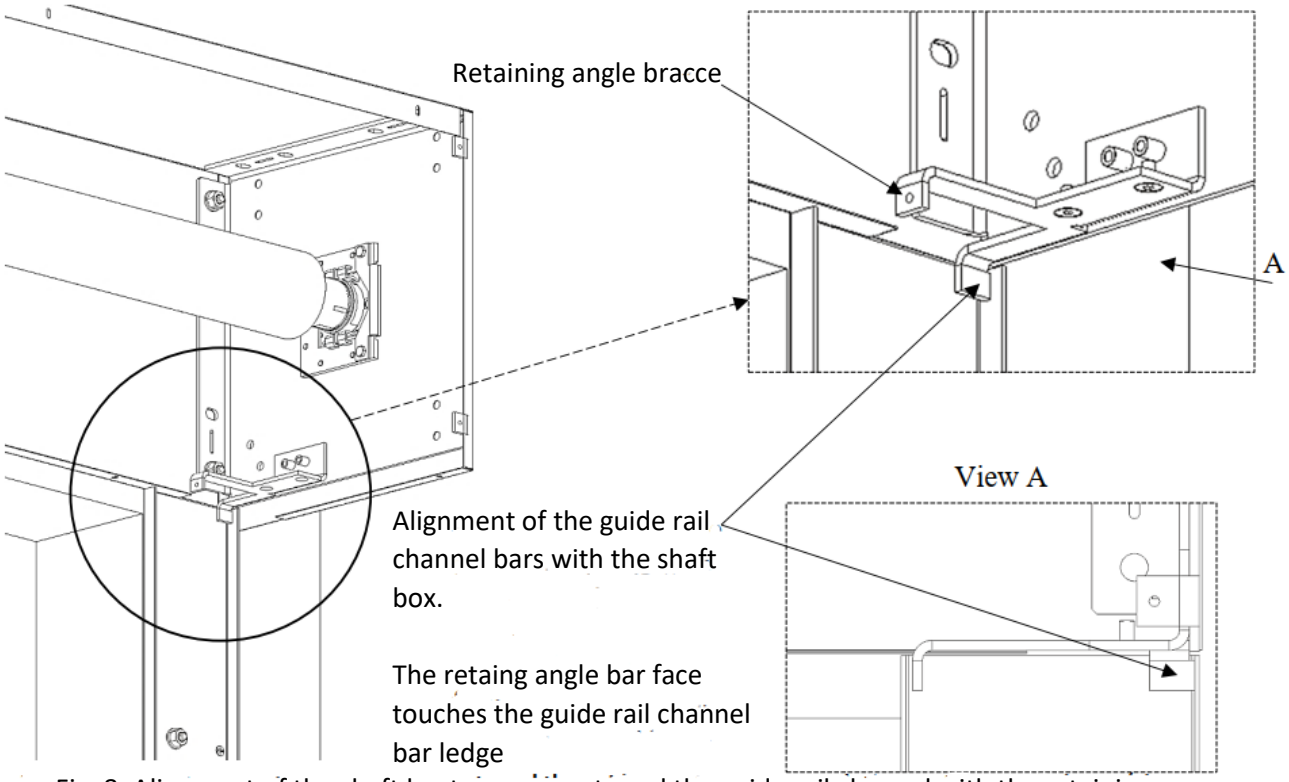


Fig. 8. Alignment of the shaft boxt components and the guide rail channel with the retaining angle brace (show without the retaining slat)

- 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.

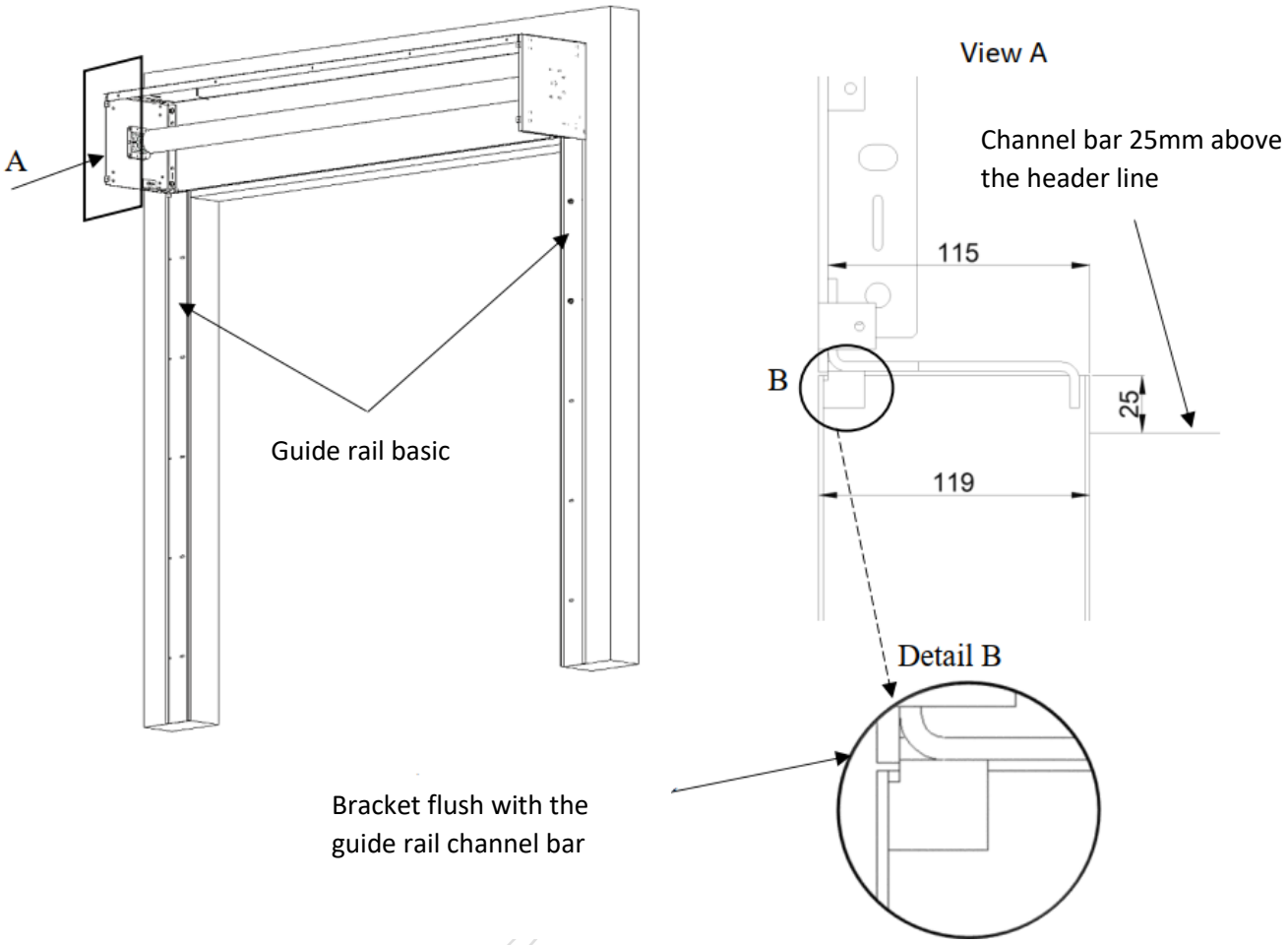


Fig. 9. Installation of the guide rail channel bar with the retaining and the shaft box bracket (shown without the retaining slat)

- Drill Ø10x160 holes in alignment with the shaft brackets
- Mount the bracket plates with the cover box and the spacer tubes with frame anchors and tighten them.
- Then bring the motor cable outside the console plate and connect it, see page 26.
- Use the adjustment cord to lower the fire screen. When the screen is down, check that the screen is distributed parallel to the guides, then send the screen back up and then let it run down again until it rests on the floor. Then check that the underweight is evenly distributed and that the screen touches the floor over the entire width.
- When the screen is on the floor, mark the cloth just above the point where it leaves the axis, see also figure 10.
- Then turn the screen slightly upwards so that you can mount the cloth mounting strip 30x30 mm on the shaft, secure it with pop rivets 4x13 mm or self-drilling screws 4x25 mm depending on the size of the screen, CAUTION when drilling in the shaft on the motor side that you do not damage it.

9. Mounting cloth cloth strip against mechanical unrolling

A Marking out the mechanical stop installation location

B Turning the shaft and installing the mechanical

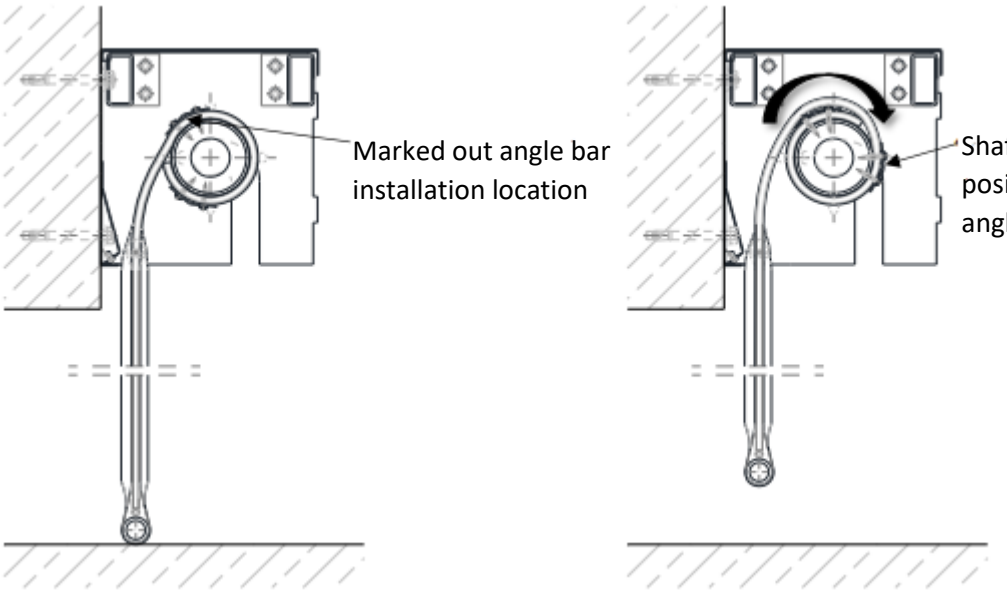


Fig. 10. Installation of the curtain descent mechanical stop (angle bar)

10. Mounting guides

- Wind the curtain onto the shaft inside of the shaft box.
- Use the channel bar holes to drill Ø8 holes for the door frame anchors (Fig. 11 and 12)

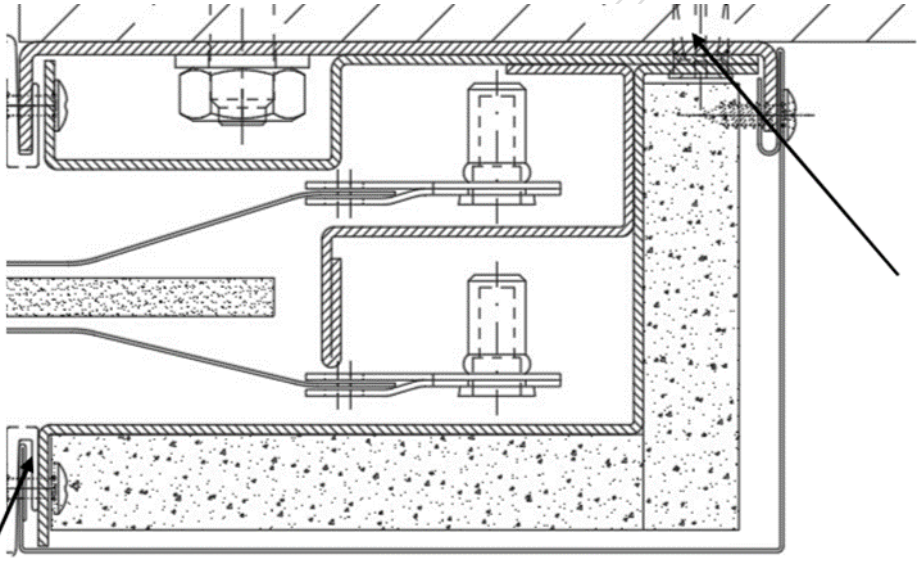
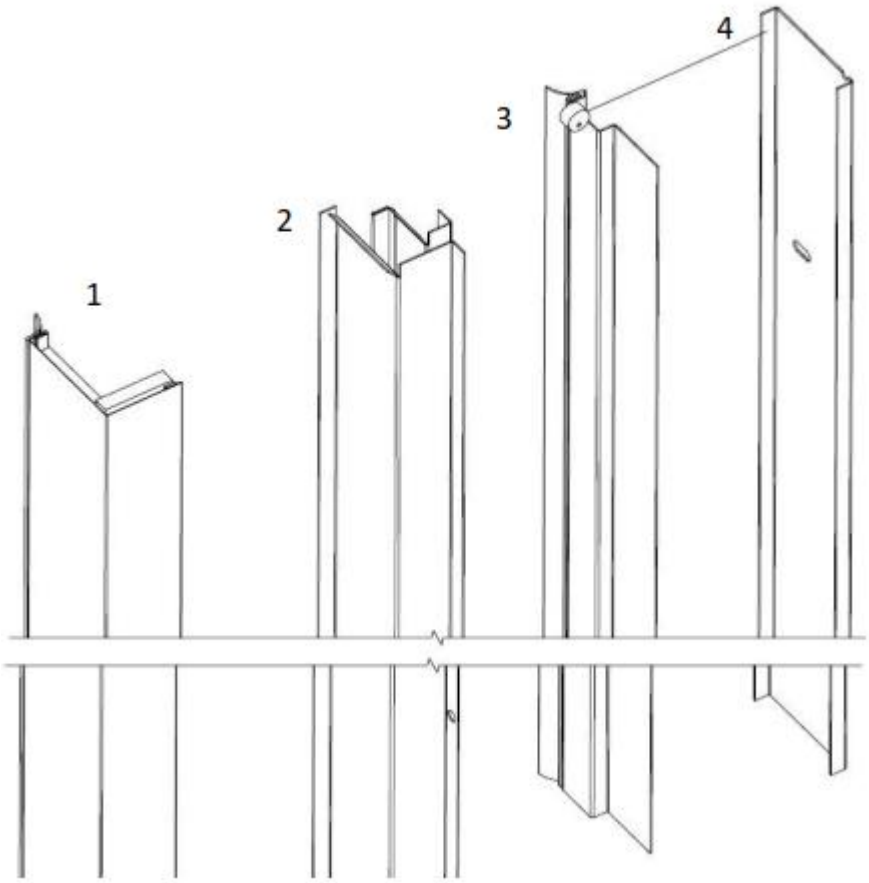


Fig. 11. Installation of the guide rails

- 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).



1. Fascia complete with Promat fireproof panels.

2. Outer guide rail run-in plate.

3. Wall-side guide rail run-in plate.

4. Guide rail channel base part.

Fig. 12. Installation of the guide rail.

- 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.
- Insert the curtain into the recesses in the guide rails so that the running shoes are in separate channels Fig.13.

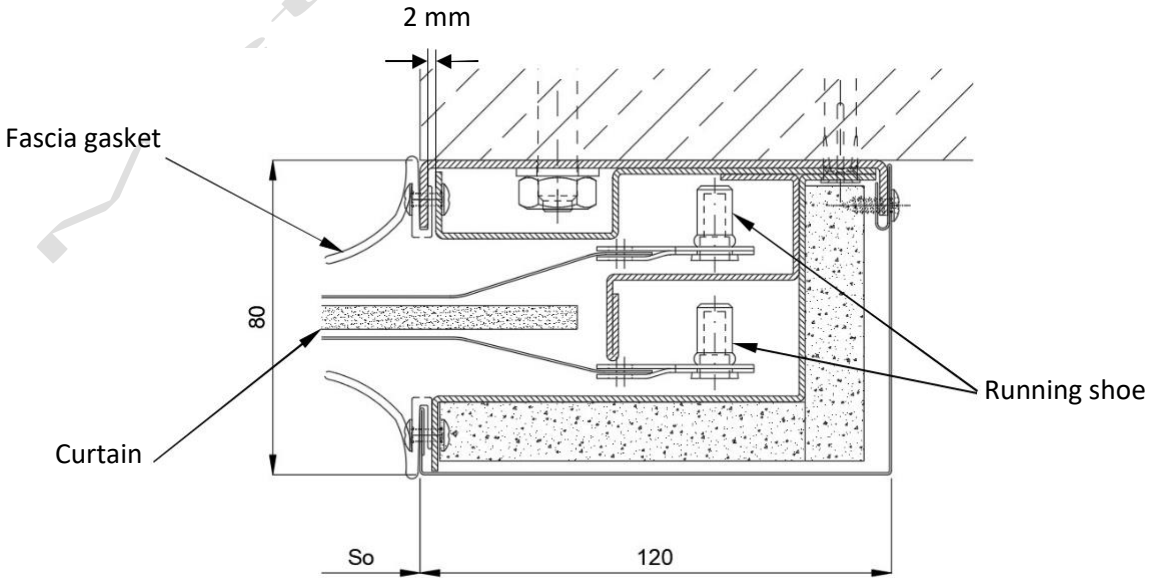


Fig. 13. Cross-sectional view of the guide rail engaged by the curtain

11. Direct wall-mounted installation of the door >(bigger than) 4000 mm wide.

Screens with a width more than 4000mm are supplied partially pre-assembled. Install the fire screen in the order of the steps below:

- After the guide parts have been mounted, continue mounting the bracket plates and cover box.

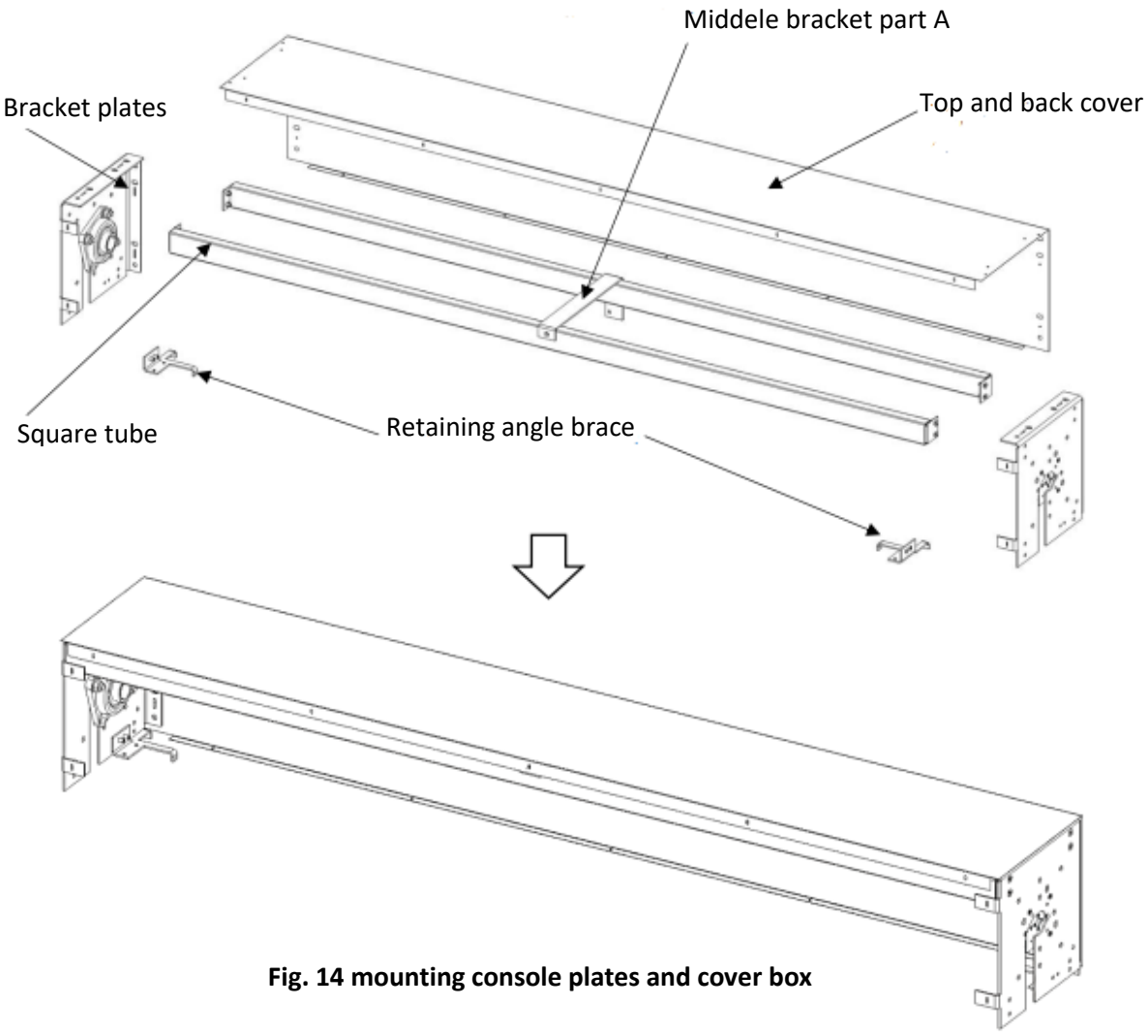


Fig. 14 mounting console plates and cover box

- 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.
- 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.
- 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.
- Drill through the top fascia back panel in alignment with the holes in the brackets.
- Tighten the M8 door frame anchors which fasten the middle brackets to the wall – through the rear cover.

- For door sizes (bigger) So>6000mm, 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.

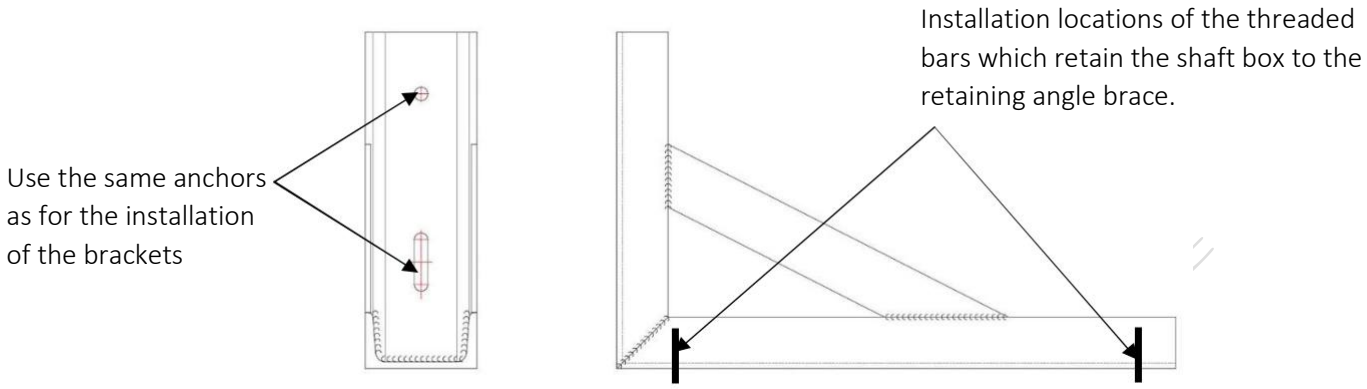


Fig. 15 Support bracket if bigger than > 6000mm

Install the winding shaft complete with the door curtain.

- Unpack the shaft with the curtain.
- Remove the bearing and the motor mount from the brackets.
- Place the bearing on the shaft neck and the mount on the tubular drive motor end.
- Place the shaft inside of the box, between the brackets, and secure with countersunk head bolts. verify that the shaft is level.

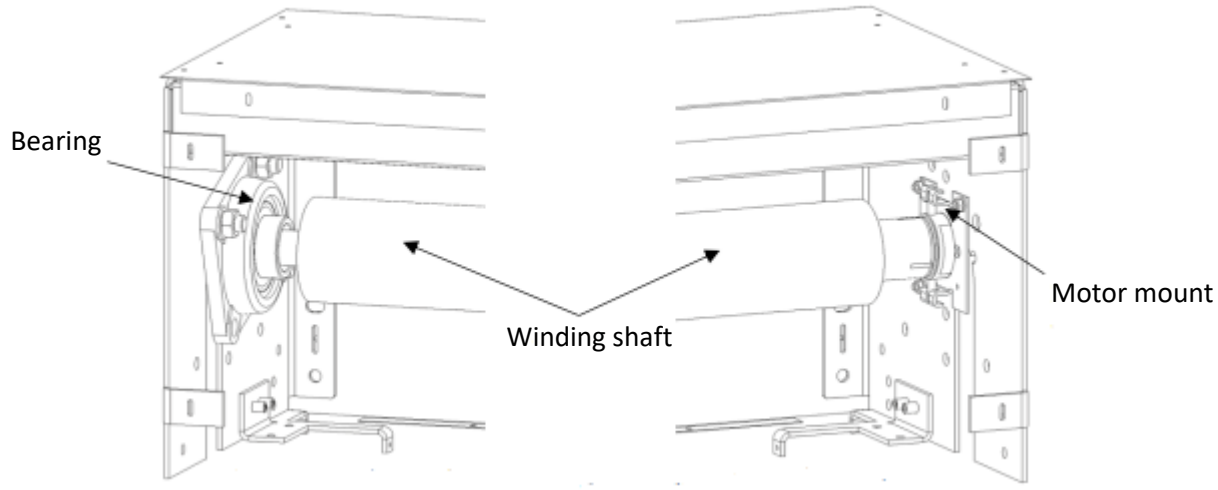


Fig. 16. Installation of the winding shaft with a door width (bigger) > 4000 mm

Install the retaining slat of the curtain

Fig. 17. Installation of the retaining slat

- Install the third 60mmx30mm square tube.
- Use the 4.2x19mm countersunk self-drilling screws to secure the middle bracket part B to the square tube

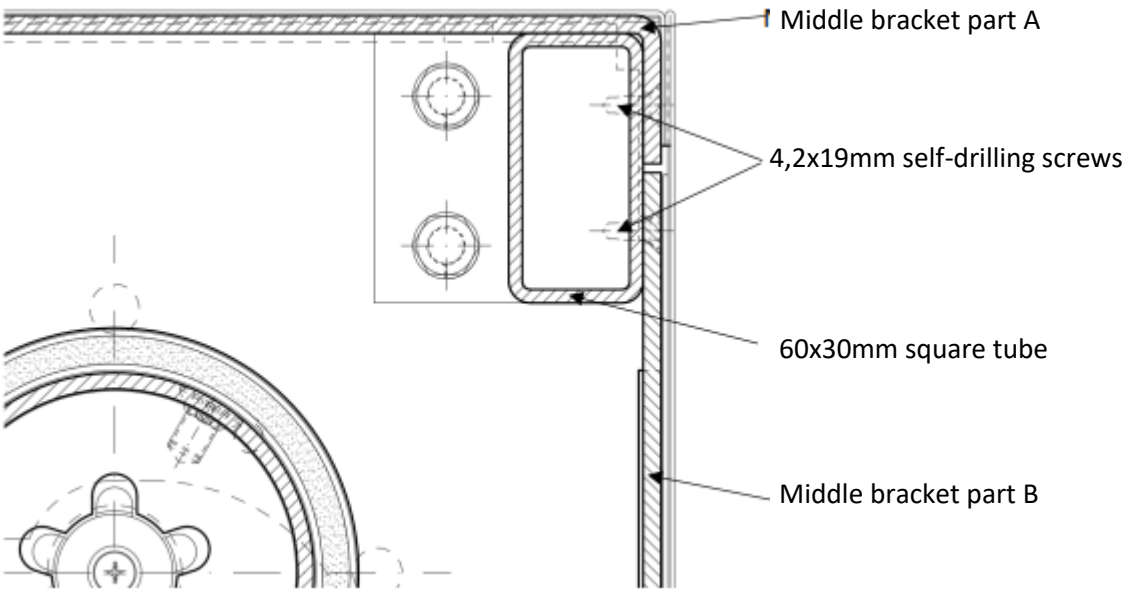
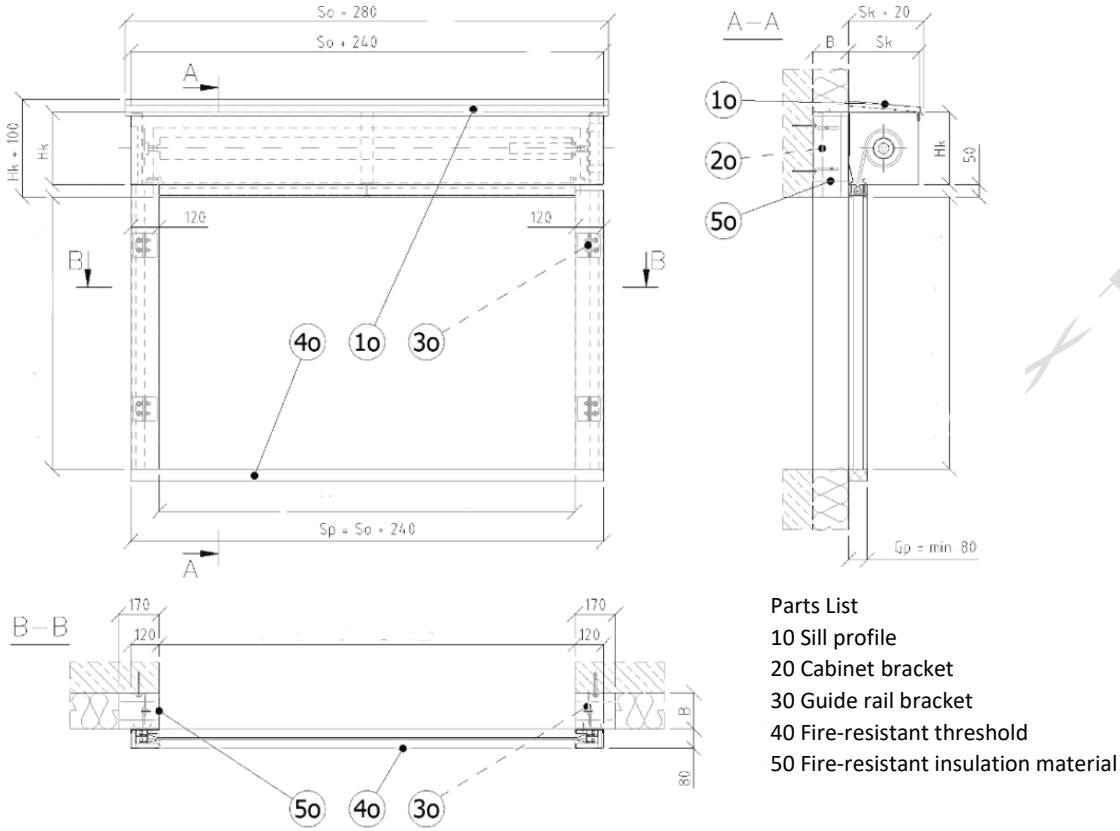


Fig. 18. Installation of the middle bracket – part B

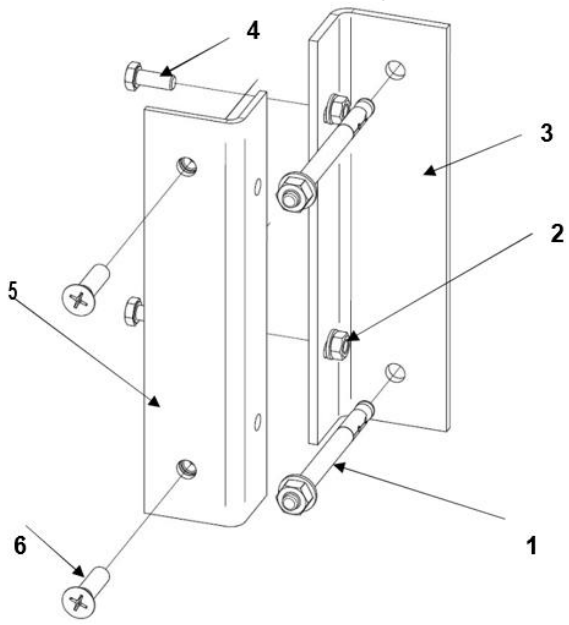
12. Follow steps apply to doors with width less than 4000mm

Indirect wall mounting with adjustable offset brackets.



Parts List
10 Sill profile
20 Cabinet bracket
30 Guide rail bracket
40 Fire-resistant threshold
50 Fire-resistant insulation material

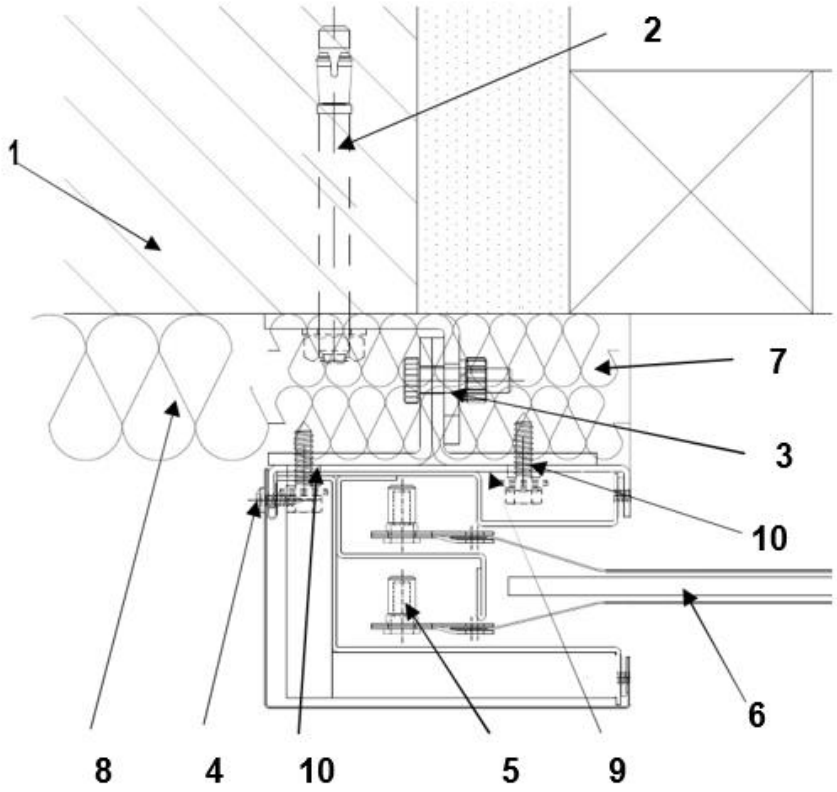
For indirect mounting, before proceeding from (direct mounting on the day page 12) install the additional mounting brackets to the console plates with countersunk M10 bolts where the mounting holes are.



1 Mounting frame anchor
2 M8 nut and washer
3 Wall angle bracket
4 M8 hex bolt
5 Corner bracket for the console plate
6 M10 countersunk bolt for through the bracket

Fig. 20 additional brackets for mounting option.

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.

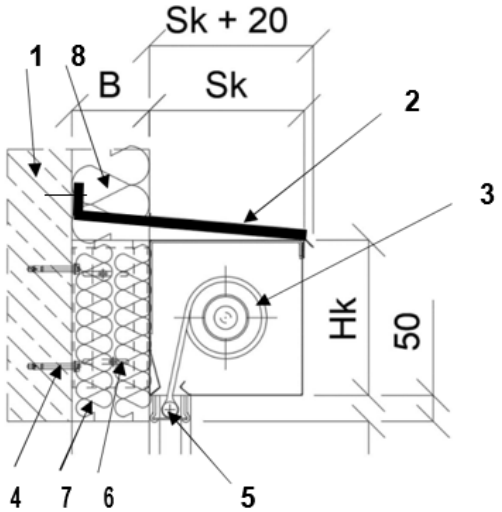


1 Reinforced concrete wall.
2 Installation anchor.
3 Guide rail adjustable offse bracket.
4 Self-drilling screw.
5 Curtain running shoe.
6 Curtain.
7 Fire-rated insulation material.
8 Building thermal insulation layer.
9 Guide rail channel bar 10 – M8 countersunk bolt with washer and nut.
11 M10 countersunk bolt with washer and nut.

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

13. Outdoor mounting

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 EI60 curtain door shaft box with a drip cap on the reinforced concrete

14. Installation of the EI60 curtain door with a sill

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

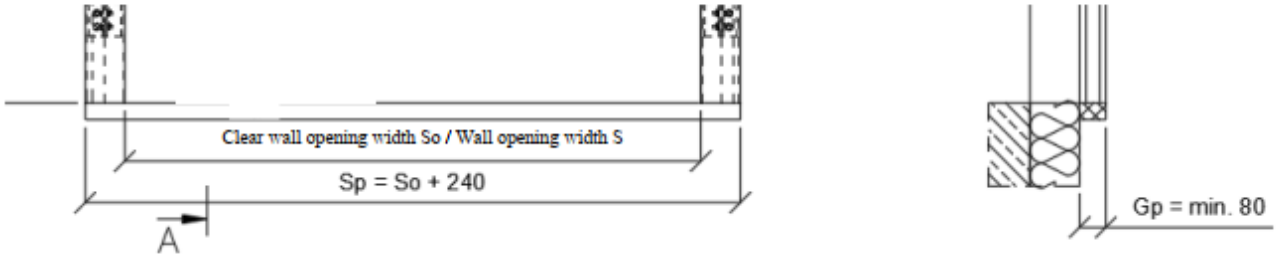


Fig. 23. Installation of the curtain door with a prefabricated sill

15. Corridor-closure installation

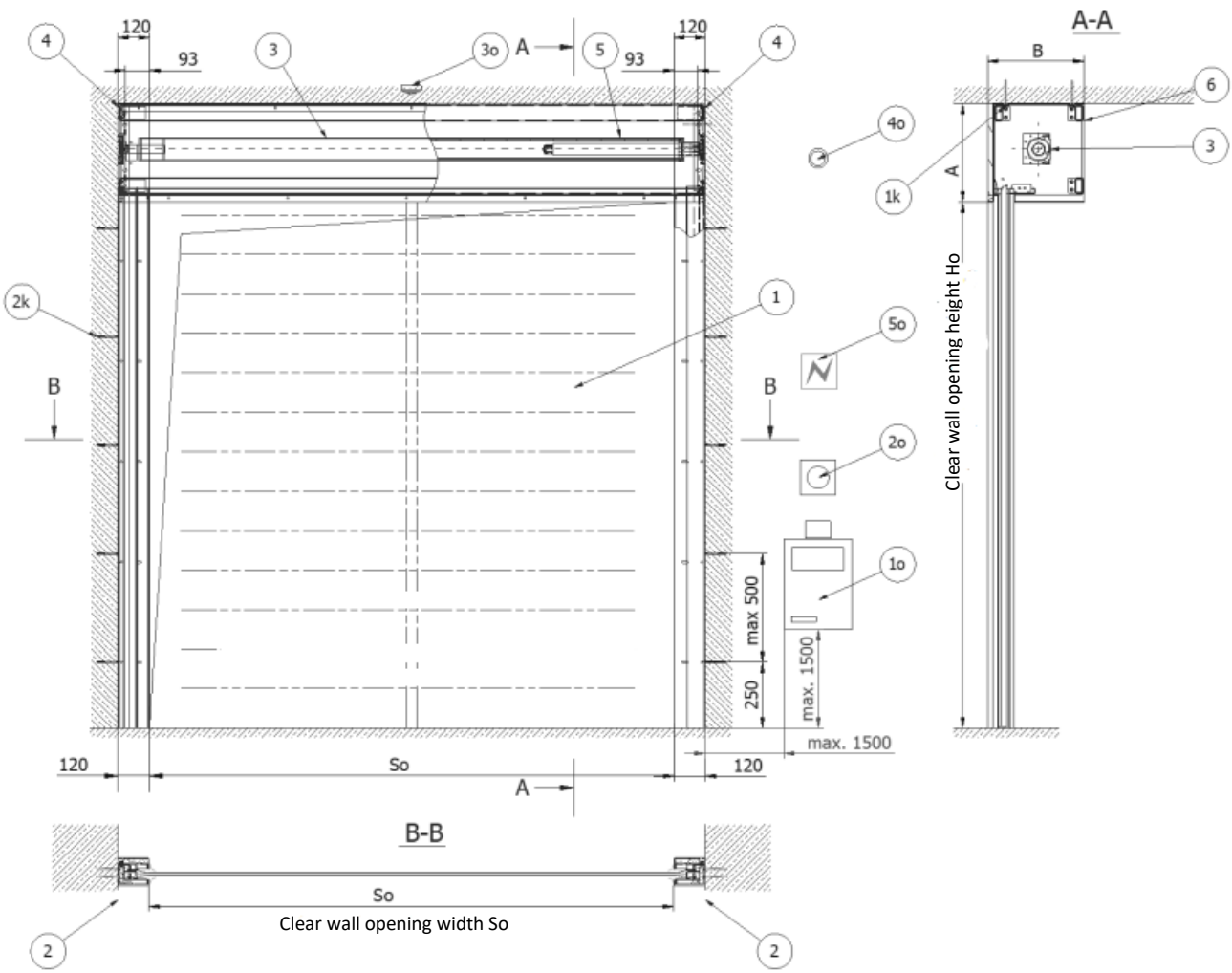


Fig. 24. Corridor-closure installation conditions for a fire safety curtain door.

- 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).
- The Marc-Ok plus curtain door is delivered completely pre-assembled. Install the shaft box as a complete assembly, removing the front cover only.

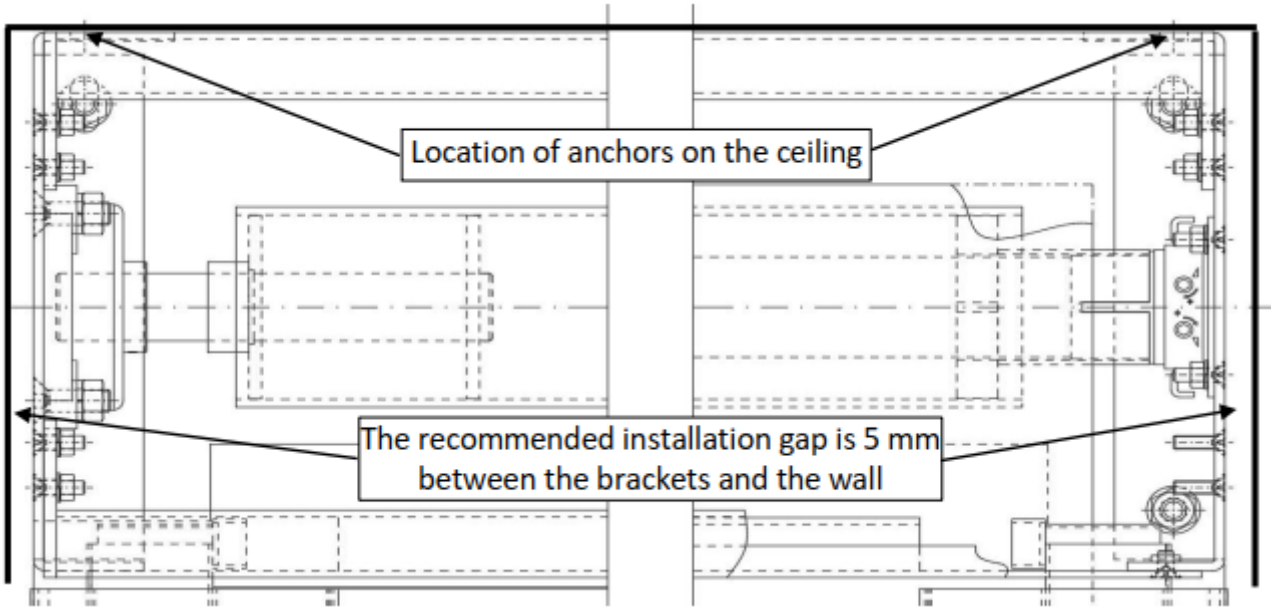


Fig. 25. Corridor-closure installation of the shaft box brackets.

- Drill Ø10x160 holes in alignment with the shaft bracket holes.
- Install the shaft box with bolt anchors and tighten to secure.
- Follow from Section 2.1 (9).
- 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.
- Roll up the curtain and install 20mm thick Promat fire-proof panels on the shaft box curtain extension end (Fig. 22).

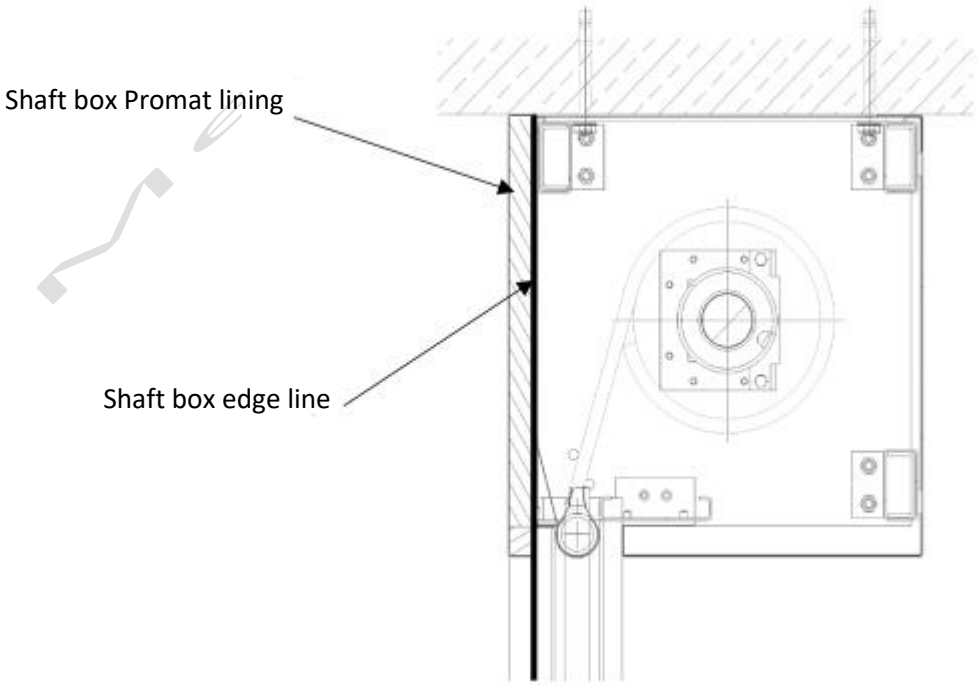


Fig. 26. Installation of Promat fire-proof panels in the back of the shaft box

15.1 Corridor-closure installation of the guide rails

- Align the guide rails flush with the shaft box edge. Use the channel bar holes to drill Ø8 holes for the door frame anchors.

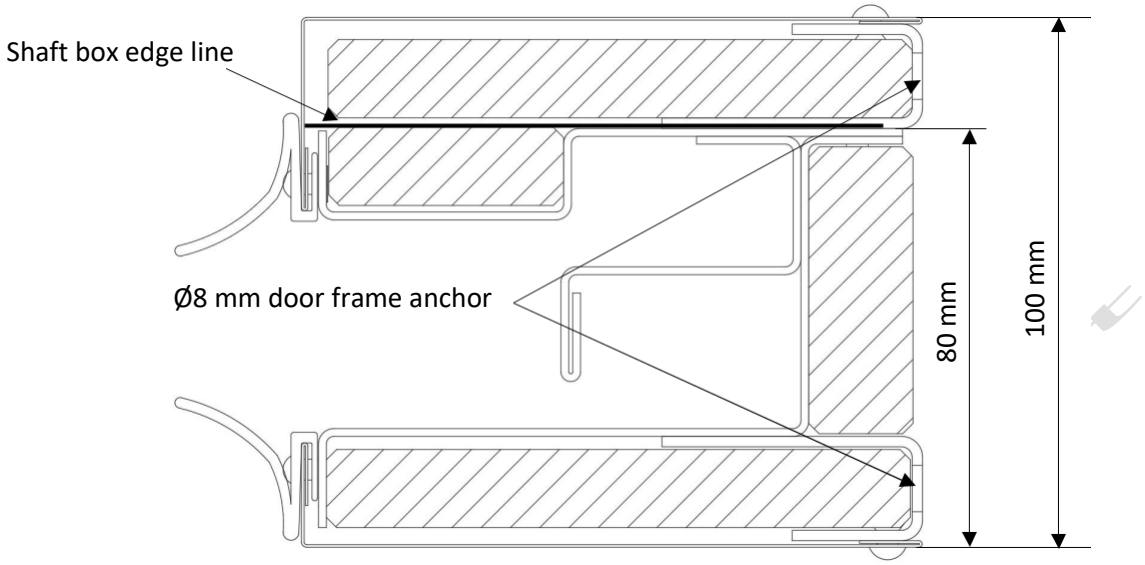


Fig. 27. Installation of the guide rails

- With the guide rail internal parts installed (as shown in Fig 27), install the Promat fire-proof panels and the outer fascia. Leave 2 mm of play for the fascia gaskets.
- With the guide rails installed, insert the counterweight into the curtain pocket.
- Insert the curtain into the recesses in the guide rails so that the running shoes are in separate channels (as shown in Fig 28).

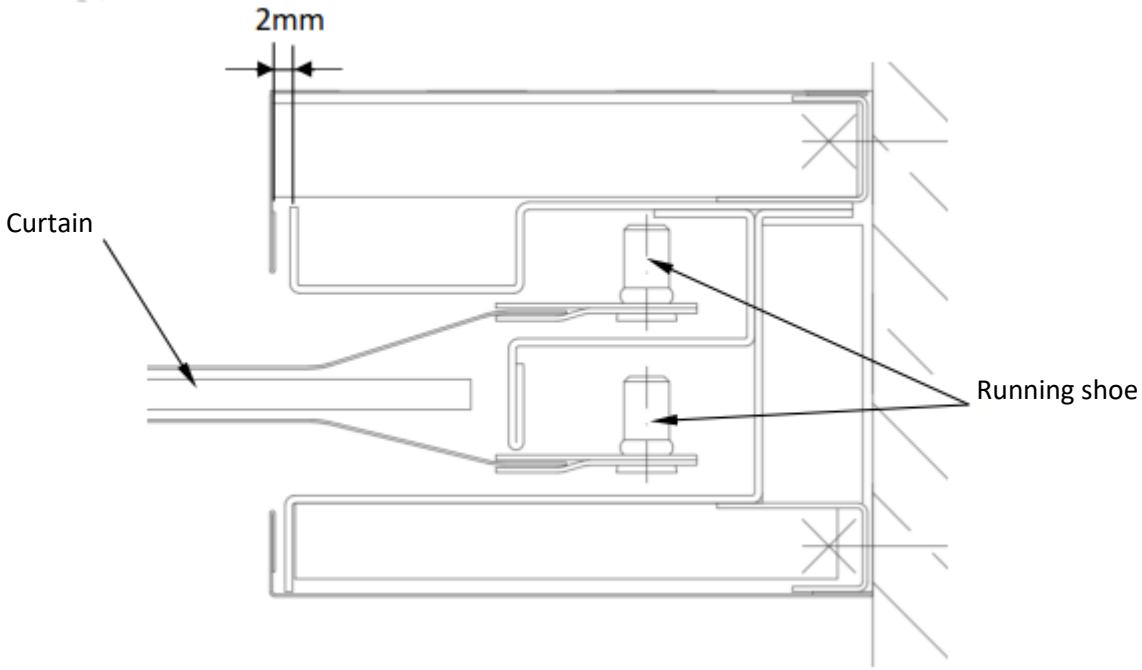


Fig. 28. Cross-sectional view of the guide rail engaged by the curtain for the corridor-closure installation

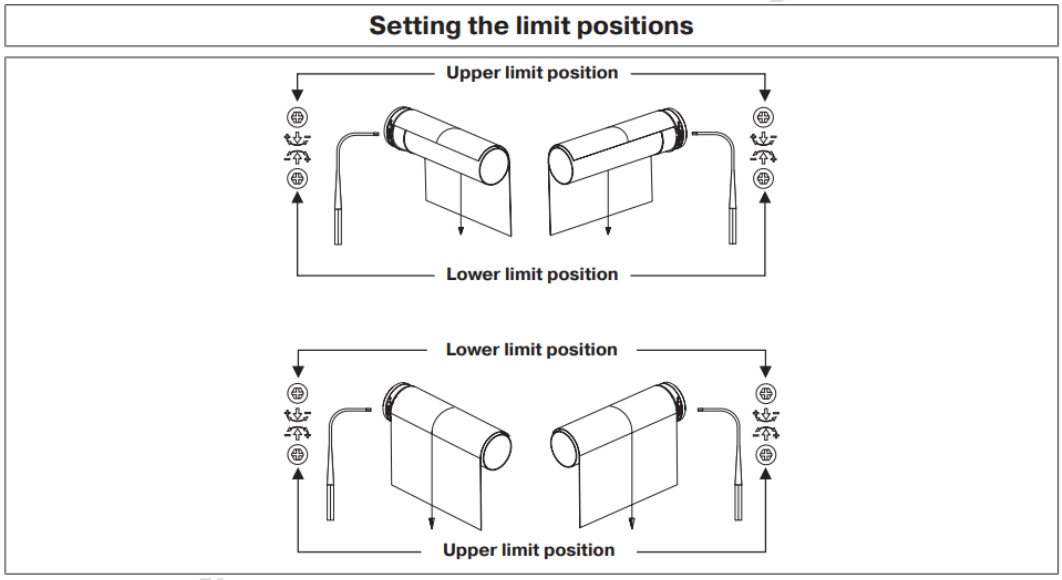
- Unwind the curtain, adjust the component for correct alignment, and replace the fascia covers.

16. Installation of the tublar-motor

Warning ! Failure to follow these installation instructions may result in severe injury or death.

- Please read these instructions before using the product
- Keep these instructions handy
- Please include these instructions when you pass on the product

- Connect the motor to the MO710 controlbox on wire 4 and 5 on the 24V DC and the wires 1,2 and 3 on the adjusting cable. Send the screen down gently, if necessary accompany the first time. Adjust the motor down and up with the two adjusting screws on the motor. Pay attention to the direction of rotation of the shaft. See also the manual of the engine supplier.



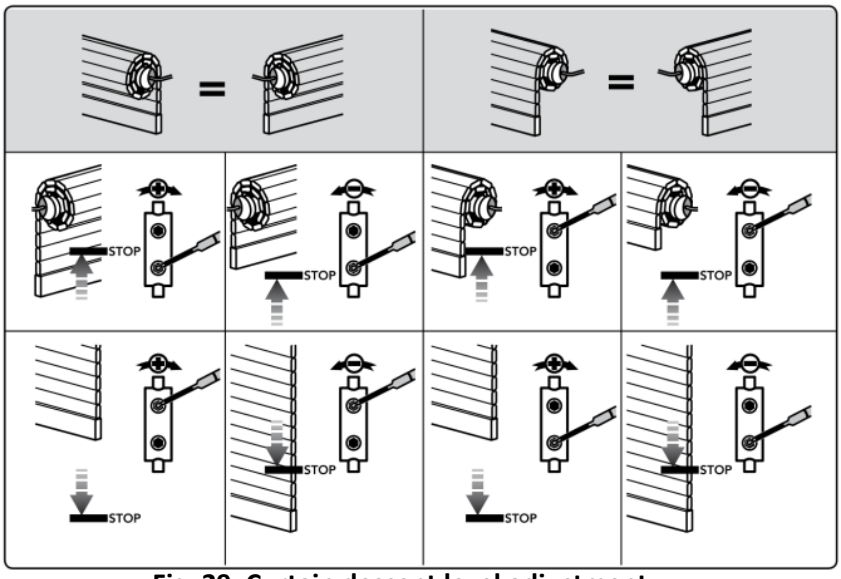


Fig. 29. Curtain descent level adjustment

- After the limit switches of the tube motor have been adjusted, perform a functional test of the fire screen to check the operation.
- Reinstall the front and side fascia covers.

17. Installation of the fascia gaskets

- The fascia gaskets are delivered trimmed to the size of the guide rails and pre-installed with clips. Drill Ø4.2 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 Ø4 x 14 mm rivets. Verify there are no evident bulges on the fascia gasket.

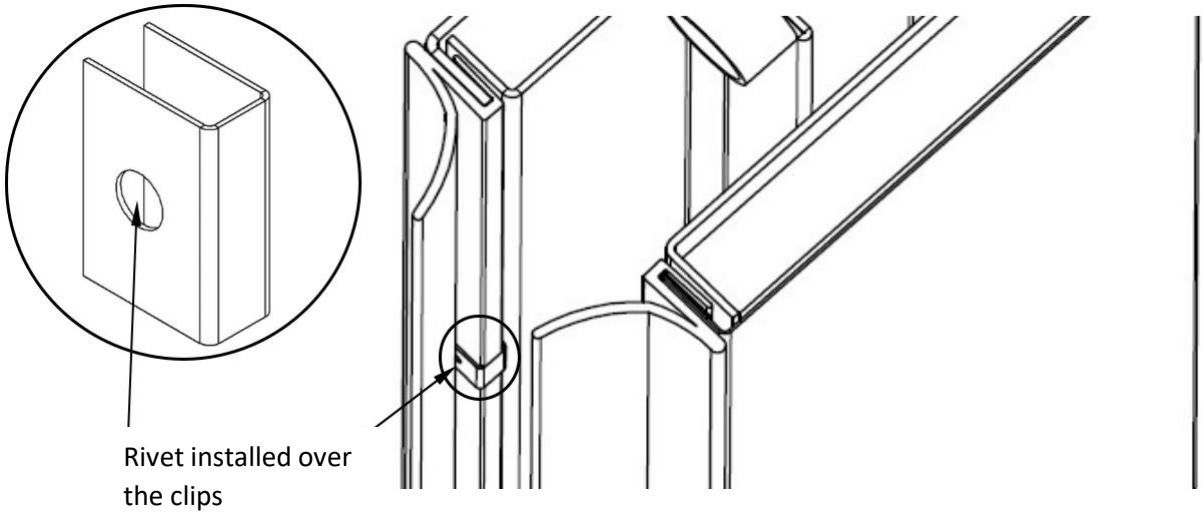


Fig 30 Installation of the fascia gaskets with rivets

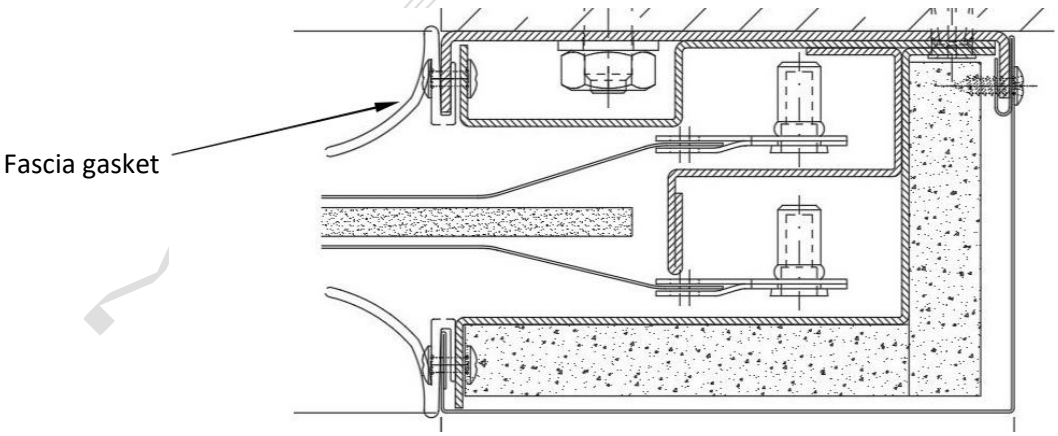
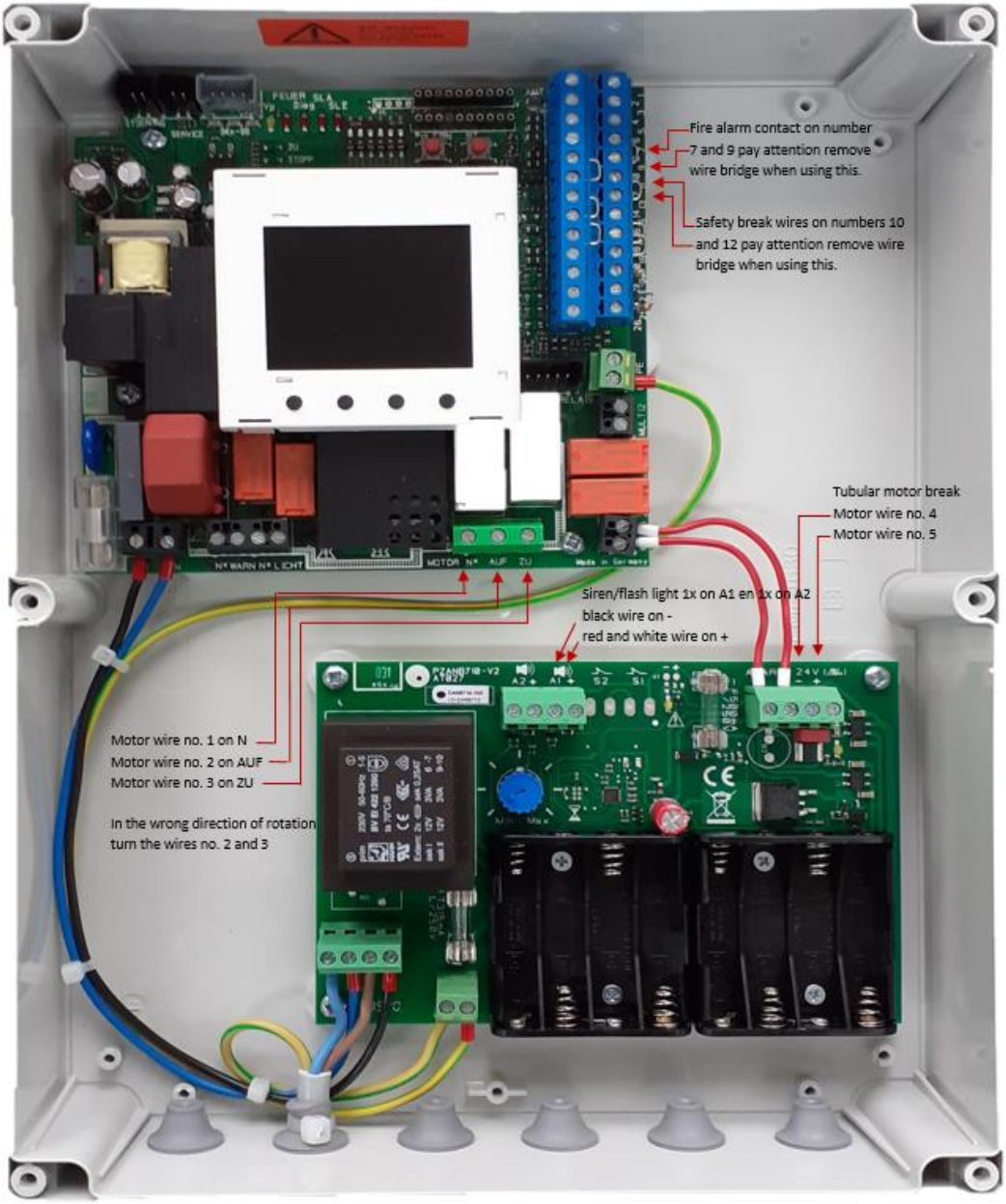


Fig. 31. Cross-sectional view of a guide rail with the fascia gaskets secured with riveted clips

18. Connecting the installation

Place the supplied controlbox near the motor. Connect the pre-adjusted motor cable here. To do this, follow the instructions in the manual of the controlbox.



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