

### RSV - Single-Roller

**Instruction manual for automatic textile Smoke Curtains.**

Valid for following item numbers:

- RSV 52010
- RSV 52011
- RSV 52020
- RSV 52021
- RSV 52030
- RSV 52031
- RSV 52040
- RSV 52041



## Safely Control Spread of Fire

Smoke PROtec® - Smoke curtains

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**These operating instructions are only valid with the supplied supplementary sheet „Safety instructions and Warranty conditions“!**

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## General

### 2. General

#### 2.1 Foreword to this manual

This manual has been created for the purposes of proper operation, installation and maintenance by trained, experienced specialist personnel (e.g. mechatronics engineer or electrician) and / or specialist personnel with knowledge involving the installation of electrical devices.

Read the operating manual carefully and follow the prescribed sequence. Retain the operating manual for later use / maintenance. Please precisely observe the pin assignment, the minimum and maximum performance data (see "Technical data") and the installation instructions. Incorrect usage or improper operation / assembly can cause the loss of system functions and result in damage to property and / or persons.

You will find the following symbols in this manual:



#### INFO

This information provides you with additional tips!



#### ATTENTION

This warning draws your attention to potential dangers for the product!



#### DANGER

This warning draws your attention to possible risks to your life or health!



#### ENVIRONMENTAL NOTE

This warning draws your attention to potential dangers for the environment!

- This is how operating procedures are identified.
- ↘ Consequences are represented this way.
- *Buttons* or *switches* to be activated are indicated in italics.
- "Displays" are placed in quotation marks.

### 3. Description of product

The smoke curtain system Smoke PROtec consists of a high-grade textile glass fabric, which is rolled up in a compact head box and normally not visible. The smoke curtains work basically according to the "fail-safe" principle, i.e. in case of failure of all energy sources, in case of fault or disconnection, the smoke curtain descends in a controlled manner within maximum 60 seconds into the fire alarm position.

Thus the system fulfils highest safety requirements. The weights brought in the bottom bar provide the necessary energy for unwinding by gravitational force. The winding up takes place via a 24 V DC tubular motor. An external electronic system ensures a controlled winding up and down till the relevant end positions. This technology conforms to the highest security level according to DIN EN 12101-1.

The smoke curtain system Smoke PROtec is according DIN EN 12101-1 graded into the classification ASB 3<sup>1</sup>, D120.

Clearances are reduced to a minimum by the special construction of the system even in use of multiple rolling. Special solutions are possible at any time e.g. diagonally across (90°). By the optimal use of side guides the clearances can be avoided at the edges. For the minimization of gaps the system can be delivered with side guides. They prevent a deflection of the dropped curtain when there is a force just from one side (e.g. high pressure from the side of the fire).

The automatic smoke curtain systems Smoke PROtec comply with the newest state-of-the art technology and fulfill the requirements according to DIN EN 12101-1.

The production is externally monitored by a DIBT<sup>2</sup> notified body!

1. ASB 3 denotes smoke curtains which move "fail-safe" in a controlled manner within 60 seconds in their fire alarm position when all primary and auxiliary energy sources are disconnected through wiring breaks or other system errors or any combination thereof.

Automatic smoke curtains (Type ASB3 and ASB4) which are installed in critical areas of buildings e.g. emergency exits, entrances and exits of escalators, stairwells, etc., must have a speed range of 0.06 to 0.15 m/s. Smoke curtains with the classification ASB3 are also suitable for cases of operation which must fulfill a life-saving function.

2. Note: DIBT is the only German approval body for construction products and types of construction.

### Safety regulations



Take care of the user and installation manual of the according control electronics.

#### 3.1 Approved Use

Smoke curtains are for closing holes in divider walls.

#### 3.2 Technical data

**Tabelle 1: technical data of smoke curtain**

Fabric	One-sided PU-coated glass fabric, 570 g/m <sup>2</sup> , color grey, Non-flammable according to DIN 4102-1, A2
Unwind	By force of gravity (gravity fail safe)
Windup	Via planetary geared-motor, 24 V DC, engine speed sensor, maximum torque 4 Nm, integrated into the winding shaft, including 2 m connection cable.
Installation	Ceiling, wall, vertical unwinding
System size <sup>1</sup>	System width ≤ 5960 mm (Single roller) System width ≤ 30000 mm (Multiple roller) Unwinding length ≤ 6000 mm
Head box	Galvanically zincked Sheet steel 1.0 mm powder-coated in RAL 7035 <sup>2</sup> . Single roller (to approx. 6 m width)
End section	Sheet steel 1.0 mm powder-coated in RAL 7035 <sup>2</sup> with integrated unwind weights in fabric bag.
Classification/Standardization	EN 12101-1, ASB 3, D120 (fail-safe)
Fire resistance time	2 hours at 600° C (in accordance with DIN EN12101-1)
Side guides (optional)	Steel 1.5 mm powder-coated in RAL 7035 <sup>2</sup> , dimensions (W × D) 50 × 100 mm.

1. Special size upon request.
2. Special color upon request.

#### 4. Safety regulations



#### DANGER

The VDE 0833 for hazard alarm system, VDE 100 for electrical systems, DIN 18232 for RWA systems, the regulations of the local fire service, the EVU (power company) for the power supply line as well as BGV A3 (Regulation for the Prevention of Industrial Accidents, "Electrical Systems and Equipment") and BG Rule BGR 232 (Directive for Power-driven Windows, Doors and Gates) are to be considered.



#### DANGER

Power supplies and electrical control devices of fire protection systems must be easily accessible.



#### DANGER

On both sides of the smoke curtains warning signs have to be installed that the drop area has to be kept free of any objects which can obstruct the drop down.



#### DANGER

Further requirements according to other rules, particularly health and safety, are to remain unaffected.

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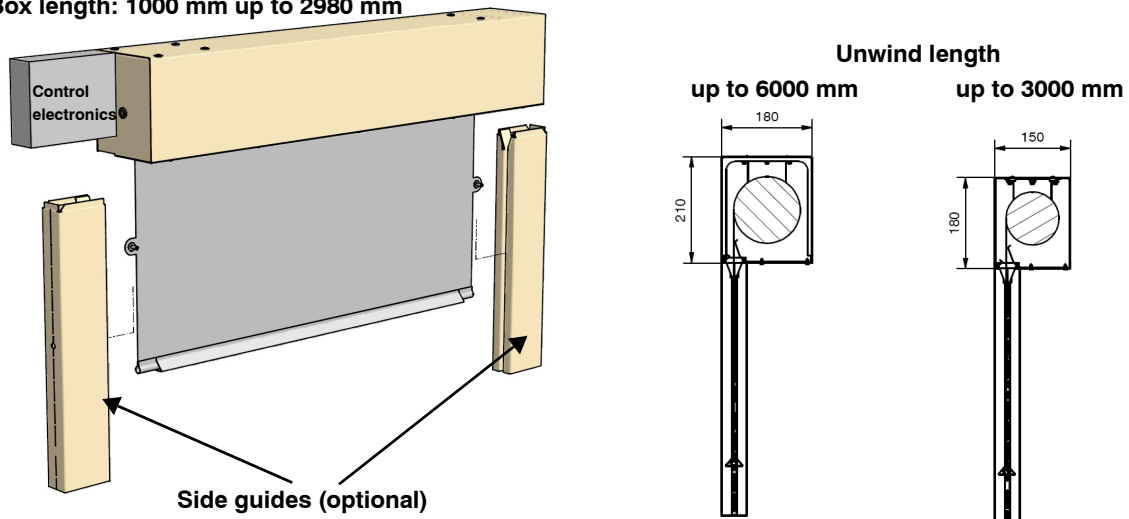
### Safety regulations

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#### 4.1 Variants

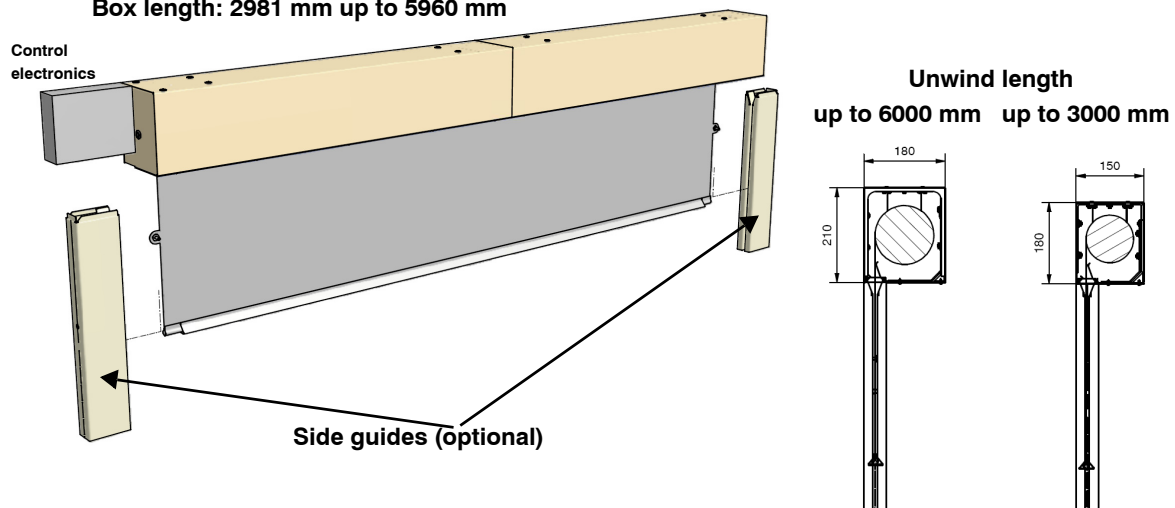
**Figure 1: smoke curtain - box system “single piece”**

**Box length: 1000 mm up to 2980 mm**



**Figure 2: smoke curtain - box system “two-piece”**

**Box length: 2981 mm up to 5960 mm**



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### Safety regulations

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#### 4.2 Figures

Figure 3: head box

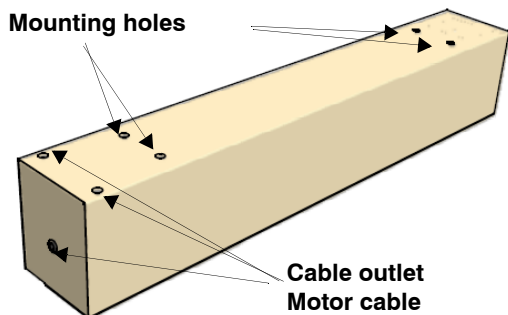


Figure 4: head box „two piece“, to the right

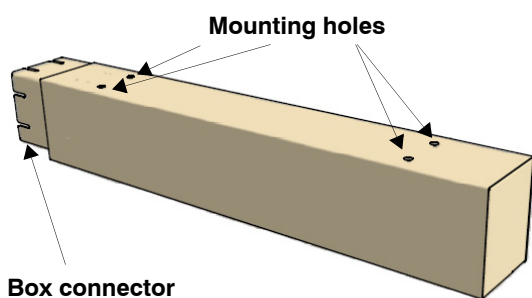


Figure 5: head box „two piece“, to the left

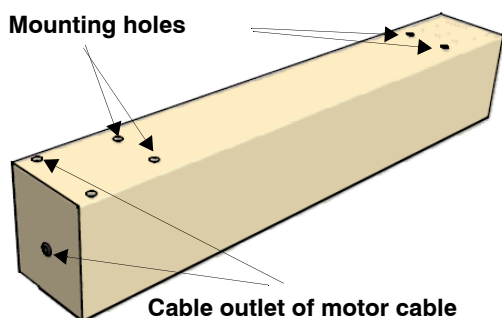


Figure 6: roller assembly

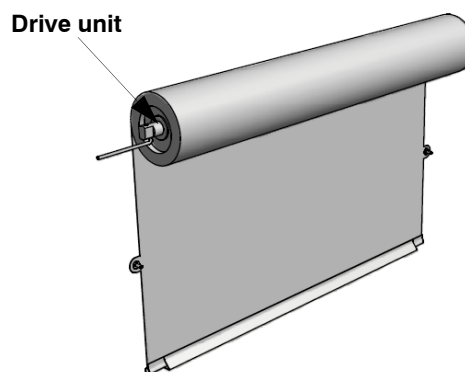
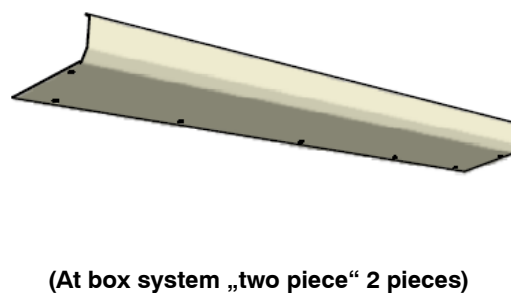


Figure 7: support bracket



Figure 8: cover plate - version without side guides

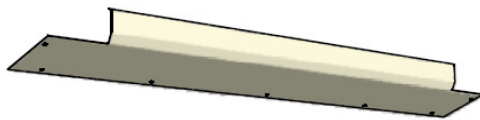


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### Safety regulations

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Figure 9: cover plate - version with side guides



(Only for box system „one piece“)

Figure 12: bottom bar

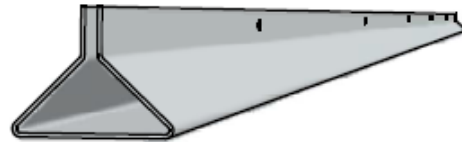
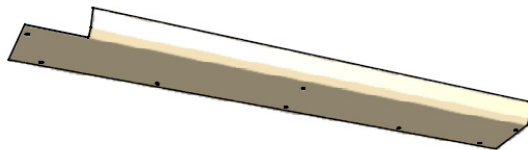


Figure 10: cover plate on the left - version with side guides



(Only for box system „one piece“)

Figure 13: side guides (2 pieces) (optional)

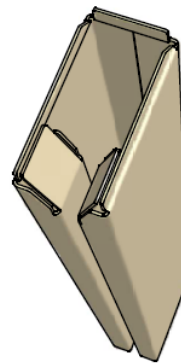
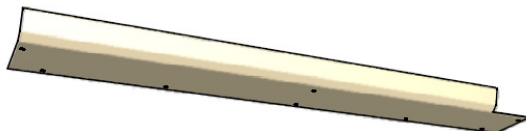


Figure 11: cover plate on the right - version with side guides



(Only for box system „two piece“)

Figure 14: installation retainer





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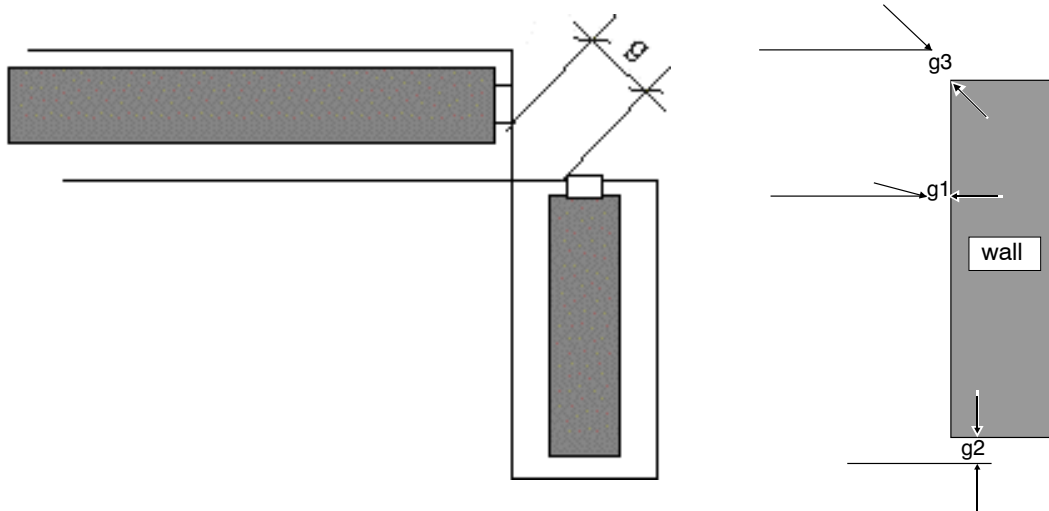
### Safety regulations

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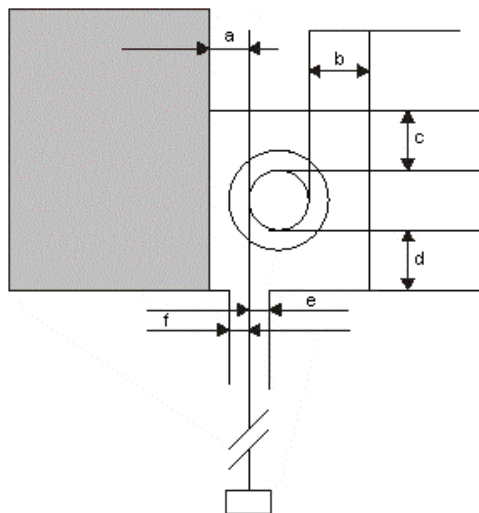
#### 4.3 Clearances

Following clearances (allowed gaps) in accordance with the DIN EN 12101-1.

**Figure 15: arrangement (top view)**



**Figure 16: box system clearance**



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### Safety regulations

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**Tabelle 2: clearances (allowed gaps)**

Variant	Head boxes						Edges		
	a	b	c	d	e	f	g1	g2	g3
150 x 180 - SFS	39	39	45	63	-	9	0	0	0
150 x 180	39	39	45	63	-	9	22,5	30	37,5
150 x 180 - XL	39	39	45	63	-	9	22,5	30	37,5
150 x 180 - XL- SFS	39	39	45	63	-	9	0	0	0
180 x 210 - SFS	51,5	51,5	66,5	66,5	-	9	0	0	0
180 x 210	51,5	51,5	66,5	66,5	-	9	25	31	39
180 x 210 - XL	51,5	51,5	66,5	66,5	-	9	25	31	39
180 x 210 - XL - SFS	51,5	51,5	66,5	66,5	-	9	0	0	0
180 x 210 - XL - SFS1	51,5	51,5	66,5	66,5	-	9	25	31	39
180 x 210 - XL - SFS2	51,5	51,5	66,5	66,5	-	9	0	0	0

The specifications of the clearances in mm.



#### INFORMATION

For the calculation of open surfaces please refer to the smallest measurement in each case!

## Installation

### 5. Installation



#### DANGER

The installation may be carried out only by competent personnel (qualified electrician according to DIN VDE 1000-10 or BGV A3.)

In case an installation has not been done properly there is a danger of an electrical shock. Comply with the applicable safety regulations at all costs.



#### ATTENTION

The installation of the smoke curtains requires technical knowledge and adequate care in dealing with movable as well as electronic components by assembly personnel. Depending on installation situation and design the installation steps can differ from one another. In case of doubt you should fall back on the experience of a mechanic of the Simon PROtec Systems GmbH or a qualified dealer authorized and trained by the manufacturer.

For the installation of automatic smoke curtains you must observe the accordant rules and standards. In particular the permissible clearances must be taken into account (see 4.3 "Clearances" on page 9). Only those fasteners are permitted which are designed for an at least 60 minute thermal stress of 600° C. The surface to which it is to be attached must accordingly be able to take the load. According to DIN EN 12101-1 is not necessary to install fire rated cables for ASB 3 systems.

The fixing of the head box can take place in different ways (see 5.1 "Installation variants" on page 11).



#### ATTENTION

The mounting aids are not included in the standard scope of supply. The distance of the fixing points parallel to the head box amounts to 1200 mm.

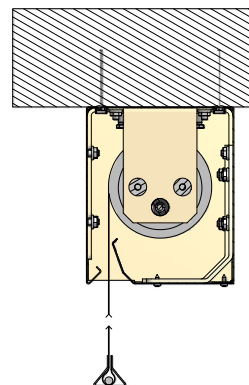
The fixing material is allowed to extend only maximum 15 mm into the head box. Otherwise the material of the smoke curtain comes into contact during wind- up or unwinding process and damaged for this reason.

According to sub- surface we recommend e.g. concrete F30, impact anchor e.g. M10 x 25.

#### 5.1 Installation variants

##### 5.1.1 Fixing to the ceiling

Figure 17: direct fixing to the ceiling

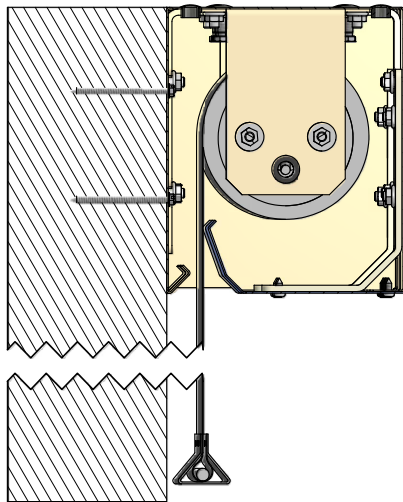


- Holes are provided on the upper side of the head box for direct fixing to a ceiling.

### Installation

#### 5.1.2 Fixing to the wall

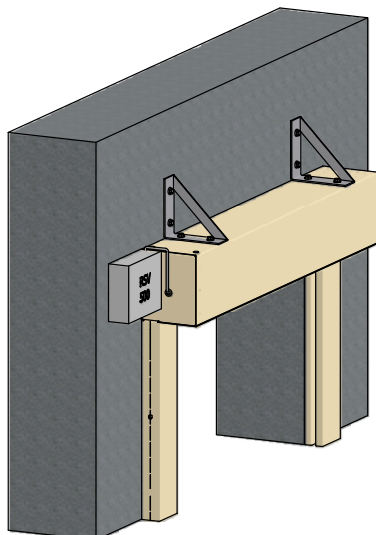
Figure 18: fixing directly to the wall



- For this purpose appropriate holes are to be drilled into the head box. The holes must be located in the same position as the factory designed installation holes. Number and distance must match.
- The holes on the upper side must be closed in a proper way.

#### 5.1.3 Fixing with angle bracket

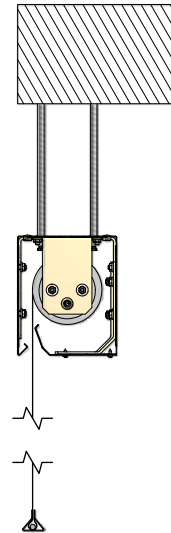
Figure 19: fixing with angle bracket



- Another installation variant is with angle bracket on a wall. The angle bracket must be made by the customer or is supplied as per order!

#### 5.1.4 Fixing via suspension

Figure 20:



- Another installation variant is the fixing via suspension. The threaded rods and the fixing plate must be made by the customer or is supplied as per order.



#### ATTENTION

Wall mounting, angle bracket and suspension must be designed in such a way that temperature stability of the system continues to be provided.

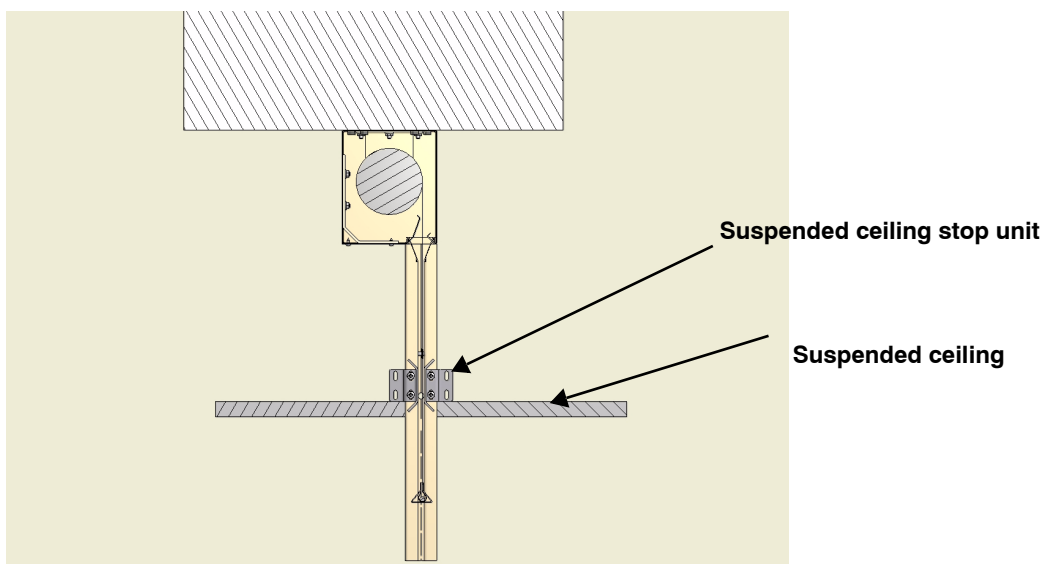
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### Installation

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#### 5.2 Fixtures for suspended ceilings

Figure 21: suspended ceiling stop unit



- Alternatively the suspended ceiling stop unit (ZDA) can also be used. (Please obtain more detailed information via us or our distribution partner)
- The lower edge closes with suspended ceiling by the use of the ZDA. Above the suspended ceiling the side guides and curtain proceed up to the head box.

#### 5.3 Install head box

The head box is installed without roller assembly for now. Depending on the design (single piece or two-piece) this can consist of several parts. Box connector, support bracket and associated screws are enclosed with the smoke curtain.

- Check the labels of the individual parts and if necessary the label of the connecting part.



#### ATTENTION

The making of the fixing holes in the supporting structure must be carried out with greatest caution as otherwise a proper functioning of the curtain is not ensured.

The complete box system must be mounted horizontally and in an alignment. Crookedly mounted boxes or box parts lead to faults and damages to the curtain material!

- Mark the drill holes.
- Make the drilling holes.



#### ATTENTION

Use only fixing material or fixing aids which comply with the regulations. Do not use any impact anchor made of unsuitable materials (e.g. synthetic).

- Attach the fixing material.

### Installation



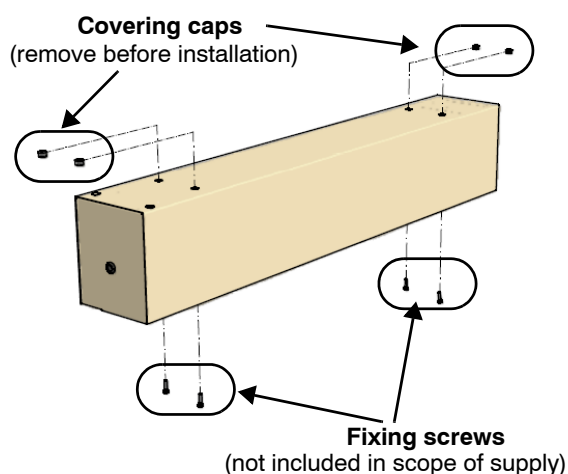
#### ATTENTION

Please remember that the head box is not symmetrical in the cross-section. That means that the curtain material unwinds one side of the head box. The other side is covered with the cover plate from the bottom up. Likewise the outlet port of the connecting cable from the head box is determined from this alignment of the head box. The head box is to be aligned correctly in accordance with these conditions.

- Install the head box with the help of the fixtures provided.

#### 5.3.1 Installation of "single-piece" head box

Figure 22:



#### 5.3.2 Installation of "two-piece" head box



#### ATTENTION

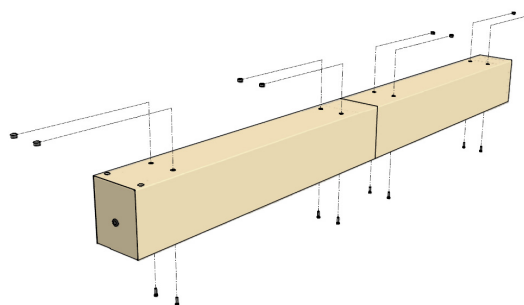
The self-locking nuts must be tightened with a torque of 4 Nm. In case of too high torques the welded studs can come off.<sup>1</sup>

1. Should a welded stud come off at the time of Installation, this can be replaced by a pin contained in the repair kit. (The repair kit is enclosed with the box system)

All individual parts and joints are marked. The individual parts must then be joined together as marked. Optionally the head box can be mounted on the ceiling as complete unit or separately.

- Fit together both head boxes according to the marking.
- Screw them together with one another.
- Mount the complete head box on the ceiling (at least two persons).

Figure 23: installation of "two-piece" head box (complete)

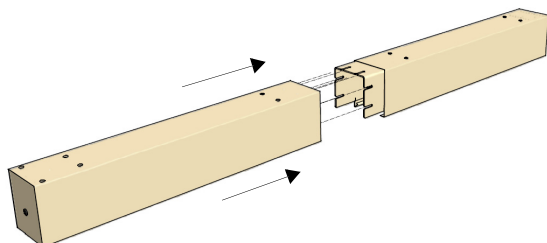


Should the head box be mounted separately on the ceiling, in that case one must start with the side where the box connector is located. (head box to the right)

- Install the right head box on the ceiling.
- Push together the left head box according to the marking and attach it to the ceiling and screw these together with one another.

### Installation

**Figure 24: installation of “two-piece” box system separately**



- Align the head boxes horizontally and flush and attach these.



#### ATTENTION

Complete the installation of the box system with a check on horizontal and aligned complete installation.

#### 5.4 Installing roller assembly



#### ATTENTION

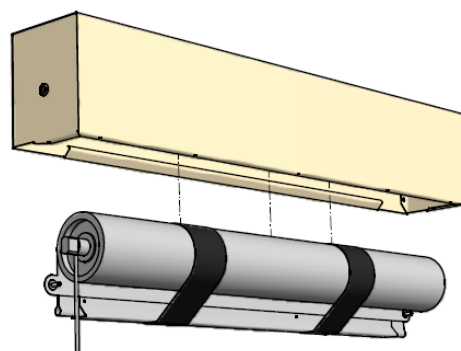
The smoke curtain may be operated only connected with the accordant electronic control system even during the installation, since otherwise the drive unit may be destroyed.



#### DANGER

The unwind protection (adhesive tape) of the roller assembly must be in place. Only after connection of the electronic control system to the power supply may the unwind protection be removed. In case of non-observance, the curtain unwinds in an uncontrolled manner and the electronic components are destroyed.

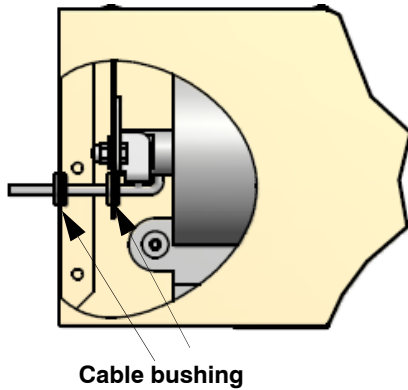
**Figure 25:**



- Insert roller assembly into the head box with the help of a second person (or suitable lifting devices).
- Remove cable ties of the connecting cable.

### Installation

Figure 26: cable bushing



- Pass connecting cable through the cable bushing of the roller securing bracket (only in head box with side guides).
- Pass connecting cable through the cable bushing of the head box to the outside.



#### ATTENTION

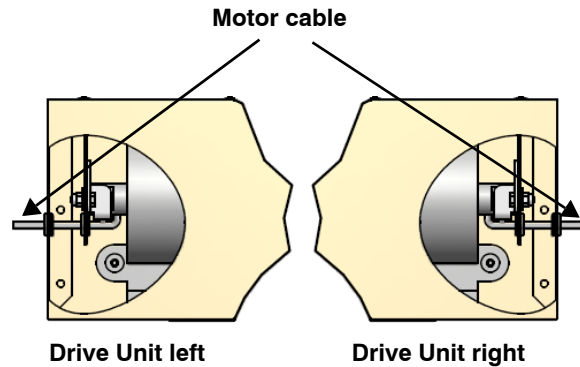
After that the cable must not have any loops in the head box. So you can prevent clashes with the curtain which can damage the cable connection and the curtain itself.



#### INFORMATION

For bigger curtains two motors are required.

Figure 27: Cable routing at two Drive Units



#### ATTENTION

If the system has two motors it is not allowed to run the cable inside the head box. Run the cables out of the head box as described and connect direct to the control electronicst.



#### INFORMATION

If the system Smoke PROtec is used in the industrial area or in areas with greater interference sources (e.g. large crane installations) there can be cable-related electrical interferences in spite of all in-built protective devices. These interferences of the distribution network via the mains cable cause possibly faulty activations of the system.

- For installation of the control electronics please check their manuals.



### Installation

#### 5.5 Complete the installation

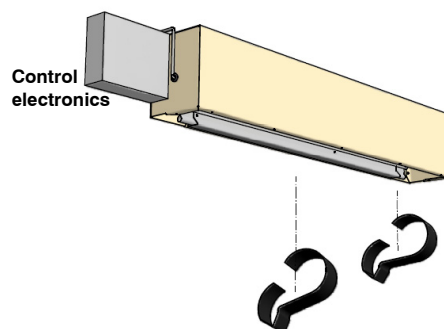


#### DANGER

Before you remove the installation retainer of the roller assembly the electronic control system must be connected and provided with the power supply or the curtain must be secured against inadvertent unwinding.

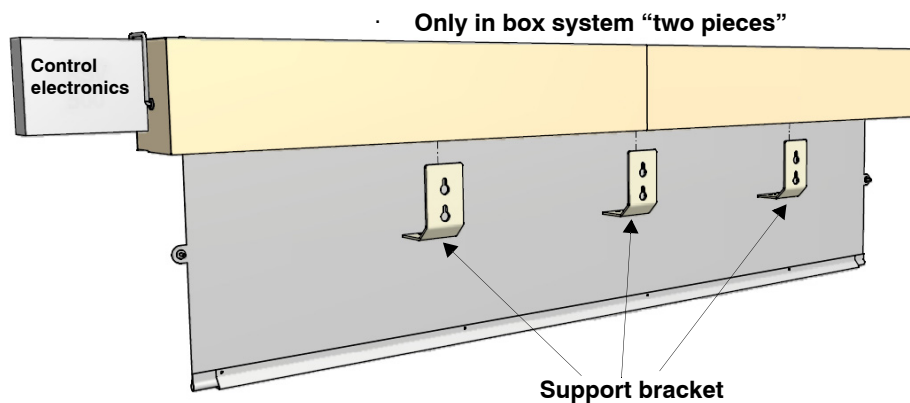
- Remove the installation retainer of the roller assembly and allow the curtain to unwind slightly.

Figure 28: removing of unwinding protection



- In box system “two-piece” now the support bracket must be mounted according to the marking. After you have adjusted the support bracket tighten up the self-locking nuts with serrated bearing with the torque of 4 Nm.

Figure 29: installing support bracket



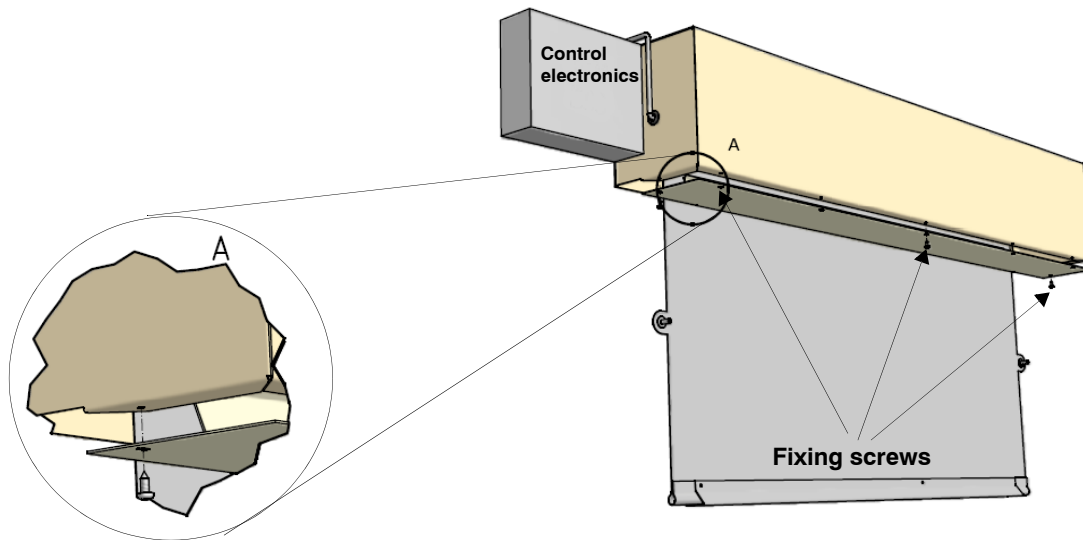
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### Installation

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- Attach the cover plate. The curtain must project out of the opening. Fix first of all the outer screws and the middle screw. (Do not tighten as yet).

**Figure 30: fix cover plate**



#### INFORMATION

In "two-piece" box system it is necessary to fix the screws also in the positions where the support bracket is located!

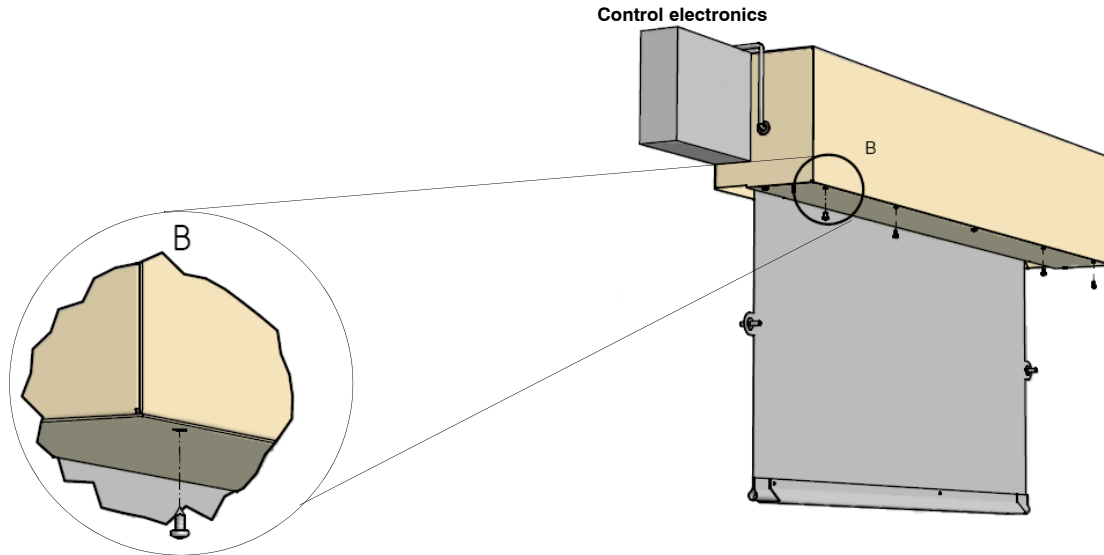
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### Installation

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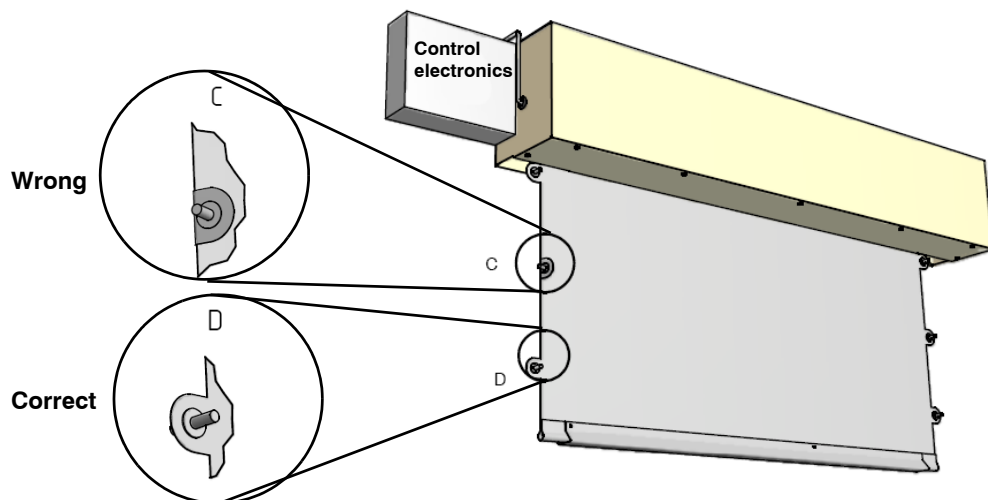
- Fix the remaining screws. Align the cover sheet and tighten the screws.

**Figure 31: fix cover plate**



- Allow the curtain to unwind completely and align the plates! (Only in box systems with side guides).

**Figure 32: align plates of the restraint system**



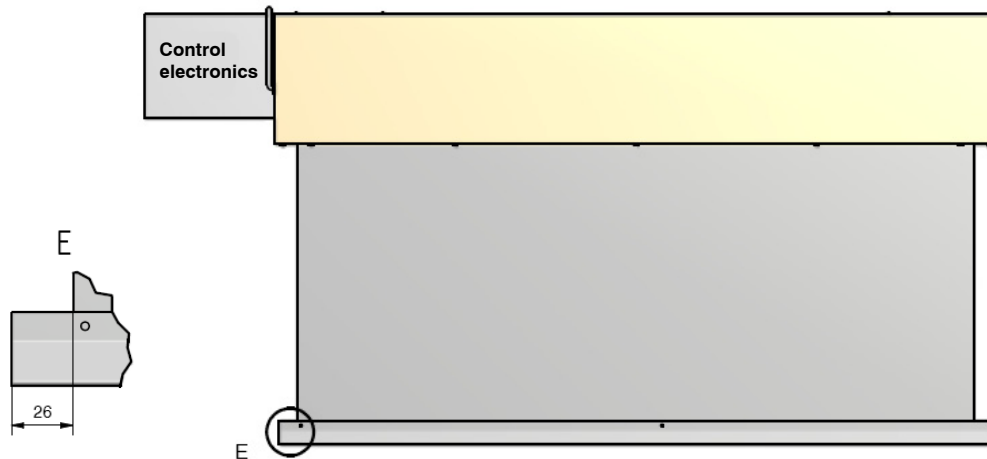
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### Installation

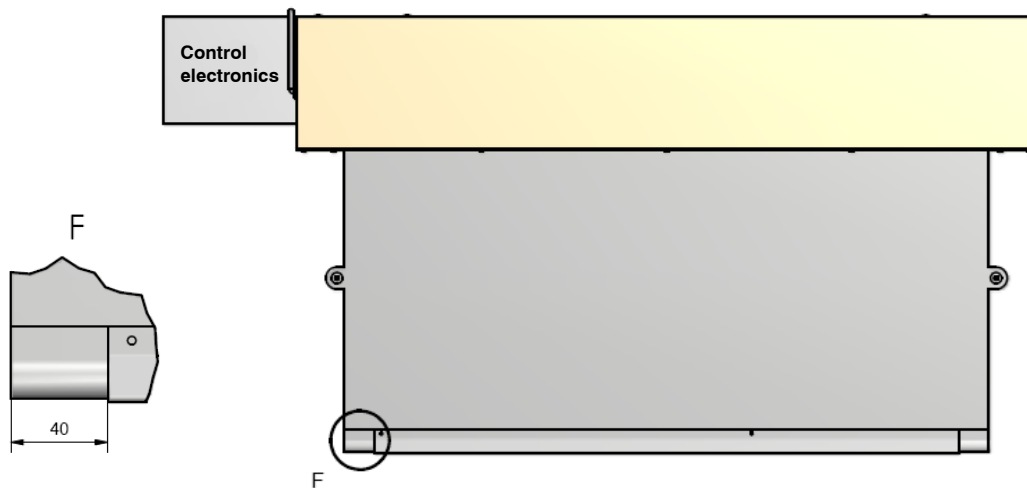
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- Align the bottom bar (see Figure 33: "smoke curtain without side guides" on page 20) (see also Figure 34: "smoke curtain with side guides" on page 20).

**Figure 33: smoke curtain without side guides**



**Figure 34: smoke curtain with side guides**



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### Installation

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#### 5.6 Install side guides (optional)

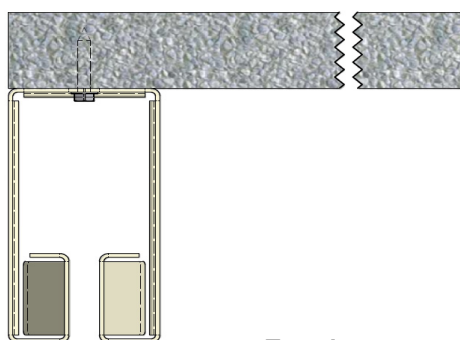


#### INFORMATION

If your curtain system does not have any side guides, you can skip this chapter.

The fixing of the side guides can be done in various ways. For direct fixing in a reveal the existing slots on the back side of the side guides can be used.

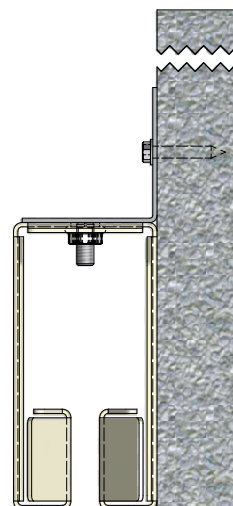
**Figure 35: direct fixing in the reveal**



Top view

Likewise the installation can take place indirectly via an angle on a wall. For this optionally angle plates are screwed or welded to the side guides.

**Figure 36: installation via an angle**



Top view

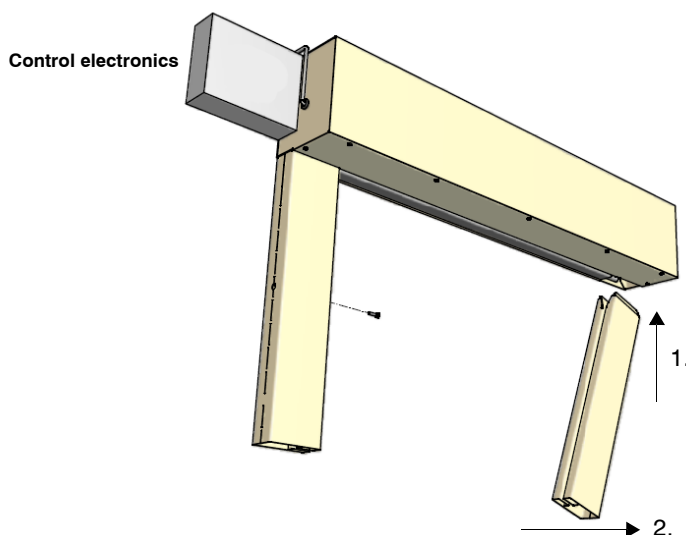
- Allow the curtain to roll up fully and install the side guides by inserting the side guides into the head box and then aligning vertically.

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### Installation

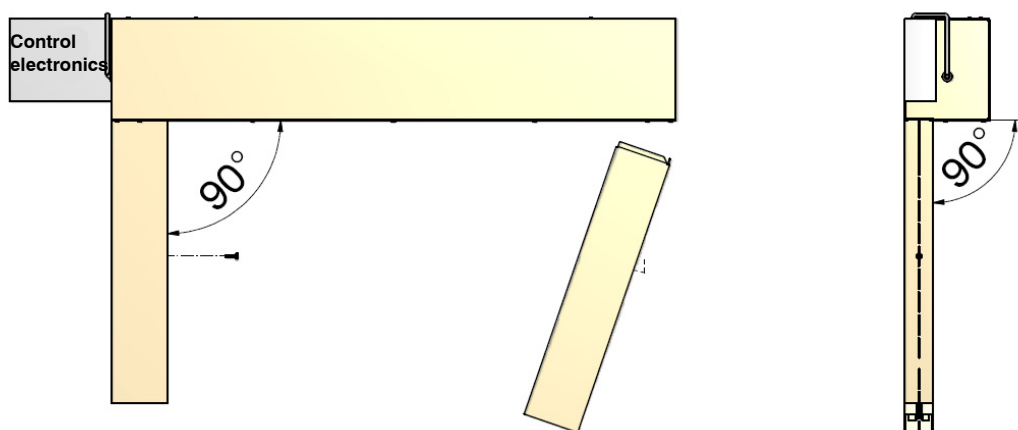
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Figure 37: set side guides



- Align the side guides. The side guides must be lined up flush and at right angle with the edge of the head box and likewise flush and at right angle with the outer ends of the head box.

Figure 38: align side guides



- Mark the installation holes.
- Make the installation holes.
- Fix the side guides.

### Installation



#### ATTENTION

After the installation of the side guides please check that these are aligned absolutely vertically and right angle to the head box. The plates of the restraint system on the curtain can otherwise come off.

- If required re-align the bottom bar.
- The fixing of the bottom bar takes place at the already existing drill holes. (The curtain material must be perforated at this place).

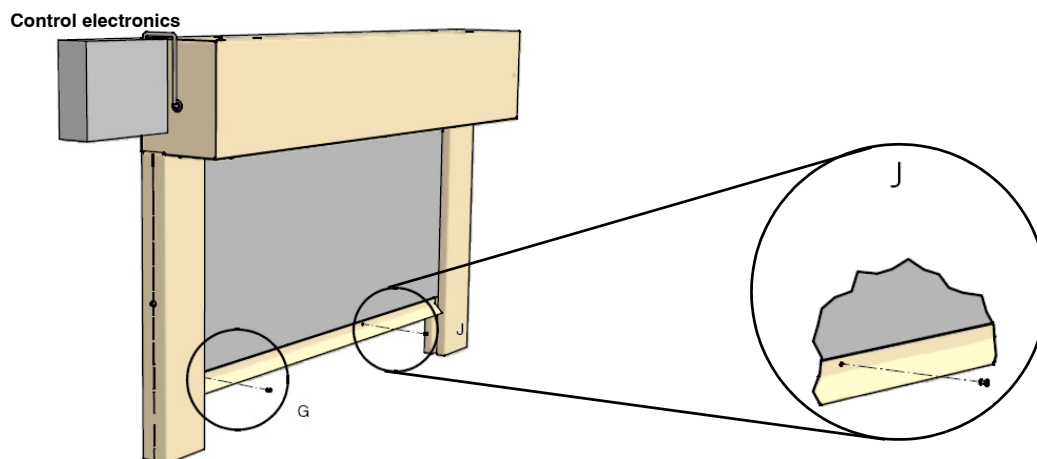
- Fix the bottom bar with the blind rivets provided for it (included in scope of supply).



#### INFORMATION

Please check before attaching the rivets that the bottom bar is lined up precisely with the head box.

**Figure 39: installing bottom bar**



#### 5.7 Installing suspended ceiling stop unit (optional)



#### INFORMATION

If no suspended ceiling stop unit has been provided for your curtain system you can skip this point.

See Installation instructions of suspended ceiling stop unit.

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### Start up

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#### 6. Start up

#### 7. Attach installation retainer



#### ATTENTION

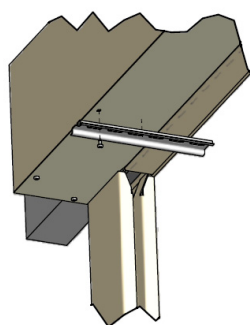
Until the final putting into operation the curtain has to be secured by the installation retainer. Because the curtain unwinds automatically when power line is switched off, it could be damaged.

- Attach the enclosed installation retainer as shown.

**Figure 40: installation retainer**



**Figure 41: installation retainer (schema)**



#### ATTENTION

The installation retainer must be removed before the final putting into operation of the system.

#### 8. Care and maintenance



#### ATTENTION

In the long run the protective effect of the fire curtain is only secured if it is kept correct state (e.g. no mechanical damage, no dirt, maintenance)

The smoke curtain and if required the hold-on device must be kept workable all the time. It must be checked at least once a month in personal responsibility of the owner or his trained staff. The results must be noticed in a test book .

The test book must be stored by the owner and has to be shown when required by the building control authority.



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## Care and maintenance

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### 8.1 Functional check

The functioning of the system must be checked regularly by the operator. In case of a possible defect the manufacturing company is to be notified immediately. Damaged parts are to be replaced immediately.

The functioning of the smoke curtain should be checked monthly. For this purpose the following steps are necessary:

- Make sure that the unwind area is always free from obstructions.
- Let the curtain unwind via manual trigger button or service button.
- Carry out a visual inspection of the attachments and material.
- Let the curtain wind up again (via reset button of the manual trigger button or service button).
- Check if the curtain winds up properly and remains in this position.

### 8.2 Maintenance



#### DANGER

Fire protection equipments serve to protect human lives and must therefore be serviced regularly – at least once a year – by a specialist company authorized by the manufacturer.

The maintenance is done according to a maintenance check list specified by the manufacturer (see 8.6 "Maintenance check list" on page 26).

The anual maintenance for defect free roll-down and working of the fire curtain in combination with the hold-on device must be done by a known special company. All the results has to be noticed in the test book as well.

The test book must be stored by the owner and has to be shown when required by the building control authority.

### 8.3 Clean curtain material



#### ATTENTION

The curtain material is washable with mild commercial disinfectant or warm water. The curtain material must not be soaked or washed by machine, since otherwise the backing fabric will be damaged and glass filaments can come off.

### 8.4 Repair and exchange

The electronic control system may be repaired only by the manufacturer. In case of a failure the complete electronic control system is to be exchanged.

### 8.5 Warranty conditions

Concerning the warranty please refer to: "General Conditions for the supply of Products and Services of the Electrical and Electronics industry" (Green Terms of Delivery" – GL)".

This is available to you on our website [www.simon-protec.com](http://www.simon-protec.com). We shall be glad to send you a copy on request.

### Care and maintenance

#### 8.6 Maintenance check list

Building project _____ System description _____ Kind of mounting (e. g. ceiling / wall) _____ Serial number / year of manufacture _____ Battery year of manufacture <sup>(1)</sup> _____		Year of maintenance _____ Date _____ Mounting staff _____ Name / Signature _____	
(1) The back-up battery must be changed every four years!			
No.	Check points	Test o.k.	Notes
<b>1.0</b>	<b>Optical inspection</b>		
1.1	Check the smoke curtain for damaging, contamination, oxidation	<input type="checkbox"/> yes <input type="checkbox"/> no	
<b>2.0</b>	<b>Electrical inspection</b>		
2.1	Check, if the electrical supply lines are connected properly and fixed well at the actuator	<input type="checkbox"/> yes <input type="checkbox"/> no	
2.2	Check, if the wiring to the actuators has been laid according to the valid VDE-commandments and to the manufacturers' instructions (wire cross section, etc.).	<input type="checkbox"/> yes <input type="checkbox"/> no	
<b>3.0</b>	<b>Functional inspection</b>		
3.1	<b>Attention!</b> Check the operating voltage (according to manufacturers' instructions).	<input type="checkbox"/> yes <input type="checkbox"/> no	
3.2	Let the smoke curtain move in its alarm position and check if the curtain descends completely. Ensure that the roll-off area is free of obstacles.	<input type="checkbox"/> yes <input type="checkbox"/> no	
3.3	Reset the curtain. Ensure that the curtain moves duly in its end position.	<input type="checkbox"/> yes <input type="checkbox"/> no	
<b>4.0</b>	<b>Inspection of the mechanical parts</b>		
4.1	Check the fastening of the head box and of the side guides (optional)	<input type="checkbox"/> yes <input type="checkbox"/> no	
4.2	Check the bearing of the roll shaft.	<input type="checkbox"/> yes <input type="checkbox"/> no	

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## Notes

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