Fire PROtec®

Manual for automatic Fire Curtains

SIMON RWA®
Begeisterung trifft Technik

Contents

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1.1 General

The fire curtain system **Fire PROtec**® consists of a high grade stainless steel reinforced woven fibre glass fabric which is rolled up in a compact metal sheet head box in normal state. Simon fire curtains generally work on the principle of gravity. In case of fire alarm the control panel will remove the supply voltage and the curtain shall descend under the power of gravity in a controlled manner. Even in case of complete power failure the fire curtain will safely descend under the power of gravity to the operational position within 60 seconds. The system fulfills highest demands on safety. An integrated round steel in the bottom bar supplies the requested energy for descending by gravity. The fire curtain retracts by an integrated 24 V DC tube motor. The external control panel RSV-500 controls the speed in both directions descending and retracting.

FirePROtec® fire curtains are classified according the European Standard EN 13501-2 as E90.

Certifications and test reports

- Fire test according DIN 4102-18, fire resistance > 90 minutes
- 10,000 cycle test according EN 1192
- Non toxic test
- Different experts reports

The weight of the fibre glass fabric is 800 g/m².

Fabric

FirePROtec® fire curtains are manufatured with high quality stainless steel reinforced woven fibre glass. The fabric is coated on both sides with special silicone, weight 800 g/m2. The fabric is not toxic (EPA 25/2006) and weather proofed (ÖP 360 1159). The side and bottom hem are sewed with high grade stainless steel thread

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1.2 Fire curtain sizes

Please find below the maximum fire curtains sizes and areas in the table:

Table of sizes

Width of fire curtain (m)

Drop (m)	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0
1,0	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0
1,5	1,5	2,25	3,0	3,75	4,5	5,25	6,0	6,75	7,5	8,25	9,0
2,0	2,0	3,0	4,0	5,0	6,0	7,0	8,0	9,0	10,0	11,0	12,0
2,5	2,5	3,75	5,0	6,25	7,5	8,75	10,0	11,25	12,5	13,75	15,0
3,0	3,0	4,5	6,0	7,5	9,0	10,5	12,0	13,5	15,0	16,5	18,0
3,5	3,5	5,25	7,0	8,75	10,5	12,25	14,0	15,75	17,5	19,25	21,0
4,0	4,0	6,0	8,0	10,0	12,0	14,0	16,0	18,0	20,0	22,0	24,0
4,5	4,5	6,75	9,0	11,25	13,5	15,75	18,0	20,25	22,5	24,75	27,0
5,0	5,0	7,5	10,0	12,5	15,0	17,5	20,0	22,5	25,0	27,5	30,0
5,5	5,5	8,25	11,0	13,75	16,5	19,25	22,0	24,75	27,5	30,25	33,0
6,0	6,0	9,0	12,0	15,0	18,0	21,0	24,0	27,0	30,0	33,0	X

Boxes highlighted indicate 2 motors per roller

The below head box dimensions are shown accoring to the drop length of the fire curtain:

Table of head box dimensions

Drop (in mm)	Single roller (W x H)
Up to 3.000	150 x 180
Up to 6.000	180 x 210

The maximum witdh is 6 m
Maximum drop 6 m.

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2.1 Roller

TECHNICAL DATA	FIRE CURTAIN Type FirePROtec®
Fabric	Onesided PU-coated fibre class fabric 570 g/m², grey, not flammable according DIN 4102-1, A2
Descending	By gravity (fail safe)
Rewinding	Via tube motor 24 V DC, 2,50 A with integrated hall sensor for synchronizing max. torque 4 Nm, integrated in the roller tube
Mounting	Ceiling/ Wall
Max. Sizes[1]	Width= 30 m, Drop = 6 m
Head box (W x H)	Sheet steel 1.2 mm, powder coated in RAL 7035 **Single roller** (up to max. 6 m width) 150 x 180 mm and 180 x 210 mm with drop > 3 m **Multiple roller** (from 6 m width) 150 x 300 mm and 180 x 350 mm with drop > 3 m
Bottom bar	Sheet steel triangle powder coated in RAL 7035 with integrated round steel in fabric hem
Classification	EN 12101-1, ASB 1, D120 (fail safe)
Fire resistance	600° C for 2 hours **according prEN12101-1**
Side guides	Steel 1.5 mm, powder coated RAL 7035, dimensions (W x D) 50 x 100 mm. For applications with side guides the curtain fabric will always be delivered with a retaining mechanism. This avoids that the fabric can be pulled out from the side guides for example by wind pressure.

(1) Special sizes available on request

2.2 Electrical Control Unit

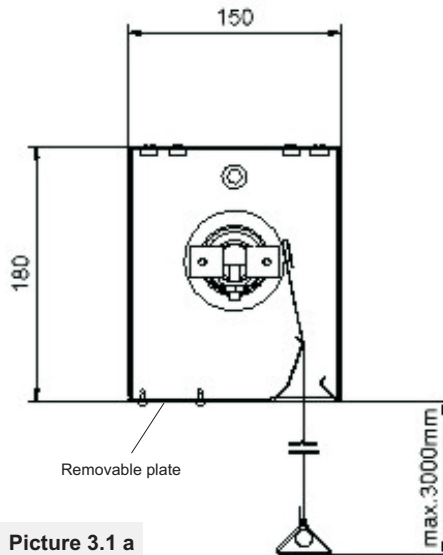| TECHNICAL DATA	Electrical control unit type RSV-500
Input voltage	230 V AC / 50 Hz
Max. prefuse	* 16 A / characteristic C
Output voltage	24 V DC
Max. current load	2.5 A
Backup battery (optional)	NiMH (durability approx. 4 years)
Protection class	IP 54
Housing (W x H x D)	Plastic housing, grey 220 x 145 x 55 mm
Fuses	Mains input fuse (1 A delayed)
LED-indications (at emergency switch type HE-075)	Mains, OK, Fire alarm
Main + slave emergency switch	RESET-button "retract curtain"
Operation temperature range	-5° C up to 40° C
Weight	approx. 1.0 kg

Attention!
The wiring of the control panel must be done zero potential!
For connecting external devices and additional modules see the enclosed connection plan!

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3.1 Head box

The following drawing is valid for a drop length up to 3 m.

150

180

max.3000mm

Removable plate

Picture 3.1 a

3.2 Side gudes / bottom bar

Head box

A

A

Detail B

B

Bottom bar

B

Detail A

Picture 3.2 a

Side guides

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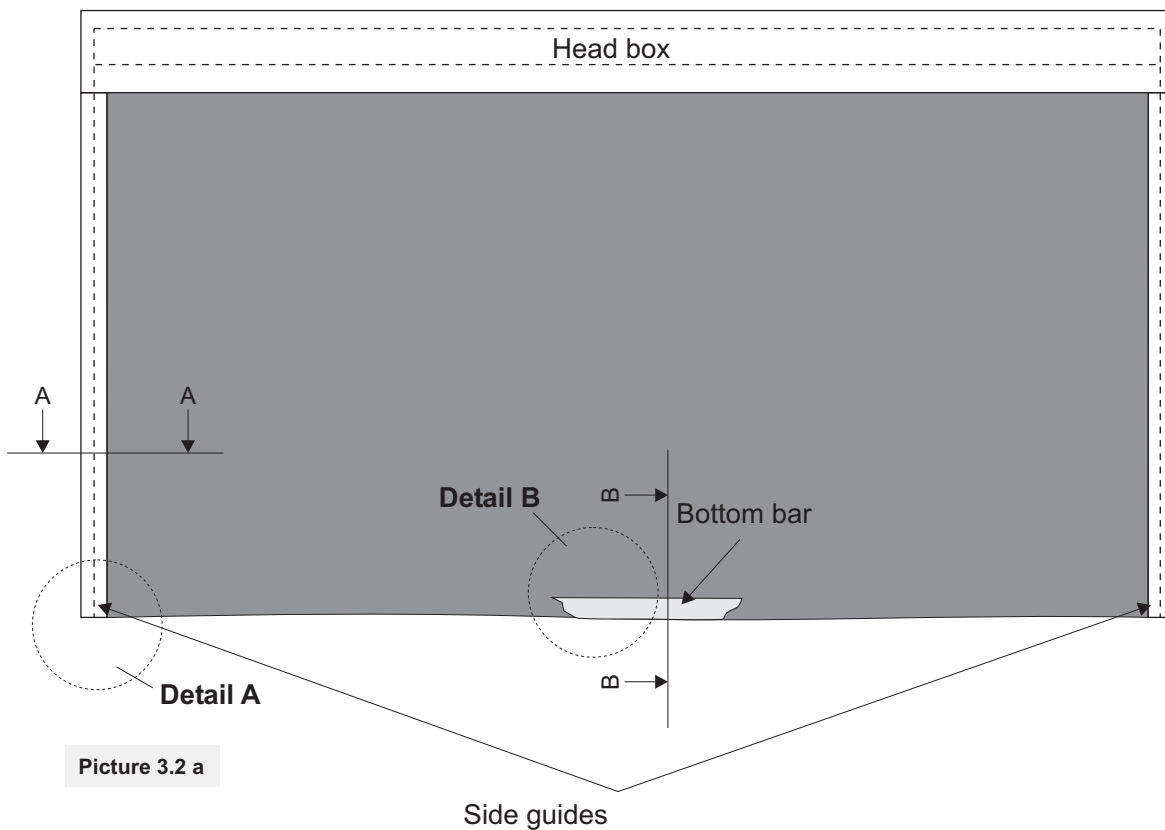
3.2 Side gudes / bottom bar

Detail A (section A-A)

100

50

Bottom bar
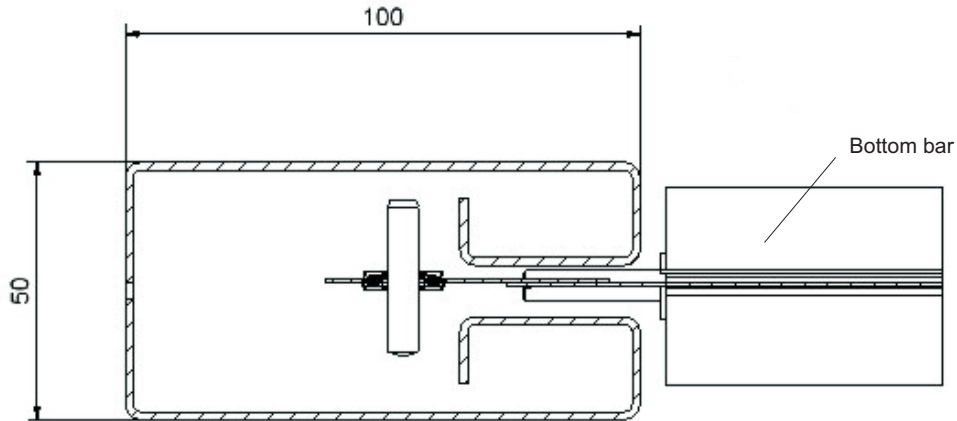
Picture 3.2 b

Detail B (section B-B)

1,2

Ø12

24,26

38,2

90°
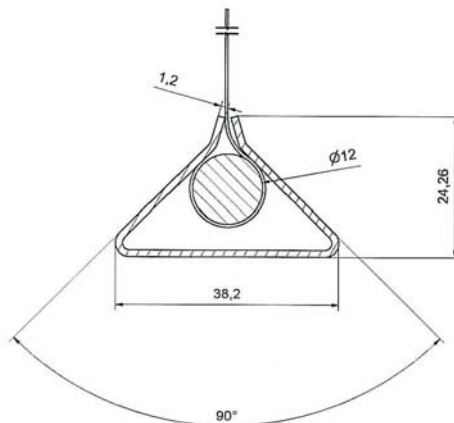
Picture 3.2 c

3.3 Tube motor / Roller tube

Picture 3.3 a

Wind up

Picture 3.3 b

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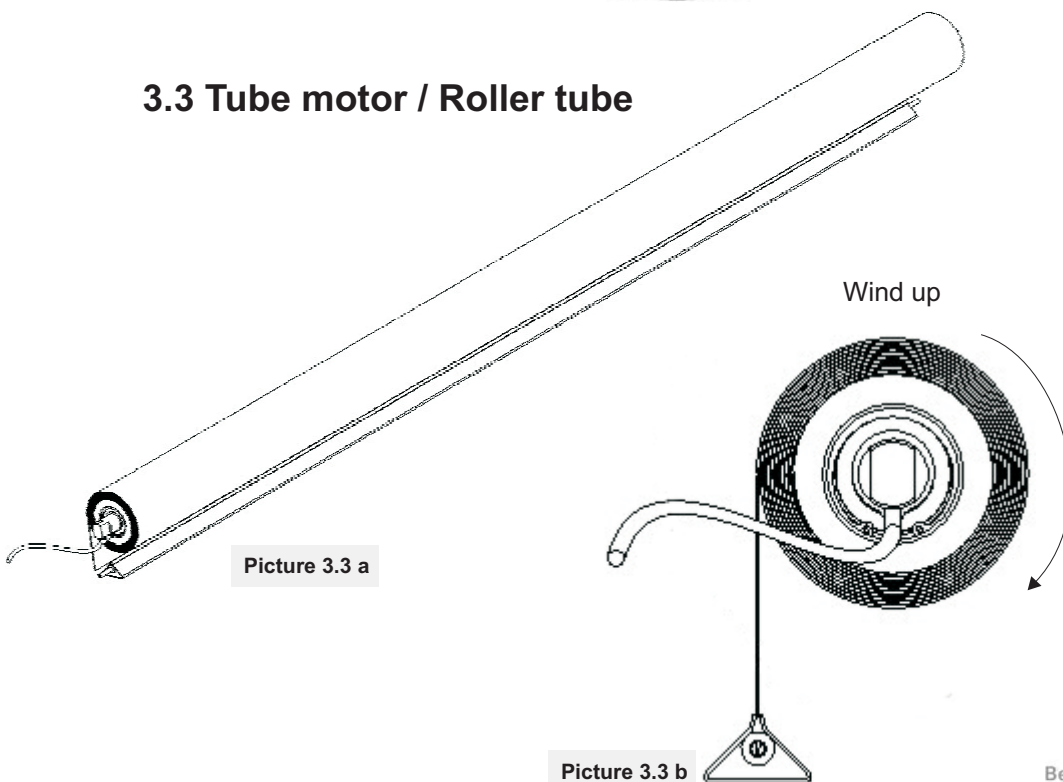
4.1 General information how to install a complete system Fire PROtec®

The installer must have the necessary technical knowledge about moving parts and electronic components. According to the site construction and the fire curtain design different installation steps can be required. If you have any doubts how to install we highly recommend to contact us. We are able to send you our installer with all required experience.

Only fixings (anchor, bolts etc.) are permitted with a fire resistance of 1000° C. Please proof the construction concerning load capacity.
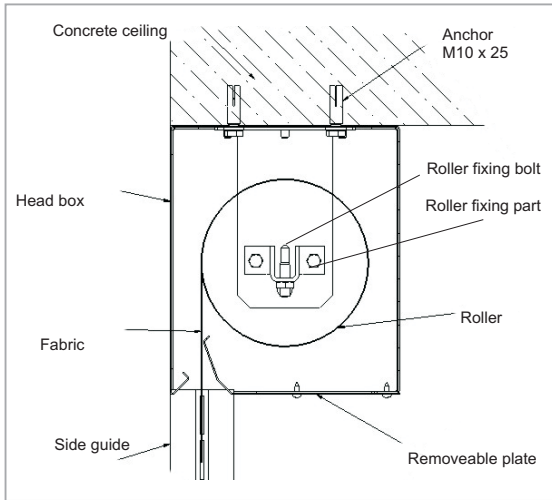
4.2 Head box installation

The head box shall be installed without roller. According to the project details the head box can be supplied in sections. If the head box is supplied in sections please control the signs on the different head box parts and assemble according to the signs. Adapter plates, support plates and matching screws are included. Please assemble the adapter plate and the single parts first and fix them on the wall or ceiling. Fix now the next head box parts as described below.

There are different possibilities how to fix the head box. It depends on the site construction. Below there are the most popular installation methods:

To fix the head box at the ceiling use the holes at the top of the head box *(see picture 4.2 a)*. To fix the head box at the wall *(see picture 4.2 b)* the drillings must be made by others. You can fix the head box also this angle at the wall *(see picture 4.2 c)* or above a suspended ceiling *(see picture 4.2 d)*. The special fixing material is not included in standard deliveries. The maximum distance between the fixings is 1,200 mm. Please take care that no screwing and fixing does protrude more than 15 mm into the head box. Otherwise the fabric could be damaged during descending or rewinding. We recommend e. g. for concrete constructions to use a fire rated anchor M10x25.

Please consider that the head box is not symmetric (e. g. W x H 150 x180 mm). The fabric descents on one side of the head box, the opposite side will be covered by the removable plate *(see picture 3.1)*. There is a drilling at the side cap to pass the motor cable out of the head box*(see picture 4.3 b)*.

Installation samples

Concrete ceiling
Anchor
M10 x 25
Head box
Roller fixing bolt
Roller fixing part
Fabric
Roller
Side guide
Removeable plate
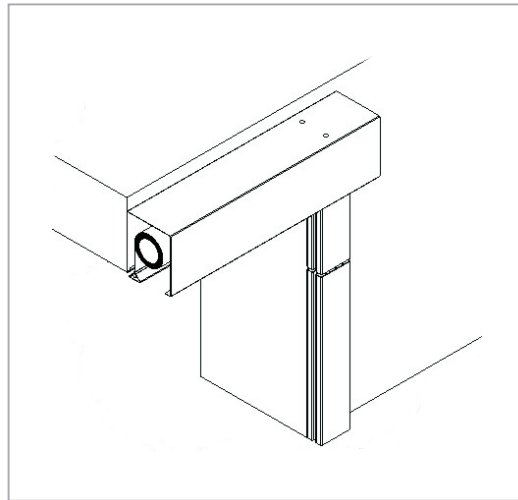
Picture 4.2 a
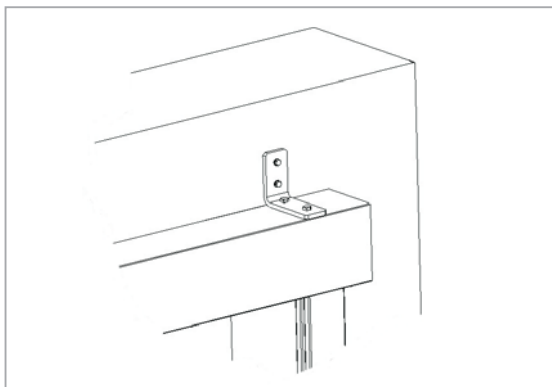
Picture 4.2 b

Picture 4.2 c
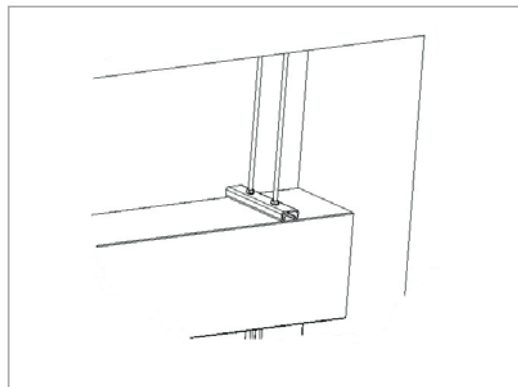
Picture 4.2 d

Installation dimensions head box (topview)

Head box length (customer specific)

150   * "X"   300   "X"   150

50

Dimension "X" is variable accoding to the head box length

80

180   (50)
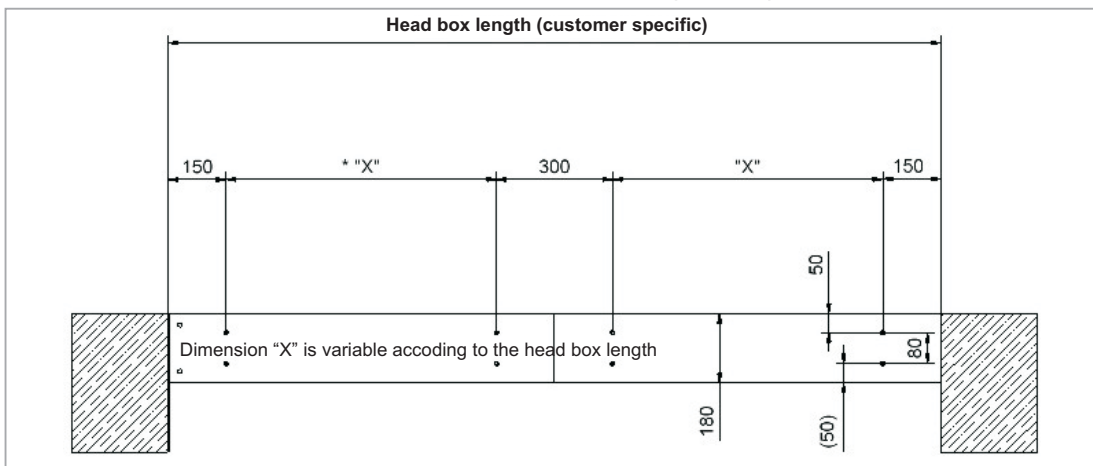
Picture 4.2 e

⚠ **Notice:**
After installation of the head box the area below the removeable plate must be free accessible *(see picture 3.1 head box).* **If the head box is installed above a suspended ceiling a constant possibility for access to the wall is to be ensured.**

It is imperative that the head box is installed exactly in level.
Otherwise the fabric may "travel".

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4.3 Installation of the roller

The fabric is furled on the roller by the supplier. Please ensure that the fabric is fixed with a strip or else. The fabric must not drop during installation.

The istallation of the roller should be done with two people. For the installation please see *picture 4.2 a and 4.3 a.*

There are two cable bushings on the motor end side to pass the cable through the head box *(see picture 4.3 b and c).*

⚠️ **Attention!**
Please operate the roller motor only in combination with the control panel RSV-500. Otherwise the roller motor could be destroyed.
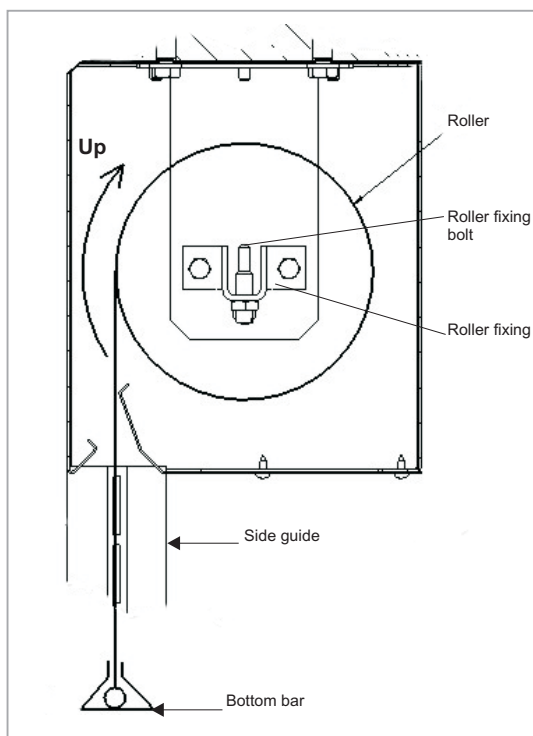
Picture 4.3 a

Picture 4.3 b

Picture 4.3 c

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4.4 Side guides

There are different options to install the side guides, depending on site situation. For the installation in the reveal please use the drillings in the backside of the side guides *(see picture 4.4 a).*

max. 15 mm

Insert the socket key from the top of the side guide!
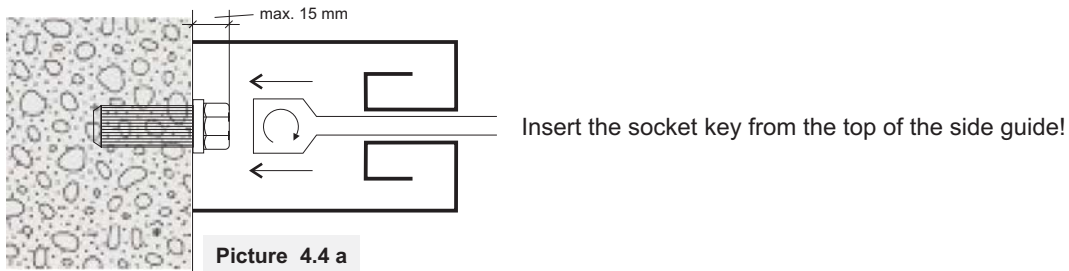
Picture 4.4 a

For face installation angle plates are available optionally *(see picture 4.4b).*
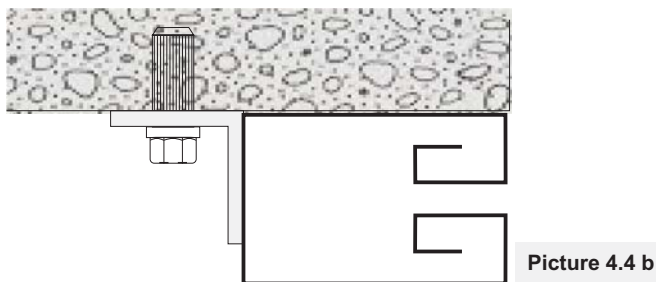
Picture 4.4 b

The side guides must be installed flush with the bottom edge and the outside edge of the head box *(see picture 4.4 c-e).*

Head box

Flush

90°   Side guides   90°

Flush

Flush

Picture 4.4 c   **Picture 4.4 d**   **Picture 4.4 e**
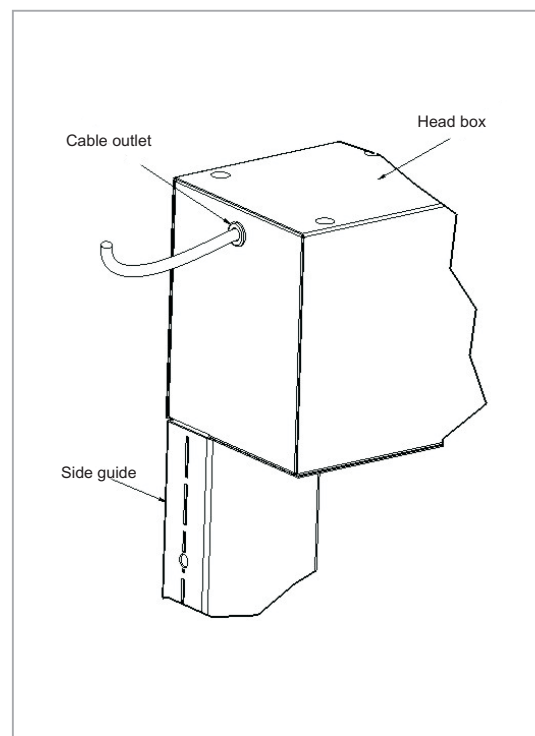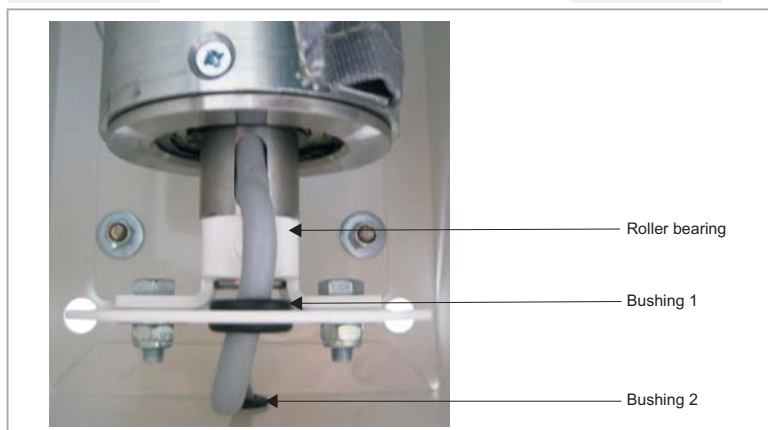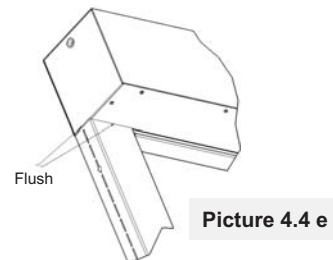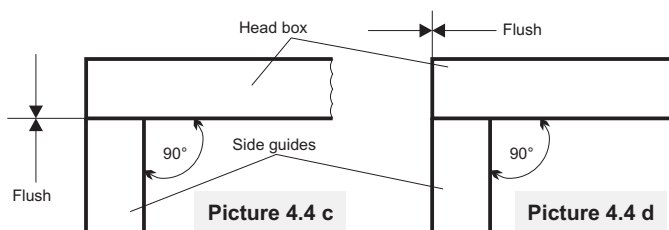
⚠️ **Attention!**
Please check the 90° angle of the side guides / head box after installation. The side guides must be installed absolutely vertically.

Please remove the saving strip of fabric after finishing of all mechanical installations and drop the fabric carefully. Please drop the fabric complete to see if there is any problem with srews or other fixing material e.g. in the head box.

⚠️ **Attention!**
There is no speed control as the panel RSV-500 is not operating yet. Please hold the roller to control the drop speed.

Finally please install the removeable plate to the bottom of the head box.

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4.5 Control panel RSV-500

4.5.1 Wiring diagram

230 V/50 Hz

NYM-J
3x 1.5mm²
by others

RSV-500

Optional connecting cable for e.g. Multiple roller or curtains with 2 motors

Connecting cable 5x0,75 mm², length 2 m (by the supplier)

Smoke/Fire curtain (single roller)

(M)

RSV-500

230 V/50 Hz

NYM-J
3x 1.5mm²
by others

Control panel RSV-500 — RSV-500

Fire alarm signal (Volt-free contact NC with auto reset) — BMZ

Emergency button

Key switch (for testing) — ST - UP/AP

Smoke detector RM 3000

E.g. J-Y(St) Y-BMK
2x 2x 0.8mm²

ST - UP/AP

E.g. J-Y(St) Y-BMK
4x 2x 0.8mm²

E.g. J-Y(St) Y-BMK
2x 2x 0.8mm²

BMZ

E.g. J-Y(St) Y-BMK
2x 2x 0.8mm²

The roller motor will be supplied with a 2 m silicone cable (5x0,75 m²).
If you install control panel more than 2 m from the motor please calculate the cable cross section according to the below formula. We recommend to use fire rated cable.
Cable cross section [mm²] = Cable length [m] x 0,05

Fire alarm with Autoreset:
Contact open: Alarm
Contact close: Curtain rewinds automatically

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4.5.2 General information

⚠️ **Attention!**
Please install the battery after finishing all wirings, connections and programming in the RSV-500.

The installer must have the necessary experience and knowledge. The control panel contencts of senitive electronic components and a micro controller. Please avoid wrong connections and take care regarding ESD, otherwise the panel could be damaged. Please read the manual and wiring schematic carefully. The installation should be done in the proximity of the roller motor (distance max. 5 m).

The control panel must be programmed. Therefor please read the information in the product information. Each roller motor has one control panel RSV-500. For fire curtains with 2 motors per roller the control panels must be connected together for synchronizing.[2] Please find details in the product information of the panel.

(1) ESD = Electrostatic discharge
(2) See wiring schematic (4.5.1)

4.5.3 Connection

⚠️ **Attention!**
All connections must be done without mains! Put out the fuses!

⚠️ **Attention!**
Please note that the curtain will rewind automatically when 230 V mains are connected. You can switch off this function by activate the service mode (see DIP-switches).

Please insert the cables into the housing and connect the roller motor and all other peripheral systems like emergency button, smoke detector or fire alarm signal. If there is a fire alarm signal please test if it is volt-free. Otherwise it could damage the panel.

After finishing all connections please connect the mains (230 V) and insert the mains fuse. The smoke/fire curtain will rewind automatically and stay in the top position.

Control panel RSV-500

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4.5.4 Wiring schematic

Motor cable
Rt = red
gb = yellow
sw = black
bl = blue
bn = brown

Motor

brown — bn
blue — bl
black — sw
yellow — gb
red — rt

Service functions:
Service button yellow = Service up
Service button red = Service down

External service functions:
Connection S2 = Service up
Connection S3 = Service down

DIP-switch

Service button - yellow
Service button - red

Emergency switch
HE 07*

+EXT
-RRWA1.N
Loop resistor
Last
Emergency switch
HE 076

+EXT
-RWA1.N
First
Emergency switch
HE 075

15 k

AUF
RD RESET

AUF
RD RESET

GN YE

Motor
gb sw bl bn
rt

S1 B1

OK Y

M UP
Service

Option²
RM 3000
Relay
ALARM

Option²
Relay

15k

+EXT
-RRM.N
Loop resistor

-RM.N
Last Smoke
detector

+EXT
-RM.1
first smoke
detector

Rauchmelder

S2 B2

Service down

ge

rt

Connecting cable
Master / Slave
(e. g. multiple roller)

Contact FAS
General

NO
NC

NO
NC

15 k
+EXT
-RBMZ1.N
Loop resistor

+EXT
-BMZ1.N
Last
FAS

+EXT
-BMZ1.1
first
FAS

BMZ

S3 B3

COM

B A

A

B

Contact failure

Störung

Po P Ps

Achtung
!! 230U !!

PE

L1

N

230 V AC

Fuse (1A slow)

Attention!
Service switches or external signals for testing/service must be impulses and no permanent signal.

Fire alarm with Autoreset:
Contact open: Alarm
Contact close: Curtain rewinds automatically

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4.5.5 Programming final drop

Programming instruction:

The drop length of the curtain is factory adjusted to approx. 80 cm. To adjust the drop length to the required length, the RSV-500 has to be set into learning mode. In this learning mode the new drop length is trained by a test run.

Procedure:
1. Let the curtain drop down for at least 40 cm by pushing the red service button when the curtain is still completely retracted. A short press on the red control button starts the drop procedure. When a drop length of approx. 40 cm is reached press again the red control button (short press) to stop the drop procedure.

2. After the curtain has stopped to drop down after approx. 40 cm, press both the yellow and red service button inside the RSV-500 for about 2-3 seconds at the same time (while you keep the buttons pressed the curtain will start to move for a short time in both directions). After releasing the control buttons the red signal inside the RSV-500 starts to blink. This signalizes that the RSV-500 is in the programming/learning mode and is ready for the test run.

Please note: If the RSV-500 can not be put into programming mode, remove the mains fuse for approximately 10 seconds, then rescrew in the fuse and start again at step 1. If everything works you can go on with the following steps:

3. The test run is started by a short press on the red control button inside the RSV-500. Now the curtain is rolled up automatically. After the curtain is completely rolled up, it automatically starts to descent. When the curtain has reached the required drop length press again the red service button (short press) in the RSV-500. By doing this the control system will register this position as the future descending end position of the curtain and the curtain will also stop at once in this position.

4. After 1-2 seconds the curtain will roll up automatically.

5. After the curtain is rolled up, the control panel is put automatically into operation mode. Now the test run and the programming are finished.
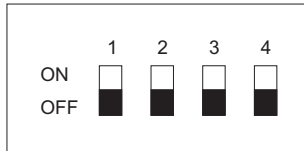
6. Now you can insert the backup battery.

You can repeat the test/learning run at any time following the above described steps to reprogram the drop position.

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4.5.6 DIP switch applications

⚠️ **Attention!**
Please program DIP-switches only without voltage (mains and battery).

DIP switch 1:

Programming Master/Slave
DIP switch 1 OFF = Master
DIP switch 1 ON = Slave

Master/Slave configuration is used in multiple roller systems. One control panel has to be programmed as Master, all others are Slave panels. All signals (HE, smoke detector, FAS) are connected to the Master. These signals will be transmitted via the BUS intercace COM. The signal inputs (HE, smoke detector, FAS) of the slave pnaels are not active.

DIP switches 2 and 4:

The DIP-Schalter 2 and 4 are not used.

DIP switch 3:

Service mode

DIP switch 3 OFF = Service mode OFF
DIP switch 3 ON = Service mode ON

In service mode (DIP switch 3 ON) the curtain <u>does not</u> rewind automatically in case of mains connection. The curtain can be driven up/down by the installer.

4.5.7 Direction of rotation for multiple rollers <u>side by side</u>

To change the rotation direction you must change the polarity of the motor cable (blue and brown).
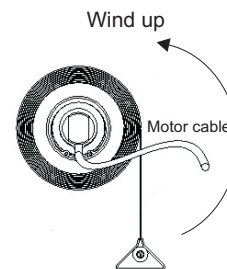
Standard direction:

Wind up
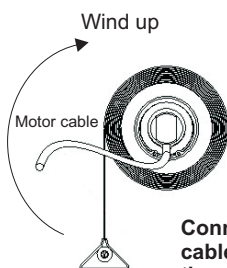
Motor cable

Connect the motor cable as described in the wiring schematic:

Blue core = terminal bl
Brown core = terminal br

Reverse direction:

Wind up

Motor cable

Change polarity:

Blau core = terminal bn
Brown core = terminal bl

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5.1 Service and maintenance, use

5.1.1 Operation test

The operation of the fire curtains should be tested once a month. For doing this please follow the following steps:

- Make sure that the area where the curtain descends is always free of obstructions

- Let the curtain descend via the emergency or the key operated switch

- Make a visual check of the fixings and the fabric

- Let the curtain roll up again (via reset button of the emergency switch or the key operated switch)

- Check if the curtain rolls up properly and if it stays in this position

5.1.2 Maintenance

Maintenances may only be carried out by qualified and spezialized staff, authorized by SIMON RWA Systeme GmbH.

Fire curtains serve to protect human life and thus must be maintained regularly - at least once a year. Maintenance has to be carried out in accordance with a maintenance checklist defined by the manufacturer (download at www.simon-rwa.de).

5.1.3 Terms for use

The device must be used as normally intended. The switch-on duration and the ingress protection (IP) must be observed, please inquire in case of doubt. The device is subject to natural wear and tear. In case of material defect claims, these shall be asserted in writing, stating the source of supply of the device. Prescribed time limits and further provisions with regard to claims for material defects exclusively correspond with our General Terms and Conditions (download: www.simon-rwa.de, or they may be requested by sending an e-mail to info@simon-rwa.de, or by phone +49 851 988700).

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5.2 Maintenance check list

Building project _____

System description _____

Kind of mounting (e. g. ceiling / wall) _____

Serial number / year of manufacture _____

Battery year of manufacture[1] _____

(1) The back p battery must be changed every four years!

Year of maintenance _____

Date _____

Mounting staff _____

Name / Signature _____

No.	Check points	Test o.k.	Notes
1.0	**Optical inspection**		
1.1	Check the fire curtain for damaging, contamination, oxidation	☐ yes ☐ no	
2.0	**Elektrical inspection**		
2.1	Check, if the electrical supply lines are connected properly and fixed well at the actuator	☐ yes ☐ 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.).	☐ yes ☐ no	
3.0	**Functional inspection**		
3.1	**Attention!** Check the operating voltage (according to manufacturers' instructions).	☐ yes ☐ no	
3.2	Let the fire curtain move in its alarm position and check if the curtain descends completely. Ensure that the roll-off area is free of obstacles.	☐ yes ☐ no	
3.3	Reset the curtain. Ensure that the curtain moves duly in its end position.	☐ yes ☐ no	
4.0	**Inspection of the mechanical parts**		
4.1	Check the fastening of the head box and of the side guides (optional)	☐ yes ☐ no	
4.2	Check the bearing of the roll shaft.	☐ yes ☐ no	

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