



**mcr PROSMOKE**  
smoke curtains

# PURPOSE OF SMOKE CURTAINS IN A NATURAL SMOKE EXTRACTION SYSTEM

In case of fire in a building, the most important thing is to carry out immediate evacuation and fire- fighting action. Its purpose is to eliminate smoke and fire gases that are extremely hazardous to human health, to lower the temperature in the building and to limit fire spreading. This is possible only with an efficient natural smoke extraction system.

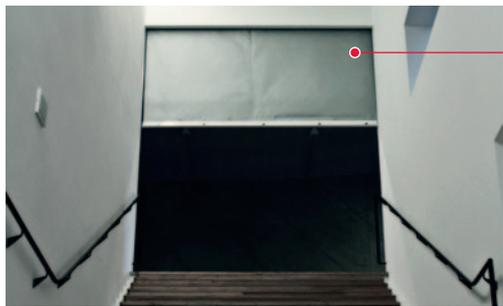
One of the key elements of such a system are mcr PROSMOKE smoke curtains used to separate smoke zones in a building.

Depending on the installation location and type of facility, you can choose one of the following Mercor's products:

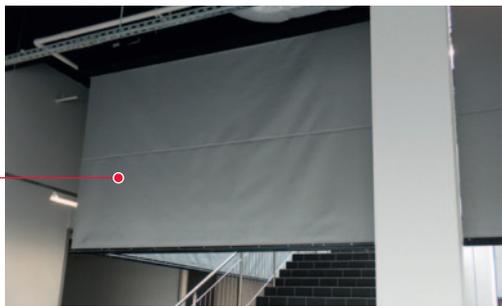
- ▶ mcr PROSMOKE CE, mcr PROSMOKE FS automatic rolling curtains
- ▶ fixed mcr PROSMOKE S textile curtains or fixed mcr PROSMOKE ST steel sheet curtains

The separated smoke zones stop the spread of smoke in passageways, staircases and stairs as well as contain the smoke in a room adjacent to the evacuation route. Proper placement of smoke curtains in a building makes it possible to direct the smoke towards other elements of the system, i.e. smoke vents.

## mcr PROSMOKE SMOKE CURTAINS IN VARIOUS TYPES OF ROOMS



passageways  
– single curtain



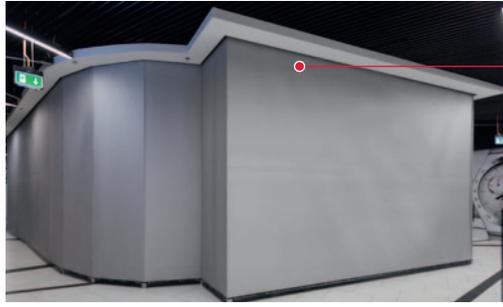
stairs in passageways  
– single curtain



passageways  
– modular curtain



separated area – curtains  
with corner connections  
and emergency exit



separated area  
– non-standard shape  
of the curtain with corner  
connections



fixed textile curtains  
with service penetrations



warehouse, production  
and commercial areas  
– fixed textile curtains



warehouse, production  
and commercial areas  
– fixed steel curtains with  
penetrations

# AUTOMATIC SMOKE CURTAINS mcr PROSMOKE CE and FS

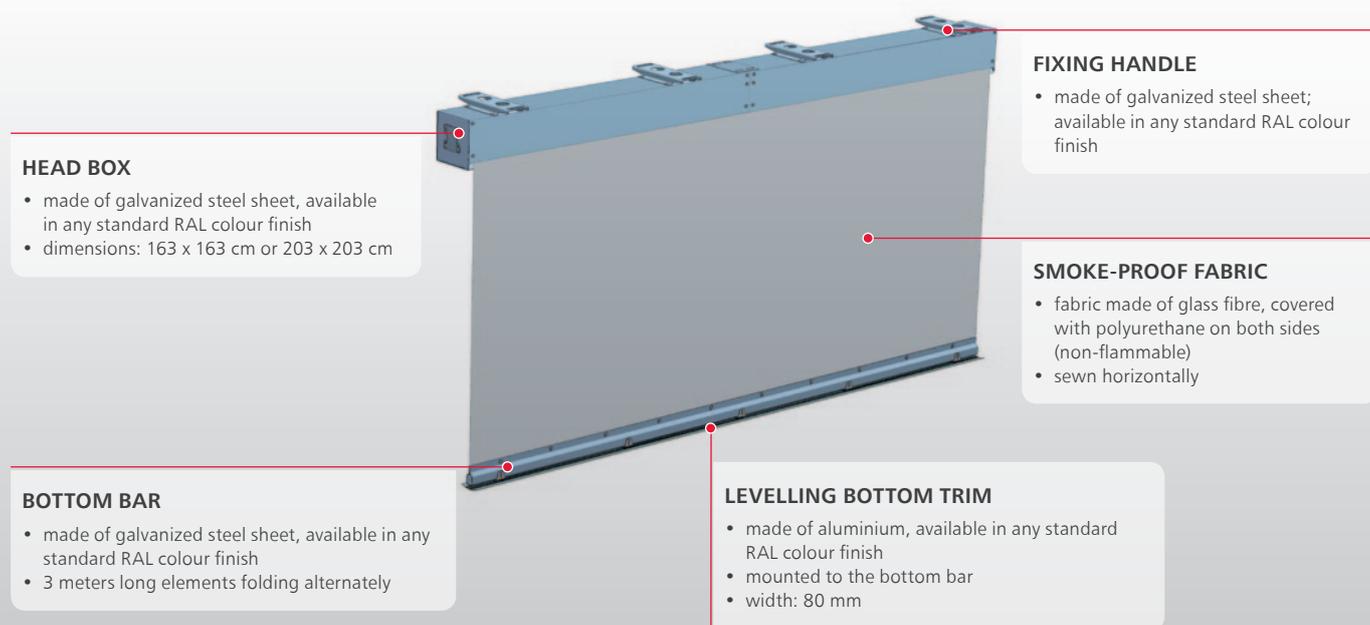
mcr PROSMOKE CE or mcr PROSMOKE FS automatic smoke curtains serve the following purposes:

- ▶ separating smoke zones under roofs and ceilings
- ▶ stopping smoke from spreading in passageways or staircases
- ▶ preventing smoke escaping from small shops at the evacuation route level
- ▶ limiting smoke from spreading in vertical evacuation routes, such as stairs or stair lifts

Automatic curtains are used mainly in buildings where aesthetic qualities are of importance, e.g. shopping malls, exhibition and trade halls. The desired effect is achieved by making the curtain blend with the ceiling in the standby position.



## STRUCTURE OF mcr PROSMOKE CE/FS CURTAIN



Smoke curtains are available with side guides (made of galvanised steel, in standard RAL colours), which can be used to create a sealed connection between the smoke curtain and the building structure for further reducing the smoke leakage

### Parameters of mcr PROSMOKE CE and FS curtains

Parameter	mcr PROSMOKE CE	mcr PROSMOKE FS
curtain descent	motor	gravity fail-safe
maximum number of modules	10 pieces	14 pieces
minimum module width	0.8 m	2.0 m
curtain height range	0.5 m ÷ 6.5 m	0.5 m ÷ 6.5 m
maximum 24V- power consumption	4 A (motor)	0.25 A (brake)
motor voltage	24V, DC	230V, AC
fire classification	<b>D30, D60, DH30, DH60</b>	<b>D30 ÷ D180</b>
angle connections	yes	yes

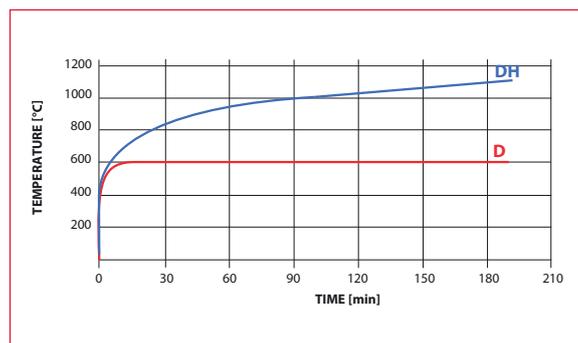


Diagram of temperature curve (D) and standard heating curve (DH)

# AUTOMATIC SMOKE CURTAINS mcr PROSMOKE CE and FS

## MODULAR AUTOMATIC SMOKE CURTAINS – OVERLAPPING ASSEMBLY

Legend:

$s_1, s_2, s_3$  – curtain module width  
 $s$  – curtain width  
 $h_1, h_2$  – curtain module height  
 $h$  – curtain height

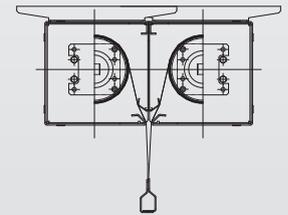
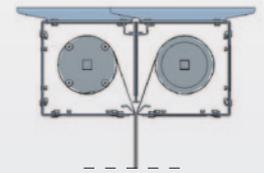
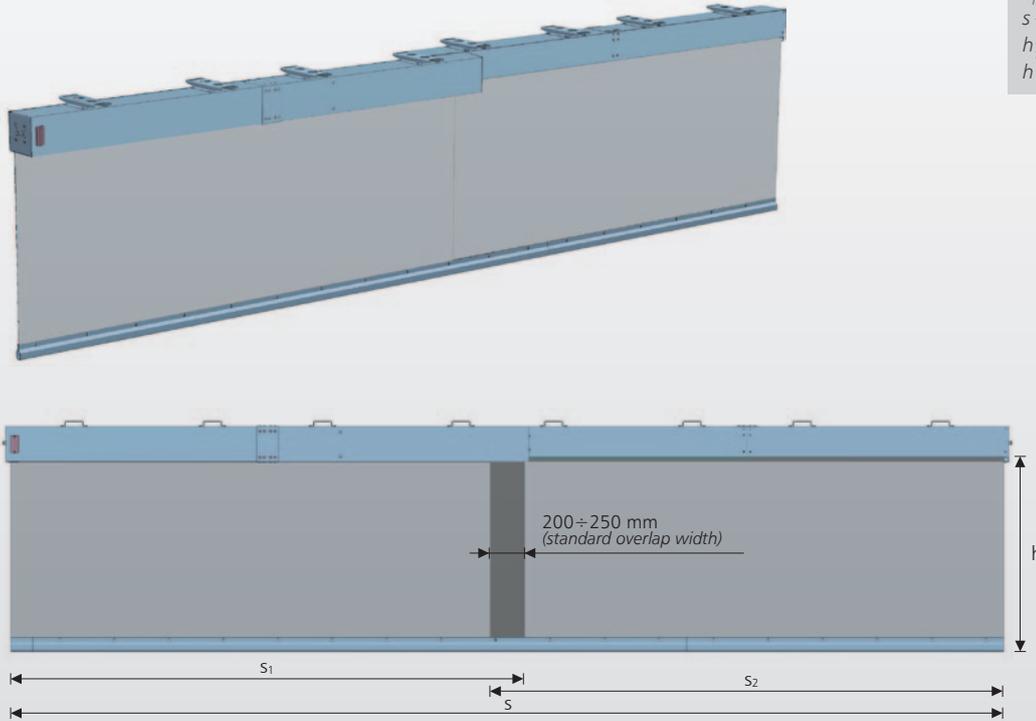


Fig. 2 Position of modular curtain head boxes in horizontal position

Fig. 1 Modular smoke curtain with horizontal head boxes position

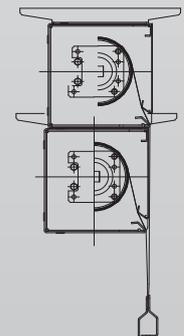
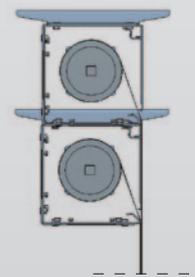
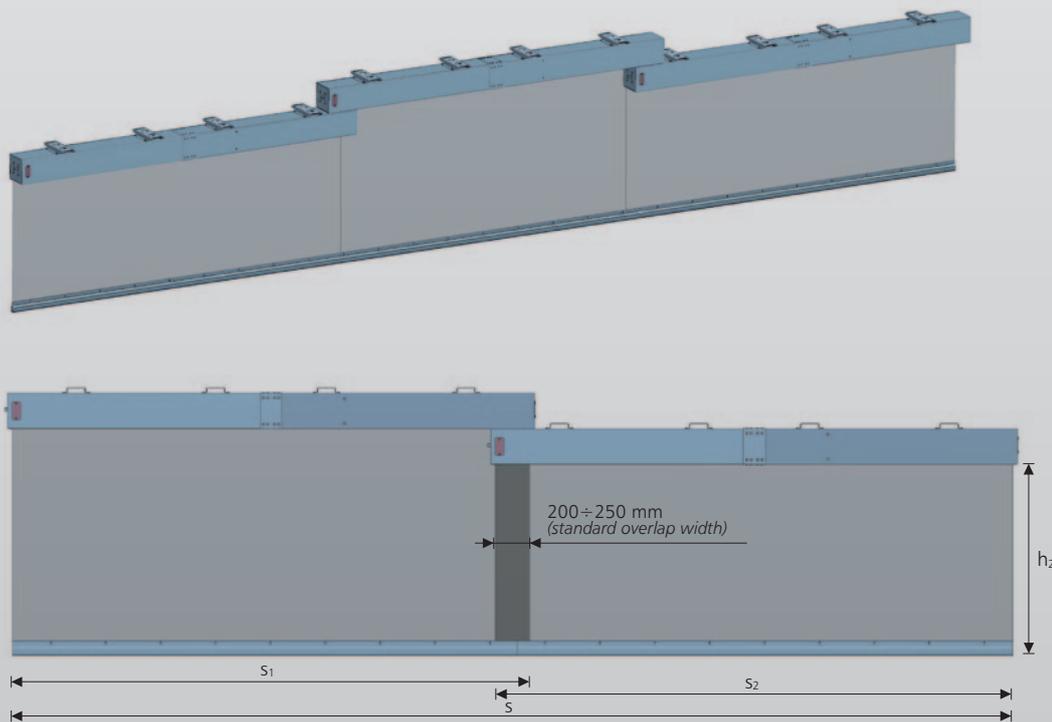


Fig. 4 Position of modular curtain head boxes in vertical position

Fig. 3 Modular smoke curtain with vertical head boxes position

# AUTOMATIC SMOKE CURTAINS mcr PROSMOKE CE and FS

## MODULAR AUTOMATIC SMOKE CURTAINS – WITH A PERMISSIBLE GAP (AVAILABLE ON DEMAND)

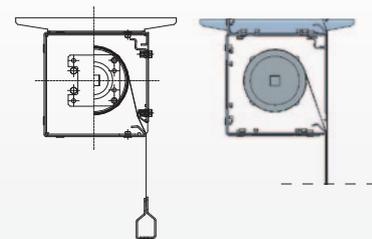
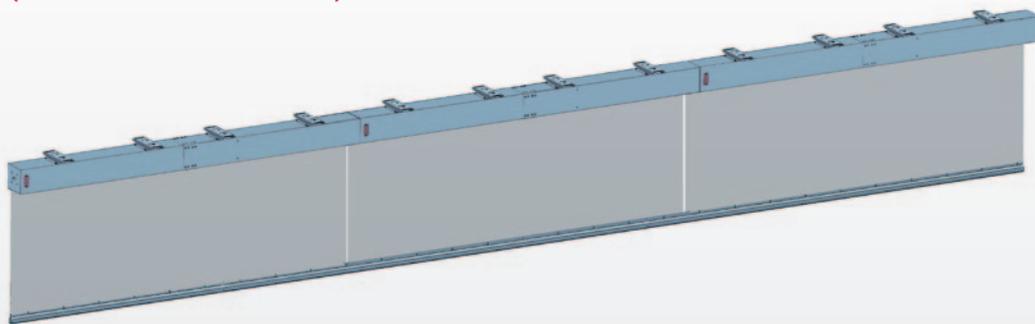


Fig. 6 Position of modular curtain head boxes in a linear system

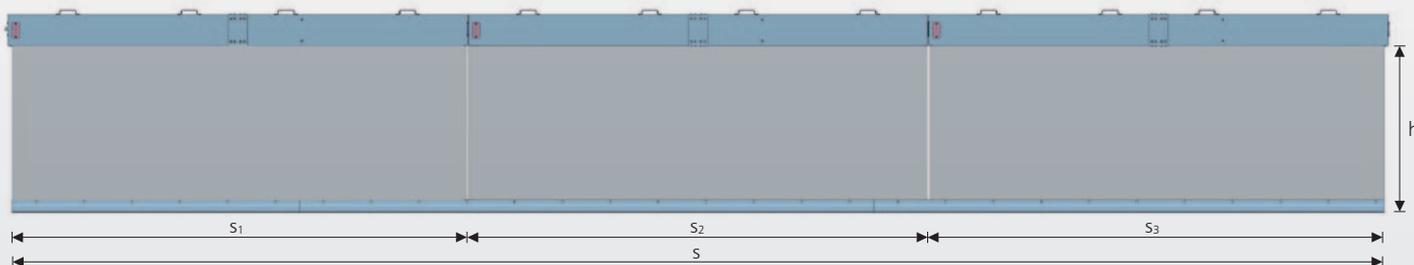


Fig. 5 Modular curtain in a linear system with a permissible gap at the curtain height of  $h > 2\text{ m}$ .

\* Modular curtains in a linear system are used in case of limited installation space, where it is not possible to install modular curtains in vertical or horizontal position as presented on the previous page (available on request).

## SINGLE CURTAIN

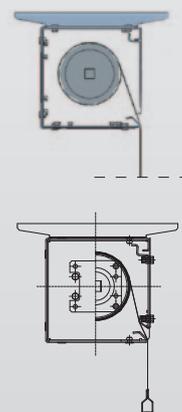
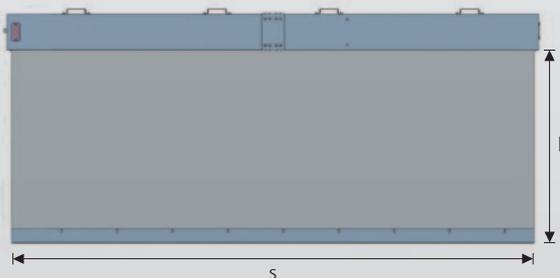
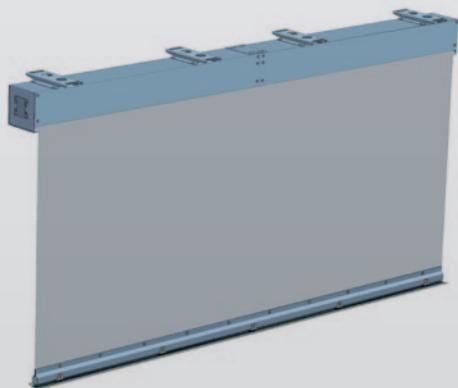
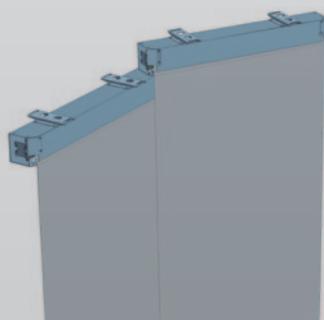


Fig. 8 Position of a single curtain head box

Fig. 7 Single curtain

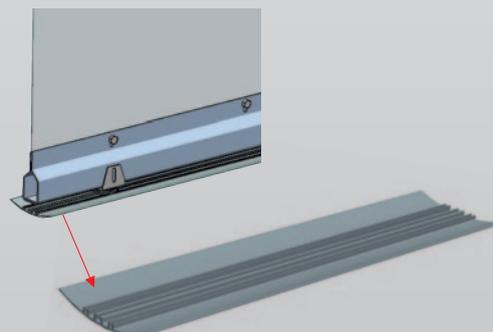
## AVAILABLE OPTIONS FOR AUTOMATIC ROLLING SMOKE CURTAINS mcr PROSMOKE CE and FS



curtains with corner connection



curtains with emergency exit



aluminium levelling trim

# INSTALLATION OF AUTOMATIC SMOKE CURTAINS mcr PROSMOKE CE and FS

mcr PROSMOKE CE and FS automatic smoke curtains are mounted using mounts and additional mounting rods directly to elements made of reinforced concrete (ceilings, beams, lintels) or to steel elements of the load-bearing structure of the building. While designing the structure, remember to consider the weight of the smoke curtains together with additional equipment and fixing parts.

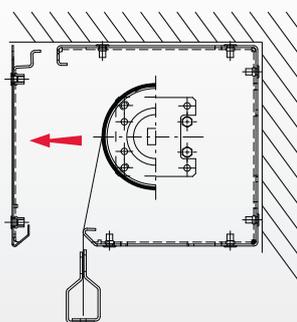
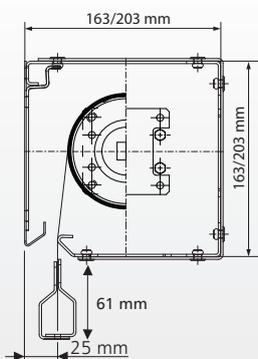
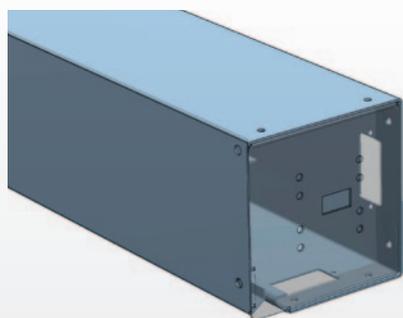
Installation of automatic smoke curtains should be carried out in accordance with the construction design. It is important not to exceed the permissible gaps specified in EN 12101-1 standard during the installation.



## High temperature resistance classification

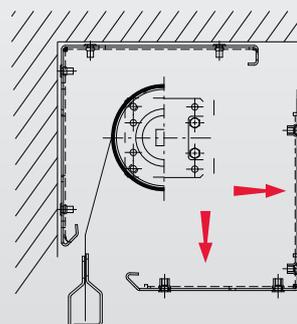
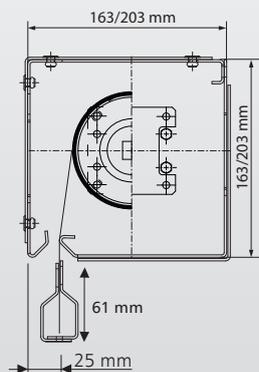
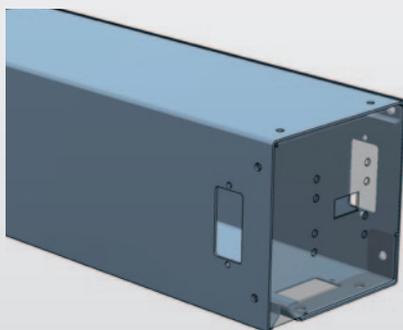
Casing dimensions	Curtain type – classification
163 x 163 mm	<ul style="list-style-type: none"> <li>• mcr PROSMOKE FS – D30 ÷ D180</li> <li>• mcr PROSMOKE CE – D30, DH30</li> </ul>
203 x 203 mm	<ul style="list-style-type: none"> <li>• mcr PROSMOKE CE – D60, DH60</li> <li>• modules with emergency exit</li> </ul>

**IMPORTANT:** In case of suspended ceilings, inspection holes for maintenance purposes should be provided at the design stage.



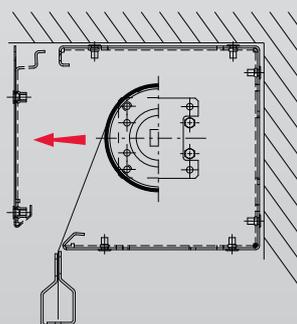
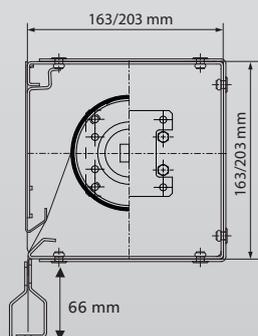
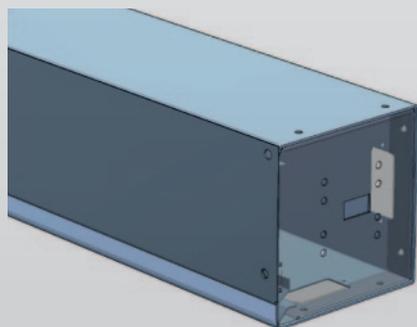
### C- CASING

- ▶ the curtain unfolds 2.5 cm from the head box edge



### L -CASING

- ▶ the curtain unfolds 2.5 cm from the head box edge, which makes it possible to install the curtain directly on the wall



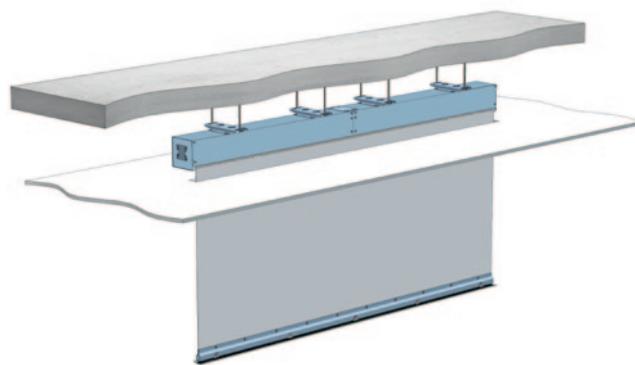
### K- CASING\*

- ▶ the curtain unfolds directly at the head box edge

\* K-casing is also available in K-T option and is designed for curtains with corner connections

# INSTALLATION OF AUTOMATIC SMOKE CURTAINS mcr PROSMOKE CE and FS

Automatic curtains can be installed under ceilings using various types of mounting mounts. By choosing the proper set of head boxes and mounts, you can install our curtains almost anywhere. Thanks to their design and the possibility to use a levelling bottom trim, curtains in standby mode can perfectly blend with the ceiling, improving the visual aspect of the installation.



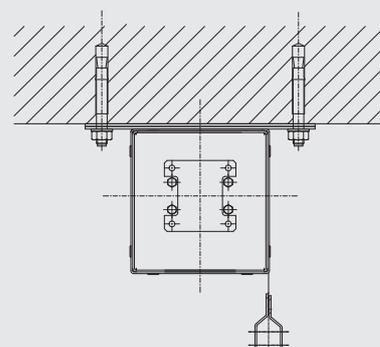
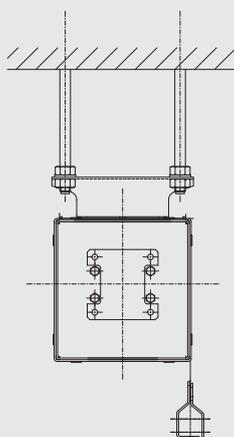
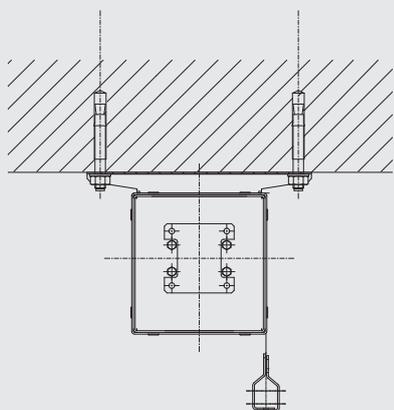
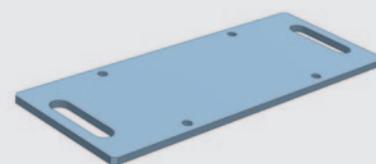
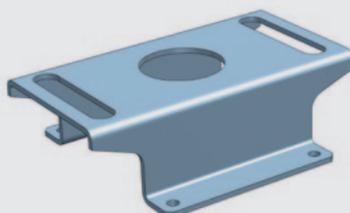
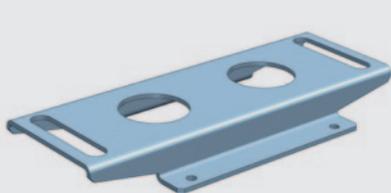
## METHODS OF INSTALLATION

Automatic curtains are mounted to the ceiling or other load-bearing structure using handles available in the following variants:

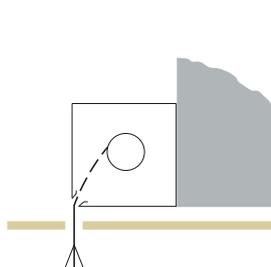
wide handle: 24 mm x 250 mm

narrow handle: 48 mm x 160 mm

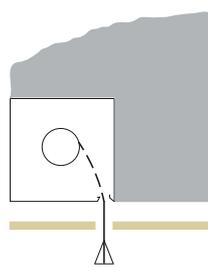
flat handle: 5 mm x 20 mm



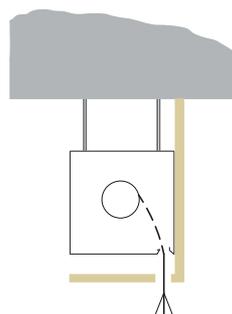
Thanks to the solutions used by Mercor, automatic mcr PROSMOKE curtains can be mounted to:



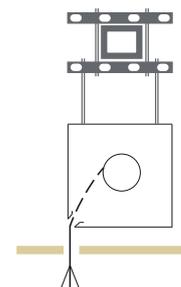
lintel



lintel and ceiling



ceiling



steel structure

# ADVANTAGES OF mcr PROSMOKE SMOKE CURTAINS



## Automatic curtains

### aesthetic look

curtains in standby mode are invisible thanks to the levelling bottom trim available in any RAL colour finish

### sequential start-up

it is possible thanks to equipping the rolling curtains with additional sensors and proper configuration of the control box

### corner connections

curtains can be mounted both in a straight line or at any angle

### common bottom load

it ensures a stable position of multi-modular curtains during unfolding

### multi-modular solutions

for precise installation in curved and round lines

### adjustment for fire protection purposes

you can choose one of two methods of descending the rolling curtains: by gravity (ES) or by means of motors (CE)

### quick installation

curtain modules are factory pre-assembled and tested

### easier installation

a wide range of mounts and slings for various installation conditions

We ensure a complex office smoke curtain solution with EN 12101-1

- automatic rolling CE (ASB1, ASB2) and FS (ASB2)
- fixed textile solutions (SSB)
- fixed steel solutions (SST)

reliable solution for any type of building a wide range of options of the offer

comprehensive and experienced design, manufacturing and maintenance

## Fixed curtains

ensure:  
number of certified  
solutions compliant  
with  
standard:

single smoke curtains  
(ASB3 class)  
(ASB4 class)  
double smoke curtains  
(ASB3 class)

solutions for  
building thanks to  
wide dimensions  
of fixed curtains

practical knowledge  
and experience in  
structure, installation  
of smoke curtains

### installation passage

can be made in both fixed  
textile and steel curtains

### best solution

you can choose the material  
and mounting method of your  
fixed curtain

### quick installation

a wide range of typical  
solution ensures compatibility  
with various structures

### quick disassembly

of fixed curtains in case of  
necessary maintenance works

### colour matching

steel curtains, available in any  
RAL colour, can match the  
interior of your building

### joining various types of curtains together

for economic, functional  
or fire safety purposes

### low weight of fixed textile curtains

they can be used in existing structures with weaker load bearing capacity  
and where it is not advised to put additional load on the structure

## mcr PROSMOKE S FIXED SMOKE CURTAINS

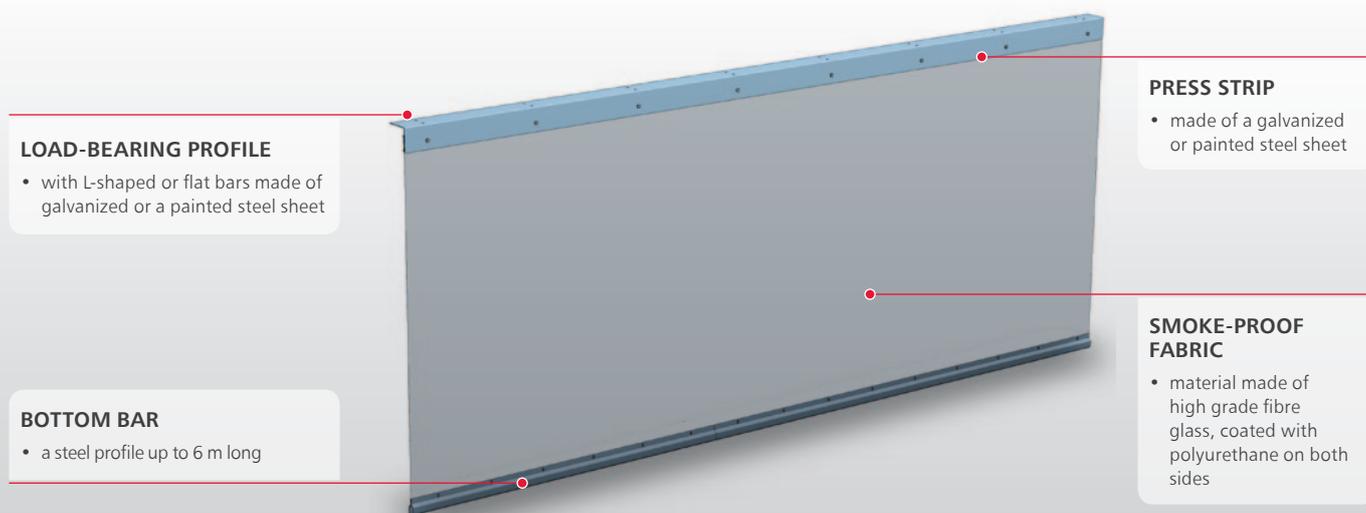


### mcr PROSMOKE FIXED TEXTILE CURTAINS

mcr PROSMOKE fixed textile curtains are an indispensable part of a natural smoke extraction system, responsible for the separation of smoke zones under the ceiling. They are mainly used in large-area facilities, such as warehouses, production halls or supermarkets. In such buildings, it is important to install lightweight curtains with large dimensions and guaranteed resistance to high temperatures.

With system mounting solutions, fixed textile curtains are easy to install and their finishing ensures an aesthetic look.

### DESIGN OF mcr PROSMOKE S FIXED CURTAIN



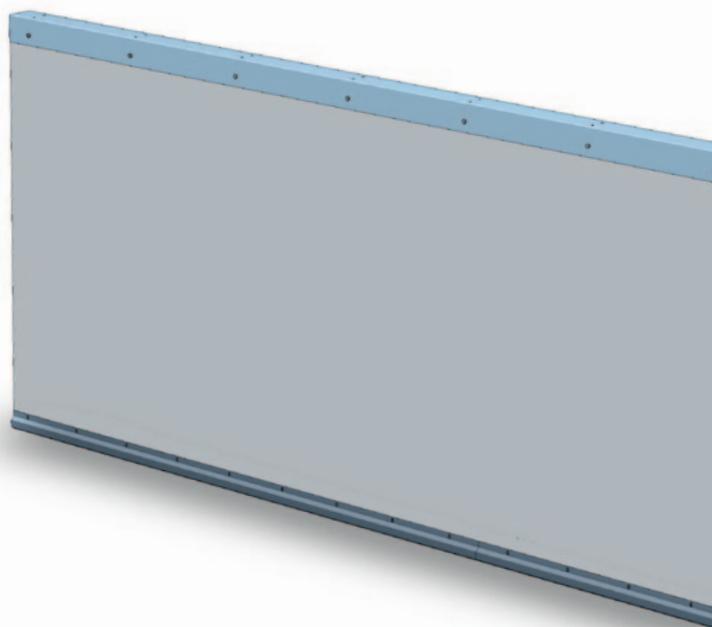
### Parameters of mcr PROSMOKE S curtain

Width	no limits
Height (drop length)	min. 0.5 m max 6.5 m
curtain type	SSB
resistance to high temperatures	<b>D180, DH60</b>
air permeability of the curtain fabric	$\leq 9,4 \text{ m}^3/\text{m}^2/\text{h}$

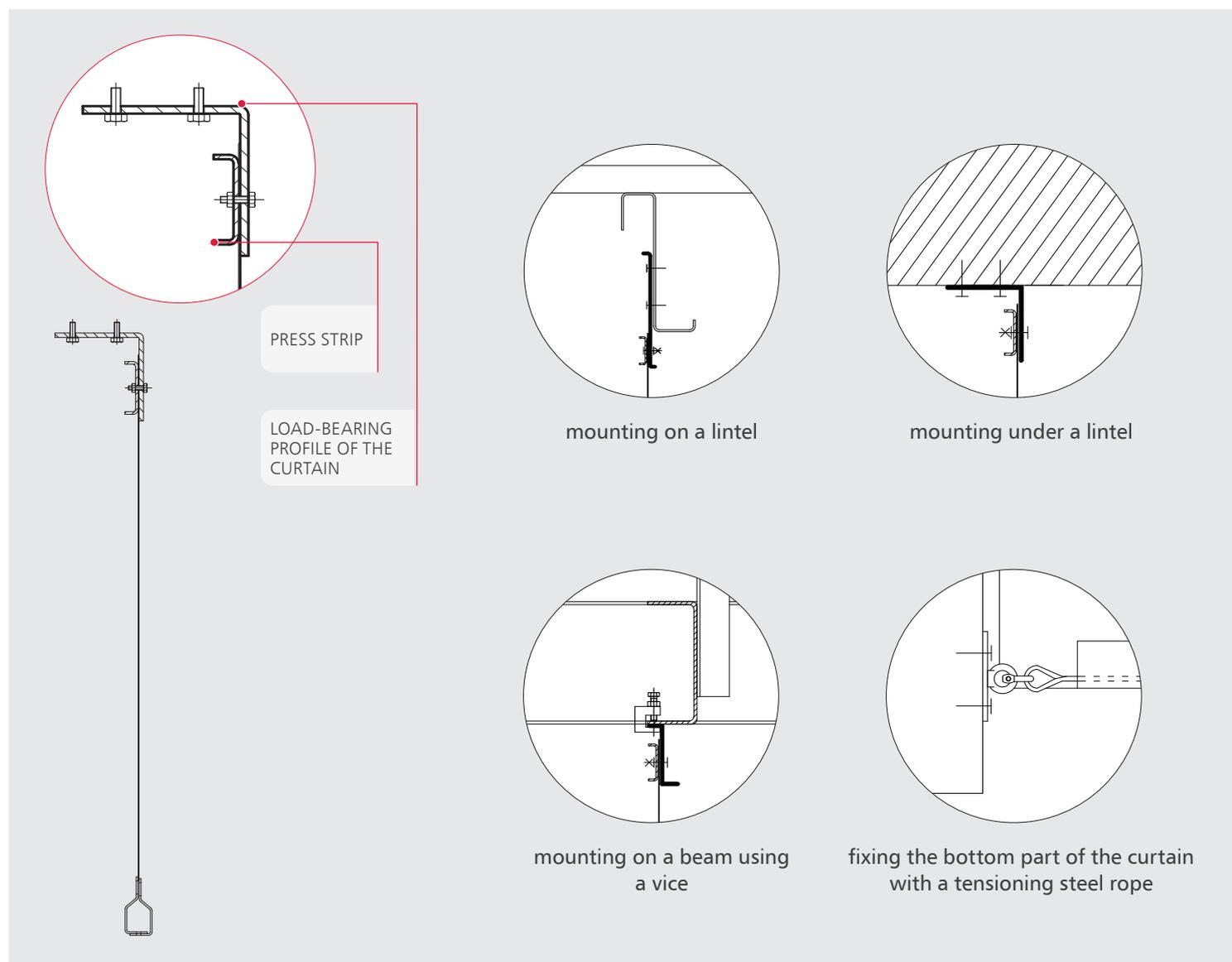
# INSTALLATION OF mcr PROSMOKE S FIXED SMOKE CURTAINS

mcr PROSMOKE S fixed textile curtain is mounted to the structure of the building (lintel, ceiling, wall, steel beam) using metal connectors (anchors, rods, screws) placed on the load-bearing part of the curtain at a maximum of 1 m intervals.

Installation of fixed curtains made of smoke-proof textiles should be carried out in accordance with the construction design. The space between the ceiling and the curtain should be blinded with a separating partition made of A1-class non-flammable material (according to EN 13501 standard).



## METHOD OF MOUNTING A FIXED TEXTILE CURTAIN



# mcr PROSMOKE ST FIXED SMOKE CURTAINS

## mcr PROSMOKE ST FIXED STEEL CURTAINS

mcr PROSMOKE ST fixed smoke curtains made of steel sheet are used in natural smoke extraction systems to separate smoke zones in large rooms, such as production or warehouse halls. They are perfect solutions for places where there are no limitations with regard to the permissible load on the load-bearing structure of the building.

The curtains are made of trapezoidal steel sheets that can be painted in any RAL colour, making it blend perfectly with the housing of the hall, usually made of steel sheet as well.

Steel sheet curtains have to be a certified compliant with EN 12101-1 standard in order to be used as smoke curtains.

## DESIGN OF mcr PROSMOKE ST CURTAIN



### LOAD-BEARING ELEMENT

- with L-shaped or flat bars made of galvanized or painted steel sheets

### TRAPEZOID STEEL SHEET

- 0.5 mm thick TR35 metal sheet, galvanized or Al-Zn coated or polyester paint coated

### REINFORCING PARTS

- made of painted or galvanized square steel pipes

### LEVELLING BOTTOM TRIM

- made of galvanized or painted steel sheet

### REINFORCEMENT PROFILE

- L-shaped, made of steel sheet

## Parameters of mcr PROSMOKE ST curtain

Width	no limits
Height	min. 0.5 m max. 4.5 m
curtain type	SSB
resistance to high temperatures	<b>DH120</b>
metal sheet weight	4 kg/m <sup>2</sup>
weight of standard elements	5 ÷ 6 kg / 1 m of curtain
weight of reinforcing elements	2 ÷ 3 kg/1 m of curtain

# INSTALLATION OF mcr PROSMOKE ST FIXED SMOKE CURTAINS

mcr PROSMOKE ST fixed steel curtains are mounted under roofs (ceilings) using mounting parts placed along the upper edge of the curtain.

Steel curtains should be mounted to elements of the building structure (lintels, beams, girders) using proper steel connectors.

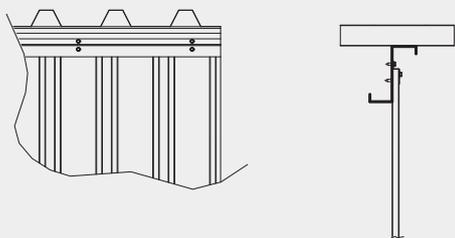
Fixed smoke curtains can be equipped with service penetrations using a steel duct with maximum dimensions of 600 mm x 300 mm. The duct is mounted to the steel curtain using angle brackets and then sealed on both sides all around.



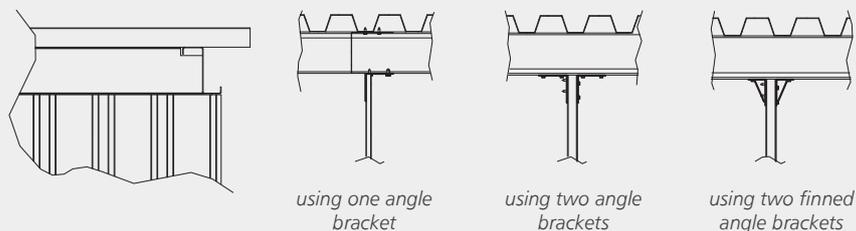
Installation of fixed smoke curtains made of steel sheet should be carried out in accordance with the construction project and the provisions of EN 12101-1 standard.



ST curtain – installation along the purlin



ST curtain – installation crosswise to the purlin



## ST CURTAIN WITH REINFORCING ELEMENTS

While mounting steel curtains with the height of  $h > 2.5$  m, it is necessary to use additional reinforcing elements mounted to the building structure:

- ▶ a steel angle bracket along the curtain at half of its height
- ▶ angle braces made of square steel pipe placed at 3 m intervals

# CONTROL OF mcr PROSMOKE CE SMOKE CURTAINS

In case of alarm, the curtain is lowered:

- ▶ automatically after receiving a signal from the Fire Alarm Signalling System (FASS)
- ▶ automatically by activating optical smoke sensors (or thermal sensors) as a result of smoke or temperature increase
- ▶ manually by pushing RPO-1 alarm pushbutton

Upon receipt of a signal from the smoke curtain control unit, the motors housed in the head box unwind the curtain to the desired drop length.

mcr PROSMOKE CE curtain is retracted using motors as well, upon prior reset of the FASS alarm signal at the control unit mcr 0204 or mcr 9705 or at RPO-1 button.

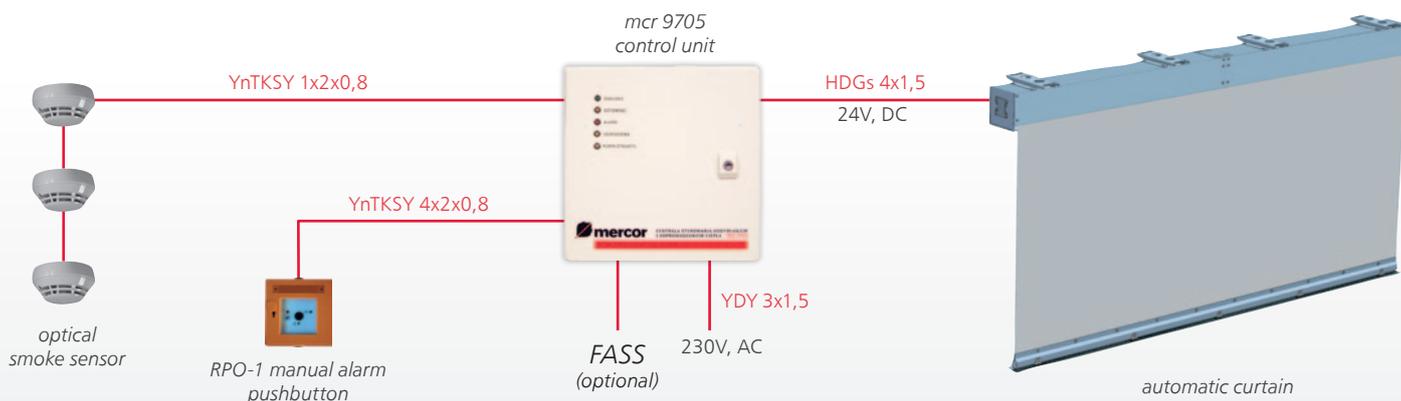


Fig. 9 Sample configuration of the electric control system for a single mcr PROSMOKE CE curtain

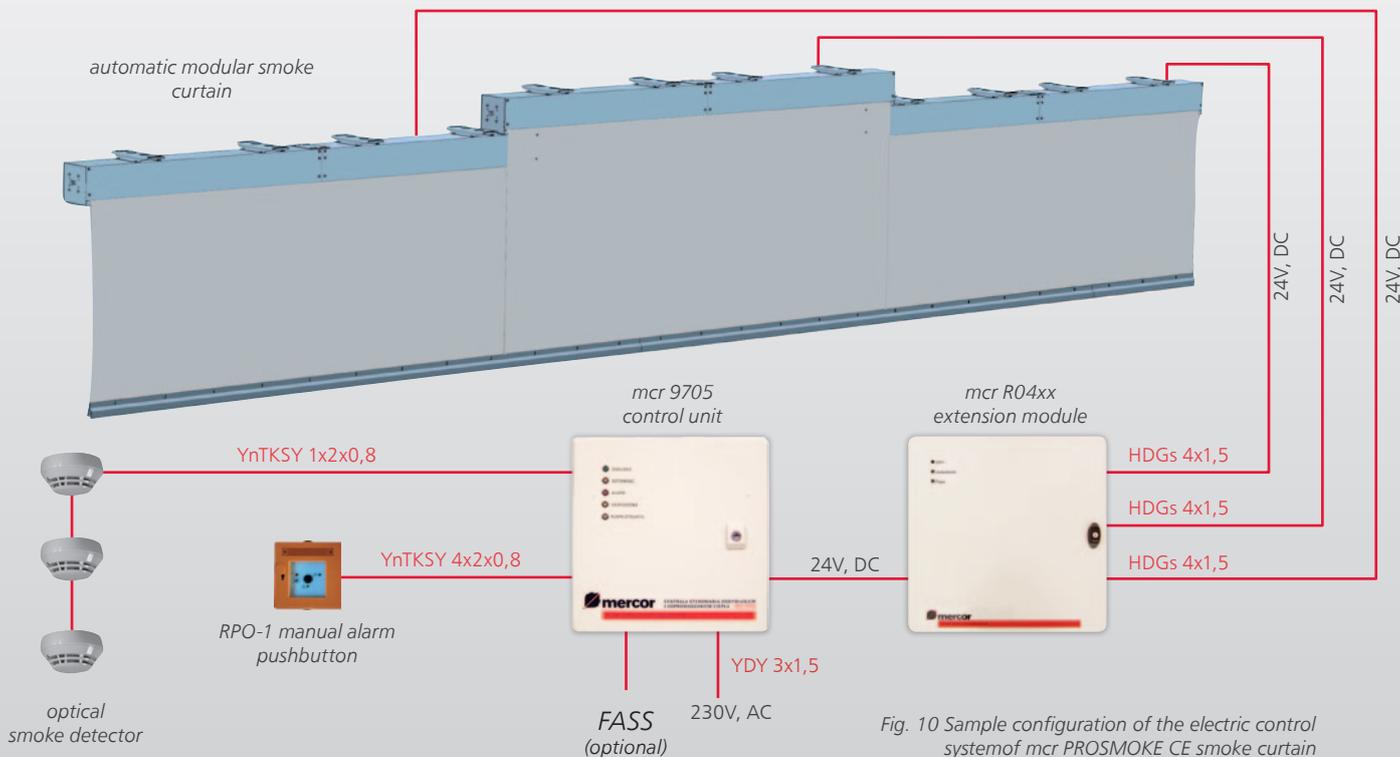


Fig. 10 Sample configuration of the electric control system of mcr PROSMOKE CE smoke curtain

control unit type	mcr 9705-5A control unit	mcr 9705-8A control unit	mcr R0424 extension module		mcr R0448 extension module	
number of modules	2	2	5	4	10	8
curtain module parameters	- max. width 3.99 m - max. height 6.5 m	- width 4 ÷ 6 m - max. height 6.5 m	- max. width 3.99 m* - max. height 6.5 m	- width 4 ÷ 6 m** - max. height 6.5 m	- max. width 3.99 m* - max. height 6.5 m	- width 4 ÷ 6 m** - max. height 6.5 m

\* power consumption 2.5 A / \*\* power consumption 4.0 A

The time of maintaining the curtain in retracted position by the control unit in the case of a mains failure is 72h.

# CONTROL OF mcr PROSMOKE FS SMOKE CURTAINS

mcr PROSMOKE FS curtain remains folded during a constant supply of power from the control unit. The curtain descends under the power of gravity to the designed drop length after:

- ▶ activating an alarm signal,
- ▶ loss of 230V~ power supply and discharge of batteries in the control unit,
- ▶ opening the circuit between mcr 9705 control unit and MECU XL motor control system.

mcr PROSMOKE FS curtain is retracted by motor after prior resetting of the alarm signal at the FASS, resetting the alarm at mcr control unit or at RPO-1 pushbutton.

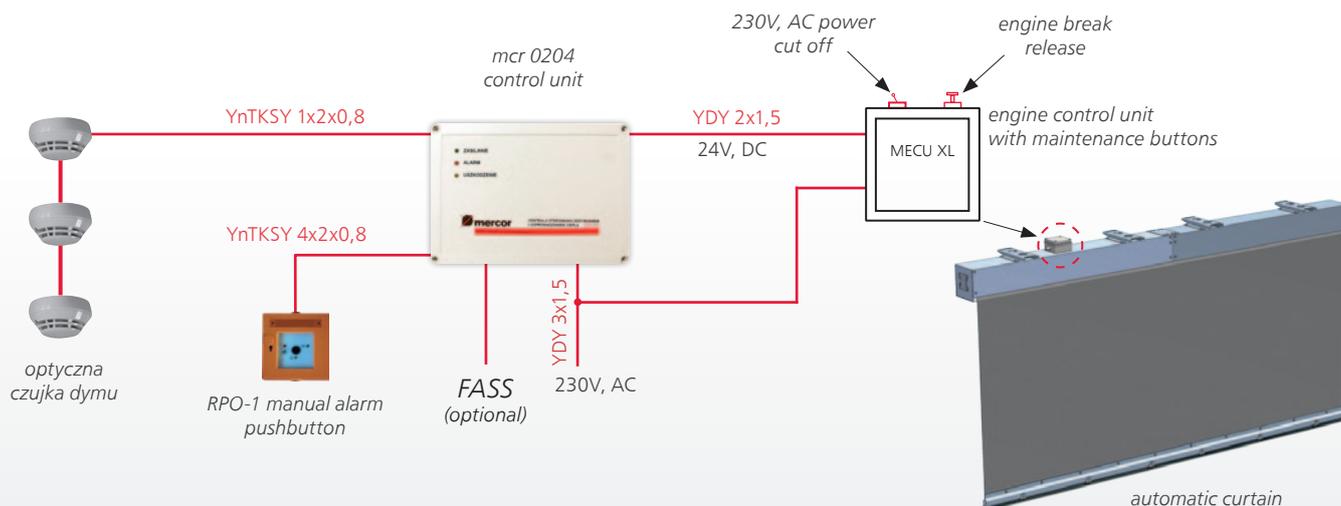


Fig. 11 Sample configuration of mcr PROSMOKE FS single curtain control system

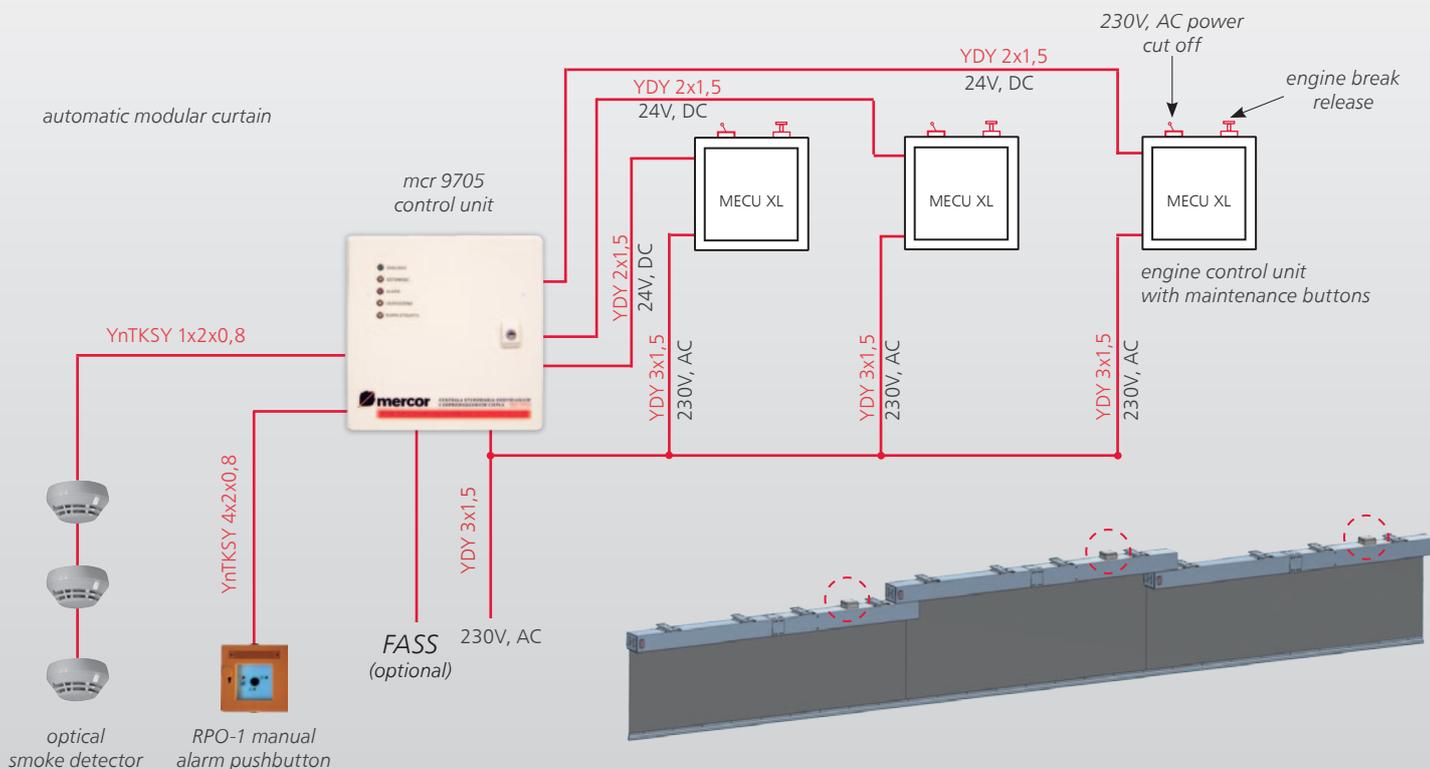


Fig. 12 Sample configuration of mcr PROSMOKE FS modular curtain control system

control unit type	mcr 9705 control unit	mcr 0204 control unit
number of modules*	12	8
curtain module parameters	- max. height 6.5 m	- max. height 6.5 m

\* power consumption 0.25A/1 module

The time of maintaining the curtain in retracted position by the control unit in the case of a mains failure is:		
mcr 9705 unit	up to 20 h – 1 curtain	10 h – 2 curtains
mcr 0204 unit	up to 12 h – 1 curtain	6 h – 2 curtains

## FIRE PROTECTION SYSTEMS

- ▶ smoke and heat exhaust systems
- ▶ fire ventilation systems
- ▶ fire protection of building structures

## NATURAL SMOKE AND HEAT EXHAUST SYSTEMS

- ▶ comprehensive solutions for smoke and heat exhausting
- ▶ protection of escape routes against smoke
- ▶ reduction of material losses caused by fire and smoke
- ▶ supply of light and fresh air to building interiors

**WE PROVIDE  
TAILOR-MADE SOLUTIONS**



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