

 We provide safety

NATURAL SMOKE EXHAUST 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.

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.

One of the key elements of this system are **mcr PROSMOKE** smoke curtains, using which smoke zones are separated in the facility. Depending on the place of installation and type of object, you can choose one of the products of the company „MERCOR“ S.A.:

- » automatic rolling curtains
mcr PROSMOKE CE & FS
- » fixed fabric curtains
mcr PROSMOKE S
- » or fixed steel sheet curtains
mcr PROSMOKE ST

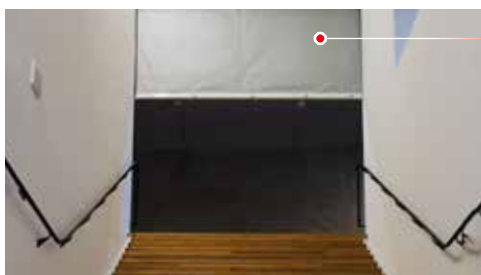


Mercor Group's mission is to deliver safety to building users by providing them with comprehensive fire protection. For over 35 years, we have been offering our business partners, at every stage of the investment process, products and services they can always trust. As a leader of modern technologies in the fire protection industry, we introduce new solutions that are ahead of the norm, and are additionally characterized by high quality and aesthetic workmanship.

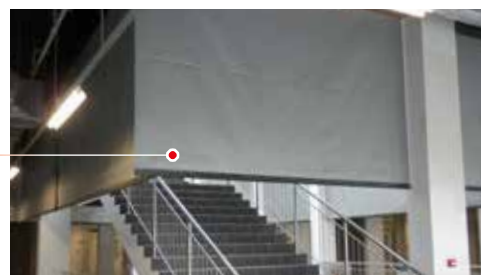
smoke curtains

mcr PROSMOKE

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 curtains
with installation passages



warehouse, production
and commercial areas:
fixed fabric curtains

warehouse, production and commercial areas:
fixed steel curtains
with installation passages





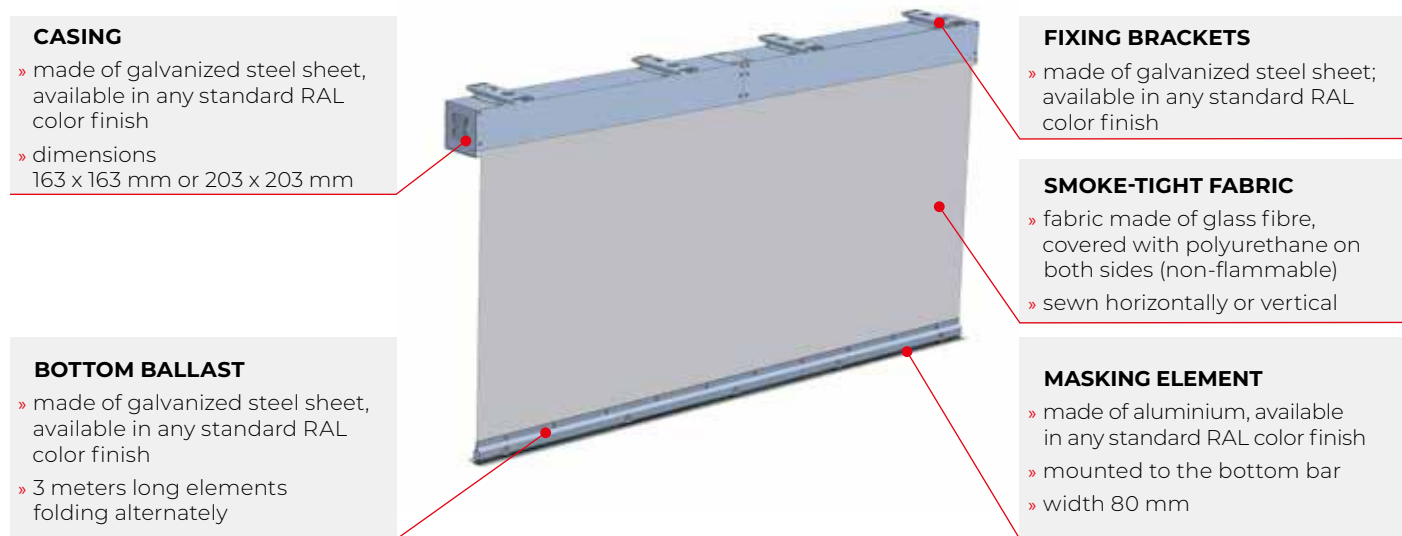
AUTOMATIC SMOKE CURTAINS mcr PROSMOKE CE/FS

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 escalators

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



mcr PROSMOKE CE/FS CURTAIN PARAMETERS

| Parameter | mcr PROSMOKE CE | mcr PROSMOKE FS |
|--------------------------------|-----------------|-------------------|
| curtain descent | motor | gravity fail-safe |
| maximum number of modules | 10 pcs. | 12 pcs. |
| 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 24 V-power consumption | 6.3 A | 0.25 A |
| fire classification | D30÷D60 | DH30÷DH60 |
| angle connections | yes | yes |
| mass | ~ 21 kg/mb | ~ 21 kg/mb |

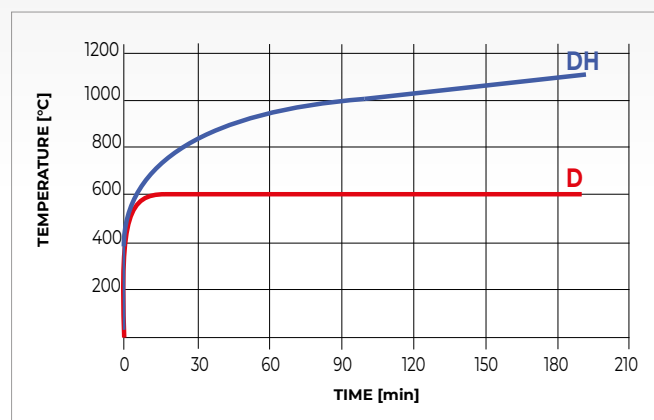


Diagram of temperature curve (D) and standard heating curve (DH)



CONSTRUCTION OF THE mcr PROSMOKE CE/FS CURTAIN OVERLAPPING ASSEMBLY

LEGENDA:

- s1/s2/s3 – curtain module width
- s – curtain width
- h1/h2 – curtain module height
- h – curtain height

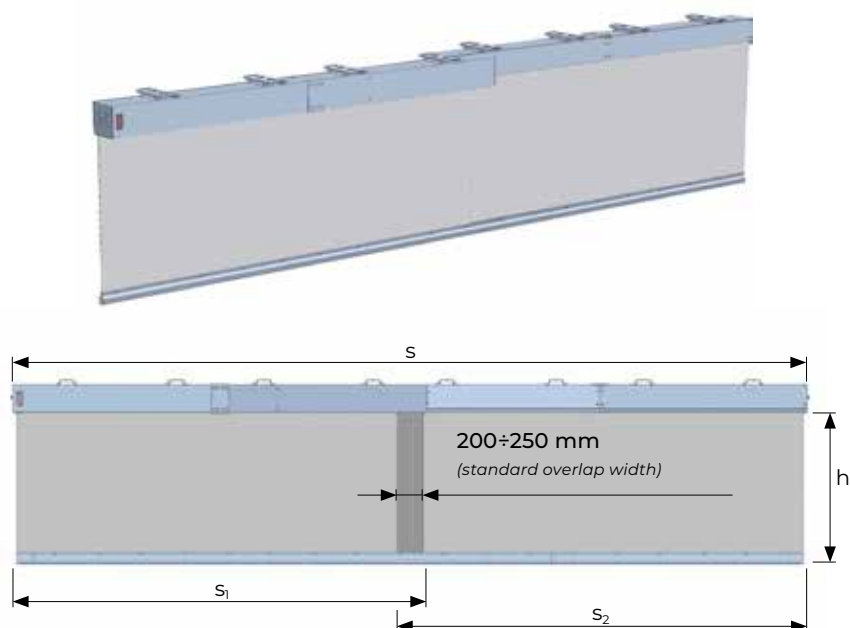


Fig. 1 Modular smoke curtain with horizontal head boxes position

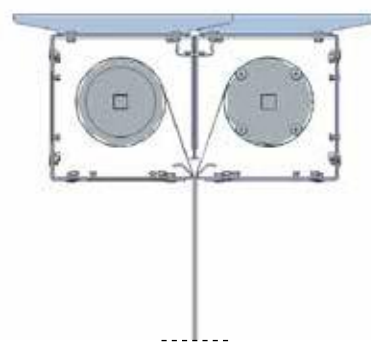


Fig. 2 Position of modular curtain head boxes in horizontal position

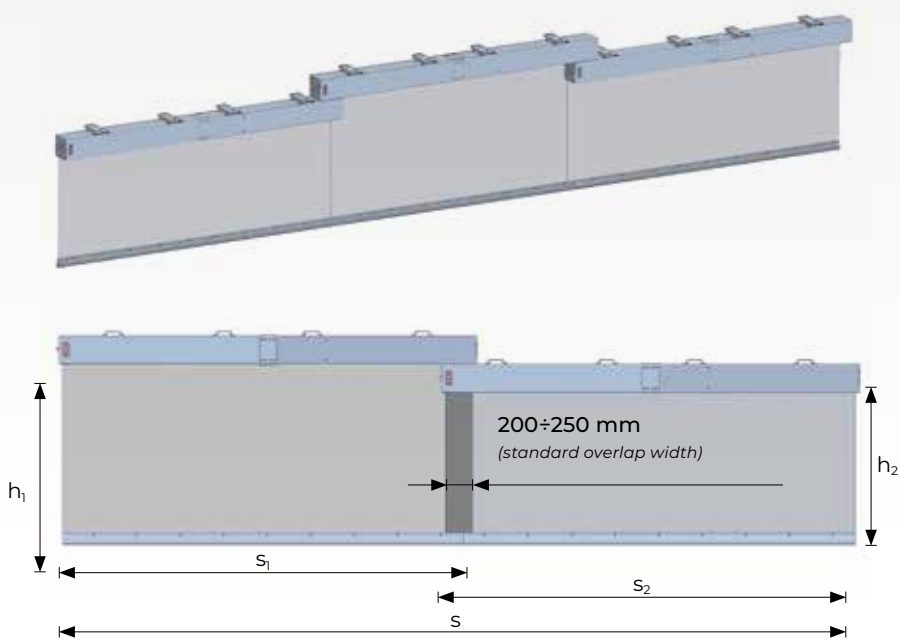


Fig. 3 Modular smoke curtain with vertical head boxes position

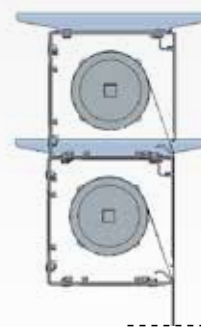


Fig. 4 Position of modular curtain head boxes in vertical position



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

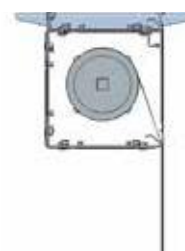


Fig. 5 Position of modular curtain head boxes in a linear system

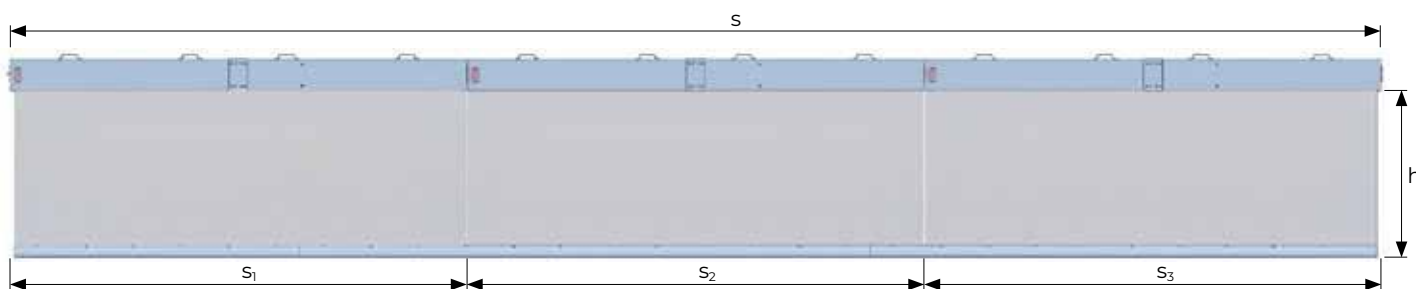
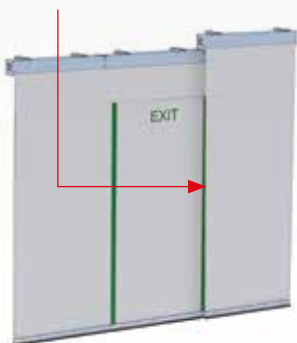


Fig. 6 Modular curtain in a linear system with a permissible gap at the curtain height of $h > 2\text{ m}$

* 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).

AVAILABLE OPTIONS FOR AUTOMATIC ROLLING SMOKE CURTAINS mcr PROSMOKE CE/FS

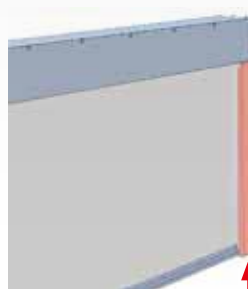
emergency exit route
(gap between the curtains)



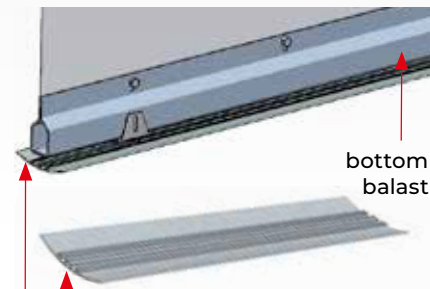
emergency exit



curtains with corner connection



guide



bottom balast

aluminium masking element

INSTALLATION OF AUTOMATIC SMOKE CURTAINS mcr PROSMOKE CE AND FS

mcr PROSMOKE CE and FS automatic smoke curtains are mounted using brackets 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.

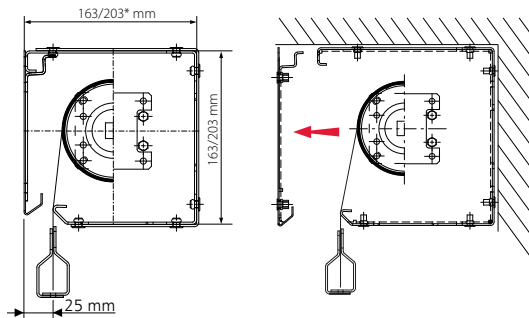
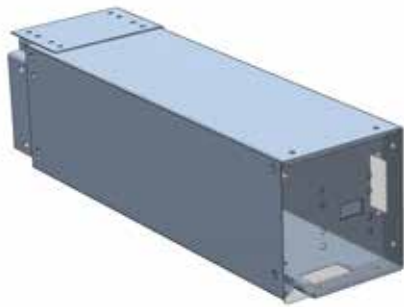
High temperature resistance classification

| Casing dimensions | Curtain type – classification |
|-------------------|---|
| 163 x 163 mm | mcr PROSMOKE FS – D30÷D180 mcr PROSMOKE CE – D30, DH30 |
| 203 x 203 mm | mcr PROSMOKE CE – D60, DH60 modules with emergency exit |

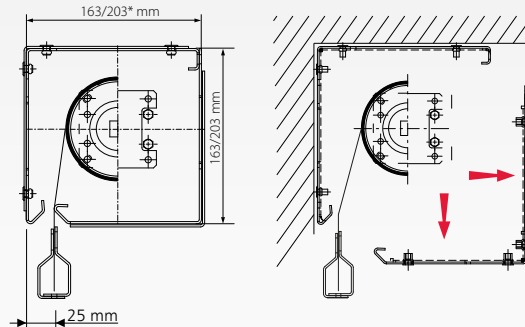
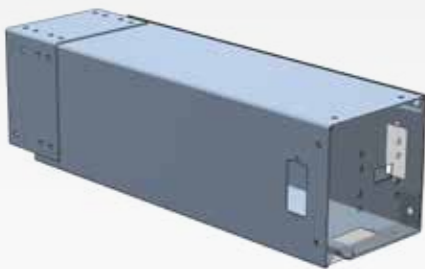


Installation of automatic smoke curtains should be carried out in accordance with the construction design. It is important not to exceed the permissible gaps specified in EN 12101-1 standard during the installation.

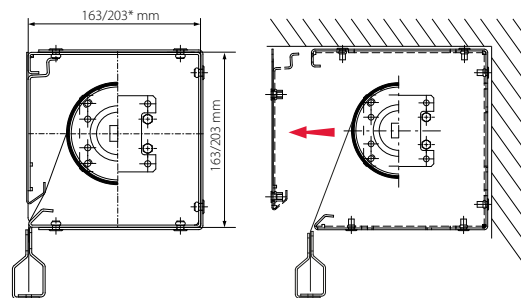
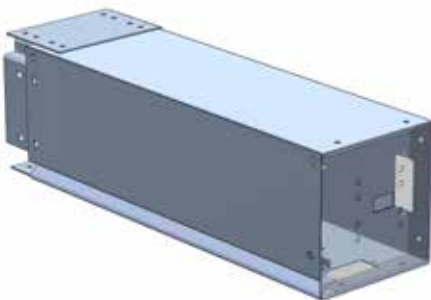
IMPORTANT: In case of suspended ceilings, inspection openings for maintenance purposes should be provided at the design stage.



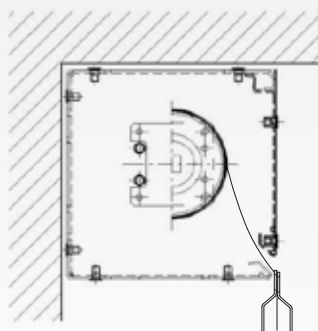
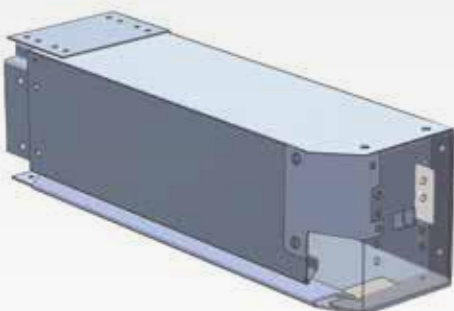
C CASING
the curtain unfolds 2.5 cm from the head box edge



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 edges

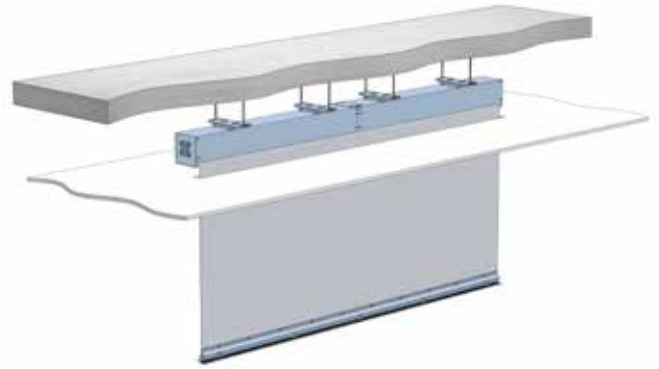


K-T CASING**
the curtain unfolds directly at the head box edges, while having corner connection

(*) 203 x 203 mm, casing dimensions in case of FS type when D60 / CE type when D60, DH60
(**) 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/FS

Automatic curtains can be installed under ceilings using various types of mounting brackets. By choosing the proper set of casings and brackets, 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 OF AUTOMATIC SMOKE CURTAINS mcr PROSMOKE CE/FS

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

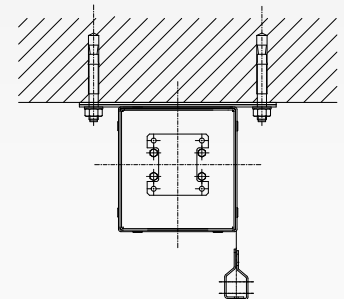
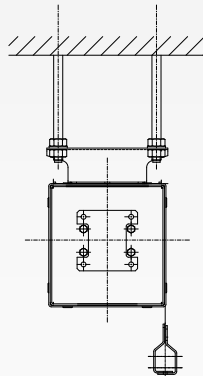
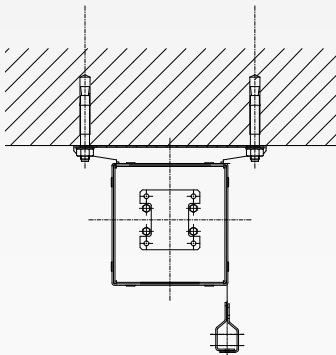
wide bracket



narrow bracket

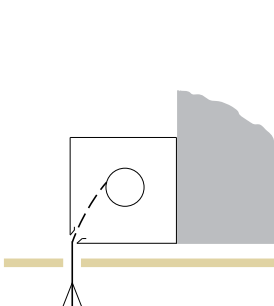


flat bracket

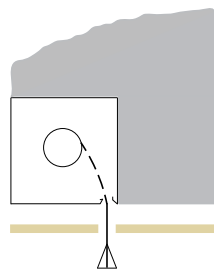


The brackets are attached to the structure through slings in the form of a threaded steel rod with a set of nuts or mounting anchors.

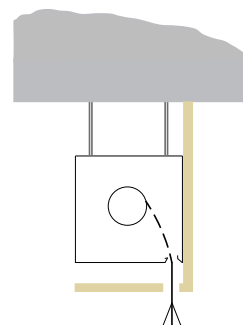
Thanks to the solutions used by "MERCOR" S.A., automatic mcr PROSMOKE curtains can be mounted to:



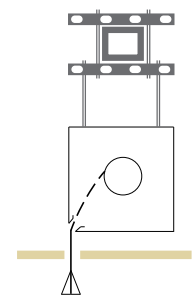
lintel



lintel and ceiling



ceiling



steel structure



mcr PROSMOKE S FIXED SMOKE CURTAINS

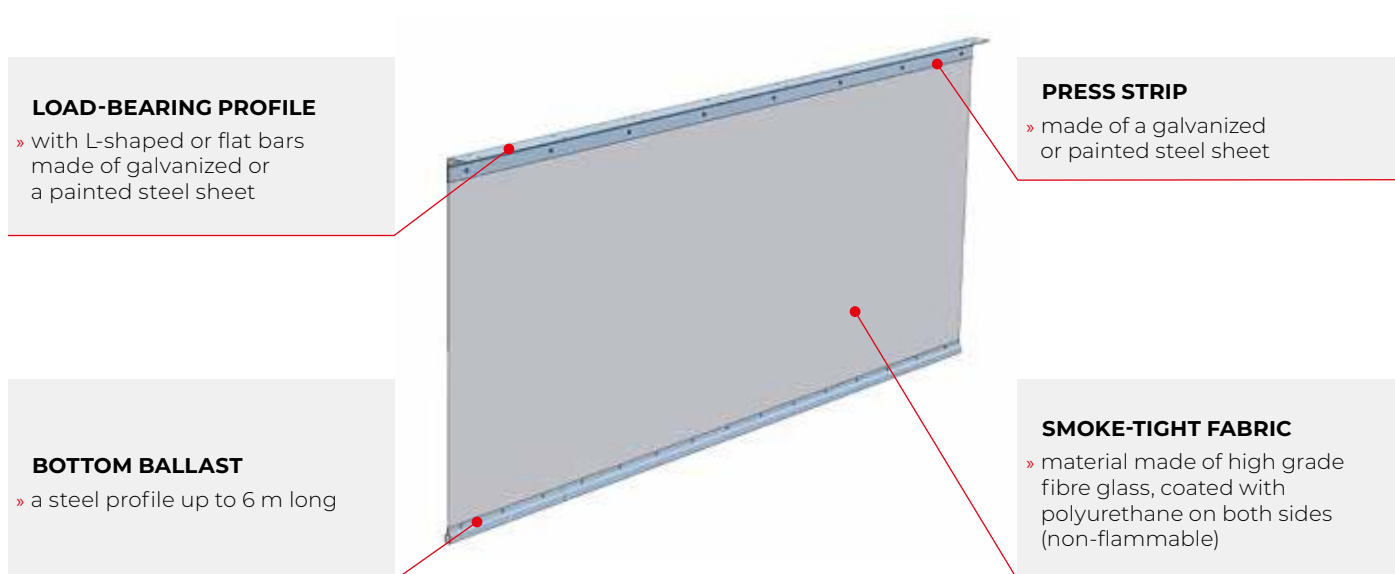
mcr PROSMOKE FIXED FABRIC CURTAINS

mcr PROSMOKE S fixed fabric curtains are an indispensable part of a natural smoke exhaust 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 sports and supermarkets. In such buildings, it is im-

portant to install light weight curtains with large dimensions and guaranteed resistance to high temperatures.

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

STRUCTURE OF mcr PROSMOKE S FIXED CURTAIN

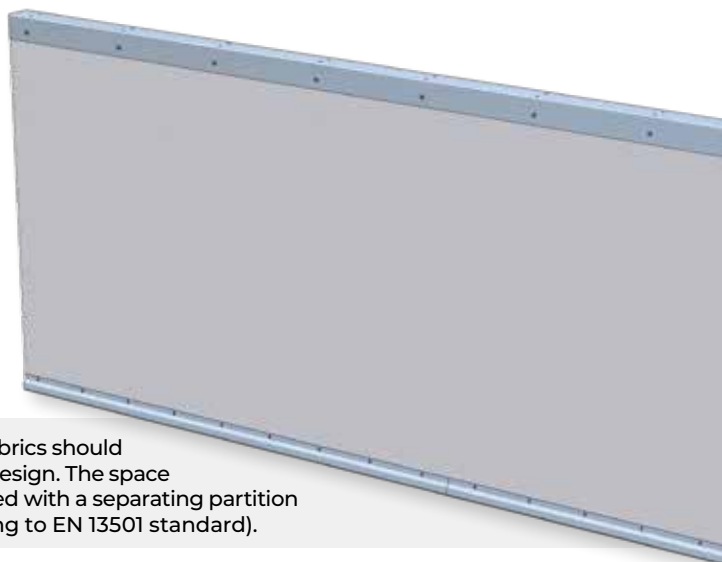


PARAMETERS OF mcr PROSMOKE S CURTAIN

| | |
|--|--|
| length | no limits |
| height | min. 0.5 m max. 6.5 m |
| curtain type | SSB |
| resistance to high temperatures | D180, DH60 |
| max. material permeability | $\leq 9,4 \text{ m}^3/\text{h}\cdot\text{m}^2$ |
| curtain's mass | $\sim 10 \text{ kg}/\text{m}^2$ |

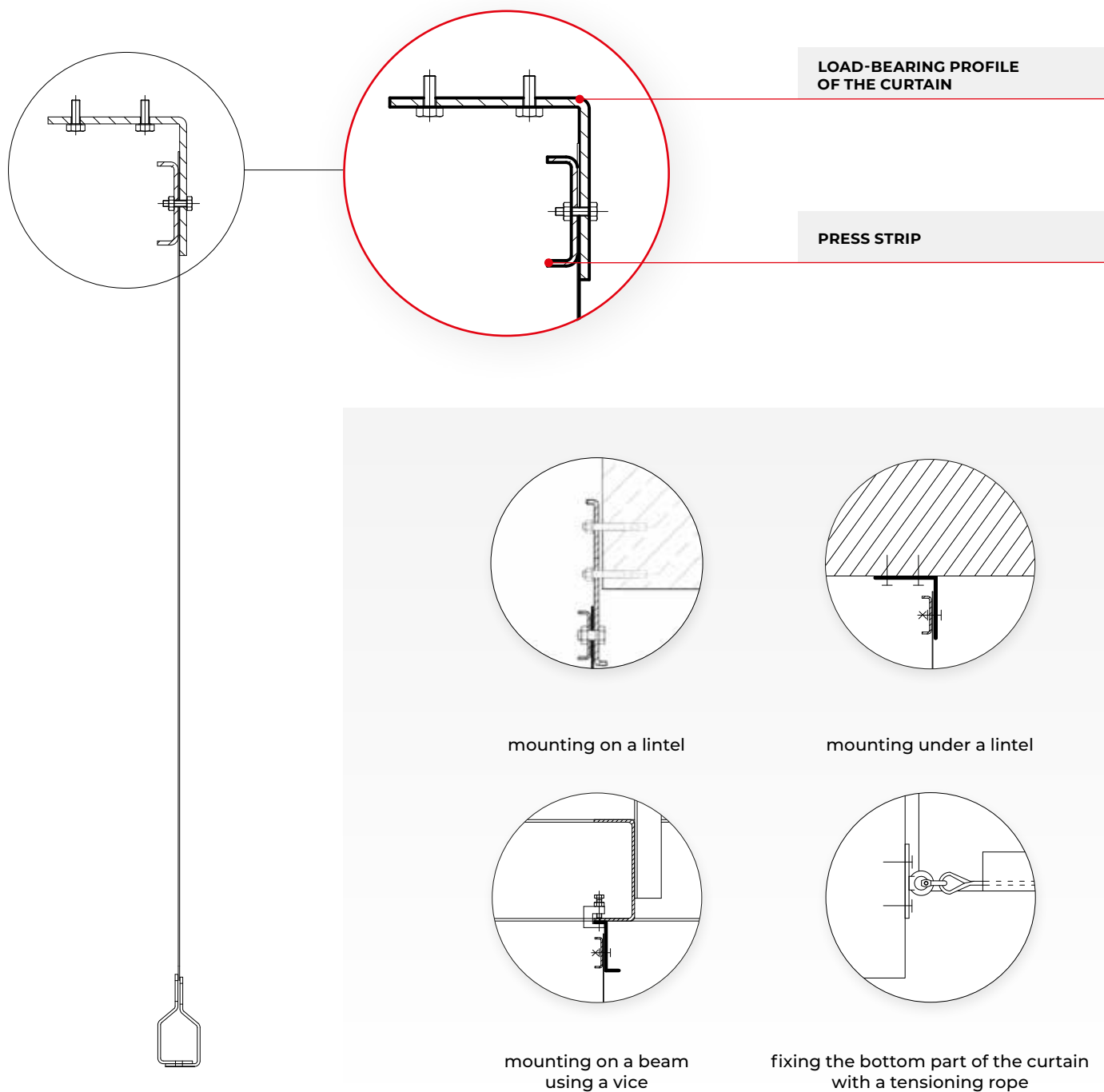
INSTALLATION OF mcr PROSMOKE S FIXED SMOKE CURTAINS

mcr PROSMOKE S fixed fabric 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 fabrics 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 FABRIC CURTAIN



LOAD-BEARING PROFILE OF THE CURTAIN

PRESS STRIP

mounting on a lintel

mounting under a lintel

mounting on a beam using a vice

fixing the bottom part of the curtain with a tensioning rope



mcr PROSMOKE ST FIXED SMOKE CURTAINS

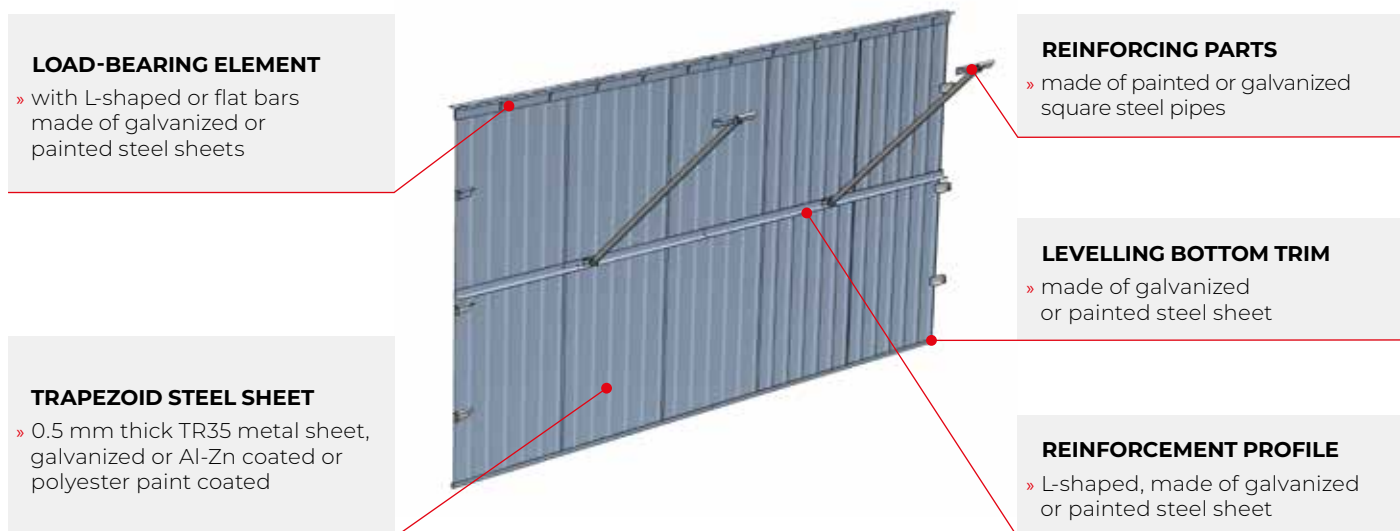
mcr PROSMOKE ST FIXED STEEL CURTAINS

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 color, 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.

STRUCTURE OF mcr PROSMOKE ST CURTAIN



PARAMETERS OF mcr PROSMOKE ST CURTAIN

| | |
|--|--------------------------|
| length | no limits |
| height | min. 0.5 m max. 4.5 m |
| curtain type | SSB |
| resistance to high temperatures | DH120 |
| max. przepuszczalność materiału | impermeable |
| curtain's mass | ~ 7 kg/m ² |

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.

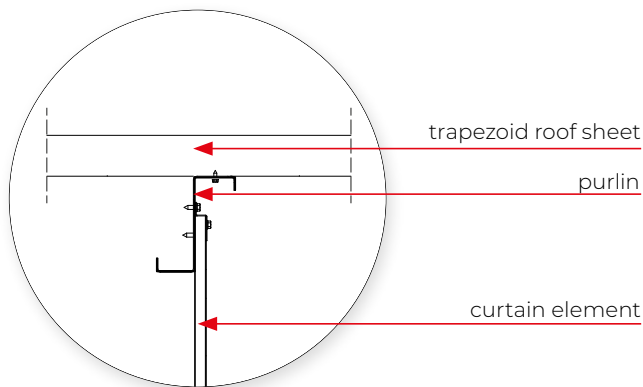
Fixed smoke curtains **mcr PROSMOKE ST** can be equipped with installation passages.



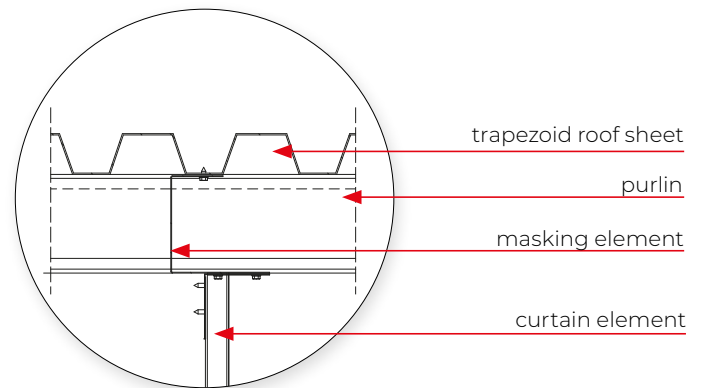
Installation of fixed smoke curtains made of steel sheet should be carried out in accordance with the construction project and the provisions of EN 12101-1 standard.

METHOD OF MOUNTING A FIXED STEEL CURTAIN

ST CURTAIN – MOUNTING ALONG THE PURLINS



ST CURTAIN – MOUNTING ACROSS TO THE PURLINS



STRUCTURE OF mcr PROSMOKE ST CURTAIN

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 along the curtain at half of its height
- » angle profiles made of square steel pipe placed at 3 m intervals



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European Funds
 Smart Growth

European Union
 European Regional Development Fund



The product was developed within the framework of an innovative project entitled:
“Comprehensive solutions in the scope of passive fire protection of buildings including the development of display line”
 subsidized with European funds.



Read more about our mcr PROSMOKE smoke curtains

www.mercor.com.pl/en



CONTINUOUS ROOFLIGHT WITH SMOKE VENTS



SMOKE AND VENTILATION VENTS



LOUVERED VENTS



SMOKE CURTAINS



SMOKE EXHAUST WINDOWS



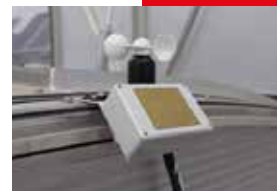
ROOF HATCHES



FIXED SKYLIGHTS



CONTROL SYSTEMS



STAIRCASE SMOKE EXHAUST SYSTEMS

