Fire protection systems

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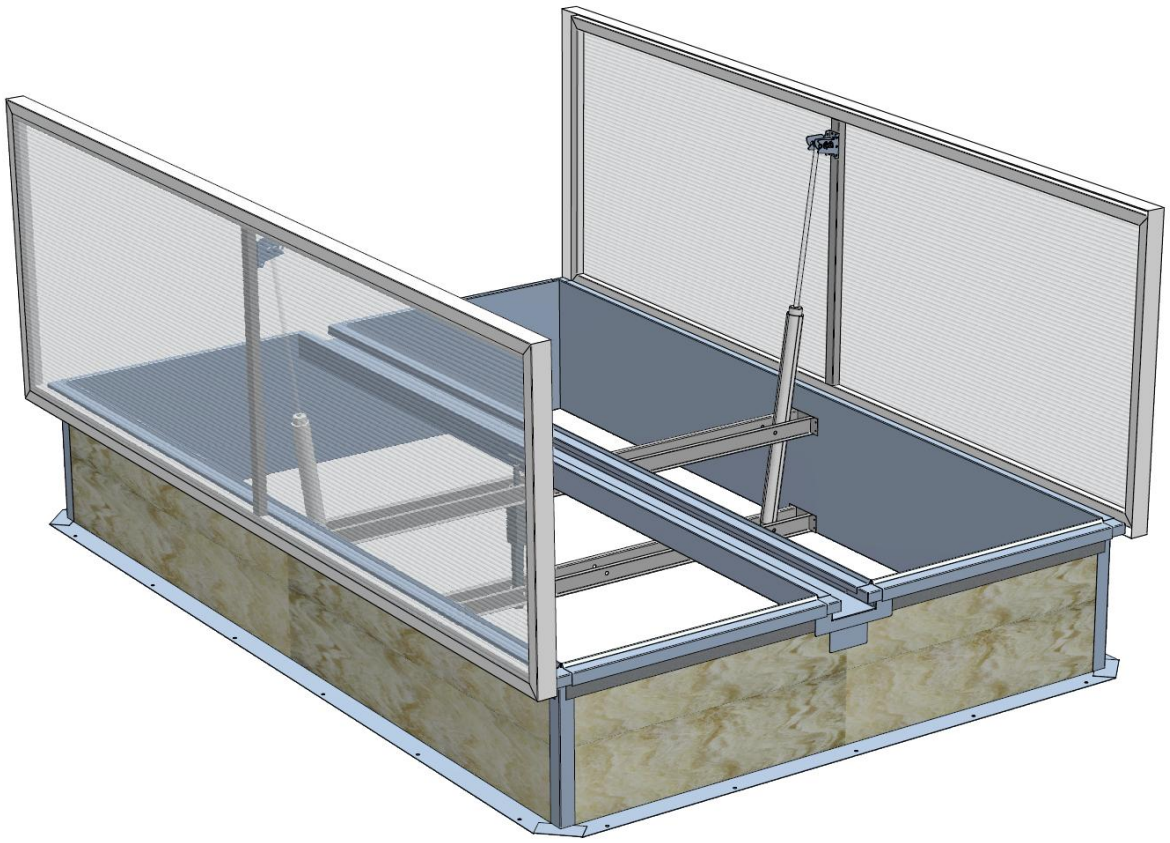
mcr PROLIGHT smoke vents, type DVP, DVPS. Operation and maintenance manual



☐ type DVP

☐ type DVPS

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WARNING!

Thermal valves in vents with pneumatic control are not armed for transport safety reasons.

Such vents are NOT ready for operations.

Arm the thermal valve and screw in CO_2 fuse (see section VIII/8.1).

I. INTRODUCTION

This Operation and Maintenance Manual (OMM) allows the user to learn the purpose, design, principle of operation and correct installation of mcr PROLIGHT smoke vents and smoke & ventilation vents type DVP and DVPS. The documentation also covers additional information on the conditions for use, maintenance and terms of the product's warranty.
Observing the guidelines contained herein will ensure the proper functioning of systems in terms of their smoke exhausting and/or ventilation function, and the safety of system operators.

NOTE:

Any works related with installation, operation, maintenance and servicing of the roof hatches may only be performed in compliance with the health and safety rules, and with use of appropriate personal protective equipment – including first of all – the fall arrest devices. Any works at height related to electrical connections, etc. may only be performed by personnel with appropriate qualifications.

II. PURPOSE OF THE DEVICE

mcr PROLIGHT smoke vents are automatic smoke venting devices. The principal function of mcr PROLIGHT smoke vents is the removal of heat energy, fire gases, and smoke from enclosed spaces (production floors, storage rooms, public amenity buildings, etc.) outside the building, contributing to the protection of life and property, through:

- maintaining escape routes in a state of moderate smoke intensity,
- facilitating firefighting and rescue operations by providing a bottom corridor with moderate smoking intensity,
- ensuring protection for the building structure and its equipment,
- limiting fire damage caused by smoke, hot burning fumes and thermal decomposition products

The smoke vents may also serve the purpose of ventilation vents, smoke & ventilation vents, or roof skylights.
The use of smoke vents provides the following opportunities to the Investor:

- lowering the building's fire resistance grade
- extending permissible fire zones,
- elongating evacuation routes

mcr PROLIGHT smoke vents are part of a smoke control system that comprises other Mercor Light&Vent products, including, among others: mcr PROLIGHT smoke vents in continuous skylights and single skylights, mcr PROSMOKE smoke curtains, mcr 9705 and mcr 0204 control units, and others.
mcr PROLIGHT smoke vents have a Certificate of Conformity WE 1488-CPR-0151/W, issued by the Institute for Building Technologies in Warsaw, certifying the conformance of the vents design with the requirements of PN-EN12101-2:2005, and Certificate of Conformity 1396-CPR-0040 issued by Fires s.r.o., NB 1396, Slovakia, certifying the conformance of the vents design with the requirements of EN 12101-2:2003.

III. GENERAL DESIGN AND PRINCIPLE OF OPERATION

Depending on the customer's individual requirement, Mercor offers double-leaf smoke vents and fixed and opening skylights, on straight bases, in a broad range of clear dimensions and base heights.

All steel elements of the vents are protected with a zinc coat, applied using hot-dip or galvanic method.

Steel sheets used in flaps comply with the PN-EN 10346:2015-09 standard for surface type A.
The surfaces of the aluminum sheets used are in accordance with the provisions of the PN-EN 485-1 standard. As standard, the bases are delivered with 20 mm thick thermal insulation. It is possible to customize the thickness and type of thermal insulation.

The glazing options for the opening leaf are as follows:

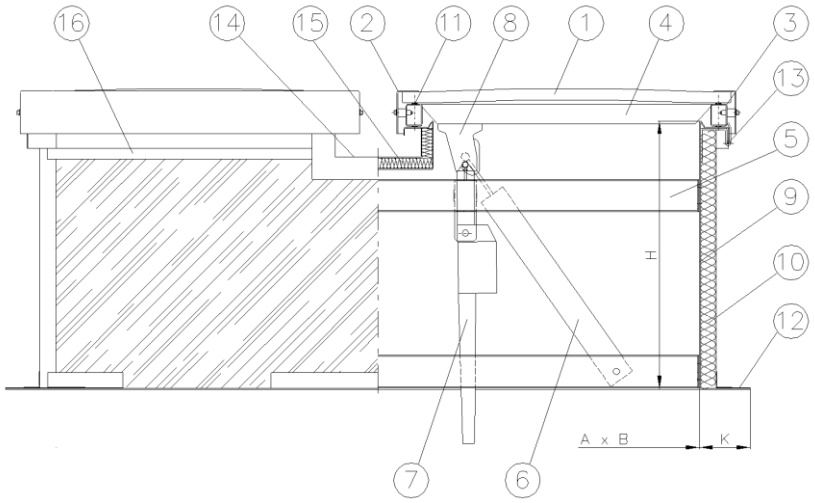
- multi-chamber polycarbonate of thickness from 10 to 25 mm, with different opacities and different heat transfer coefficients
- ALU sandwich panels (aluminium–thermal insulation–aluminium)

mcr PROLIGHT type DVP, DVPS vents are offered with the following control systems:

- pneumatic control,
- electric control,
- mechanical control.

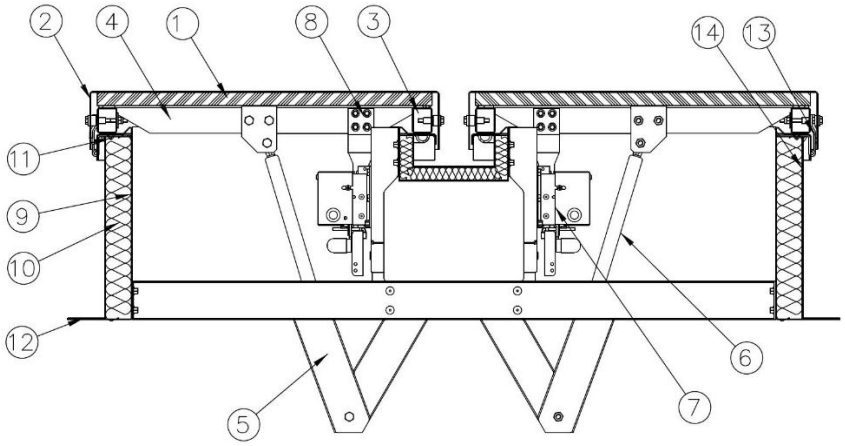
The activation of smoke vents may be performed both manually - by the user, as well as automatically – by means of thermal fuses, smoke exhausting control units, or fire signalling units.
mcr PROLIGHT type DVP, DVPS smoke vents comprise of a fixed part – the base, and a moving part – the leaf with glazing.

a/ pneumatic - electrical control



1. glazing
2. pressing frame
3. supporting frame
4. leaf cross-bar
5. cross-bar inside the base
6. actuator for smoke exhausting
7. actuator for ventilation (optional)
8. hook locking device
9. straight base
10. base thermal insulation
11. leaf gasket
12. base flange
13. hinge
14. gutter
15. gutter thermal insulation
16. external sheathing - galvanized steel sheet

b/ mechanical control



1. glazing
2. pressing frame
3. supporting frame
4. leaf cross-bar
5. gas spring holder
6. gas spring for smoke exhausting
7. RST lock
8. console
9. base
10. base thermal insulation
11. leaf gasket
12. base flange
13. hinge
14. external sheathing - galvanized steel sheet

Fig. 1 mcr PROLIGHT smoke vent, type DVP – control system.

a) polycarbonate panel

b) ALU sandwich panel

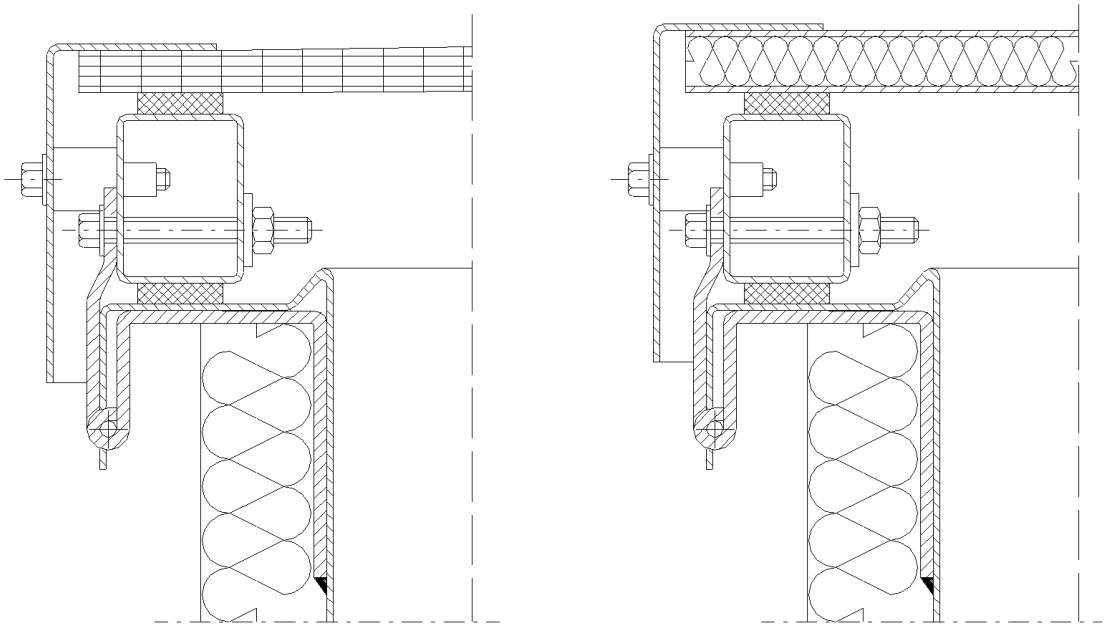


Fig. 2 Typical glazing of mcr PROLIGHT type DVP smoke vents

IV. TRANSPORT AND DELIVERY

mcr PROLIGHT type DVP, DVPS vents are delivered pre-assembled, but in specific cases (additional external flashing, low base heights, etc.) they may be delivered in the form of assemblies. The following are always delivered separately: deflectors, special blind leaf glazing and electrical actuators for ventilation function. This is due to the necessity of protecting individual vent elements from transport damage, and ensuring safety in road traffic. Unloading should be carried out under the supervision of a person authorized by the manufacturer, using generally available reloading means or manually, observing the necessary occupational health and safety rules.

a) **b)**

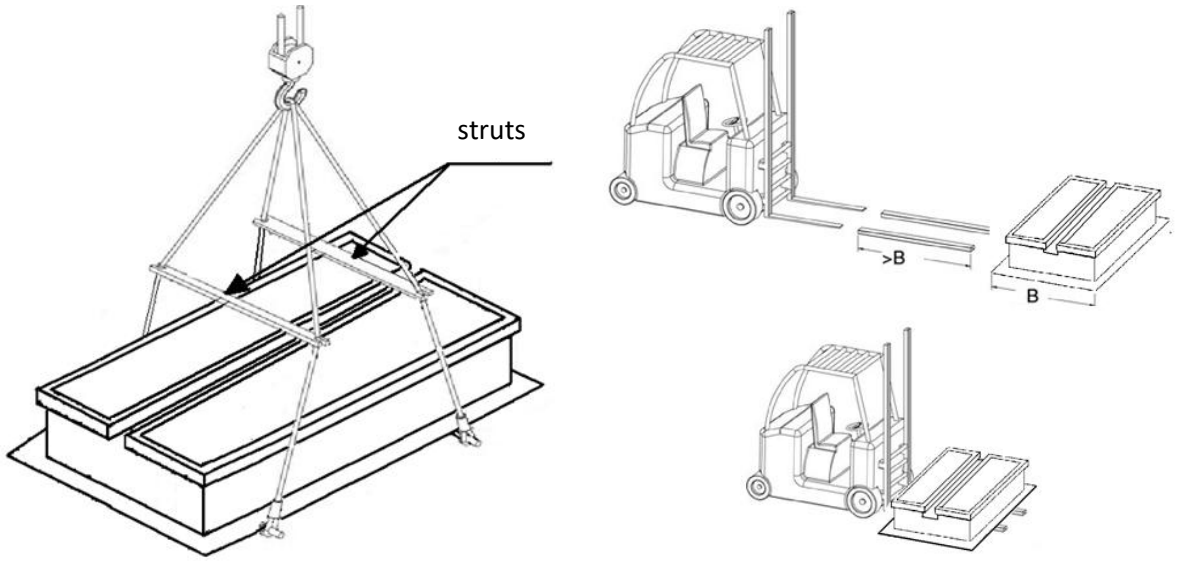


Fig. 3 Handling using crane (a) and forklift (b)

V. INSTALLATION

The device must be installed in observance of all the applicable health and safety rules, particularly those related with working at height, using adequate personal protective equipment.

The vents must rest on the roof's structural elements such as: purlin, trimmers, structural sheet, reinforced concrete plinth. Any elements causing collision with the vent leaf at full opening range should be removed.

The vents may be installed on roofs of steel, concrete or wooden structure. The vent base has a protrusion (shelf) in its lower part, allowing to rest and fix the vent to the supporting structure. Fasteners should be selected depending on the material from which the supporting structure is made, in accordance with the table below. The connectors should be installed at max. 50÷60 cm spacing

supporting structure type	minimum fixture diameter
steel	min. Ø4.8 mm
concrete	min. Ø6 mm
wood	min. Ø6 mm

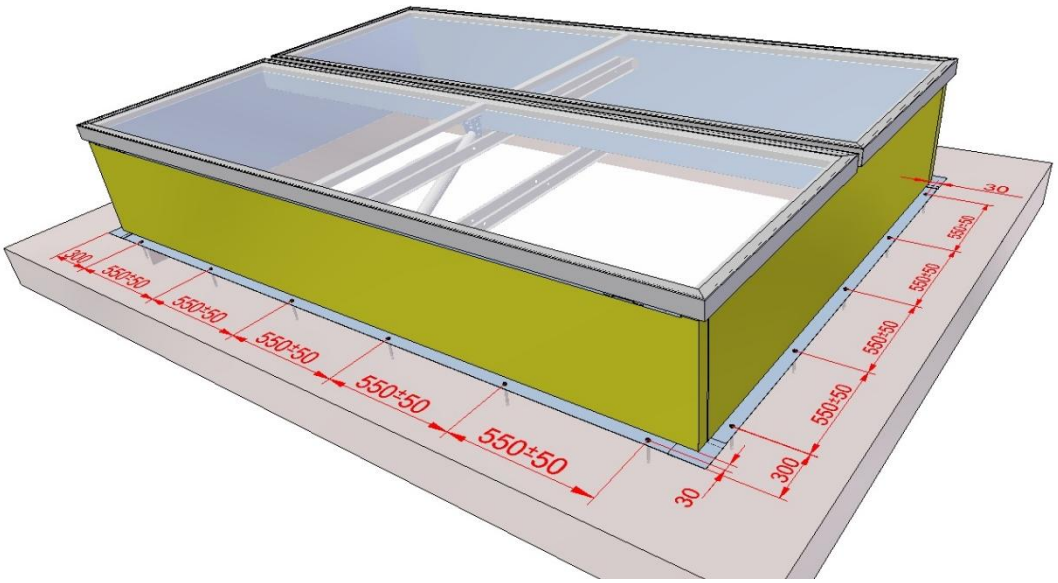


Fig. 4 Method of mounting the mcr PROLIGHT DVP smoke vent on the roof – spacing of connectors.

The vent bases are ready for roofing works with roofing paper, PVC membrane or sheet metal.
The vent base, in its upper part, is equipped with a strip of galvanized steel sheet around the entire circumference, which is used for fixing roof flashings / roof coverings using screws. For roofs covered with roof membrane, an optional PVC-coated sheet strip may be used to facilitate installation.

NOTE

1. **If roofing paper is to be welded to the above mentioned sheet strip, IT IS ABSOLUTELY REQUIRED to use a cover for protecting the vent glazing and spacer sleeves from the effect of fire/hot air.**

2. **After installing the vent, protective foil must be removed from all external aluminium elements of the vent (pressing frames, pressing strip) and from the vent glazing (PCA, laminate panels, acrylic domes). Leaving foil on the device may cause permanent discolorations of elements, and become hard to remove. After removing the foil, loosen the M6x30 screws, remove any remaining foil from under the washers, and then retighten the screws.**

3. **If the vent is supplied to the construction site in parts for assembly, maintain special caution when installing polycarbonate panels. Damaging the tape protecting the edges of polycarbonate panels will cause contamination to penetrate into the PCA chambers, which is not covered by warranty**

5.1. Methods of installing smoke vents

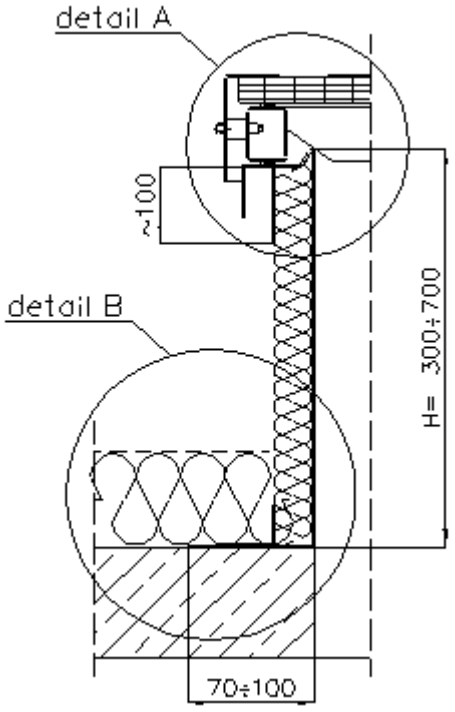
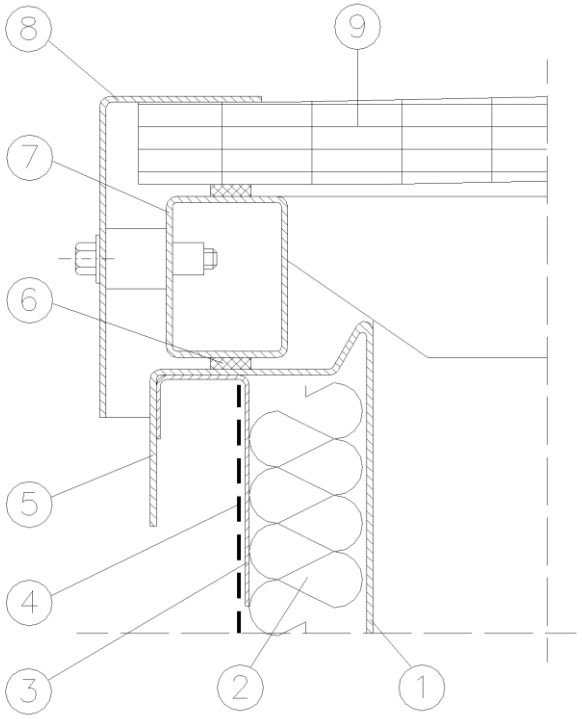


Fig. 5 Placement of steel base on the roof (DETAIL B) and method of sealing with roof membrane or roofing paper (DETAIL A).

detail A

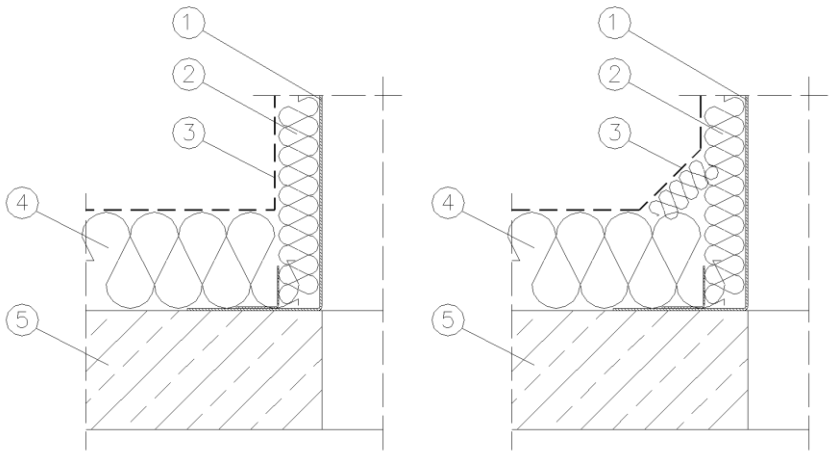


1. steel base
2. thermal insulation of base
3. sheet strip for installing roof membrane or roofing paper
4. roofing membrane or roofing paper
5. base eaves
6. leaf gasket
7. supporting frame
8. pressing frame
9. leaf glazing

Fig. 6 Method of sealing with roof membranę or roofing paper (DETAIL A).

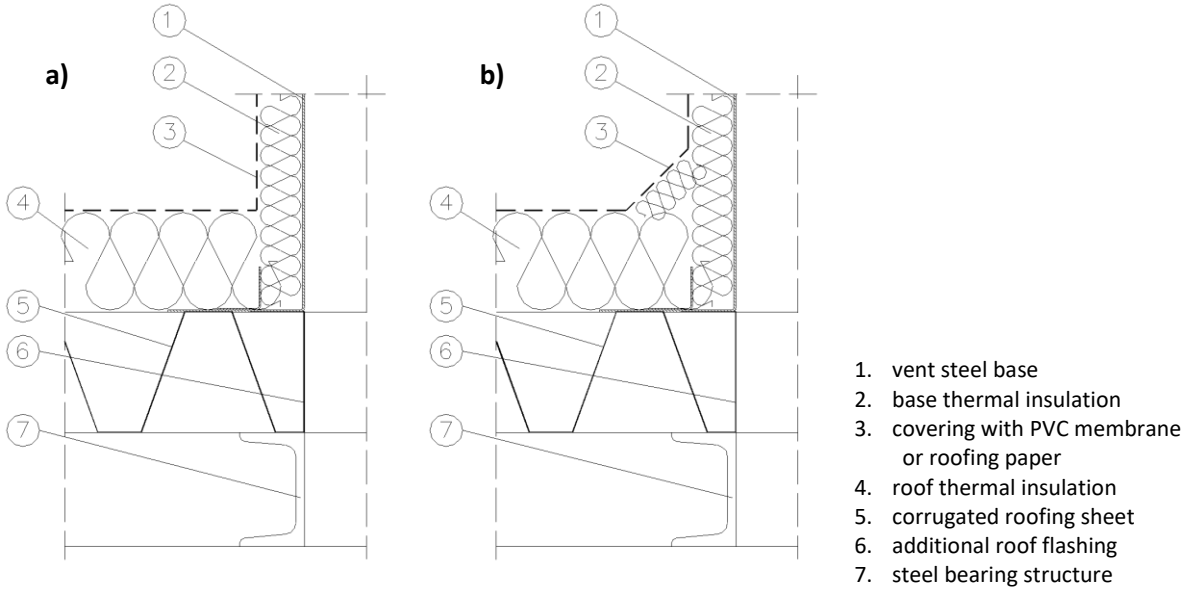
details B

a) **b)**



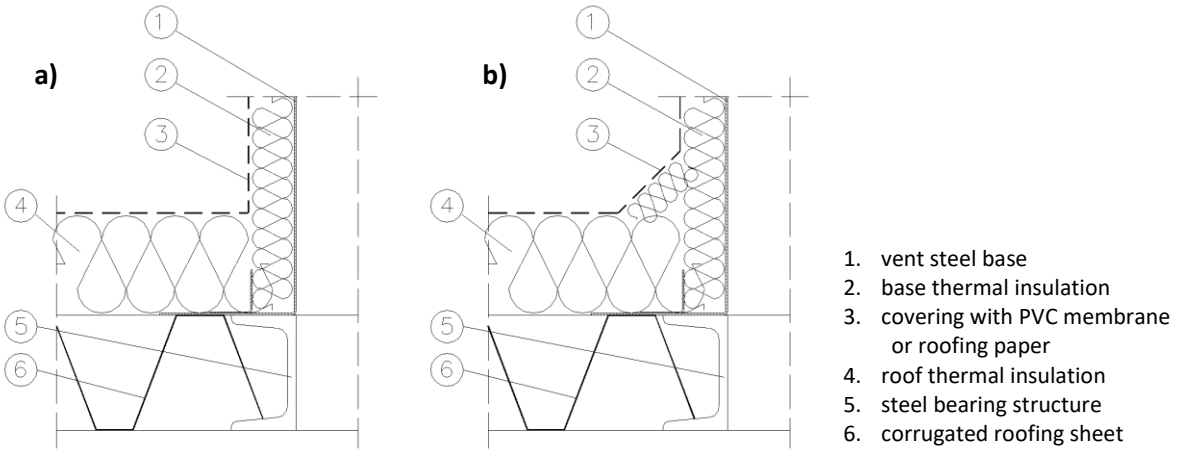
1. steel base of the vent
2. base thermal insulation
3. covering with PVC membranę or roofing paper
4. roof thermal insulation
5. reinforced concrete slab

Fig. 7 Steel base on reinforced concrete slab (a – covering with PVC membrane, b – covering with roofing paper).



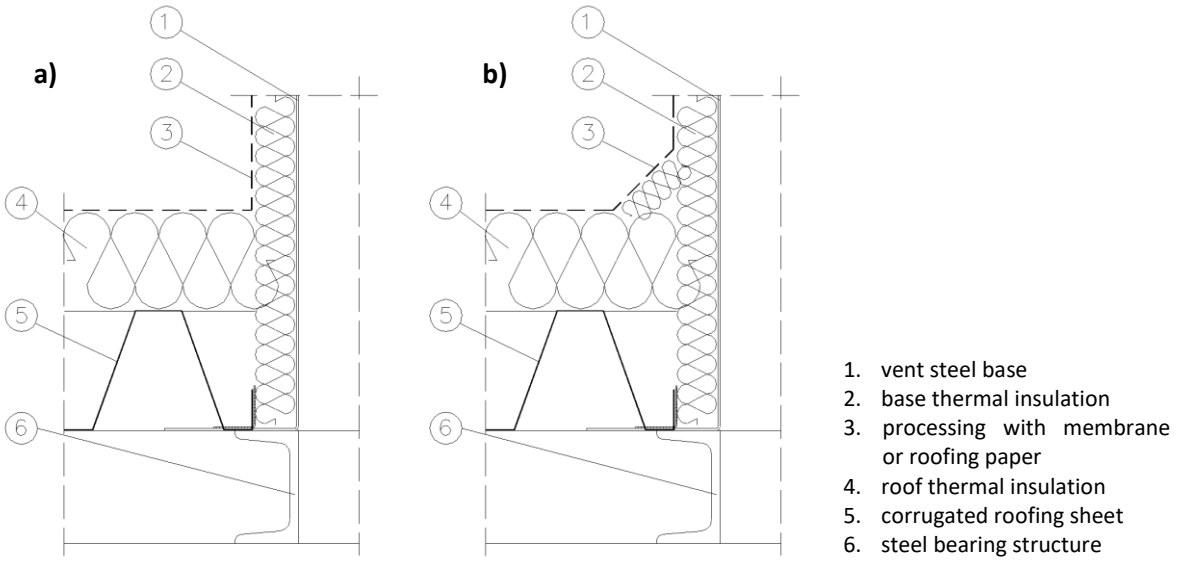
1. vent steel base
2. base thermal insulation
3. covering with PVC membrane or roofing paper
4. roof thermal insulation
5. corrugated roofing sheet
6. additional roof flashing
7. steel bearing structure

Fig. 8 Steel base on steel structure (a – covering with PVC membrane, b – covering with roofing paper).



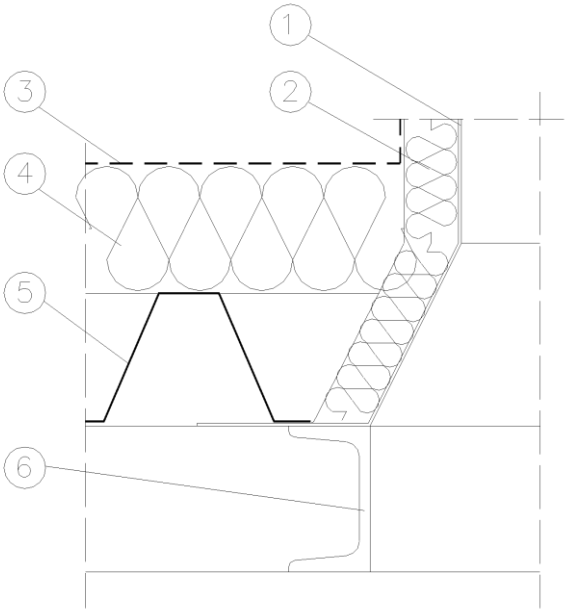
1. vent steel base
2. base thermal insulation
3. covering with PVC membrane or roofing paper
4. roof thermal insulation
5. steel bearing structure
6. corrugated roofing sheet

Fig. 9 Steel base on steel structure (a – covering with PVC membrane, b – covering with roofing paper).



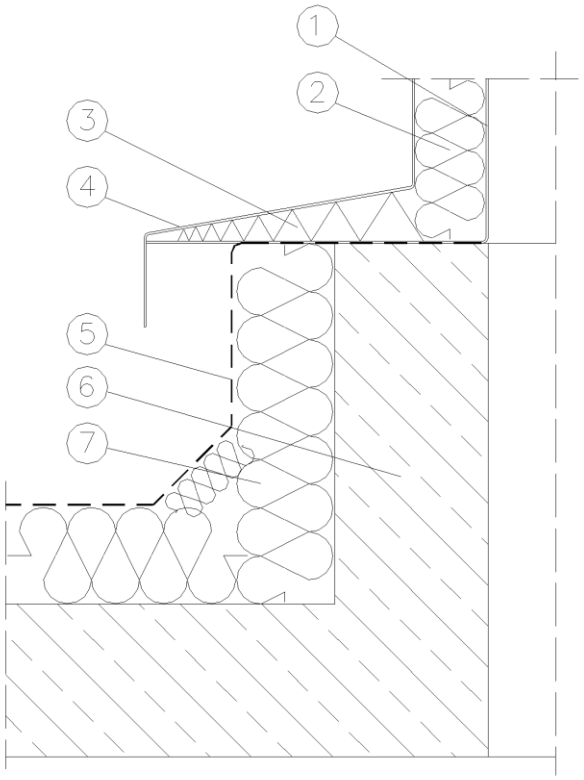
1. vent steel base
2. base thermal insulation
3. processing with membrane or roofing paper
4. roof thermal insulation
5. corrugated roofing sheet
6. steel bearing structure

Fig. 10 Steel base on steel structure (a – covering with PVC membrane, b – covering with roofing paper).



1. slanted steel base of the vent
2. base thermal insulation
3. covering with PVC membrane or roofing paper
4. roof thermal insulation
5. corrugated roofing sheet
6. steel bearing structure

Fig. 11 Slanted steel base on steel structure.



1. overlay type steel base oft he vent
2. thermal insulation
3. thermal insulation
4. external planking of overlay base
5. covering with PVC membrane or roofing paper
6. reinforced concrete plinth
7. roof thermal insulation

Fig. 12 Steel overlay base placed on a steel, wooden or reinforced concrete plinth

When installing mcr PROLIGHT DVP, DVPS smoke vents on sloping roofs, the base should be placed in such a way that the hinges are situated parallel to the direction of the roof slope Fig. 13.

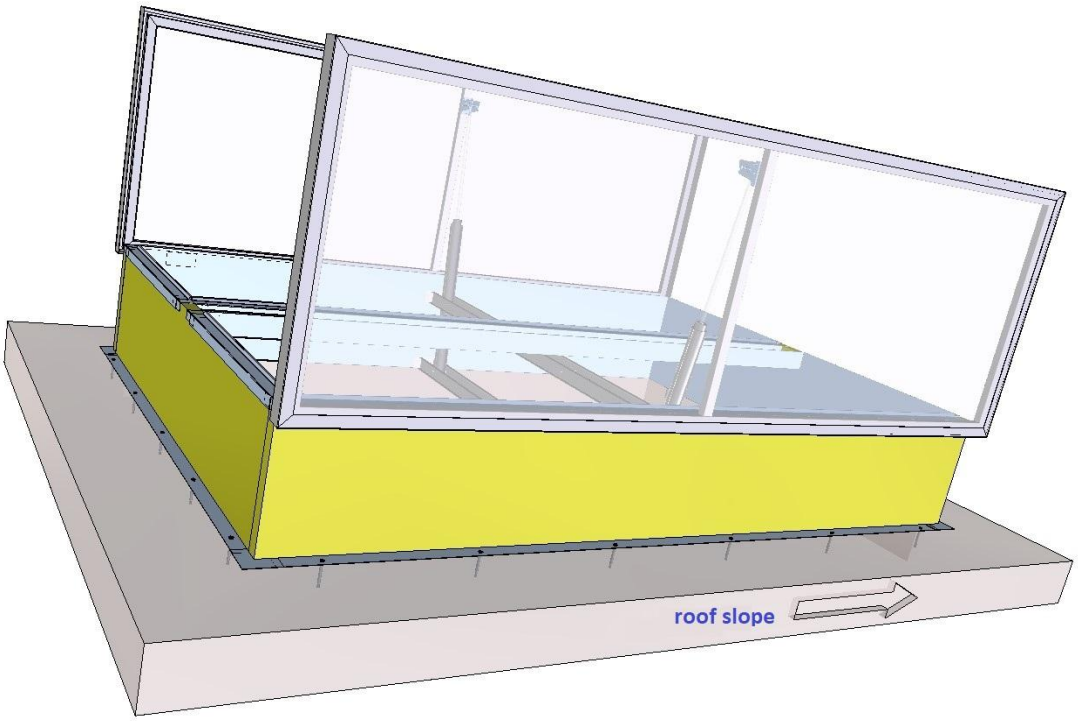


Fig. 13 Installation of the vent on slanted roof.

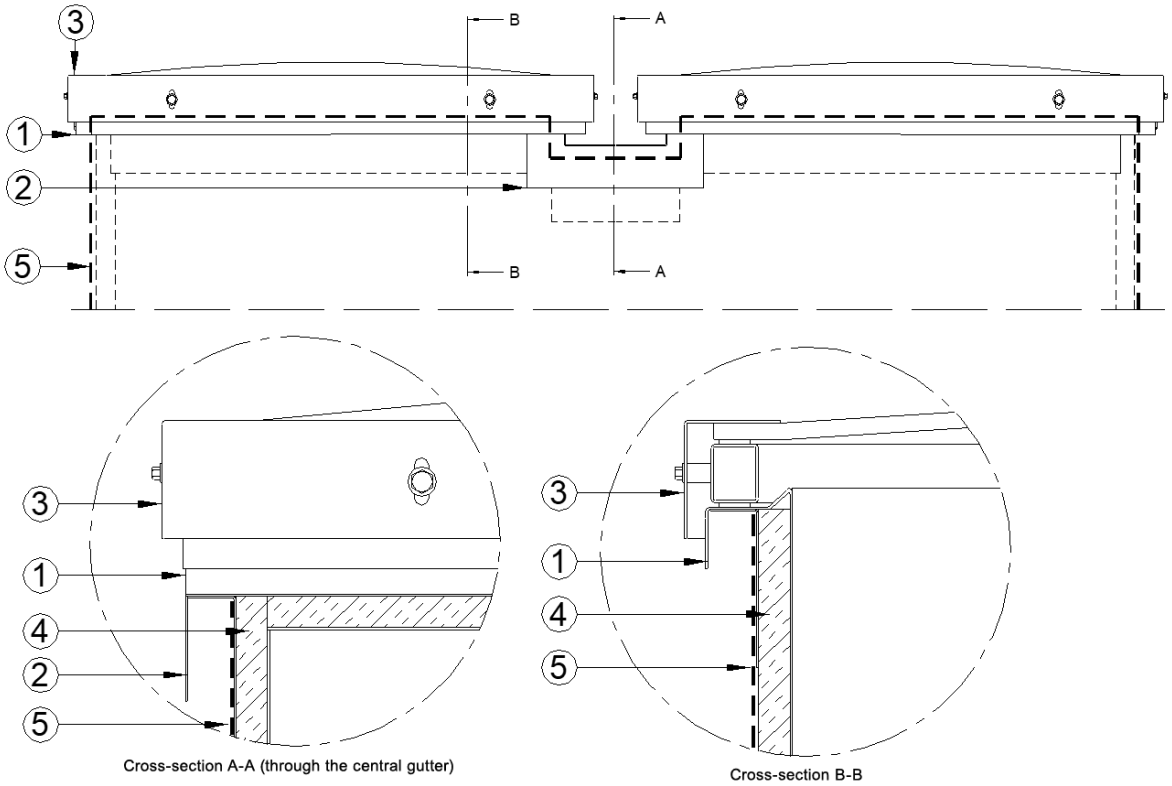


Fig. 14 Installation diagram of waterproofing membrane on mcr PROLIGHT smoke vent.

1. Side wall of the vent base
2. Gutter cover – part of the base
3. Vent leaf
4. Thermal insulation
5. Waterproofing insulation made on site

VI. WIND DEFLECTORS AND INLET DEFLECTOR

6.1. Wind deflectors

Deflectors are used to increase the active smoke exhausting area of smoke vents. In standard, they are made of aluminium sheet.

Deflectors are delivered on site in the form of factory-bent elements and cut to size. The vents are delivered with deflector holders fixed to the vent base.
The deflectors may be additionally equipped with bracing ribs. The ribs are fixed to the deflectors at production stage.

To assemble the wind deflectors use only **aluminum/steel rivets Ø4.8x10 mm with an enlarged head for a wide range of thicknesses of the joined elements (3.0 – 6.0 mm**), 2 pieces per mounting bracket.

The only acceptable alternative is following set:
M5 screw L_{min}=30 (DIN933) + 2x roughing washer Ø5.3/15 (e.g. DIN9021) + M5 self-locking nut (DIN985).

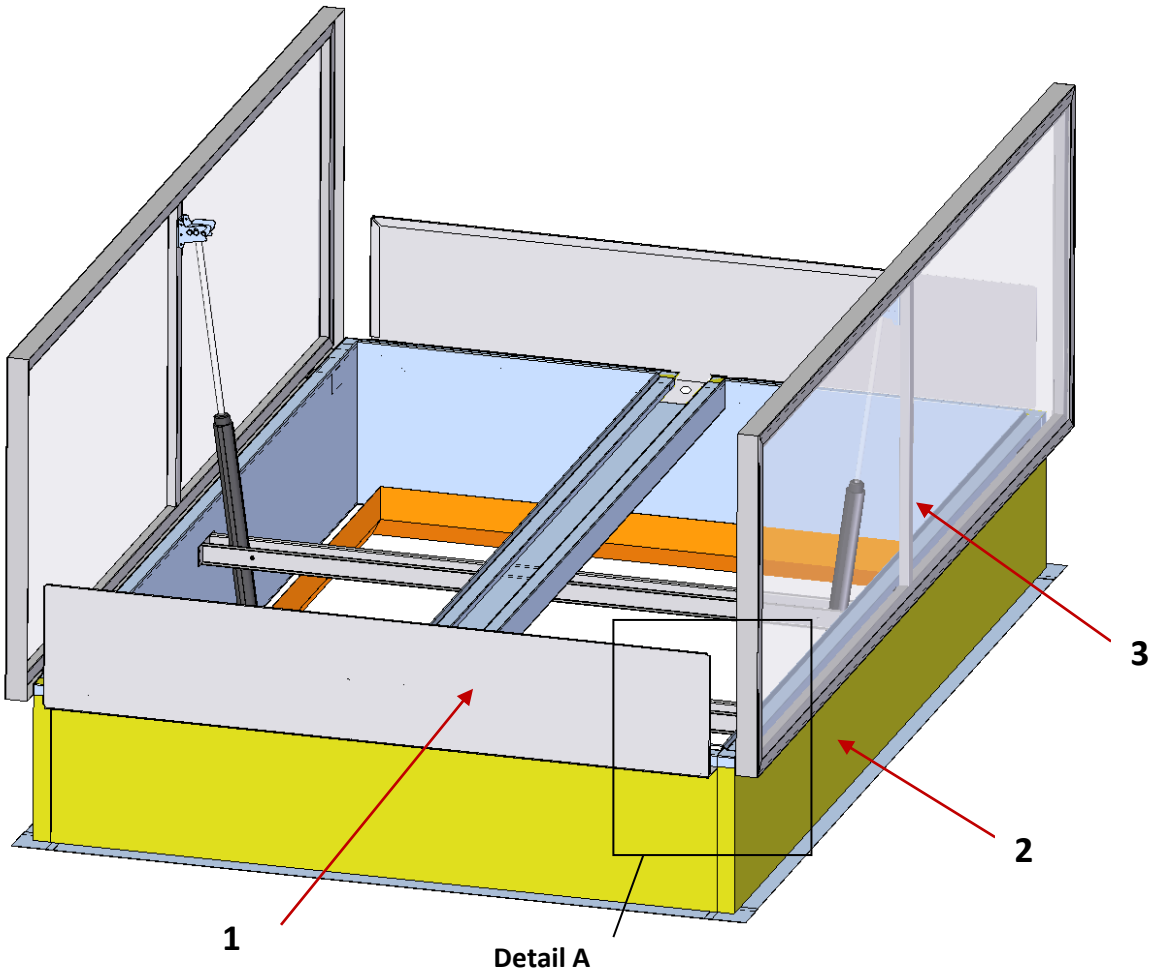
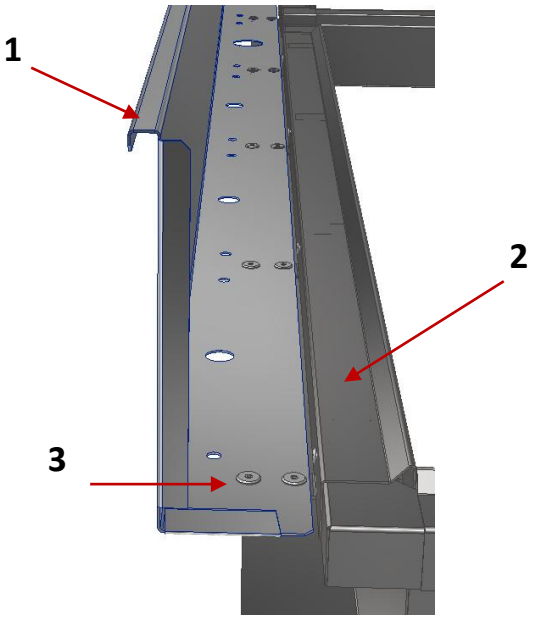


Fig. 15 mcr PROLIGHT type DVP smoke vent with wind deflectors installed.

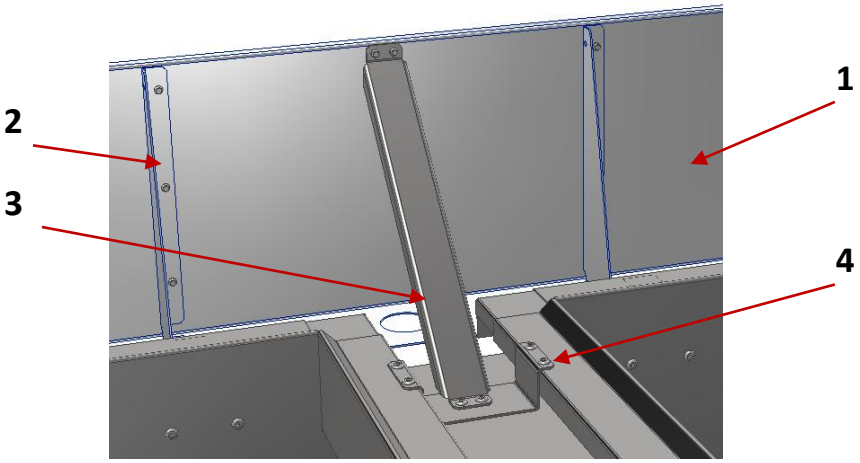
1. wind deflector
2. vent base covered with mineral wool panels
3. vent leaf



1. wind deflector
2. vent base
3. mounting bracket (deflector holder) – place for riveting the wind deflectors

Fig. 16 Installation of the wind deflector to the vent base – view from the side of vent leaf – detail A.

Selected sizes of deflectors are equipped with additional reinforcements:



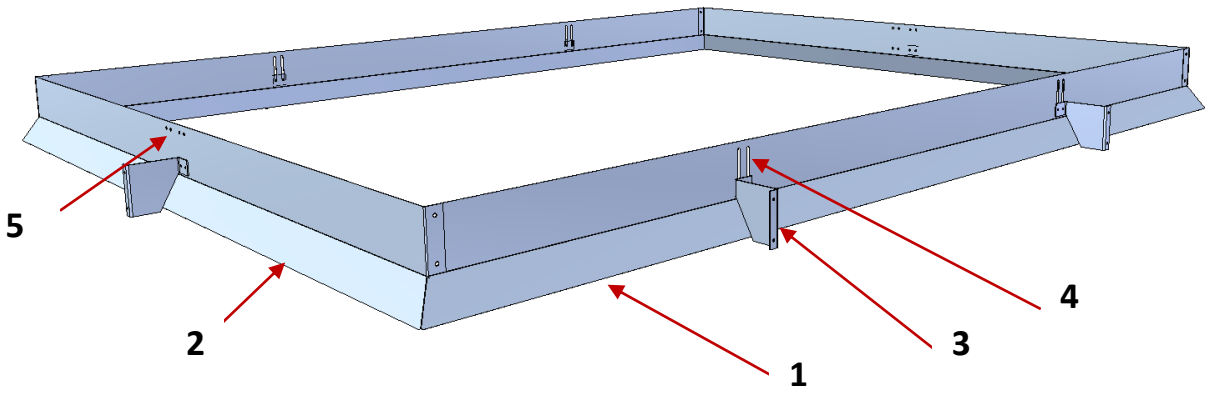
1. wind deflector
2. bracing rib
3. wind deflector support
4. support bracket

Fig. 17 Additional strengthening element for wind deflectors with height >= 250 mm.

6.2. Inlet deflector

The inlet deflector, in combination with the wind deflectors, is used to increase the active aerodynamic efficiency of DVP vents, i.e. the smoke exhausting area. The inlet deflector is installed at the bottom of the vent base. It is made of galvanized steel sheet, optionally: aluminium sheet; it may be painted to any RAL colour. The inlet deflector is pre-fixed to the vent in transport position. After installing the vent, the deflector should be fixed in working position:

- loosen the screws in the mounting brackets on side A of the deflector (in place of the prepared bean holes)
- undo the screws in the mounting brackets on side B of the deflector (in place of the prepared Ø6.5 mm holes)
- lower the deflector to operating position – according to the prepared holes
- tighten the fixing screws (use only self-locking nuts)



1. Deflector (side A with bean holes)
2. Deflector (side B with Ø6.5 mm holes)
3. Mounting bracket
4. Bean holes
5. Ø6.5mm holes

Fig. 18 Inlet deflector (mounting brackets in transport position).

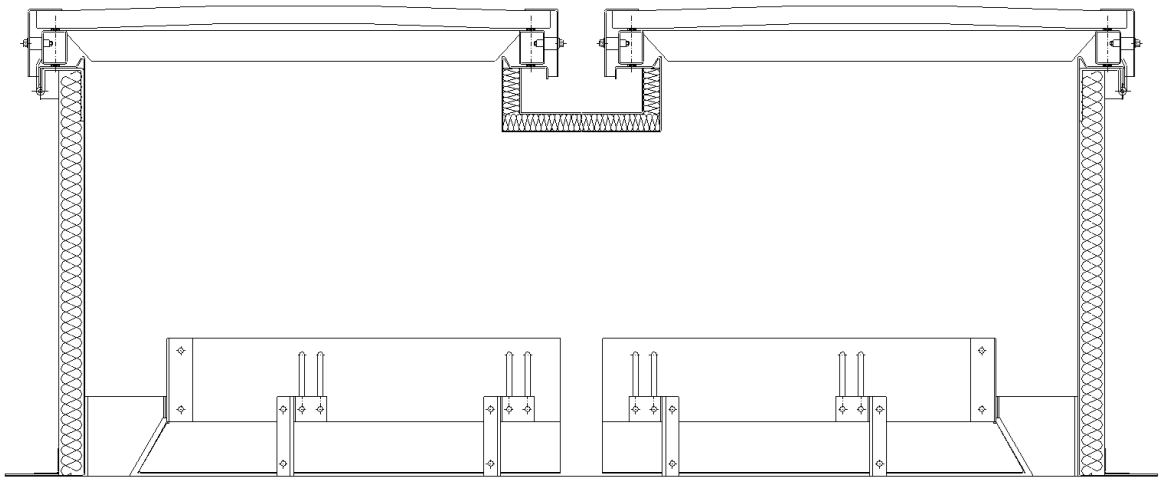


Fig. 19 Inlet deflector in transport position (hidden inside the smoke vent).

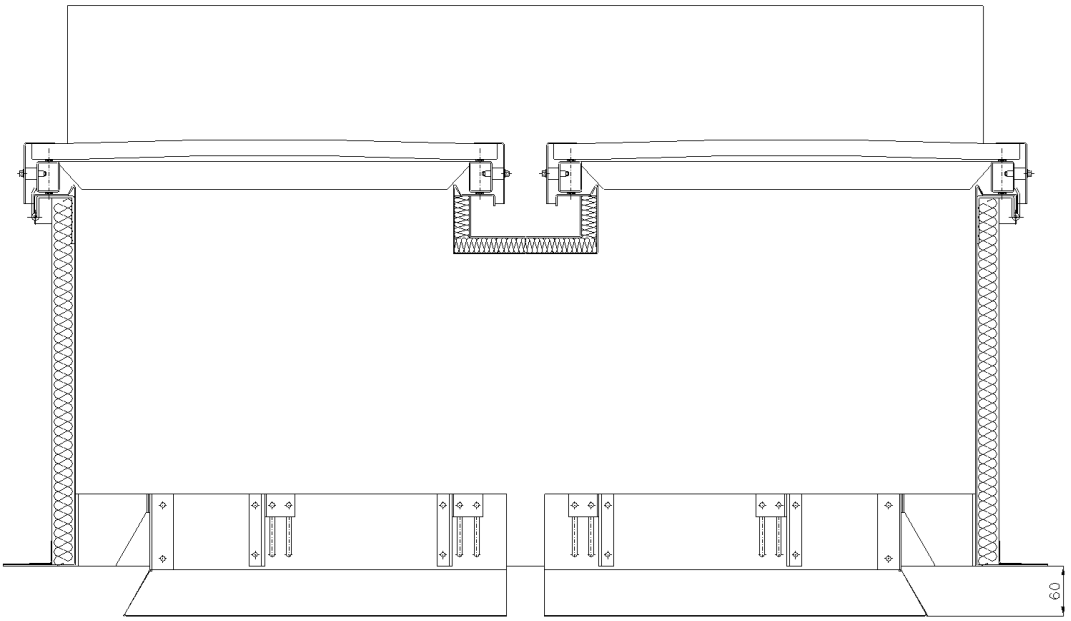


Fig. 20 Inlet deflector in working position.

VII. VENT LEAF ADJUSTMENT

(MECHANICAL HOOK LOCK, EYEBOLTS, T-SHAPED ADJUSTABLE LOCKING BOLT)

The vent leaf is joined with the actuator through a hook lock, or – for small vents – directly. The hook lock is locked on a T-shaped bolt. Pneumatic cylinders and electrical spindle actuators are connected to the mechanical hook lock with an eye bolt that is screwed into the piston rod/spindle of the actuator. Play of the vent leaf should be reduced by screwing in the eye bolt and the correct locking by adjusting the T-bolt and the eye bolt. The eye bolt and the T-bolt should be protected against loosening with a counter nut.
When using auxiliary 230 V~ electrical actuator for comfort ventilation in pneumatic smoke exhaust system, the T- bolt is screwed into the rack or the spindle of the electrical actuator.

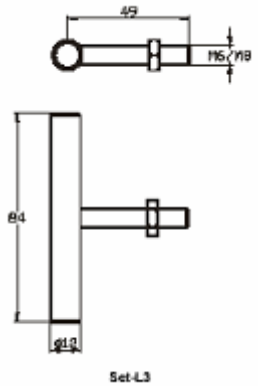


Fig. 21 T-bolt

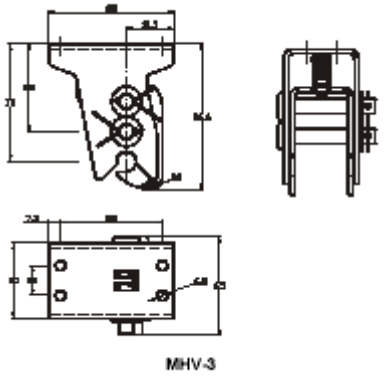


Fig. 22 Mechanical hook lock

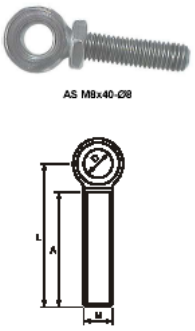


Fig. 23 Eye bolt

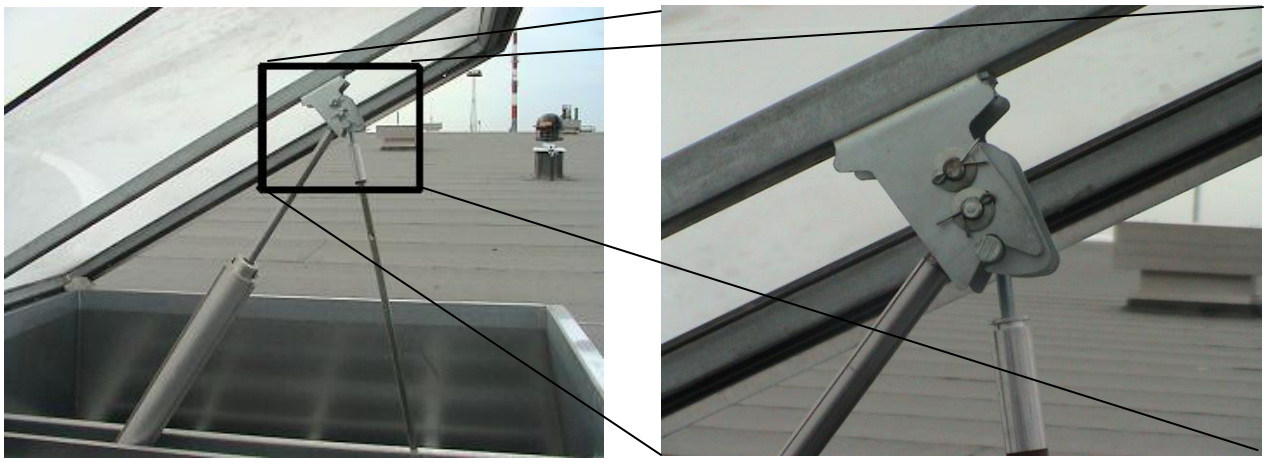


Fig. 24 Connection of the actuators with the hook lock.

VIII. CONTROL SYSTEM

The operation of smoke exhaust and smoke & ventilation vents is based on devices used for controlling their opening and closing. A set of such devices forms together a system for smoke exhaust control or smoke exhaust and ventilation control. Depending on the equipment used in it, the smoke exhausting control system may be offered in the following variants:

- pneumatic system,
- electrical system,
- mechanical system.

Depending on the control method, mcr PROLIGHT type DVP and DVPS smoke vents are equipped with pneumatic actuators with thermal release valves, electrical actuators or gas springs, and – additionally - pneumatic and electrical actuators for controlling natural ventilation.

In case of control mechanism failure and it is not possible to close the vent leaf, please contact the service department immediately (see section XI.).

If it is required to close the leaf immediately before the technician arrives, you should: disconnect the immobilized actuator from the leaf (e.g. disconnect the eyebolt from the mechanical hook lock or unscrew the eyebolt from the actuator), then close the leaf and secure it against opening in closed position.

8.1. Pneumatic control

Depending on the system's configuration, it may be necessary to connect additional pneumatic piping to the vent (e.g. copper/steel tube from the alarm box containing CO_2 bottles).

Threaded connections of pipe fittings with valves, actuators, etc. are sealed using suitable chemical agents, e.g. Loctite 243 (recommended) or Teflon tape, by applying it on the thread. Loctite 243 should be applied in several (2 – 3) drops on the thread. After making the screwed connection, Loctite 243 sets, sealing the connection and protecting it against uncontrolled loosening (important in the case of connections with pneumatic cylinder). Such protected hose joint may only be unscrewed using hand tools.

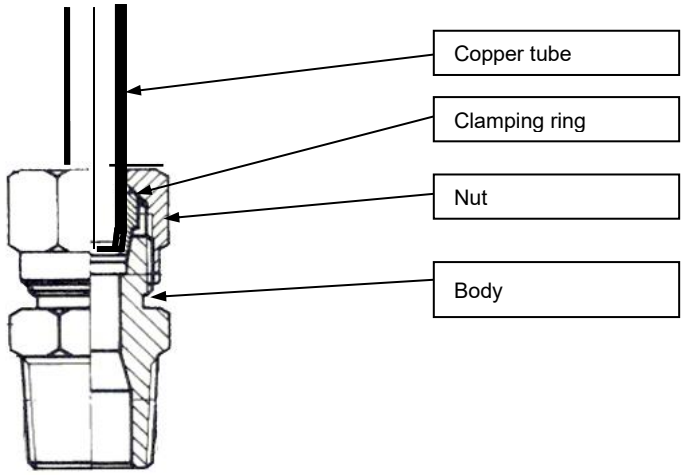


Fig. 25 Method of installing hard pipes (steel, copper).

NOTE

For safety reasons, the vent's thermal release valve is not armed for shipping. After installing the vent along with the roof flashing, eliminate any possible play on the vent leaf and arm the thermal release valve.

Before arming the thermal release remove all plugs in the connectors and threaded holes of the thermal release body Then please proceed as follows:

a) Type **TAVE-3, TAVZ-3**:

- check if the **release screw (1)** is unscrewed, and if not, fully unscrew it manually,
- free the space for the **thermo bulb (2)** of any contamination,
- insert **thermo bulb (2)** so that the tip points in the direction of the tension screw and manually tighten the screw fastening the ampoule
- slide in the **valve slider (4)**,
- fully tighten the **release screw (1)** – manually,
- check if the piercing needle is positioned below the bottom oft he cartridge socket and if the gasket is present in the cartridge socke,
- manually screw in the **CO_2 bottle (3)**.

b) Type **TAVE-4, TAVZ-4**:

- Screw the **reset tool / single-use reset tool** (see *Fig. 29*) completely into the bottle screw-in thread.
- free the space for the **thermo bulb (2)** of any contamination,
- insert thermo bulb so that the tip points in the direction of the **tension screw (1)** and then hand tight fix,
- remove reset tool / single-use reset tool,
- Check with the **status gauge** that it is ready for operation (back of reset tool, see *Fig. 28*)
- Screw in **CO_2 bottle (3)**.

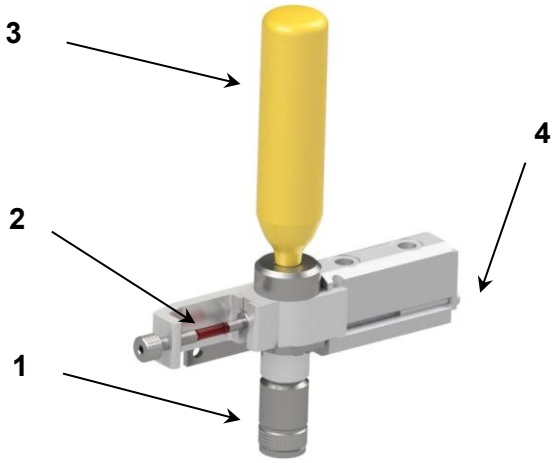


Fig. 26 Thermal release valve (on example of TAVZ 3).

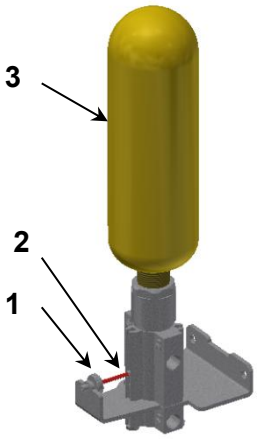


Fig. 27 Thermal release valve (on example of TAVZ-4).

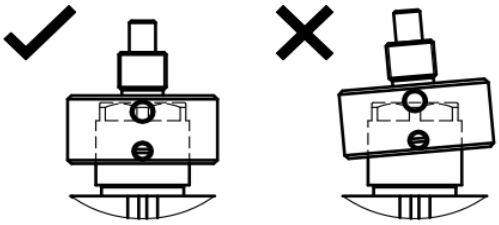


Fig. 28 Reset tool / status gauge.

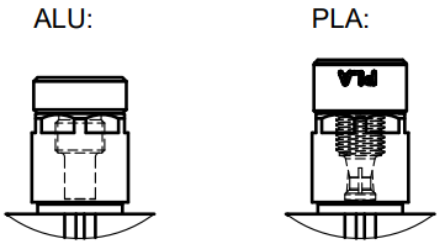


Fig. 29 Single use reset tool.

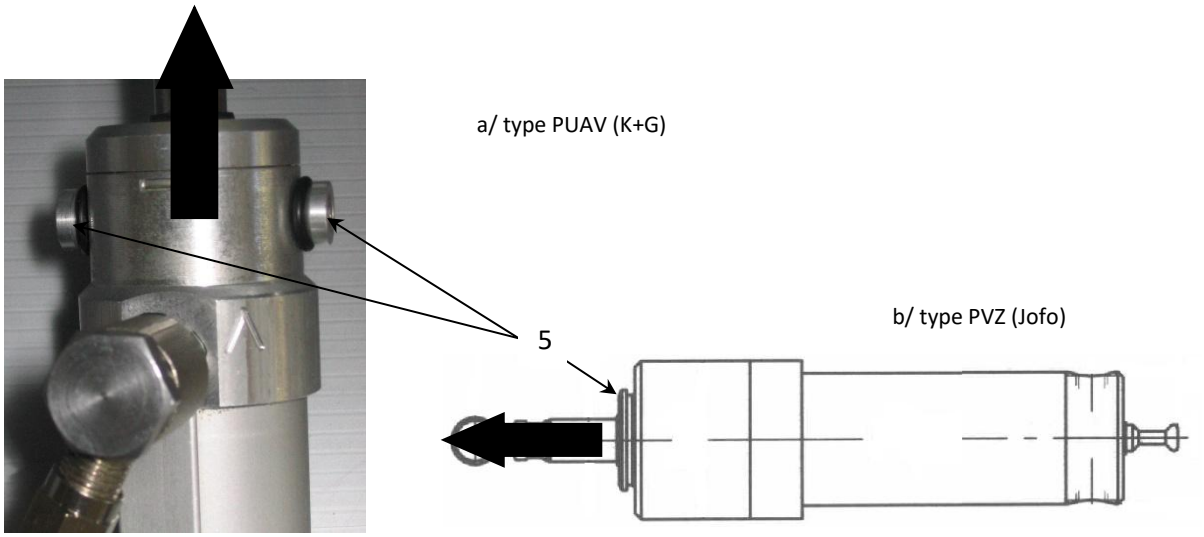


Fig. 30 Unlocking the pneumatic cylinder.

Pneumatic cylinders for smoke exhaust have an internal locking that prevents the closing of a fully opened vent leaf. Method of closing the vent leaves after emergency opening for systems without the remote closing function:

1. Release CO_2 from the system by unscrewing the CO_2 bottle from the thermal valve or the emergency box **(note: the system is under high pressure – unscrew slowly, note: the cartridge may freeze)**.
2. Release the **locks of the cylinder (5)**, by lifting them in the direction of the operating movement of the actuator (in accordance with the arrow in Fig. 30).
3. Lower the vent leaf.
4. Check if the leaf is fully locked.
5. Repeat the steps 2 – 4 for the other leaf.
6. Insert a new CO_2 bottle into the thermal relese valve or the emergency box.
7. If needed replace the thermal fuse (alcohol ampoule (2). **NOTE: For TAVx-4, first remove the CO_2 bottle, then insert the reset tool, and then remove the ampoule by loosening the ampoule tension screw. Skipping the previous steps will damage your TAVx-4!**.

8.2. Electric control

Opening control system using 24V- electrical actuator for smoke exhausting is delivered preassembled in the smoke vent. Preparing it for operation consists in connecting the eye bolt of the electrical actuator with the pin of the hook lock, and adjusting it properly so that the lock snaps securely onto the T screw, and at the same time the electric actuator is turned off after closing the leaf by a limit switch, not an overload switch

Method of connecting G / SG actuator (wire poles):

brown wire + blue wire –	} Spindle moves in	brown wire – blue wire +	} Spindle moves out

To control and power the G / SG electric actuators installed inside the smoke vents the user should use the smoke and ventilation control units type mcr 9705 and mcr 0204 and the extension modules type mcr R0424 and/or mcr R0448.

8.3. Ventilation function

The ventilation functions may be executed using 2 basic methods:

- using pneumatic actuators with adequate piping system,
- using an additional electrical actuator supplied with 230 V~ (figure below).

The electrical actuator for ventilation is usually **not factory-mounted** due to transport considerations. It should be mounted in the upper cross-bar into the prepared holes, using fixing plugs ST 12-1/8 (for the Exxx-230 actuators) or threaded bolts (actuator JMBB-500-300-LA) delivered with the actuator. It is recommended to secure the mounting screws against unscrewing with Loctite 243 or similar.

The venting actuator is equipped with a T-bolt, which should be installed instead of the eyebolt. The mechanical hook lock should snap onto the T-bolt.
A weather monitoring station, e.g. mcr P054, is recommended in the ventilation control system, to automatically close the vents in the case of a strong wind or rain, in order to protect the user property and the vent structure against damage.

Fig. 31 Electric actuator for daily ventilation Exxx-230

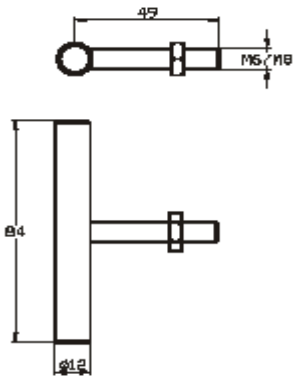


Fig. 32 T-bolt.

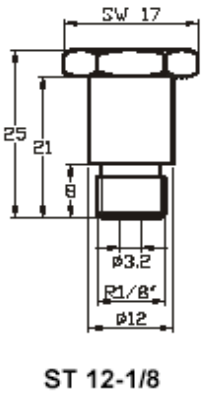


Fig. 33 Fixing plug ST 12-1/8.

Connection diagrams for 230 V~ electrical actuators

Actuator of type E-xxx-230 has two circuits:

- operating – movement direction control (wire: black/brown – blue),
- signalling (wire: 2 x white; signalling of actuator opening – voltage-free contact).

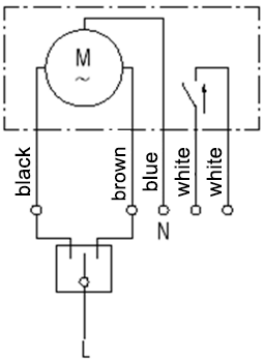


Fig. 34 Connection diagram of the E-xxx-230.

b/ Actuator of type JMBB-500-300-LA has two circuits:

- operating – movement direction control (wires: brown / black1 - blue),
- signalling (wires: black2/black3; signalling of actuator opening – voltage-free contact).

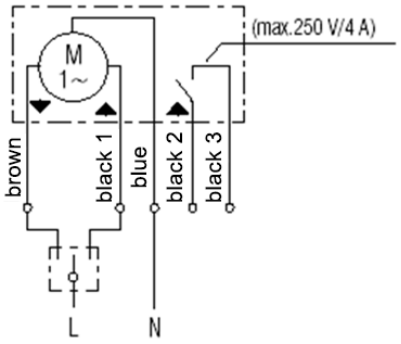


Fig. 35 Connection diagram of the JMBB-500-300-LA.

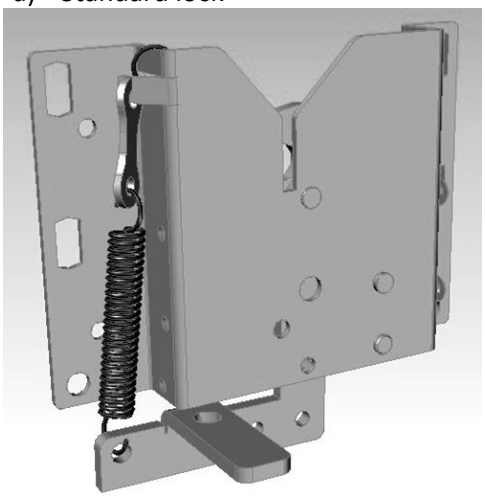
8.4. Mechanical control

The mechanical control system consists of gas springs and locks. There are 3 lock types available:

1) Standard (without electromagnet)
2) With electromagnet triggered by electrical impulse (current flow)
3) With electromagnet triggered upon power decay

Fig. 36 presents the standard lock variant (a) and the variant with electromagnet (b), accordingly. Two locks of the same type are used in double-leaf vents.

a) Standard lock



b) Lock with electromagnet

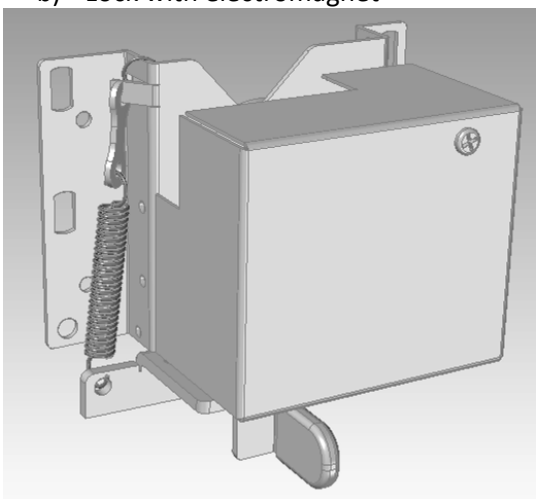


Fig. 36 Lock types used in mechanical control.

The easiest way to distinguish between the standard lock and lock with electromagnet is to check if it does (for lock with electromagnet) or does not (for standard lock) have a casing. The type of lock with electromagnet can be further identified based on the electromagnet power rating:

1) 3.5 W power – electromagnet triggered by electrical impulse (current flow)
2) 1.6 W power – electromagnet triggered by power decay

Electromagnet rating can be read from the identification label.

8.4.1. Methods of releasing the lock

Mechanically controlled vents may be opened in three different ways, depending on the option purchased:

1) Automatically, after the melting of a fuse element
2) Through the opening of an electromagnet
3) Manually, using a steel cable

The opening methods above are presented on Fig. 37.

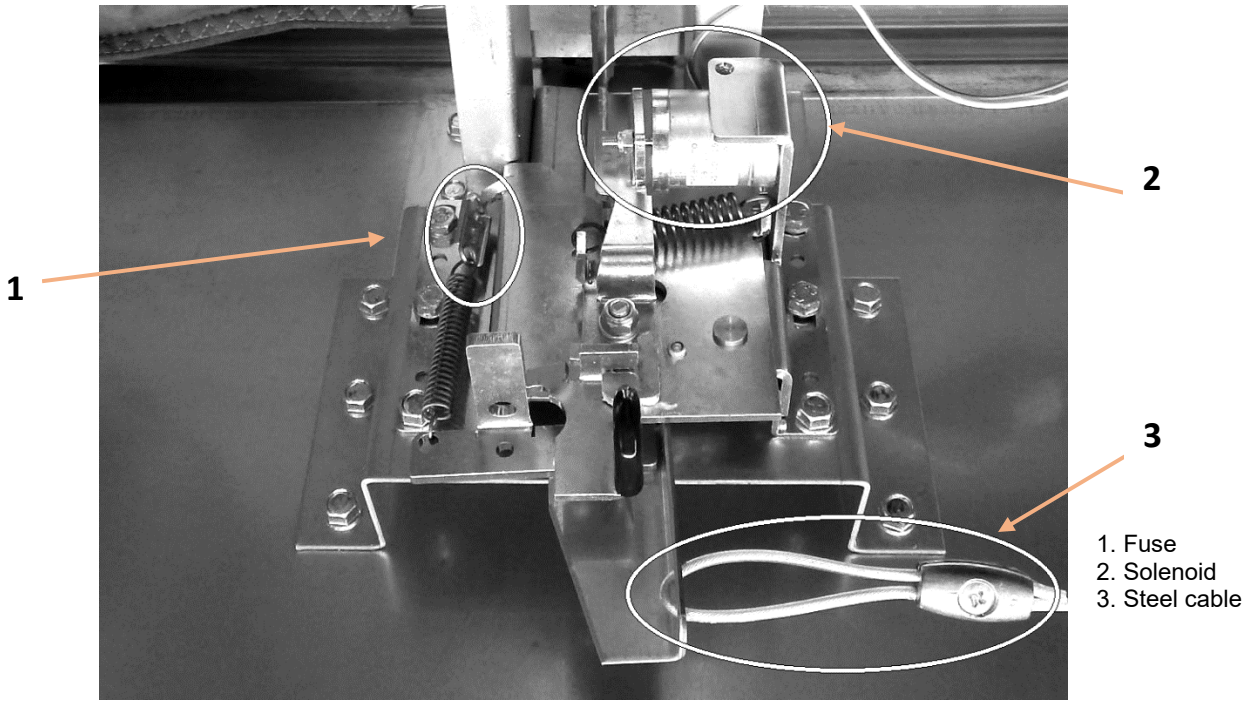


Fig. 37 Methods of relesing the lock.

8.4.2. Preparing locks for operation

The vent is delivered to the client with the locks secured with a cable tie (for locks with electromagnet only). The protection method and location is presented on .

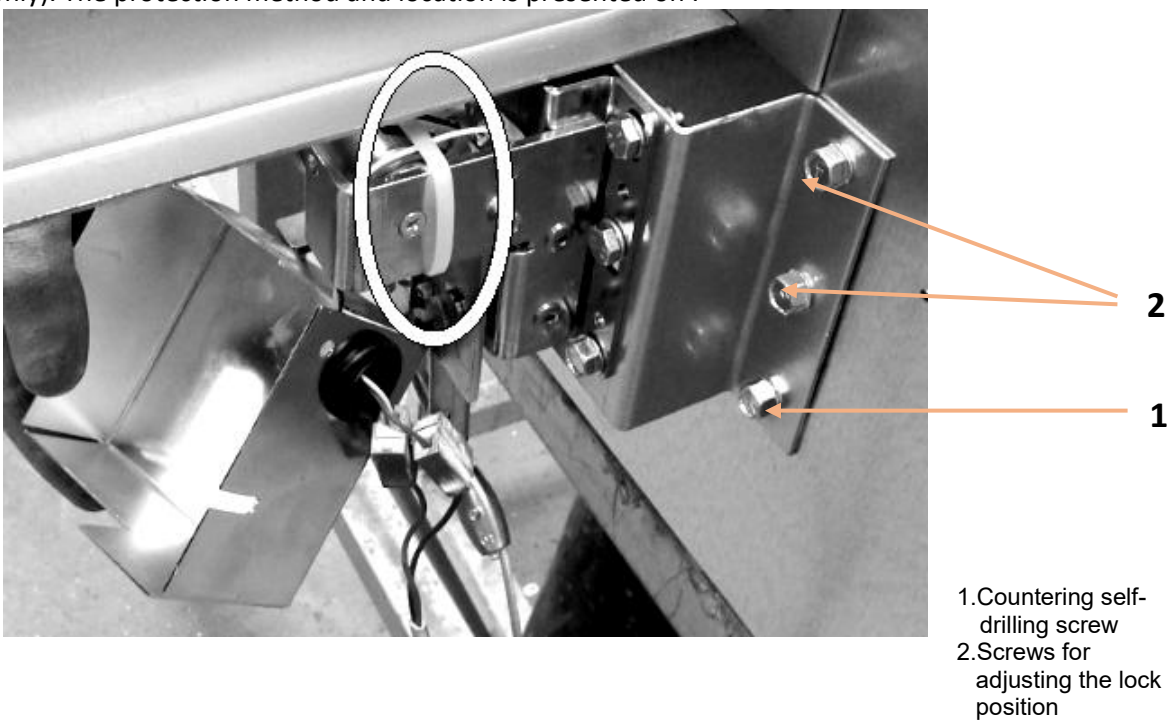


Fig. 38 Lock secured using cable tie.

After installing the vent at its final location, and before commissioning it, protections must be removed from both locks. To this end, first remove the lock casings by undoing the screws fixing the casings. To do so, cut the cable tie and remove it. The cutting operation is presented in Fig. 39. After completing the above, install the lock casings back and tighten the screws fixing the casings.

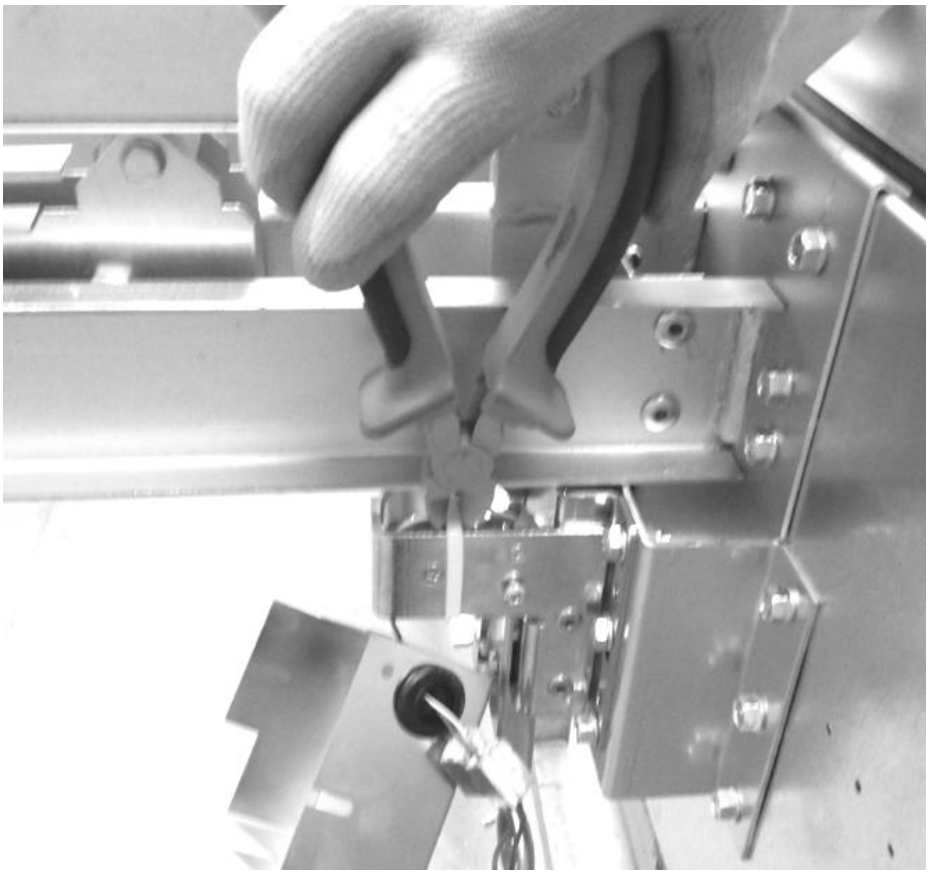
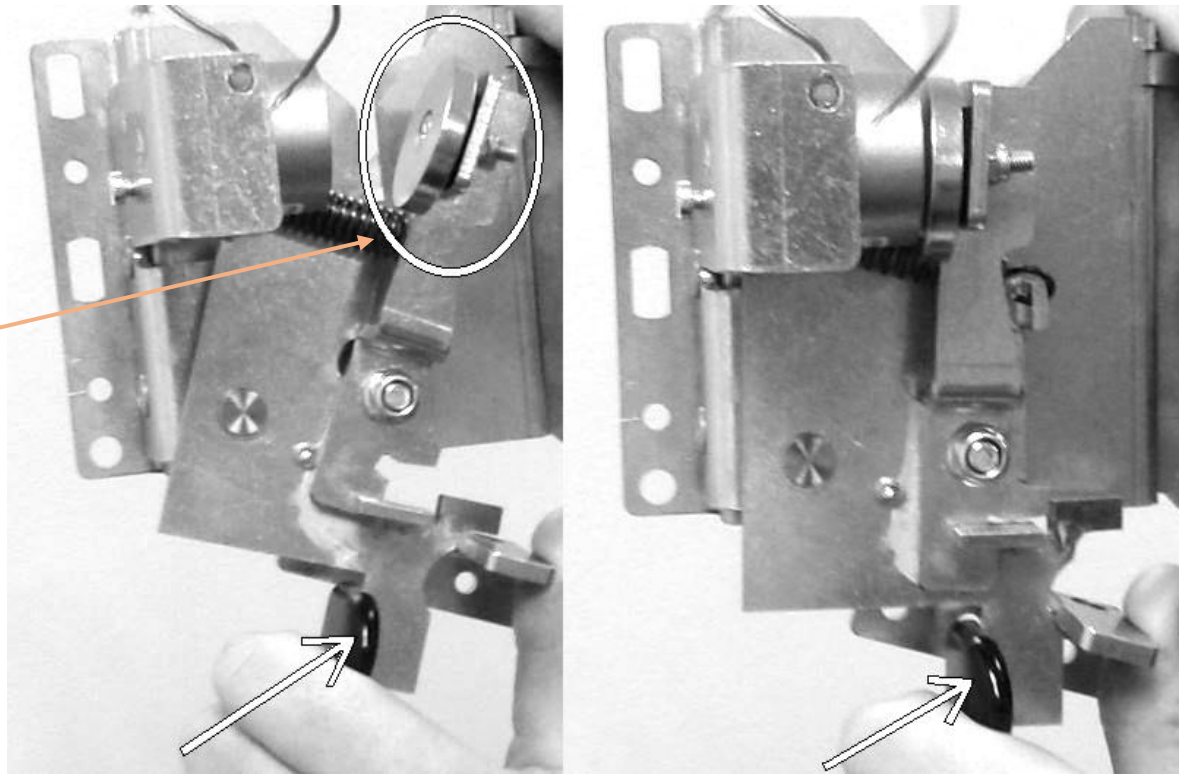


Fig. 39 Cutting the cable tie for removing the lock protection.

For locks equipped with electromagnet – connect the lock and prepare it for operation. Observe the following points (to be performed for both locks):

1) After connecting the electromagnet to power supply cables, lay them in such way that they do not collide with the moving parts of the lock – the full range of the mechanisms movement must be taken into consideration.
2) For electromagnets triggered by power decay – first, turn power supply on and only then close the anchor; the closing method is presented on Fig. 40 – the anchor is shown as item "1".
3) For electromagnets triggered by electric impulse (current flow) – after completing point 1, close the anchor as shown on Fig. 40.
4) Close the vent leaf. Make sure that the lock latch (rounded element) is open as shown on Fig. 41a – the locking latch is shown as item 2. When shutting the vent, a characteristic "latching" sound should be heard from the lock. If the shutting process has been completed correctly, the locking latch should be snapped in the catch as shown on Fig. 41b.

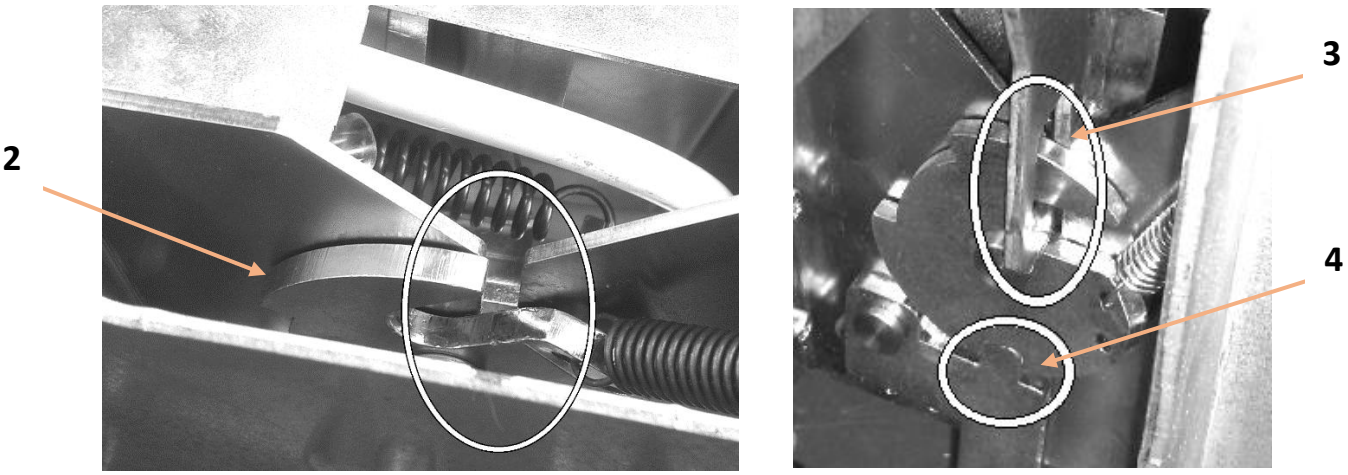


1. Electromagnet anchor

Fig. 40 Closing the electromagnet anchor in the lock.

a) „Locking latch" opened

b) „Locking latch" closed



2. „Locking latch"

3. Locking latch snapped in the catch
4. Lock lever in closed position

Fig. 41 Lock before and after closing.

8.4.3. Locks adjustment

There are two methods for adjusting the locks installed in the vent. The locks adjustment order is irrelevant, since they operate independently.

Method 1 – adjusting the lock installation height:
The screws that secure the lock and are responsible for adjustment are shown in Fig. 38 - marked with the number "2". Adjustment may be performed within a range of about 5 mm. After correcting the height (if necessary), tighten the screws and secure the lock from unintended moving using a counter self-drilling screw - marked as item "1" on Fig. 38.

Method 2 – adjusting the electromagnet anchor position
After closing the anchor, its entire surface should adhere to the electromagnet. If a situation shown on Fig. 42 occurs that the anchor does not close completely, adjust it so that the surfaces of the solenoid and the anchor lie parallel towards each other when closed.

If the lock (or both locks) do not function properly, the reason may be their wrong adjustment. In such case, the adjustment activities described above must be performed.

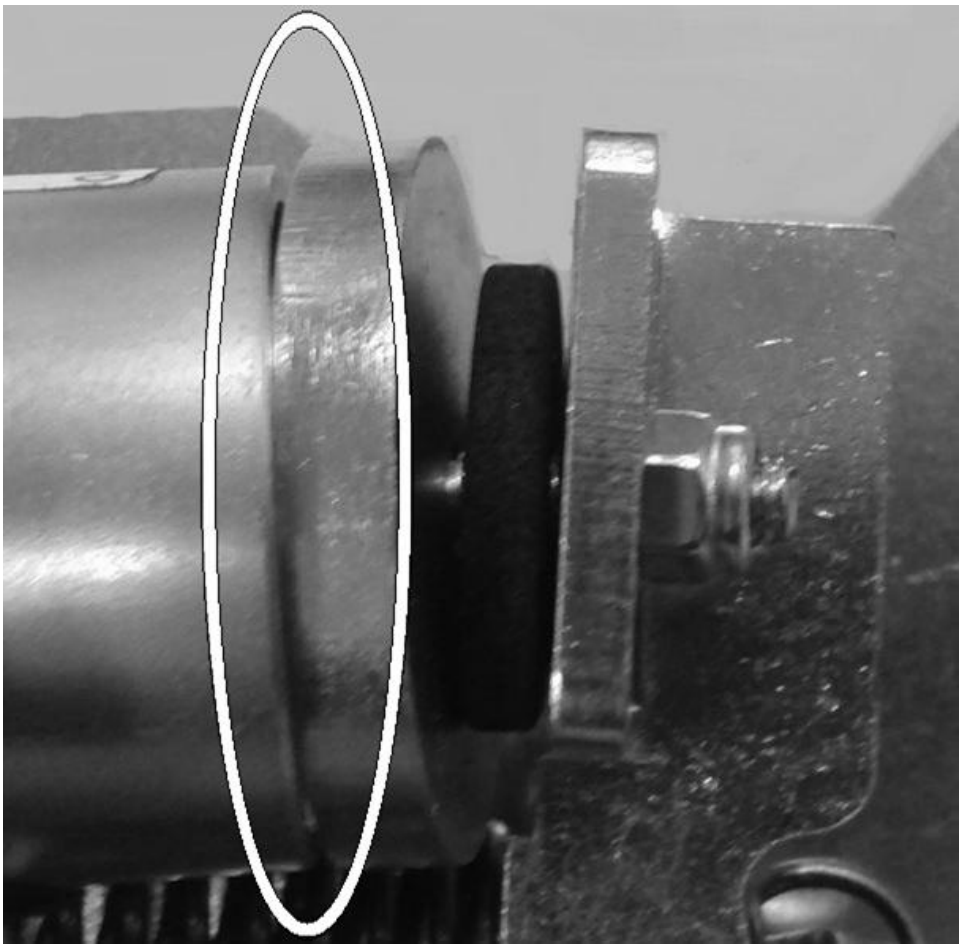
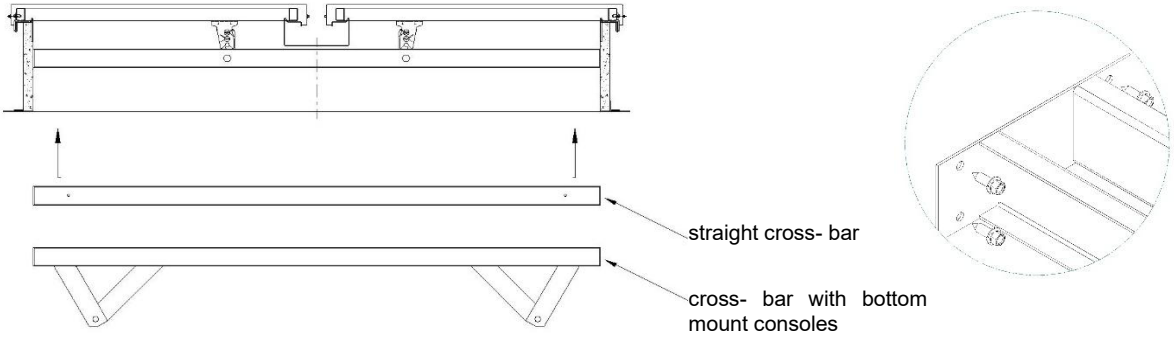


Fig. 42 Incorrectly adjusted electromagnet anchor.

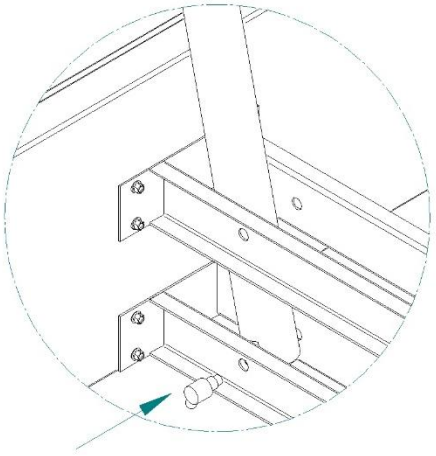
IX. INSTALLATION OF COLTROL EQUIPMENT WHEN DELIVERED SEPARATELY

If the control system is delivered separately, perform the installation as shown below:

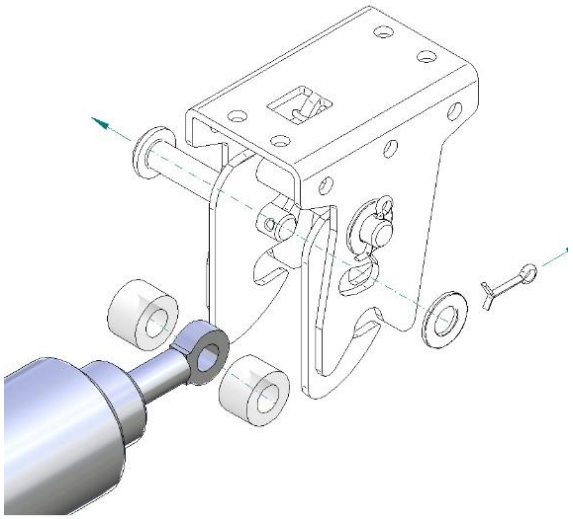
A. Place the cross-bar in the flap base (along its axis), at height shown on the appended drawing of the control system. The cross-bar may differ in its design, depending on the smoke vent size and control type. Fix it to the base using ø6.3 self-drilling screws for steel sheet.



B. Place the actuators inside the cross-bar, and fix them using the supplied screws and sleeves (actuator G/SG). Use hex keys for installation The tightening torque should be 10 Nm. It is recommended to protect the screws and sleeves from loosening with Loctite 243 or similar agent.



C. The actuator should be connected to the hook lock. To do this, remove the cotter pin and insert the bolt through the actuator eye bolt and two nylon sleeves.



Then, depending on the control type, connect the opening system to the installation as shown in point 9 and perform adjustment as shown in point 8.

NOTE
An assembly drawing appropriate to the dimensions and type of the smoke vent is necessary.

X. GLAZING OF THE VENT LEAF

The glazing / filling of the mcr PROLIGHT DVP and DVPS smoke vent is made of cellular polycarbonate or sandwich panel. The filling is factory-installed.

If replacement of the filling is required, perform the following steps:

1. remove the pressure frame (unscrew the M6x30 screws, remove the spacer sleeves)
2. lift the filling
3. check the condition of the PES seal on the supporting frame (clean it from dust)
4. install the pressure frame
5. insert the spacer sleeves
6. screw in the M6x30 screws while pressing the frame from above

If the pressure frame becomes loose, unscrew the M6x30 screws slightly and then screw them in again one by one while pressing the frame from above.

XI. SERVICE AND MAINTENANCE

Devices manufactured by Mercor Light&Vent should be subjected to **periodic technical inspections** and maintenance activities **every 6 months** during the entire period of operation, i.e. during the warranty period and after the warranty period. Inspections and maintenance should be **carried out by the manufacturer** or by companies authorized to service Mercor Light&Vent devices.

In order to be able to perform activities included in the scope of service inspections as well as service and warranty activities, such as inspections or repairs, it is necessary to **provide physical access to the installed devices**. If the devices are mounted on the roof, access to the roof must also be provided (ladder or lift).

The following actions performed by the user are recommended between the inspections:

1. Checking the condition of electrical wiring with special attention to mechanical damage.
2. Checking the condition of pneumatic system with special attention to mechanical damage.
3. Checking the condition of mechanical locks (whether they are fully closed and not blocked).
4. Checking the condition of gaskets.
5. Periodical cleaning of the surfaces of domes/polycarbonate panels: for cleaning use a sponge or soft fabric and lukewarm water with common household mild cleansers. Do not scrub the panels with brushes or sharp things. Do not use abrasive materials, strong alkaline substances, solvents, etc. In doubtful cases make a test of the cleaning agent on a sample or a small surface.

Surface bending or waving may occur on the external walls of multi-wall polycarbonate panels installed in rooflights, skylights and hatches. This does not affect the tightness, load-bearing capacity and thermal parameters of polycarbonate panels, vents and rooflights.

Due to natural processes occurring in nature, condensation of water vapor may occur in the chambers of polycarbonate panels. This is most often manifested by the appearance of mist or, in the case of heavy moisture, by visible drops. If air exchange is ensured by diffusion between the air inside the chambers and the outside air, after some time the moisture content in both areas will equalize and the visual effects described above will disappear.

Condensation of water vapor does not affect the life of the material or the quality of the product.

ATTENTION!

It is prohibited to use salt to clear snow from roofs on which the mcr PROLIGHT continuous rooflights and skylights are installed – it may cause discoloration and damage to polycarbonate panels and aluminum profiles. Damage to the product caused in this way does not constitute grounds for filing a complaint.

In matters related to technical inspections, maintenance and service of devices, please contact the representatives of the Mercor Light&Vent service department by phone: +48 58 341 42 45 ext. 170, Mo – Fr, 8.00-16.00 o'clock, e-mail: serwis@mercor.com.pl

XII. WARANTY CONDITIONS

1. Mercor Light&Vent grants a 12-month quality guarantee for equipment, starting from the date of purchase, unless the agreement provides otherwise.

2. Each defect under guarantee should be reported to a local representative of Mercor Light&Vent immediately, i.e. within 7 days of its discovery.

3. Applications can be made by phone at +48/ 58 341 42 45, by email to claim@mercor.com.pl or by sending a letter to: Mercor Light&Vent, Grzegorza z Sanoka 2, 80-408 Gdańsk, Poland.

4. If during the term of guarantee any physical defects of the equipment become evident, Mercor Light&Vent shall remove them as soon as possible, subject to paragraph 5.

5. Mercor Light&Vent reserves the right to lengthen the repair time in the event of complicated repairs or those that require non-standard sub-assemblies [elements] or spare parts to be purchased.

6. Liability under the Guarantee covers only defects resulting from causes inherent in the equipment sold.

7. In the event of defects resulting from inappropriate operation of the equipment or due to other reasons stated in par. 6, the Buyer/ Guarantee Holder shall bear the costs of their removal.

8. In accordance with the generally accepted practice, the guarantee does not cover:
   - damages and breakdowns of the equipment due to inappropriate operation, user's interference, lack of maintenance or periodic servicing;
   - equipment damages resulting from causes other than those that MERCOR is responsible for, in particular: acts of God such as torrential rainfall, flood, hurricane, flooding, stroke of thunder, overvoltage in the mains, explosion, hail, fall of aircraft, fire, avalanche, landslide and secondary damages due to the above-listed causes. Torrential rain is defined as rain with an efficiency index of at least 4 (or 5 in Chomicz scale or torrential rain grade IV (A_4)). Should it be impossible to determine the index mentioned in the previous sentence, the actual condition and the degree of damage at the place of its origin proving that it is the consequence of torrential rain will be considered. Hurricane is defined as wind blowing at the speed of at least 17,5 m/s (damages are deemed to have been caused by hurricane if the effects of hurricane have been found in the immediate neighborhood);
   - damages due to failure to immediately report the defect discovered;
   - worsened quality of coating due to the natural ageing process (fading, oxidation);
   - defects due to using abrasive or aggressive cleaning products;
   - damages due to aggressive external factors, especially chemical and biological ones.

- parts liable to natural wear and tear during operation (e.g. seals) unless a manufacturing fault has occurred;
- damages due to improper transport, unloading and storage of the device;
- damages due to installation inconsistent with the OMM and the rules of good construction practice;
- ingress of dust, particles or solids with the effective grain size below 50 µm into the polycarbonate sheet chambers;
- condensation in the polycarbonate sheet chambers.

9. Guarantee and warranty is void in the following cases:
   - The Buyer/Guarantee Holder makes design modifications on his own without consulting Mercor Light&Vent,
   - Maintenance or periodic servicing are not done in due time or are performed by unauthorized persons or a service center not authorized by Mercor Light&Vent, or the equipment is operated in the wrong way,
   - Any interference of unauthorized persons – except activities connected with normal operation of the equipment.

10. The Buyer/Guarantee Holder is responsible for proper operation and maintenance of the equipment and for regular (min. twice a year) servicing according to service and maintenance instructions included in OMM.

SERVICING INSPECTIONS:

1. Devices should be subject to periodical servicing inspections every 6 months during the entire period of their operation.
2. The servicing inspections should be performed by companies having adequate authorization of Mercor Light&Vent.
3. On issues related to service please contact a local representative of Mercor Light&Vent.

Other conditions:

1. As regards matters not regulated by these “Warranty terms and conditions”, the law applicable is Polish law.
2. Any disputes that may arise in connection with the “Warranty terms and conditions” shall be settled through negotiations between the Parties. This provision is not an arbitration clause.
3. If the Parties fail to reach an agreement by negotiation, any disputes arising from or related to the contract shall be settled by the Polish court competent for the seat of the Seller.

XIII. CERTIFICATES OF CONFORMITY

ZAKŁAD CERTYFIKACJI

NOTIFIED BODY No. 1488
INSTYTUT TECHNIKI BUDOWLANEJ
CERTIFICATION DEPARTMENT
ul. FILTROWA 1, 00-611 WARSZAWA
tel.:+ 48 (22) 57 96 167, + 48 (22) 57 96 168
e-mail: certyfikacja@itb.pl, www.itb.pl

PCA Polskie Centrum Akredytacji – Certyfikacja Wyrobów
AC 020

CERTIFICATE OF CONSTANCY OF PERFORMANCE

1488-CPR-0151/W

In compliance with Regulation 305/2011/EU of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the construction product

Natural smoke and heat exhaust ventilators
mcr PROLIGHT
C-A, C-B, E-A, E-B, NG-A, DVP-A, DVP-B, DVPS-A

general identification, intended use and performance of the product are described in the Annex No. Z-1488-CPR-0151/W which is an integral part of this certificate

placed on the market under the name or trade mark of:

Mercor Light&Vent sp. z o.o.
ul. Grzegorza z Sanoka 2
80-408 Gdańsk
Poland

and produced in the manufacturing plant:

Mercor Light&Vent sp. z o.o.
ul. Kwarcowa 3a
83-031 Cieplewo
Poland

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard:

EN 12101-2:2003

under system 1 for the performance set out in this certificate are applied and that the factory production control conducted by the manufacturer is assessed to ensure the constancy of performance of the construction product.

This certificate was first issued on 09.07.2010 as a certificate no. 1488-CPD-0151/W (updated on 15.12.2010, 21.01.2011, 27.07.2011, 01.09.2011, 02.07.2012, 07.12.2023, 01.08.2025) and will remain valid as long as neither the harmonised standard, the construction product, the AVCP methods, nor the manufacturing conditions in the plant are modified significantly, unless suspended or withdrawn by the notified product certification body.

HEAD
of the Certification Department
Katarzyna Hatowska, M.Sc. Eng.

INSTYTUT TECHNIKI BUDOWLANEJ

Warsaw, 01.08.2025

DEPUTY DIRECTOR
of Instytut Techniki Budowlanej
Anna Panek, M.Sc. Eng.

NOTIFIED BODY No. 1488
INSTYTUT TECHNIKI BUDOWLANEJ
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e-mail: certyfikacja@itb.pl, www.itb.pl

AC 020

Annex No. Z-1488-CPR-0151/W, page 1/1

which is an integral part of the certificate No. 1488-CPR-0151/W

Natural smoke and heat exhaust ventilators
mcr PROLIGHT
C-A, C-B, E-A, E-B, NG-A, DVP-A, DVP-B, DVPS-A

Essential characteristics and performances of the product acc. to EN 12101-2:2003

Essential characteristics and performances	Clause	Levels and/or classes
Response delay (response time)	7.1.2	-
Operational reliability	7.1 7.4	Re 50, Re 300, WL 750, WL 1500
Effectiveness of smoke/hot gas extraction	6	-
Areodynamic free area	6	-
Performance parameters under fire conditions	7.5	-
Fire resistance – mechanical stability	7.5	B 300, B 600
Ability to open under environmental conditions	7.2 7.3	SL 250, SL350, SL 550, SL 750, SL 950, SL 1300, SL 1600, SL 1750, SL 2000 T(00), T(-25)
Reaction to fire	7.5.2.1	-

Intended use:
Fire safety

Detailed identification, scope and conditions of use:

FIRES-JR-033-09-NURE	LP-1397.1/12.3-G/09	FIRES-MP-010/05-CPS
FIRES-JR-106-08-NURE	NP-1197/A/02/GSz	FIRES-MP-011/05
FIRES-CR-166-06-NURE	NP-587.4/08/TG	220512+ ANNEX A
FIRES-MP-026-08-ANUE	FIRES-MP-014-09-ANUE	NP-587.5/08/TG
FIRES-MP-027-08-ANUE	FIRES-MP-011-09-ANUE	NP-1095/A/07/BP
FIRES-MP-028-08-ANUE	FIRES-MP-019-09-ANUE	NP-776.4/08/TG
FIRES-MP-029-08-ANUE	FIRES-MP-012-09-ANUE	NP-776.3/08/TG
FIRES-MP-009-09-ANUE	FIRES-MP-024-09-ANUE	NP-1095/23-189/07
FIRES-MP-010-09-ANUE	FIRES-MP-025-09-ANUE	NP-1095/34-99/07
FIRES-MP-009/05-CPS	FIRES-MP-013-09-ANUE	NP-1095/23-190/07
FIRES-MP-014-10-ANUE	FIRES-MP-020-09-ANUE	NP-1095/34-106/07
FIRES-MP-015-10-ANUE	FIRES-MP-008-09-ANUE	FIRES-CR-151-10
FIRES-FR-59/03-CP (E)	FIRES-RF-033/10	FIRES-JR-070-09-NURE
FIRES-FR-60/03-CP (E)	FIRES-CR-029/10	FIRES-AT-008-10-NUNE
FIRES-FR-104-09-ANUE	FIRES-RF-054/09	FIRES-AT-010-10-NUNE
FIRES-FR-060-09-ANUE	FIRES-FR-085/09	FIRES-AT-009-10-NUNE
FIRES-FR-051-09-ANUE	FIRES-CR-030/10	FIRES-AT-011-10-NUNE
FIRES-FR-052-09-ANUE	NP-1337.1/07/AK	FIRES-AT-004-12-ANUE
FIRES-MP-082/05-CPS	NP-1337.2/07/AK	FIRES-AT-010-12-ANUE
FIRES-AT-005-11-NUNE	NP-1095.1/07/BP	FIRES-AT-026-12-ANUE
FIRES-AT-006-11-NUNE	FIRES-AT-002-11-AUNE	900 6035 000/08-10
LZP02-00990/R322NZP/B	FIRES-AT-003-11-AUNE	900 6035 000/08-11
LZP01-00990/R322NZP/B	FIRES-JR-070-09-NURE edition 3	

HEAD
of the Certification Department

Katarzyna Hatowska, M.Sc. Eng.

INSTYTUT TECHNIKI BUDOWLANEJ

Warsaw, 01.08.2025

DEPUTY DIRECTOR
of Instytut Techniki Budowlanej

Anna Panek, M.Sc. Eng.

SNAS
Reg. No. 041/P-007

NOTIFIED BODY 1396
Osloboditeľov 282, 059 35 Batizovce, Slovakia
Tel.+421 52 285 1611, www.fires.sk

FIRES
The Experts on Fire Safety

Certificate of constancy of performance

1396-CPR-0040

In compliance with Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 (the Construction products Regulation or CPR), this certificate applies to the construction product

Natural smoke and heat exhaust ventilator
type mcr PROLIGHT

a device designed to move smoke and hot gases out of construction works naturally under conditions of fire. Assessment and verification of constancy of performance and conditions of product use are defined in document Initial type testing report of constructional product No. C1396/10/0011/4203/SC (issued by FIRES, s.r.o., Batizovce, NB1396 on 22. 06. 2010) and reports of continuous surveillances of factory production control, carried out during the validity of the certificate. The product is

placed on the market under the name or trade mark of the manufacturer

Mercor Light&Vent sp. z o.o.
ul. Grzegorza z Sanoka 2, 80 – 408 Gdańsk, Poland

and produced in the manufacturing plant

Mercor Light&Vent sp. z o.o.
ul. Kwarcowa 3A, Cieplewo, 83-031 Łegowo, Poland.

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in Annex ZA of the standard

EN 12101-2: 2003

under system 1 for the performance set out in this certificate are applied and that the factory production control conducted by the manufacturer is assessed to ensure the

constancy of performance of the construction product.

This certificate was first issued on 22. 06. 2010 and will remain valid as long as neither the harmonized standard, the construction product, the AVCP methods nor the manufacturing conditions in the plant are modified significantly, unless suspended or withdrawn by the notified product certification body.

Representative of Notified Body

NOTIFIKOVANÁ OSOBA 1396 FIRES The Experts on Fire Safety -1- NOTIFIED BODY 1396

In Batizovce, on 30. 04. 2025

Ing. Štefan Rástocký
Head of Product Certification Body

173646

FIRES 136a/C-23/10/2024-E