

**OPERATION
AND MAINTENANCE MANUAL**

**Fire protection shut-off valve
mcr ZIPP**



Version 26.01.26.9

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Labelling used in the operation and maintenance manual

- Option available
- Option unavailable

NOTE

With the date of publication of the operation and maintenance manual, the previous versions are no longer valid.

The operation and maintenance manual does not concern the dampers manufactured before the date of its publication.

CAUTION

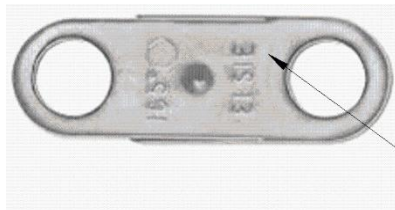
The product should be stored and used in rooms where:

- there is no access to dust, gases, caustic vapors and other aggressive chemical vapors that can destroy the insulating elements and structural elements;
- the flaps are not affected by direct sunlight and UV radiation;
- the maximum relative humidity does not exceed 80% at the temperature of +20 °C;
- the ambient temperature is between - 20 °C and + 40 °C;
- there are no vibrations.



The device is equipped with a thermal release containing one-time temperature fuses. During normal operation, the above mentioned element should be protected against the affect of the permissible temperature T_{max} (see the table below). When it is exceeded, the temperature fuses may operate, which is a normal operation and is not covered by the guarantee or warranty.

A thermal release for a valve RST mechanism:



Duct inside temperature fuse

| | | |
|----------------------------------|-----------------|-----------------|
| Thermal fuse for temperature | 72 °C | 95 °C |
| Temperature fuse inside the duct | T_{max} 40 °C | T_{max} 60 °C |

1. INTRODUCTION

The purpose of this operation and maintenance manual is to get the user acquainted with the intended use, design, the principle of operation, correct installation and operation of the product.

The manual also includes additional information about the operating conditions, maintenance and warranty conditions of the product.

2. THE SUBJECT OF THE MANUAL

This operation and maintenance manual concerns the entire group of fire protection shut-off valves of type ZIPP. Observing recommendations included in the manual ensures correct function of the device in terms of fire protection of rooms as well as safety of the system users.

3. DEVICE INTENDED USE

Application

A mcr ZIPP type valve may be used as a fire protection shut-off valve with a duct connection as well as a transfer valve (installation without ventilation ducts).

The valve may not work in systems exposed to dust, except for when they are included in a special, individually developed programme of service and technical inspections.

Fire resistance

The mcr ZIPP type fire protection shut-off valve has the following fire resistance:

- EI120S for duct installation in walls and ceilings
- EI120 for installation without ducts in walls and ceilings
- EI180S for installation in flexible walls

Performance versions

The mcr ZIPP valve can be used as:

- a valve with a thermal release – variant:
 - RST – (automatic release)
- valve with an electromagnetic release – variant:
 - EK I - (remote release by operation of a "current pulse" – applying supply voltage)
 - EK P - (remote release by operation of a "current gap" – removing supply voltage)

The thermal release always has a principal role and ensures that the safe position of a valve is reached (activated) regardless of the operation of the electromagnetic release.

Optionally, there is a possibility to provide the valve with WK1 limit switches that signal the valve operation status (open/closed).

NOTE

As a default, the valve release temperature equals 72°C. In case another temperature value, it has to be specified in the order, after prior confirmation of the temperature value with the Sales Department.

Dimension range

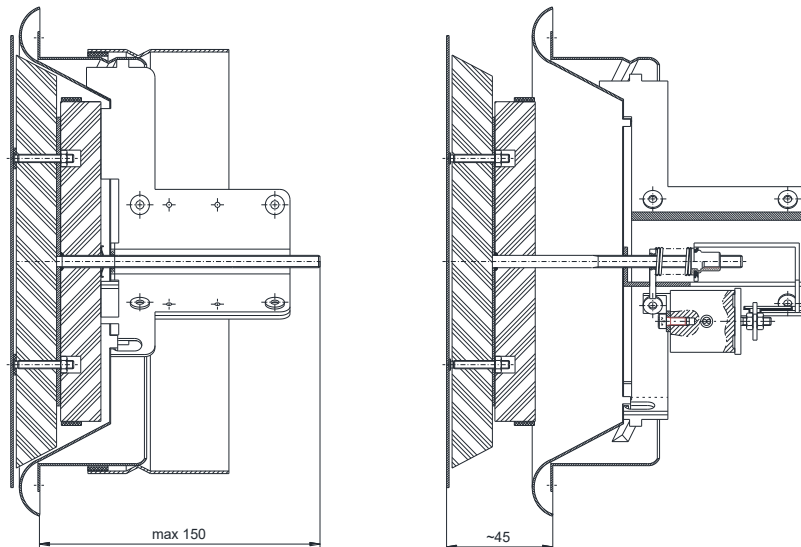
The mcr ZIPP type valve is manufactured in the following dimensions - diameters:

- Ø100
- Ø125
- Ø160
- Ø200

4. DEVICE DESIGN AND PRINCIPLE OF OPERATION

Design

The basic valve components include: a body with a round cross-section, a mobile shut-off cover (a mushroom), a connection stub pipe and a release and control mechanism started automatically after the thermal release or an electromagnetic release. The connection stub pipe is made of galvanised steel sheet. The valve nozzle is made of powder-painted steel sheet. The isolation partition is made of a fire resistant material, covered from outside with powder-painted steel sheet. The partition is set on a partially threaded mobile pin guided through the mechanism body.



Action

In a normal position, the shut-off valve is open. Closing the valve (safety position) takes place:

- remotely, by activation of an electromagnetic release 24V DC or 230V AC (controlling by the "current impulse" or a "current gap"),
- automatically, by activation of the thermal release

The design of the drive system allows regulation of performance during the time of normal valve operation (setting the gap between the mechanism body and the mushroom). The regulation takes place by rotating the mushroom along the valve axis. The flow is increased by rotating the mushroom in the counter-clockwise direction and decreased by rotating it in the clockwise direction.

NOTE

Under any circumstances do not tug at the valve cover shield in order to open it.

Release and control mechanisms

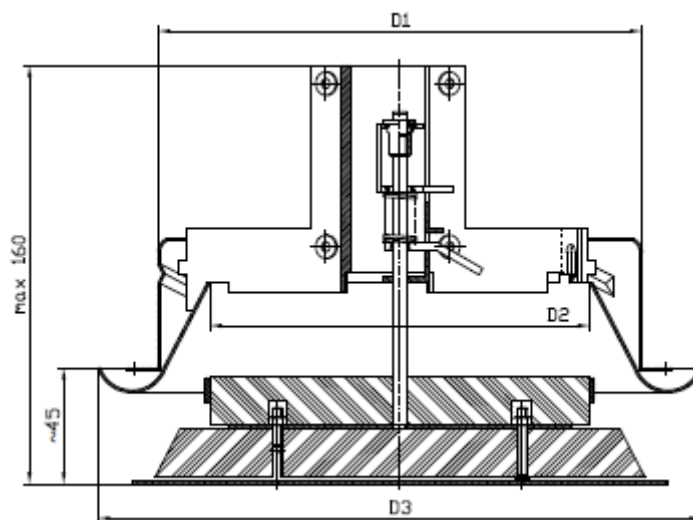
A release and control mechanism for the mcr ZIPP valve can be:

- An RST type mechanism composed of a drive spring and a fuse release
- An RST+EKI24 type mechanism composed of a drive spring, a fuse release and an electromagnetic release started by applying the supply voltage.
- An RST+EKP24 type mechanism composed of a drive spring, a fuse release and an electromagnetic release started by removing the supply voltage.
- An RST+EKI230 type mechanism composed of a drive spring, a fuse release and an electromagnetic release started by applying the supply voltage.
- An RST+EKP230 type mechanism composed of a drive spring, a fuse release and an electromagnetic release started by removing the supply voltage.

Optionally, there is a possibility to equip the valve with WK1 limit switches that signal the valve operation status (open/closed).

mcr ZIPP fire protection shut-off valve

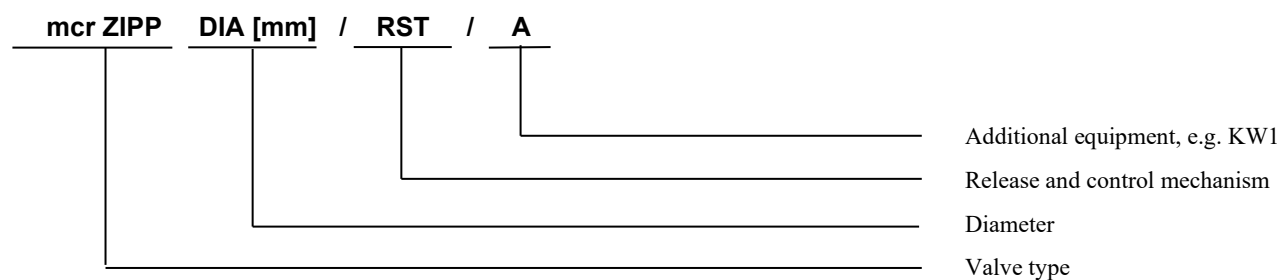
Main dimensions



| DIA | D1 | D2 | D3 |
|------|-----|-----|-----|
| [mm] | | | |
| 100 | 98 | 73 | 139 |
| 125 | 123 | 96 | 164 |
| 160 | 158 | 128 | 207 |
| 200 | 198 | 156 | 254 |

Main dimensions of the mcr ZIPP fire protection shut-off valve

5. DEVICE LABELLING



NOTE

As a default, the valve release temperature equals 72°C. In case another temperature value, it has to be specified in the order after prior confirmation of the temperature value with the Sales Department.

6. DEVICE INSTALLATION

NOTE

During the installation of valve and the finishing works, take into account the possibility of access to the device later and the disassembly of release and control mechanism in order to carry out the possible service works and technical inspections.

The mcr ZIPP valve can be installed in the following partitions (walls or ceilings):

- masonry walls – concrete with a thickness of at least 110 mm
- masonry walls from bricks or blocks at least 120 mm thick
- walls from panels at least 125 mm thick
- ceilings of at least 150 mm

Additionally, the valve can be installed:

- outside walls
- in batteries (multiple sets)

The mcr ZIPP shut-off valve may also be installed in partitions with lower fire resistance class. In case of such an installation, valves have fire protection equal to the fire protection of the partition, maintaining the smoke tightness criteria.

6.1. INSPECTION BEFORE THE INSTALLATION

Each valve is inspected before packaging and transporting by the manufacturer. After unpacking at the recipient, inspect visually in terms of possible deformation of the casing or damper damage during transport.

The valve is delivered in the closed position. Before installation, it should be armed.

In order to arm the RST mechanism, the following actions have to be taken:

- screw the valve from the connection stub pipe
- rotate the valve so that the mushroom is on top
- simultaneously release the locking sheet and press the valve nozzle at its circumference (fig. 4a)
- push the fuse element onto the catches (fig. 4b)

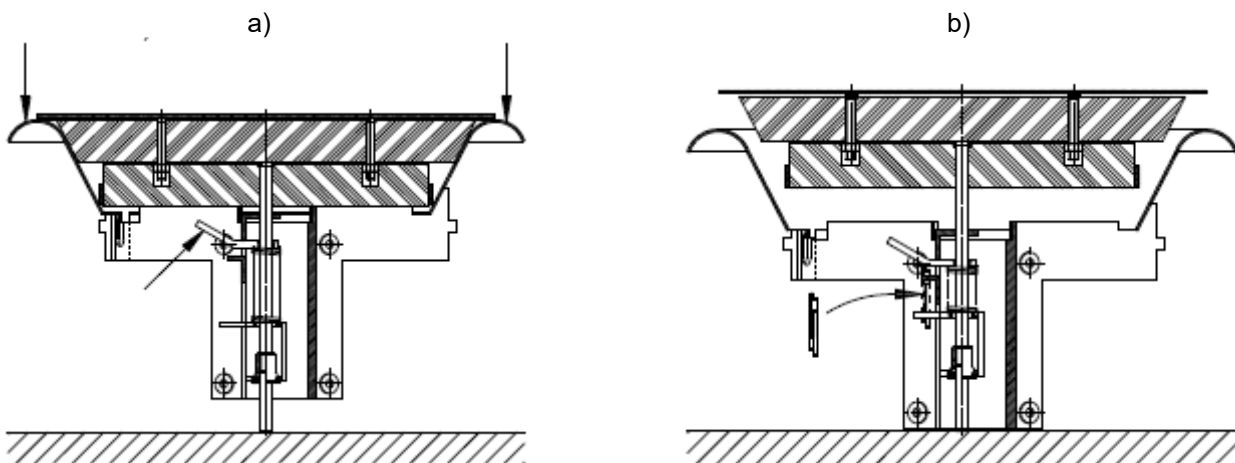


Figure 4. Arming the release and control mechanism:
a) points of applying the force; b) place of setting the thermal release.

mcr ZIPP fire protection shut-off valve

Before starting to arm the valve with the release and control mechanism of RST+EK type, make sure that the electromagnet operates correctly. In order to do so:

- plug the electrical wires into the terminal block (according to point 6.5.)
- **carefully clean the contact surfaces** and connect the plate with the electromagnet
- apply the signal that initialises the electromagnet release – supply voltage with the relevant value (after the initialising signal, the plate should detach from the electromagnet)

In order to arm the RST+EK release and control mechanism, the following actions have to be taken:

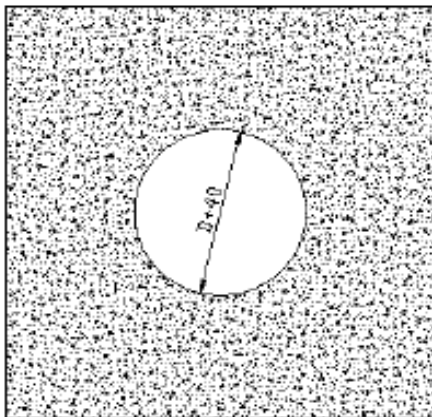
- screw the valve from the connection stub pipe
 - in the case of the RST+EKP mechanism (controlling via the "current gap"), plug all electric wires into the terminal block (in accordance with point 6.5.) and enable the electromagnet power supply.
 - in the case of the RST+EKI mechanism (controlling via the "current impulse"), plug all electric wires into the terminal block (in accordance with point 6.5.) and without enabling the electromagnet power supply.
- Connect the plate with the electromagnet
- rotate the valve so that the mushroom is on top
- simultaneously release the locking sheet and press the valve nozzle at its circumference (fig. 4a)
- push the fuse element onto the catches (fig. 2)

6.2. FIXING HOLE

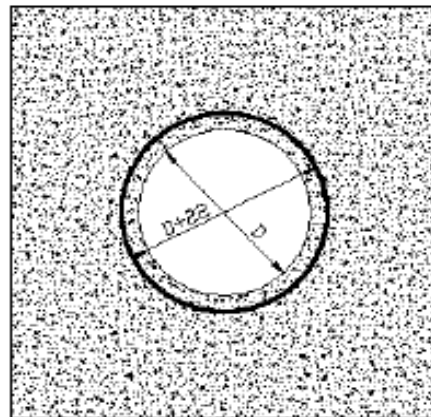
Minimum diameter of the hole that allows correct installation of the mcr ZIPP valve equals:

- $D + 22$ – in the case of a wall made of plasterboards
- $D + 40$ – in the case of concrete, masonry and ceiling partitions

In rigid walls and ceiling



In light plasterboards walls

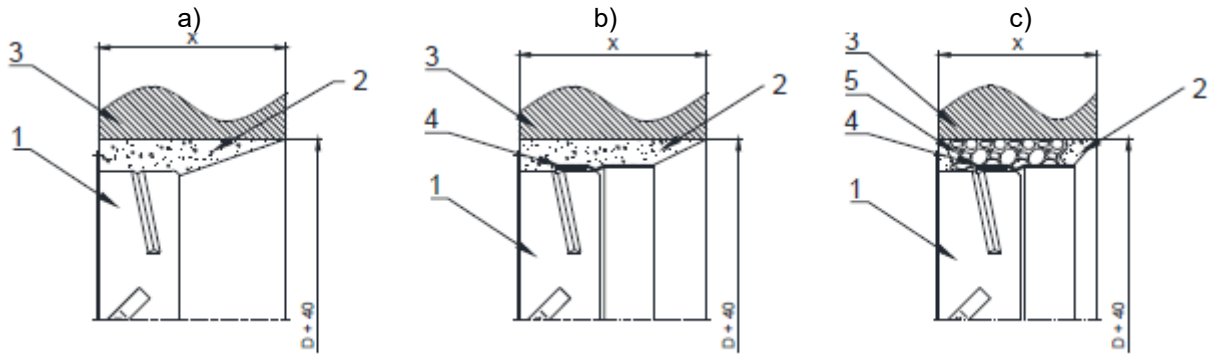


6.3. EMBEDDING / SETTING THE VALVE

INSTALLATION IN A CONCRETE OR MASONRY WALL

In the fixing hole, set the connection stub pipe with bent expansion sheets, so that the stub pipe axis is lined up with the hole axis. The gap between the stub pipe and the hole edge should be tightly packed with mortar or another material that provides the required fire resistance (fig. 5a). In case of installation through the wall to the duct, concurrently set the connection stub pipe and the extension stub pipe (figs 5b, 5c).

mcr ZIPP fire protection shut-off valve

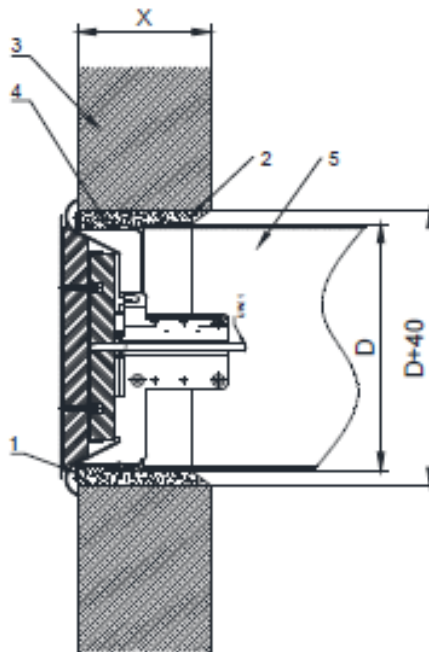


- 1- Connection stub pipe
- 2 – e.g. gypsum plaster or mortar
- 3 – Masonry or concrete wall
- 4 – Extension stub pipe
- 5 – Expanding polyurethane foam EI 120
- X – wall thickness

Figure 5. Sample setting of a connection stub pipe in a masonry wall

NOTE

Pay particular attention to maintain the roundness of the connection stub pipe when filling the gap with mortar. Possible surfaces which are not round will make it impossible to set the valve.



- 1- Connection stub pipe
- 2 – e.g. gypsum plaster or mortar
- 3 – Masonry or concrete wall
- 4 – Extension stub pipe
- 5 – ventilation duct
- X – wall thickness

Figure 7. Sample installation of the mcr ZIPP valve in a concrete or masonry wall

INSTALLATION IN A PLASTERBOARD WALL

In the fixing hole, place the connection stub pipe with bent expansion sheets, so that the stub pipe axis is lined up with the hole axis. The gap between the stub pipe and the wall should be tightly filled with mortar, polyurethane foam EI 120 or gypsum (fig. 9a). In case of installation through the wall to the duct, concurrently set the connection stub pipe and the extension stub pipe (figs 9b, 9c).

mcr ZIPP fire protection shut-off valve

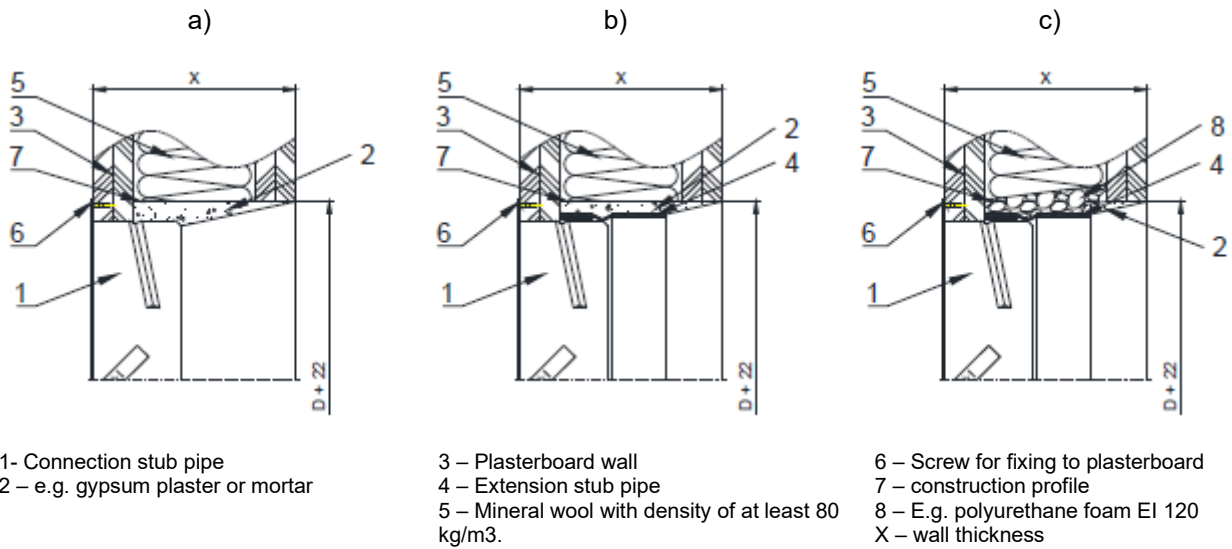


Figure 9. Sample setting of a connection stub pipe in a plasterboard wall

NOTE

Pay particular attention to maintain the roundness of the connection stub pipe when filling the gap with mortar. Possible surfaces which are not round will make it impossible to set the valve.

Set the prepared valve in the connection stub pipe. If it's possible to access the space between the nozzle and the stub pipe wall, it should be packed with mineral wool (fig. 10).

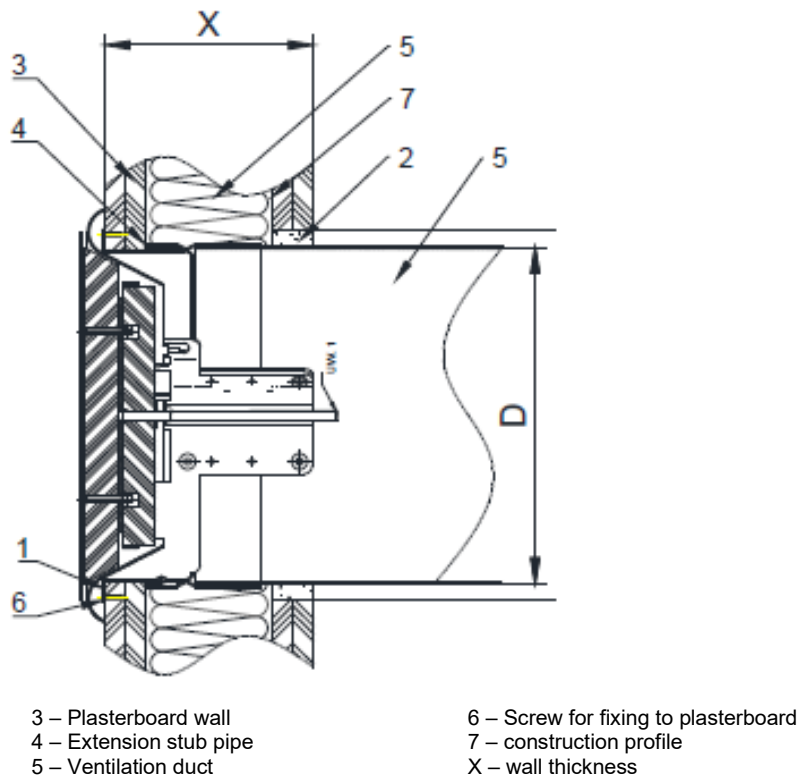
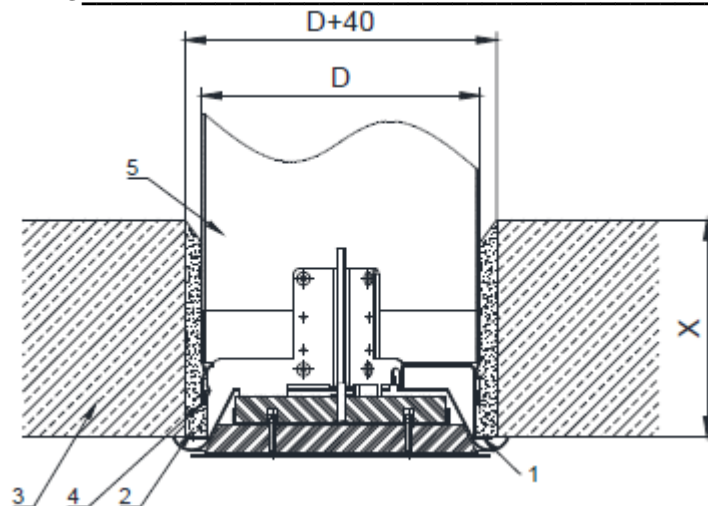


Figure 10. Sample installation of the mcr ZIPP valve in a plasterboard wall.

INSTALLATION IN THE CEILING



1- Connection stub pipe
2 – e.g. gypsum plaster or mortar

3 – Concrete ceiling
4 – Extension stub pipe

5 – ventilation duct
X – wall thickness

Figure 11. Sample method of installation for the mcr ZIPP valve in the ceiling

NOTE

During the installation of a mcr ZIPP, pay particular attention so that the thermal release (fuse element) do not get damaged, do not expose it to high temperature (fire, welders, soldering irons) that cause its activation (it is a single use element and is not subject to warranty replacement).

6.4. ELECTRICAL CONNECTIONS

Before the final setting of the valve in the connection stub pipe, connect the electrical lines for this system if there are any components that require such connection. Below you can see a connection method and the main data of the electrical components.

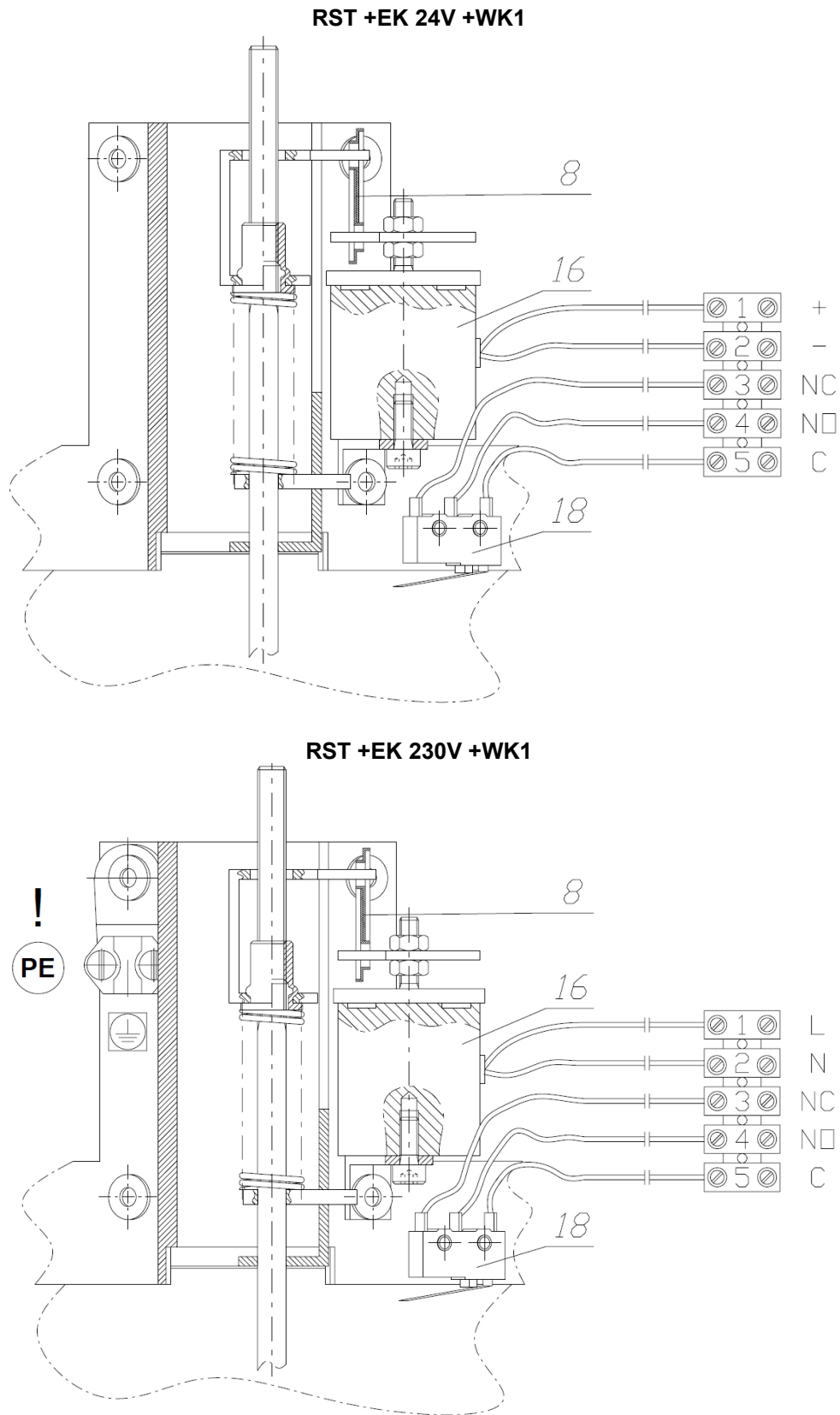


Figure 11. Connection of electrical components in a fire protection shut-off valve mcr ZIPP (8 - Thermal release; 16 - Electromagnetic release; 18 - WK1 limit switch)

mcr ZIPP fire protection shut-off valve

| performance variant | RST | RST+WK1 | RST +EKI24V | RST +EKP24V | RST +EKI230V | RST +EKP230V | MP230/24 |
|---------------------|-----|-------------|-------------|-------------|--------------|--------------|-------------------------|
| thermal release | + | + | + | + | + | + | - |
| limit switch | - | 250 V AC/5A | 250 V AC/5A | 250 V AC/5A | 250 V AC/5A | 250 V AC/5A | - |
| rated voltage | - | - | 24V DC | 24V DC | 230V AC | 230V AC | 230V AC/ wyj. 24V DC |
| power intake | - | - | 3,5W | 1,8W | 4VA | 5,5VA | 2W |

Diagram of electrical connections for the mcr ZIPP RST+WK1 valve

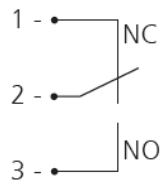
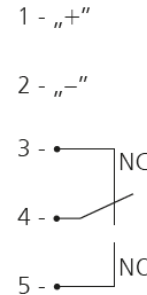


Diagram of electrical connections for the mcr ZIPP RST+EK+WK1 valve



RST+EK release and control mechanism can cooperate with the MP230/24 module. In case of using the MP230/24 component, the valve can be supplied/controlled using 230 V AC voltage. For the trigger and control mechanism of the "impulse" type damper, adequate power must be provided to ensure that the control signal is supplied to the device in the event of fire.

For proper operation of a device equipped with RST+EKI or RST+EKP mechanism, it is recommended that the rated voltage housed tolerance of 24V±2% or 230V±2%. Power supply devices other than listed above may cause malfunction and will not be covered by the warranty conditions.

The electrical connection should be made exactly according to the attached diagram and in accordance with the guidelines presented in point 6.4 of this documentation. It should be performed by a person with confirmed electrical qualifications, in accordance with applicable regulations. Any valve inspection work should be performed only after disconnecting the device from the power supply.

7. TRANSPORT AND STORAGE CONDITIONS

The valves are packed in cardboard boxes. Valves' collective packages are protected against damage with foil or other covering material. The valves may be transported by any means of transport, provided that they are protected against the effects of weather conditions. Valves located on the means of transport should be secured against changing their position during transport. Before installing the valve, perform a visual inspection of each of them. Do not carry the valve by grasping the connecting cable or put the device on the trigger and control mechanism. Do not hit or drop the valve. When carrying and installing the valve, rest the valve on the sides or body edges.

The valves should be stored in closed rooms that provide protection against external weather conditions. If the valve is stored on the ground, it should be placed on securing washers in order to protect the damper against damage.

Storage should take place in rooms where:

- there is no access to dust, gases, caustic vapors and other aggressive chemical vapors that can destroy insulating elements and structural elements;
- the flaps are not affected by direct sunlight and UV radiation;
- maximum relative humidity does not exceed 80% at the temperature of + 20 °C;
- the ambient temperature is between - 20 °C and + 40 °C;
- there are no vibrations.

8. MAINTENANCE AND SERVICE

MERCOR L&V devices should undergo periodical technical inspections and maintenance actions, no less frequent than 12 months during the entire operation period, that is during the warranty period and after it. Inspections and maintenance should be carried out by the manufacturer or by companies that have authorisation for servicing of MERCOR L&V devices.

The obligation to carry out regular service inspections of fire protection devices results from the Art. 3(3) of the Regulation by the Minister of Internal Affairs and Administration of 7 June 2010 on fire protection of buildings, other civil structures and areas (Journal of Laws 2010 No. 109, item 719).

It is recommended to execute, between inspections, the following:

- Inspections of the condition of electrical conditions, taking the mechanical damage particularly into account.
- Inspections of the condition of the supply voltage for the devices, which allowed the following tolerances:
 - 24V±10% for electric actuators
 - 24V±2% for electromagnetic release mechanism
 - 230V ±10% for electric actuators
 - 230V±2% for electromagnetic release mechanism
- Inspections of the condition of the devices' body, taking the mechanical damage particularly into account.
- Checking whether there are no obstacles which could influence correct operation of the devices.

To enable the performance of actions included in the range of service inspections, as well as service and warranty actions such as visual inspections or repairs it is mandatory that the user provides the physical access to the devices, e.g. by disassembly of the thermal insulation, disassembly of suspended ceilings, disassembly of other systems if they prevent free access to the device etc.

In the case of devices installed in ducts, it is recommended to carry out the revisions, e.g. mcr KRW type.

If devices are installed on the roof, ensure the possibility to enter the roof (ladder or lift).

In the matters related with technical inspections, maintenance and the device service, contact the representatives of the Service Department of MERCOR L&V serwis@mercor.com.pl, tel. 058/ 341 42 45 internal. 170 or fax 058/ 341 39 85 from 8 AM to 8 PM (Mon - Fri).

9. WARRANTY CONDITIONS

1. MERCOR L&V provides a 12-month quality guarantee and warranty for the equipment, counting from the date of purchase, unless the contract stipulates otherwise.
2. The purchaser is obliged to check the Products in terms of quality and quantity upon receipt.
3. Any defects, shortages or damage noticed must be entered in the receipt documents or on the consignment note and reported in writing to MERCOR L&V, with all damage to the shipment or product documented with photographs.
4. Reports of damage to the shipment, product or quantity shortages must be sent in writing to MERCOR L&V within 24 hours of the date of receipt of the shipment.
5. Defects not visible at the time of delivery must be reported immediately to MERCOR L&V together with photographic documentation, and reports of quality defects must be made no later than within 5 working days of the date of receipt of the Products.
6. MERCOR L&V reserves the right not to consider the above-mentioned reports in the event of failure to provide (receive) photographic documentation or after the above-mentioned deadlines have been exceeded.
7. Complaints can be made by telephone: 58/341-42-45, by fax: 58/341-39-85, by e-mail: reklamacje@mercor.com.pl or by sending a letter to the following address: MERCOR L&V, ul. Grzegorza z Sanoka 2, 80-408 Gdańsk.
8. If, during the warranty and guarantee period, physical defects covered by the warranty and/or guarantee become apparent, MERCOR L&V undertakes to remove them as soon as possible, counting from the date of receipt of a written notification and delivery of proof of purchase (contract, invoice, delivery document), subject to point 14.
9. MERCOR L&V reserves the right to extend the repair time in the case of complex repairs or repairs requiring the purchase of non-standard components or spare parts.
10. Liability under the warranty and guarantee covers only defects arising from causes inherent in the equipment sold.
11. In the case of defects arising as a result of improper use of the equipment (not in accordance with the technical documentation) or other reasons specified in point 14, the Buyer/warranty holder may be charged with the costs of their removal.
12. The condition for the removal of defects is that the reporting party provides full access to the work site, in particular ensuring: a lift in the case of devices installed at a height of more than 3 m, free access to the rooms where the devices are installed and the necessary inspections, removal of thermal insulation, removal of suspended ceilings, removal of other installations if they prevent free access to the device.

mcr ZIPP fire protection shut-off valve

13. If it is not possible to repair the device at the place where it is installed, MERCOR L&V reserves the right to dismantle it, deliver it to the address indicated by MERCOR L&V and reassemble it. The cost of this operation shall be borne by the purchaser/warranty holder.
14. The warranty and guarantee do not cover:
 - damage and failure of devices caused by improper operation (not in accordance with the technical documentation), interference by the user or persons not authorised by MERCOR L&V, lack of periodic technical inspections, failure to perform maintenance activities described in the 'MAINTENANCE AND SERVICE' section of this document;
 - damage to equipment caused by reasons other than those attributable to MERCOR L&V, in particular: random events such as torrential rain, flooding, hurricanes, flooding, lightning strikes, power surges, explosions, hail, aircraft crashes, fire, avalanches, landslides and secondary damage resulting from the above causes. Torrential rain is defined as rain with a yield coefficient of at least 4, as determined by the Institute of Meteorology and Water Management (IMI&GW). If it is not possible to determine the coefficient referred to in the preceding sentence, the actual condition and extent of damage at the place where it occurred, which will indicate the effect of torrential rain, will be taken into account. A hurricane is considered to be wind with a speed of not less than 17.5 m/s (damage is considered to have been caused by a hurricane if hurricane activity has been confirmed in the immediate vicinity);
 - damage resulting from failure to comply with the obligation to immediately report a discovered defect;
 - deterioration in the quality of coatings caused by natural ageing processes;
 - defects caused by the use of abrasive or aggressive cleaning agents;
 - damage caused by aggressive external factors, in particular chemical and biological factors, or whose origin is related to production processes and activities carried out in the facility or in its immediate vicinity, where the equipment was installed;
 - parts subject to natural wear and tear during operation (e.g. seals), unless they have a manufacturing defect;
 - damage caused by improper transport, unloading or storage of the equipment;
 - damage caused by installation that does not comply with the technical documentation and good construction practice;
 - devices or their parts in the event of breakage or damage to the nameplate or warranty seals.
15. The warranty and guarantee shall expire with immediate effect if:
 - The buyer/warranty and guarantee beneficiary makes structural changes on their own without prior agreement with MERCOR L&V,
 - periodic technical inspections and maintenance activities were not performed on time or were performed by unauthorised persons or a service provider not authorised by MERCOR L&V, or if the equipment was operated incorrectly,
 - there has been any interference by persons not authorised by MERCOR L&V – apart from activities falling within the scope of normal operation of the equipment.
16. The purchaser/warranty and guarantee holder is obliged to operate the equipment properly (in accordance with the technical documentation) and to carry out periodic technical inspections and maintenance activities in accordance with the rules described in this document in the section 'MAINTENANCE AND SERVICE'.

The relevant provisions of the Polish Civil Code shall apply to all matters not regulated in these Warranty Terms & Conditions.



1396

MERCOR Light&Vent Sp. z o.o. (MERCOR L&V) and 380-470

15

1396-CPR-0092

PN-EN 15650:2010 (EN 15650:2010)

Fire damper / valve

mcr ZIPP

| | |
|--|--|
| <p>Nominal activation conditions / sensitivity: - sensor activation temperature - reliability sensor</p> | <p>Positive result Positive result</p> |
| <p>Response time: - closure time</p> | <p>Positive result</p> |
| <p>Reliability:</p> | <p>50 cycles - Positive result</p> |
| <p>Fire resistance: - Integrity E - Insulation I - Smoke leakage S - Mechanical stability (E class) - Maintenance of the cross section (E class)</p> | <p>EI 120 (v_e h_o o -- >i)S EI 120 (v_e h_o i -- >o) EI 180 (v_e o -- >i)S</p> |
| <p>Operation time durability: - sensor activation temperature - reliability sensor</p> | <p>Positive result Positive result</p> |
| <p>Operational reliability stability: - opening / closing cycle test</p> | <p>Positive result</p> |