



# Fire protection valves

## Type FV-EU

according to Declaration of Performance

DoP / FV-EU / DE / 002



Read the instructions prior to performing any task!

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## General information

### About this manual

This operating and installation manual enables operating or service personnel to correctly install the TROX product described below and to use it safely and efficiently.

This operating and installation manual is intended for use by fitting and installation companies, in-house technicians, technical staff, properly trained persons, and qualified electricians or air conditioning technicians.

It is essential that these individuals read and fully understand this manual before starting any work. The basic prerequisite for safe working is to comply with the safety notes and all instructions in this manual.

The local regulations for health and safety at work and general safety regulations also apply.

This manual must be given to the facilities manager when handing over the system. The facilities manager must include the manual with the system documentation. The manual must be kept in a place that is accessible at all times.

Illustrations in this manual are mainly for information and may differ from the actual design.

### Copyright

This document, including all illustrations, is protected by copyright and pertains only to the corresponding unit.

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This applies in particular to:

- Publishing content
- Copying content
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- Saving content to electronic systems and editing it

### TROX Technical Service

To ensure that a fault is processed as quickly as possible, please keep the following information ready:

- Delivery date of the TROX components and systems
- TROX order number
- Product name
- Brief description of the fault

### Contact in case of a fault

Online	<a href="http://www.troxtechnik.com">www.troxtechnik.com</a>
Phone	+49 2845 202-400

### Limitation of liability

The information in this manual has been compiled with reference to the applicable standards and guidelines, the state of the art, and our expertise and experience of many years.

The manufacturer does not accept any liability for damages resulting from:

- Non-compliance with this manual
- Incorrect use
- Operation or handling by untrained individuals
- Unauthorised modifications
- Technical changes
- Use of non-approved replacement parts

The actual scope of delivery may differ from the information in this manual for bespoke constructions, additional order options or as a result of recent technical changes.

The obligations agreed in the order, the general terms and conditions, the manufacturer's terms of delivery, and the legal regulations in effect at the time the contract is signed shall apply.

We reserve the right to make technical changes.

### Defects liability

For details regarding defects liability please refer to Section VI, Warranty Claims, of the Delivery and Payment Terms of TROX GmbH.

The Delivery and Payment Terms of TROX GmbH are available at [www.troxtechnik.com](http://www.troxtechnik.com).

## Safety notes

Symbols are used in this manual to alert readers to areas of potential hazard. Signal words express the degree of the hazard.

### **DANGER!**

Imminently hazardous situation which, if not avoided, will result in death or serious injury.

### **WARNING!**

Potentially hazardous situation which, if not avoided, could result in death or serious injury.

### **CAUTION!**

Potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

### **NOTICE!**

Potentially hazardous situation which, if not avoided, may result in property damage.

### **ENVIRONMENT!**

Environmental pollution hazard.

## Tips and recommendations



*Useful tips and recommendations as well as information for efficient and fault-free operation.*

## Safety notes as part of instructions

Safety notes may refer to individual instructions. In this case, safety notes will be included in the instructions and hence facilitate following the instructions. The above listed signal words will be used.

Example:

1. ▶ Untighten the screw.

2. ▶

### **CAUTION!**

**Danger of finger entrapment when closing the lid.**

Be careful when closing the lid.

3. ▶ Tighten the screw.

## Specific safety notes

The following symbols are used in safety notes to alert you to specific hazards:

### Warning signs



### Type of danger

Warning – danger zone.

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## 1 Safety

### 1.1 General safety notes

**Sharp edges, sharp corners and thin sheet metal parts**

#### **CAUTION!**

**Danger of injury from sharp edges, sharp corners and thin sheet metal parts!**

Sharp edges, sharp corners and thin sheet metal parts may cause cuts or grazes.

- Be careful when carrying out any work.
- Wear protective gloves, safety shoes and a hard hat.

#### Electrical voltage

#### **DANGER!**

Danger of electric shock! Do not touch any live components! Electrical equipment carries a dangerous electrical voltage.

- Only skilled qualified electricians are allowed to work on the electrical system.
- Switch off the power supply before working on any electrical equipment.

### 1.2 Correct use

- The fire protection valve is used as an automatic shut-off device to prevent fire and smoke from spreading through ducting.
- The fire protection valve is suitable for supply air and extract air systems.
- Operation of the fire protection valve is allowed only in compliance with installation regulations and the technical data in this installation and operating manual.
- Modifications of the fire protection valve and the use of replacement parts that have not been approved by TROX are not permitted.

#### Incorrect use

#### **WARNING!**

**Danger due to incorrect use!**

Incorrect use of the fire protection valve can lead to dangerous situations.

Never use the fire protection valve:

- in areas with potentially explosive atmospheres
- as a smoke extract damper
- without connecting it to the ducting
- outdoors without sufficient protection against the effects of weather
- in atmospheres where chemical reactions, whether planned or unplanned, may cause damage to the fire protection valve or lead to corrosion

### 1.3 Qualified staff

#### **WARNING!**

**Danger of injury due to insufficiently qualified individuals!**

Incorrect use may cause considerable injury or damage to property.

- Only skilled qualified personnel must carry out work.

The following degrees of qualification are required for the work described in the operating manual:

#### **Skilled qualified electrician**

Skilled qualified electricians are trained individuals who have specialist knowledge and experience and who know the relevant standards and guidelines to be able to work on electrical systems and to recognise and avoid potential dangers.

#### **Specialist personnel**

Specialist personnel are individuals who have sufficient professional or technical training, knowledge and actual experience to enable them to carry out their assigned duties, understand any potential hazards related to the work under consideration, and recognise and avoid any risks involved.

## 2 Technical data

### 2.1 General data

Nominal sizes	Ø 100, 125, 160, 200 mm
Casing length	150 mm (300 mm with extension)
Volume flow rate range – extract air	up to 111 l/s up to 400 m³/h
Volume flow rate range – supply air	up to 58 l/s up to 210 m³/h
Operating temperature	0 – 50 °C
Release temperature	72 °C
Closed valve cone air leakage	EN 1751, Class 2
EC conformity	<ul style="list-style-type: none"> <li>Construction Products Regulation (EU) no. 305/2011</li> <li>EN 15650 – Ventilation for buildings – Fire dampers</li> <li>EN 13501-3 – Classification – Part 3: Fire resisting ducts and fire dampers</li> <li>EN 1366-2 – Fire resistance tests for service installations – Part 2: Fire dampers</li> <li>EN 1751 Ventilation for buildings – Air terminal devices</li> </ul>
Declaration of performance	DoP / FV-EU / DE / 002

### Rating plate

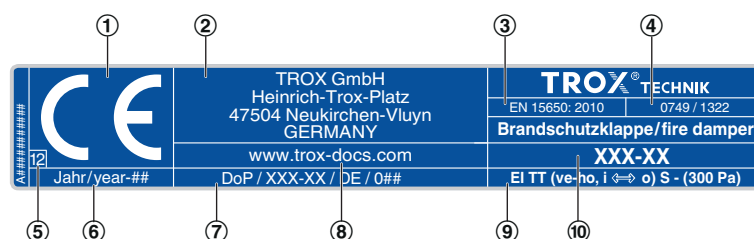


Fig. 1: Rating plate (example)

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>① CE mark</li> <li>② Manufacturer's address</li> <li>③ Number of the European standard and year of its publication</li> <li>④ Notified body</li> <li>⑤ The last two digits of the year in which the CE marking was affixed</li> </ul> | <ul style="list-style-type: none"> <li>⑥ Year of manufacture</li> <li>⑦ No. of the declaration of performance</li> <li>⑧ Website from which the DoP can be downloaded</li> <li>⑨ Regulated characteristics; the fire resistance class depends on the application and may vary ↗ on page 12</li> <li>⑩ Type</li> </ul> |
|--|---|

## 2.2 FV-EU with fusible link

### Dimensions and weight

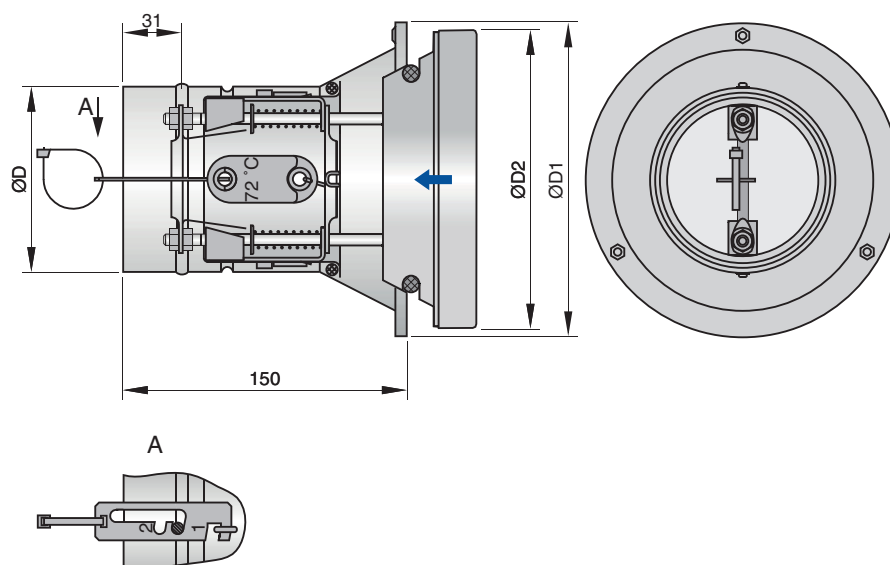


Fig. 2: FV-EU with fusible link

Dimensions [mm] / Weight [kg]				
Nominal size	100	125	160	200
ØD	98	123	158	198
ØD1	164	189	224	264
ØD2	158	183	218	258
Weight	1.7	2.2	3.0	4.0

## 2.3 FV-EU with fusible link, limit switch and extension piece

### Dimensions and weight

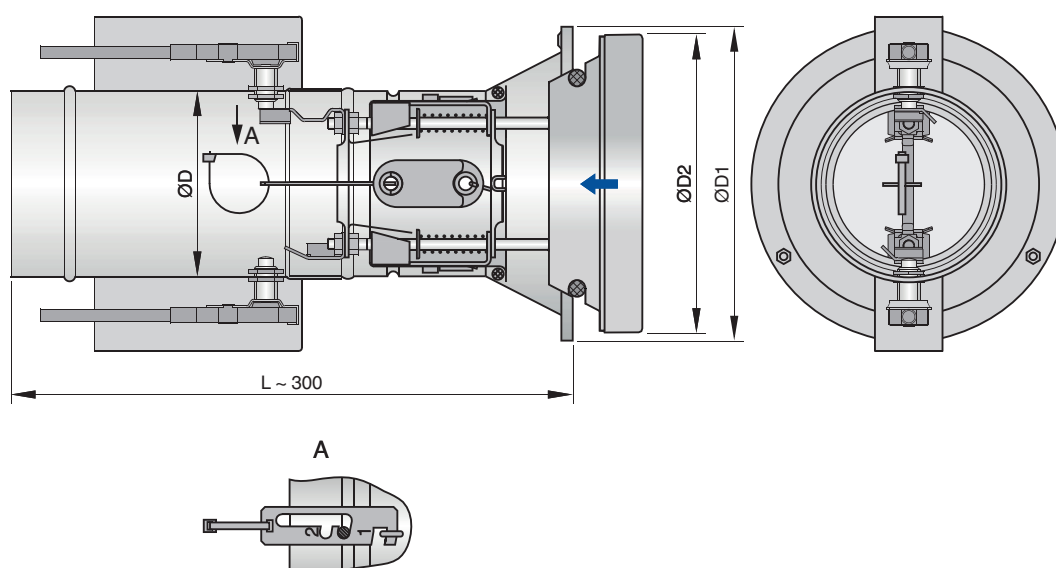


Fig. 3: FV-EU with fusible link, limit switch and extension piece



Dimensions [mm] / Weight [kg]				
Nominal size	100	125	160	200
ØD	98	123	158	198
ØD1	164	189	224	264
ØD2	158	183	218	258
Weight	2.9	3.5	4.7	5.7

## Limit switch

Limit switch	
Connecting cable length / cross section	2 m / 3 × 0.75 mm <sup>2</sup>
Protection level	IP 56
IEC protection class	I with protective earth III without protective earth
Maximum switching current	5 A
Maximum switching voltage	30 V DC, 250 V AC

## 3 Transport and storage

### Delivery check

Check delivered items immediately after arrival for transport damage and completeness. In case of any damage or an incomplete shipment, contact the shipping company and your supplier immediately.

- Fire protection valve
  - Attachments/accessories, if any
- Operating manual (1 per shipment)

### Transport on site

If possible, take the fire protection valve in its transport packaging up to the installation location.

### Storage

If the unit has to be stored temporarily:

- Remove any plastic wrapping.
- Protect the unit from dust and contamination.
- Store the unit in a dry place and away from direct sunlight.
- Do not expose the unit to the effects of weather (not even in its packaging).
- Do not store the unit below -40 °C or above 50 °C.

### Packaging

Properly dispose of packaging material.

## 4 Parts and function

Fire protection valves are used as safety related components in ventilation systems. They let air pass and are used as automatic shut-off devices to prevent fire and smoke from spreading through ducting. Fire protection valves serve as a kind of interface between duct and room and are installed in walls and ceilings.

During normal operation the fire protection valve is open to enable air passage through the ventilation system. If the temperature increases in the event of a fire, the valve closes. Closure is triggered at 72 °C. If the fire protection valve closes due to a temperature increase (i.e. in the event of a fire), it must not be reopened.

To ensure proper functioning of the fire protection valve, tests must be carried out in regular intervals. ↪ 21

As an option, the fire protection valve can be either supplied or subsequently fitted with one or two limit switches (this depends on the installation situation and access from the rear). The limit switches can signal the valve position to the central BMS or fire alarm system. One limit switch each is required for valve positions OPEN and CLOSED.

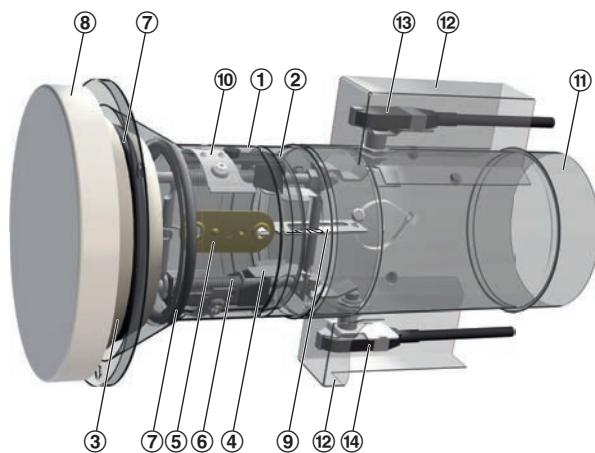


Fig. 4: FV-EU with limit switch and extension piece

- ① Installation subframe (subframe and fixing material are supplied separately)
- ② Spigot
- ③ Valve cone
- ④ Flat springs
- ⑤ Fusible link 72 °C
- ⑥ Spring (for closure)
- ⑦ Seal
- ⑧ Valve disc with seal
- ⑨ Adjustment device (position 1: large air volume; position 2: small air volume)
- ⑩ Bayonet fixing
- ⑪ Extension piece
- ⑫ Sheet metal cover
- ⑬ Limit switch, indicating OPEN
- ⑭ Limit switch, indicating CLOSED

### Functional description

In the event of a fire, the valve is triggered by a fusible link. If the temperature inside the fire protection valve rises to 72 °C, the fusible link triggers a coil spring mechanism. The coil spring mechanism then causes the fire protection valve to close.

## 5 Installation

### 5.1 Installation situations



#### Note

The performance classes of the fire protection valve and the wall or ceiling slab may differ. The lower performance class determines the performance class of the overall system.

Installation situations					
Supporting construction	Installation location	Minimum thickness [mm]	Class of performance EI TT (v <sub>e</sub> -h <sub>o</sub> , i ↔ o) S	Installation type	Installation information
<b>Solid walls</b> Gross density ≥ 500 kg/m³	In solid walls	100	EI 120 (v <sub>e</sub> , i ↔ o) - (300 Pa) S	N	↪ 14
<b>Solid ceiling slabs</b> Gross density ≥ 600 kg/m³	In solid ceiling slabs	150	EI 90 (h <sub>o</sub> , i ↔ o) - (300 Pa) S	N	↪ 15
<b>Lightweight partition walls</b>	In lightweight partition walls with metal support structure and cladding on both sides	100	EI 120 (v <sub>e</sub> , i ↔ o) - (300 Pa) S	N	↪ 17

N = Mortar-based installation

### 5.2 Safety notes on installation

#### Sharp edges, sharp corners and thin sheet metal parts



#### CAUTION!

**Danger of injury from sharp edges, sharp corners and thin sheet metal parts!**

Sharp edges, sharp corners and thin sheet metal parts may cause cuts or grazes.

- Be careful when carrying out any work.
- Wear protective gloves, safety shoes and a hard hat.

Please note:

- The fire protection valve must remain accessible for inspection and maintenance work.
- Loads imposed on the casing may impair the function of the fire protection valve. The unit must hence be installed without torsion.
- Mortar-based installation: The perimeter gap »s« must be large enough such that mortar can be filled in even in case of thicker walls.
- Close larger installation openings or cut holes according to the wall structure, e.g. masonry work.
- If necessary, remove the fire protection valve from the installation subframe before you install it. ↪ 21
- In case of mortar-based installation, protect the limit switches from mortar.
- The function of the fire protection valve must be checked before installation. ↪ 21

### 5.3 General installation information



#### NOTICE!

**Risk of damage to the fire protection valve**

- Protect the fire protection valve from contamination and damage.
- Cover openings and release mechanism (e.g. with plastic foil) to protect them from mortar and dripping water.

#### Using extension pieces

For walls with a thickness of > 115 mm using an extension piece on the fire protection valve simplifies connecting it to the duct after installation.

### Attaching the fixing tabs and trim ring to the installation subframe

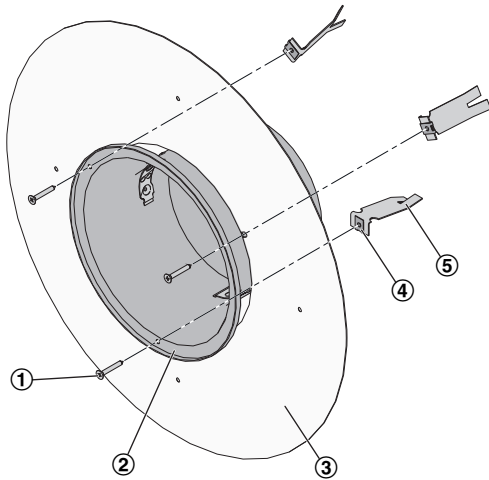


Fig. 5: Installation subframe for FV-EU

- ① Screw
- ② Installation subframe
- ③ Trim ring (optional), circular or square
- ④ Cage nut
- ⑤ 3 fixing tabs, one every 120°

For mortar-based installation an optional trim ring (circular or square) may be used.

With trim ring:

Push the trim ring ③ from the installation side onto the installation subframe ②. Slightly spread the fixing tabs ⑤. Attach cage nuts ④ to the fixing tabs and screw them ① to the installation subframe ②. Trim ring ③ and fixing tabs ⑤ are now firmly attached to the installation subframe ②.

Without trim ring:

Slightly spread the fixing tabs ⑤. Attach cage nuts ④ to the fixing tabs and screw them ① to the installation subframe ③.

### Acceptable mortars for mortar-based installation

In case of mortar-based installation, the open spaces between the damper casing and the wall or ceiling slab must be closed off with mortar. Entrapped air is to be avoided. The mortar bed depth should be equal to the thickness of the wall but must be at least 100 mm.

The following mortars are acceptable:

- DIN 1053: Groups II, IIa, III, IIIa; fire protection mortar of groups II, III
- EN 998-2: Classes M 2.5 to M 10 or fire protection mortar of classes M 2.5 to M 10
- Equivalent mortars that meet the requirements of the above standards, gypsum mortar or concrete

### 5.3.1 After installation

- Clean the installation subframe.
- Connect the ductwork.
- Insert fire protection valve into the installation subframe. § 21
- Make electrical connections.

## 5.4 Solid walls

### 5.4.1 Mortar-based installation

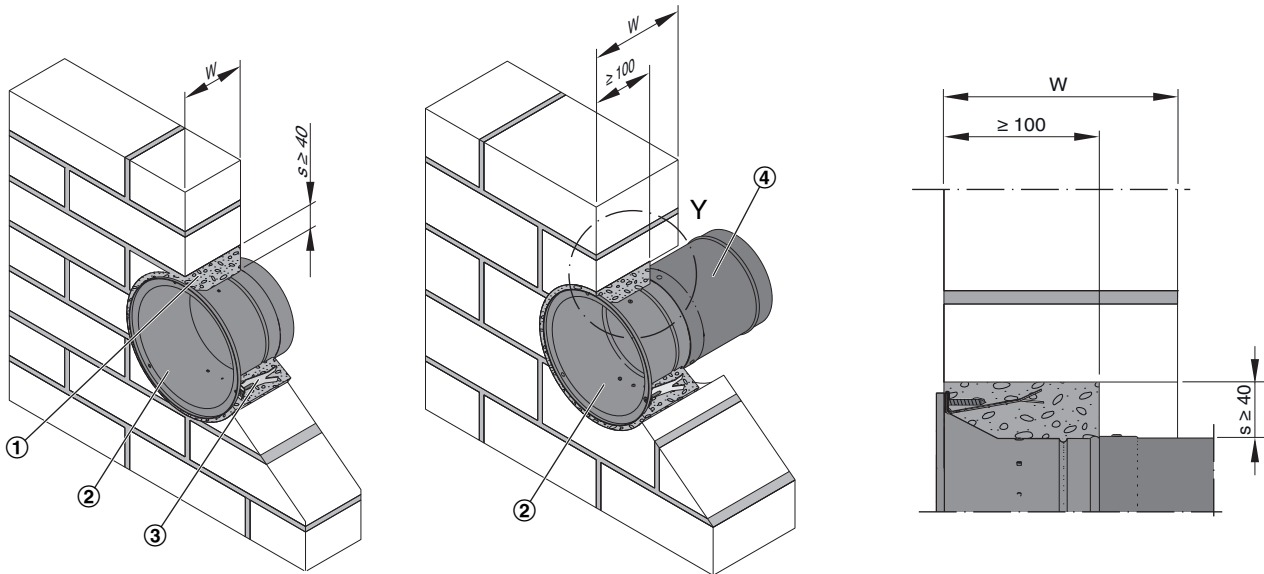


Fig. 6: Installation into a solid wall

- ① Mortar
- ② Installation subframe
- ③ 3 fixing tabs, one every 120°
- ④ Extension piece

#### Personnel:

- Specialist personnel

#### Materials:

- Mortar ↗ 'Acceptable mortars for mortar-based installation' on page 13

#### Requirements

- Performance class EI 120 S
  - Solid walls or fire walls made of, for example, concrete, aerated concrete, masonry, or solid gypsum wallboards according to EN 12859 (without open spaces), gross density  $\geq 500 \text{ kg/m}^3$  and  $W \geq 100 \text{ mm}$
  - $\geq 75 \text{ mm}$  distance to load-bearing structural elements
  - $\geq 200 \text{ mm}$  distance between two fire protection valves
1. ▶ Create an appropriate opening or cut hole:  $\text{ØDN} + \text{at least } 80 \text{ mm}$   
Attach the fixing tabs (and the circular or square trim ring, if any) to the valve.
  2. ▶ Push the installation subframe into the installation opening and secure it. Make sure that the valve is flush with the wall.  
If the wall thickness is  $>115 \text{ mm}$ , extend the fire protection valve on the installation side with an extension piece or a spiral duct.
  3. ▶ Close off the perimeter gap »s« with mortar. The mortar bed depth must be at least 100 mm.
  4. ▶ Once the mortar has cured, insert the fire protection valve into the installation subframe ↗ Chapter 8 'Functional test' on page 21.



#### Installation while erecting the solid wall

If the installation subframe is installed as the wall is being erected, the perimeter gap »s« is not required. The open spaces between the installation subframe and the wall must be closed off with mortar. Entrapped air is to be avoided. The mortar bed depth should be equal to the thickness of the wall.

## 5.5 Solid ceiling slabs

### 5.5.1 Mortar-based installation

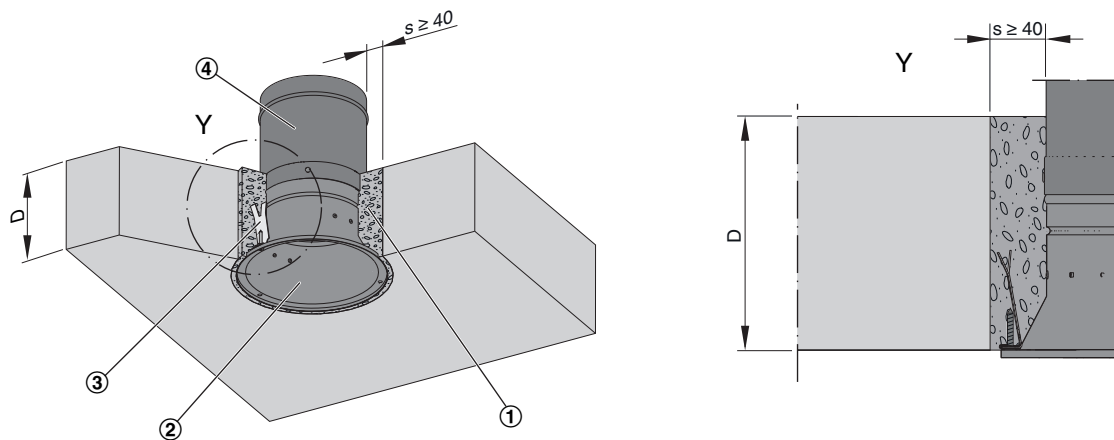


Fig. 7: Mortar-based installation into the ceiling slab

- ① Mortar
- ② Installation subframe
- ③ 3 fixing tabs, one every 120°
- ④ Extension piece

#### Personnel:

- Specialist personnel

#### Materials:

- Mortar ↗ 'Acceptable mortars for mortar-based installation' on page 13

#### Requirements

- Performance class EI 90 S
  - Solid ceiling slabs without open spaces, made of concrete or aerated concrete, gross density  $\geq 600 \text{ kg/m}^3$  and  $D \geq 150 \text{ mm}$
  - $\geq 75 \text{ mm}$  distance to load-bearing structural elements
  - $\geq 200 \text{ mm}$  distance between two fire protection valves
1. ▶ Create an appropriate opening or cut hole:  $\text{ØDN} + \text{at least } 80 \text{ mm}$   
Attach the fixing tabs (and the circular or square trim ring, if any) to the valve.
  2. ▶ Push the installation subframe into the installation opening and secure it. Make sure that the valve is flush with the ceiling.  
Extend the installation subframe with an extension piece or a spiral duct on the installation side.
  3. ▶ Close off the perimeter gap »s« with mortar. The mortar bed depth must be at least 150 mm.
  4. ▶ Once the mortar has cured, insert the fire protection valve into the installation subframe ↗ Chapter 8 'Functional test' on page 21.



#### Installation while completing the ceiling slab

If the fire installation subframe is installed as the ceiling slab is being completed, the perimeter gap »s« is not required.

Protect the clear opening and the limit switches (if any) from contamination, e.g. with plastic foil.

## 5.6 Lightweight partition walls with metal support structure and cladding on both sides

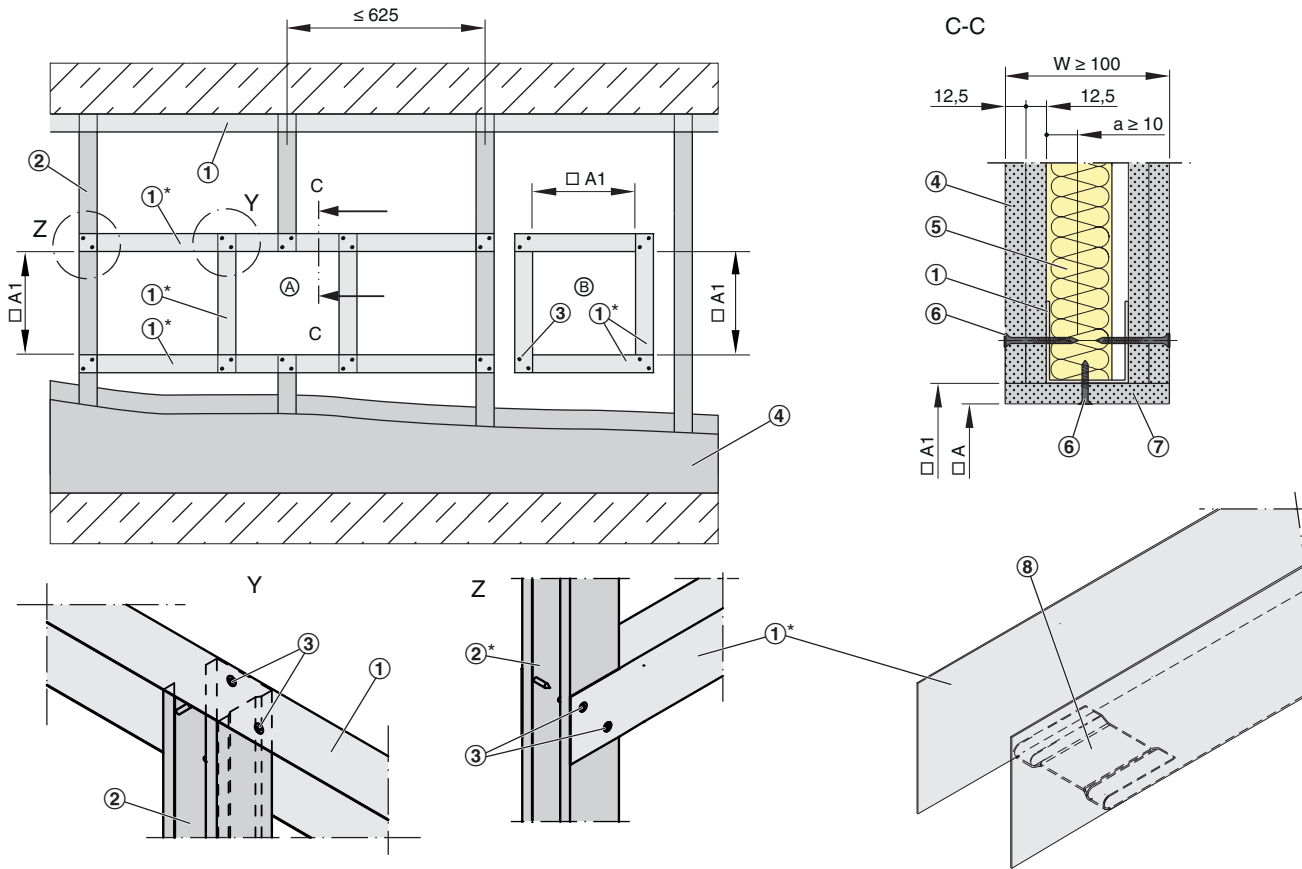


Fig. 8: Lightweight partition wall with metal support structure and cladding on both sides

- |   |   |
|---|---|
| ① UW section  | ⑥ Dry wall screw  |
| ② CW section  | ⑦ Optional trim panels  |
| ③ Screw or steel rivet  | ⑧ Fold the tab inward or cut it off   |
| ④ Double layer cladding, on both sides of the metal stud system | * closed end must face installation opening □A  |
| ⑤ Mineral wool (depending on wall construction)                 | □A Opening in the metal support structure (if no trim panel is to be installed: □A = □A1) |

### Requirements

- Lightweight partition walls with metal support structure and cladding on both sides, with European classification to EN 13501-2 or equivalent national classification
- Cladding on both sides made of gypsum bonded or cement bonded panel materials or fibre-reinforced gypsum, wall thickness  $W \geq 100$  mm
- $\leq 625$  mm distance between metal studs
- The installation opening must be stabilised with a reinforcing section or with horizontal and vertical sections
- Additional layers of cladding or double stud systems are approved (installation details are available upon request)
- Duct connection with flexible connector (recommended)

### Erecting a wall and creating an installation opening

- Erect the lightweight partition wall according to the manufacturer's instructions and create an installation opening, see Fig. 8
- – Option Ⓐ: Provide the installation opening in the metal support structure with support sections.
- – Option Ⓑ: After cladding the wall, create a square wall opening and brace it with a perimeter metal section.



### 5.6.1 Mortar-based installation

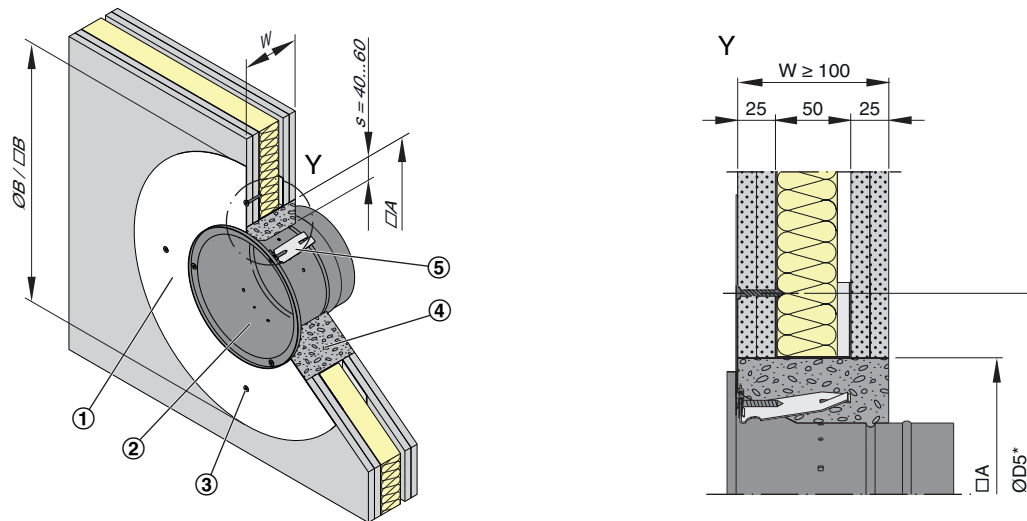


Fig. 9: Mortar-based installation

- ① Trim ring (optional), circular or square
- ② Installation subframe
- ③ Screw fixing, by others, pitch circle = ØD5\*
- ④ Mortar
- ⑤ 3 fixing tabs, one every 120°

Installation opening [mm]				
Nominal size	100	125	160	200
□A	Nominal size + 80...120 mm			
Trim ring, circular ØB	375	410	460	515
Trim ring, square □B	290	315	350	390
ØD5*	270	295	330	370

\* identical for circular and square trim rings

**Personnel:**

- Specialist personnel

**Materials:**

- Mortar ↗ *'Acceptable mortars for mortar-based installation' on page 13*

**Requirements**

- Performance class up to EI 120 S
  - Lightweight partition walls with metal support structure and cladding on both sides,  $W \geq 100$  mm; detailed specification ↗ *on page 16*.
  - $\geq 75$  mm distance to load-bearing structural elements
  - $\geq 200$  mm distance between two fire protection valves
  - Duct connection with flexible connector (recommended)
1. ▶ Erect the lightweight partition wall according to the manufacturer's instructions and create an installation opening,  $\square A = \text{nominal size} + 80 \dots 120$  mm ↗ *on page 16*.  
Attach the fixing tabs (and the circular or square trim ring, if any) to the valve.
  2. ▶ Push the installation subframe into the installation opening and secure it. Make sure that the valve is flush with the wall. (If a trim ring is used, screw it to the lightweight partition wall.)  
If the wall thickness is  $>115$  mm, extend the fire protection valve on the installation side with an extension piece or a spiral duct.
  3. ▶ Close off the perimeter gap »s« with mortar.
  4. ▶ Once the mortar has cured, insert the fire protection valve into the installation subframe ↗ *Chapter 8 'Functional test' on page 21*.

## 6 Connecting the ductwork

### 6.1 Ducts

Ducts of combustible or non-combustible materials may be connected to fire protection valves.

### 6.2 Limiting duct expansion

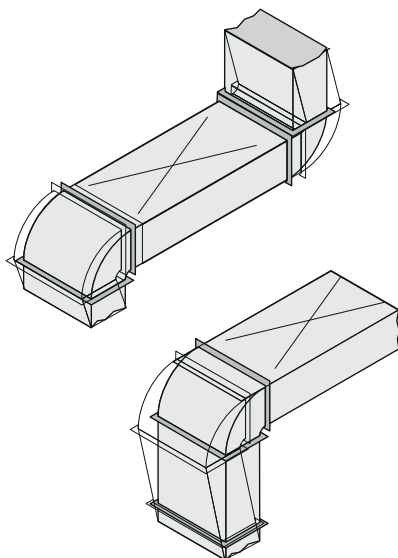


Fig. 10: Limiting loads

Ducting must be installed in such a manner that it does not impose any significant loads on the fire damper in the event of a fire.

The expansion of ducts in the event of a fire can be compensated by brackets and turns, Fig. 10.



#### Note

For further information please refer to the guideline regarding fire protection requirements on ventilation systems (Lüftungsanlagen-Richtlinie, LüAR).

As ducts may expand and walls may become deformed in the event of a fire, we recommend for the following applications using flexible connectors when connecting the fire damper to rigid ducts:

- in lightweight partition walls
- in lightweight shaft walls
- with fire batt

### 6.3 Accessories for fire protection valves

#### Extension piece

If limit switches are used, an extension piece is required. The length of the fire protection valve will then be  $L = 300 \text{ mm}$ .

For walls with a thickness of  $>115 \text{ mm}$  and for ceiling installation using an extension piece on the fire protection valve simplifies connecting it to the duct after installation.

### 6.4 Flexible connectors

#### Flexible connectors

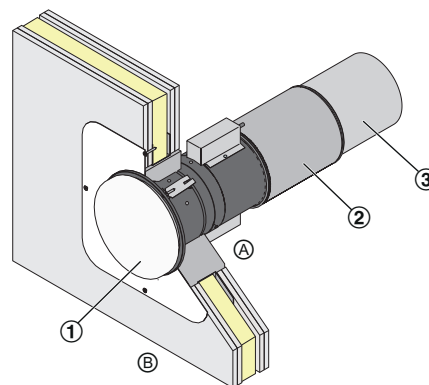


Fig. 11: FV-EU with a flexible connector

- ① FV-EU
- ② Flexible connector
- ③ Duct
- A Installation side
- B Operating side

Install the flexible connectors in such a way that they can compensate both tension and compression. Flexible ducts can be used as an alternative. If flexible connectors are used, equipotential bonding must be ensured ↗ Chapter 7.2 'Equipotential bonding' on page 20.

## 7 Making electrical connections

### General safety notes

#### **⚠ DANGER!**

Danger of electric shock! Do not touch any live components! Electrical equipment carries a dangerous electrical voltage.

- Only skilled qualified electricians are allowed to work on the electrical system.
- Switch off the power supply before working on any electrical equipment.

### 7.1 Connecting the limit switches

#### Personnel:

- Skilled qualified electrician

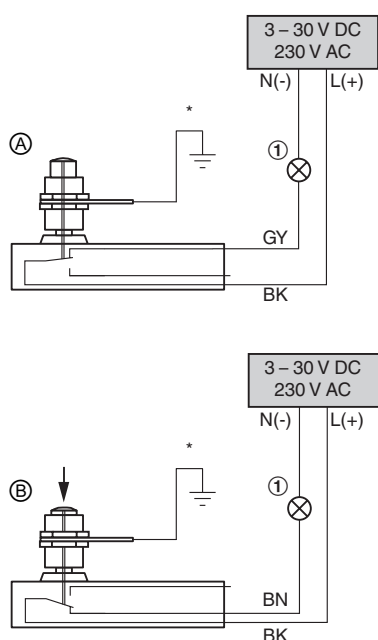


Fig. 12: Wiring example for limit switch

- ① Indicator light or relay, to be provided by others at 230 V

- The limit switches must be connected according to the wiring example Fig. 12
- Indicator lights or relays can be connected as long as the performance specifications are taken into consideration.

Type of connection	Limit switch	Valve position	Electric circuit
Ⓐ NC contact	not actuated	CLOSED or OPEN position is <u>not</u> reached	closed
Ⓑ NO contact	actuated	CLOSED or OPEN position is reached	closed

### 7.2 Equipotential bonding

If equipotential bonding is a requirement, there must be an electrical earth connection from the fire damper to the duct. In the event of a fire, mechanical loads from the equipotential bonding must not affect the fire damper.

- Fire dampers with flange: The flange of the fire damper is used for equipotential bonding; no drilled holes are required in the damper casing.
- Fire dampers without flange (circular): Suitable clamps or similar parts may be used for equipotential bonding. It is possible to make drilled holes near the spigot.

## 8 Functional test

### General

During operation at normal temperatures, the fire protection valve is open. A functional test involves closing the fire protection valve and opening it again.

Remove the fire protection valve from the installation subframe for the functional test.

### Removing the fire protection valve from the installation subframe

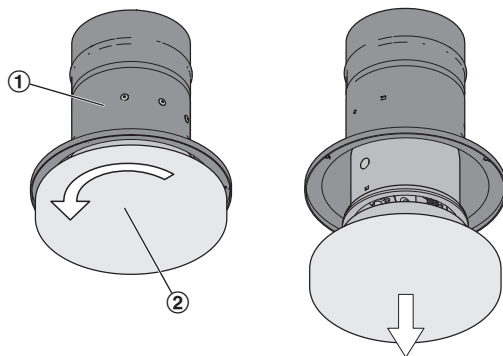


Fig. 13: Removing the fire protection valve

1. ▶ Turn the fire protection valve ② anti-clockwise (bayonet fixing).
2. ▶ Pull the fire protection valve from the the installation subframe ① and towards you.

### Closing the fire protection valve

The fire protection valve is open

#### CAUTION!

Danger of finger crushing when handling the fire protection valve.

- Be careful when carrying out any work.
- Do not reach into the fire protection valve while handling the adjustment device.

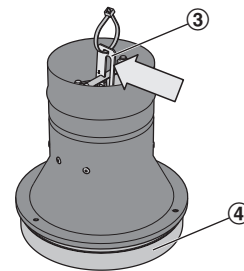


Fig. 14: Closing the FV-EU

- ▶ Close the fire protection valve by detaching the adjustment device ③. To do so, push the adjustment device into the direction of the arrow.
  - ⇒ The coil spring mechanism then causes the valve cone ④ to close immediately. The valve locks into the CLOSED position.

## Opening the fire protection valve

The fire protection valve is closed

### CAUTION!

Danger of finger crushing when handling the fire protection valve.

- Be careful when carrying out any work.
- Do not reach into the fire protection valve while handling the adjustment device.

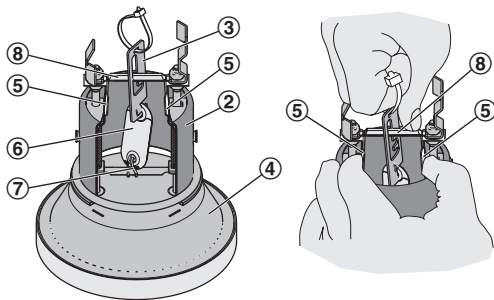


Fig. 15: Opening the FV-EU

1. ▶ Attach the fusible link ⑥ to the wire eye ⑦.
2. ▶ Press the flat springs ⑤ together.
3. ▶ Pull the adjustment device ③ until the flat springs are released while at the same time supporting the cross bar ② with your thumb.
4. ▶ Let go of the flat springs but keep a grip on the valve cone ④.
5. ▶ Attach the adjustment device to the cross bar.

## Inserting the fire protection valve into the installation subframe

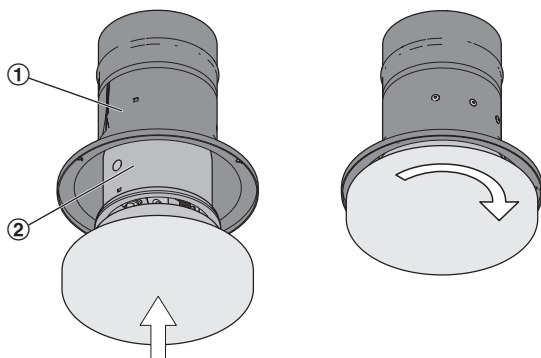



Fig. 16: Inserting the fire protection valve

1. ▶ Carefully push the fire protection valve ② into the installation subframe ①.
2. ▶ Close the fire protection valve by turning it clockwise (bayonet fixing).
3. ▶ For variants with limit switches note the installation marks.

## 9 Commissioning

### Before commissioning

Before commissioning, each fire protection valve must be inspected to determine and assess its actual condition. The inspection measures to be taken are listed under  *Chapter 10.3 'Inspection, maintenance and repair measures'* on page 25.


### Operation

During normal operation the fire protection valve is open to enable air passage through the ventilation system.

If the temperature in the duct or the ambient temperature rises in the event of a fire ( $\geq 72\text{ °C}$ ), the thermal release mechanism is triggered and closes the fire protection valve.



#### **CLOSED fire protection valves**

*Fire protection valves which close while the ventilation and air conditioning system is running must be inspected before they are opened again in order to ensure their correct function  'Inspection' on page 24.*

## 10 Maintenance

### 10.1 General

#### General safety notes

#### **DANGER!**

Danger of electric shock! Do not touch any live components! Electrical equipment carries a dangerous electrical voltage.

- Only skilled qualified electricians are allowed to work on the electrical system.
- Switch off the power supply before working on any electrical equipment.

#### **CAUTION!**

Danger of finger crushing when handling the fire protection valve.

- Be careful when carrying out any work.
- Do not reach into the fire protection valve while handling the adjustment device.

Regular care and maintenance ensure operational readiness, functional reliability, and long service life of the fire protection valve.

The owner or operator of the system is responsible for the maintenance of the fire protection valve. The operator is responsible for creating a maintenance plan, for defining the maintenance objectives, and for the functional reliability of the fire damper.

#### Functional test

The functional reliability of the fire protection valve must be tested at least every six months; this has to be arranged by the owner or operator. If two consecutive tests, one 6 months after the other, are successful, the next test can be conducted one year later.

The functional test must be carried out in compliance with the basic maintenance principles of the following standards:

- EN 13306
- DIN 31051
- EN 15423


#### Maintenance

Fire protection valves are maintenance-free with regard to wear but must still be included in the regular cleaning of the ventilation system.

#### Cleaning


Fire protection valves may be cleaned with a dry or damp cloth. Sticky dirt or contamination may be removed with a commercial, non-aggressive cleaning agent. Do not use abrasive cleaners or tools (e.g. brushes).

#### Inspection

The fire protection valve must be inspected before commissioning. After commissioning, the function has to be tested in regular intervals. Local requirements and building regulations must be complied with. The inspection measures to be taken are listed under  *Chapter 10.3 'Inspection, maintenance and repair measures' on page 25.*

The test of each fire protection valve must be documented and evaluated. If the requirements are not fully met, suitable remedial action must be taken.

#### Repair

For safety reasons, repair work must only be carried out by expert qualified personnel or the manufacturer. Only original replacement parts are to be used. A functional test is required after any repair work  *Chapter 8 'Functional test' on page 21.*





### 10.2 Replacing the fusible link

#### **CAUTION!**

Danger of finger crushing when handling the fire protection valve.

- Be careful when carrying out any work.
- Do not reach into the fire protection valve while handling the adjustment device.

#### Personnel:

- Specialist personnel
1. ▶ To replace the fusible link, remove the fire protection valve from the installation subframe.  21.
  2. ▶ Close the fire protection valve  21
  3. ▶ Detach the old fusible link and attach the new fusible link.
  4. ▶ Open the fire protection valve  21.
  5. ▶ Insert the fire protection valve into the installation subframe  21.



### 10.3 Inspection, maintenance and repair measures

Interval	Maintenance work	Personnel
A	Access to the fire protection valve <ul style="list-style-type: none"> <li>Internal and external accessibility               <ul style="list-style-type: none"> <li>Provide access</li> </ul> </li> </ul>	Specialist personnel
	Installation of the fire protection valve <ul style="list-style-type: none"> <li>Installation into walls/ceiling slabs according to this manual ↗ 12               <ul style="list-style-type: none"> <li>Correct installation of the fire protection valve</li> </ul> </li> </ul>	Specialist personnel
A / B	Check the fire protection valve for damage <ul style="list-style-type: none"> <li>Fire protection valve, valve disc and seals must be intact               <ul style="list-style-type: none"> <li>Replace seals</li> <li>Repair or replace the fire protection valve</li> </ul> </li> </ul>	Specialist personnel
	Functional test of the fire protection valve ↗ 21 <ul style="list-style-type: none"> <li>Close and open the fire protection valve manually</li> <li>The valve locks into the CLOSED position               <ul style="list-style-type: none"> <li>Determine and eliminate the cause of the fault</li> <li>Repair or replace the fire protection valve</li> </ul> </li> </ul>	Specialist personnel
	Functional test of the limit switches <ul style="list-style-type: none"> <li>Limit switch is in position CLOSED and/or OPEN               <ul style="list-style-type: none"> <li>Determine and eliminate the cause of the fault</li> <li>Replace the limit switches</li> </ul> </li> </ul>	Specialist personnel
C	Cleaning of the fire protection valve <ul style="list-style-type: none"> <li>No contamination in or on the fire protection valve</li> <li>No corrosion               <ul style="list-style-type: none"> <li>Remove contamination with a damp cloth</li> <li>Remove corrosion or replace part</li> </ul> </li> </ul>	Specialist personnel

#### Interval

**A = Commissioning**

**B = Regularly**

The functional reliability of fire protection valves must be tested at least every six months. If two consecutive tests are successful, the next test can be conducted one year later.

**C = As required, depending on the degree of contamination**

#### Maintenance work

Item to be checked

- Required condition
  - Remedial action if necessary

## 11 Decommissioning, removal and disposal

### Final decommissioning

- Switch off the ventilation system.
- Switch off the power supply.

### Removal

#### **DANGER!**

Danger of electric shock! Do not touch any live components! Electrical equipment carries a dangerous electrical voltage.

- Only skilled qualified electricians are allowed to work on the electrical system.
- Switch off the power supply before working on any electrical equipment.

1. ▶ Disconnect the wiring.
2. ▶ Remove the ducts.
3. ▶ Remove the fire protection valve from the installation subframe.

### Disposal

#### **ENVIRONMENT!**

Dispose of electronic components according to the local electronic waste regulations.

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