



Tunnel fire damper

Type FKT-EU

according to Declaration of Performance
DoP / FKT-EU / 001



TROX[®] TECHNIK
The art of handling air

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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, instructed 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 system owner when handing over the system. The system owner 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

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Any use without our consent may be an infringement of copyright, and the violator will be held liable for any damage.

This applies in particular to:

- Publishing content
- Copying content
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TROX Technical Service

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

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

Online	www.troxtechnik.com
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.

Warranty claims

The provisions of the respective delivery terms apply to warranty claims. For purchase orders placed with TROX GmbH, these are the regulations in section "VI. Warranty claims" of the Delivery and Payment Terms of TROX GmbH, see www.trox.de/en/.

Safety notes

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

Comply with all safety instructions and proceed carefully to avoid accidents, injuries and damage to property.

DANGER!

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

WARNING!

Potentially hazardous situation which, if not avoided, may 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. ▶ Loosen 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 damper is used as an automatic shut-off device to prevent fire and smoke from spreading through ducting in tunnels.
- The fire damper is suitable for supply air and extract air systems.
- Operation of the fire dampers is allowed only in compliance with installation regulations and the technical data in this installation and operating manual.
- Modifications of the fire damper 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 damper can lead to dangerous situations.

Never use the fire damper

- without specially approved attachments in areas with potentially explosive atmospheres
- as a smoke control damper
- outdoors without sufficient protection against the effects of weather
- in atmospheres where chemical reactions, whether planned or unplanned, may cause damage to the fire damper 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 specialist personnel must carry out work.

Personnel:

- Skilled qualified electrician
- Specialist personnel

Skilled qualified electrician

Skilled qualified electricians are individuals who have sufficient professional or technical training, knowledge and actual experience to enable them to work on electrical systems, understand any potential hazards related to the work under consideration, and recognise and avoid any risks involved.

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

Nominal sizes B × H	300 × 400 mm – 600 × 600 mm
Casing lengths L	690 mm
Volume flow rate range	up to 3600 l/s up to 13000 m³/h
Differential pressure range	up to 1500 Pa
Operating temperature ¹	At least 0 – 50 °C
Release temperature	72 °C
Upstream velocity ²	≤ 12 m/s with spring return actuator
Closed blade air leakage	EN 1751, Class 3
Casing air leakage	EN 1751, Class C
EC conformity	<ul style="list-style-type: none"> ■ Construction Products Regulation (EU) no. 305/2011 ■ EN 15650 – Ventilation for buildings – Fire dampers ■ EN 1366-2 – Fire resistance tests for service installations – Part 2: Fire dampers ■ EN 13501-3 – Classification – Part 3: Fire resisting ducts and fire dampers ■ EN 1751 Ventilation for buildings – Air terminal devices
Declaration of performance	DoP / FKT-EU / 001

¹) Temperatures may differ for units with attachments

²) Data applies to uniform upstream and downstream conditions for the fire damper

Rating plate

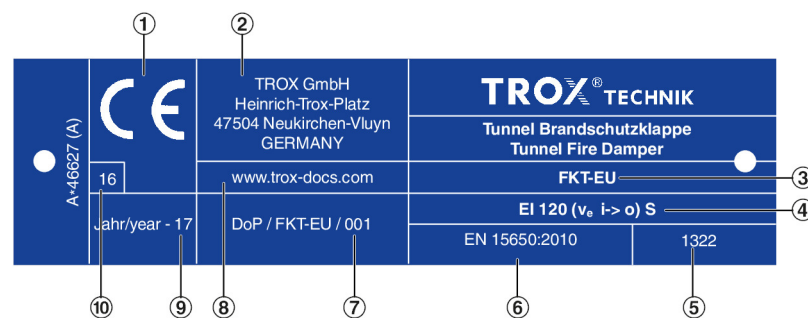


Fig. 1: Rating plate (example)

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

Dimensions and weight

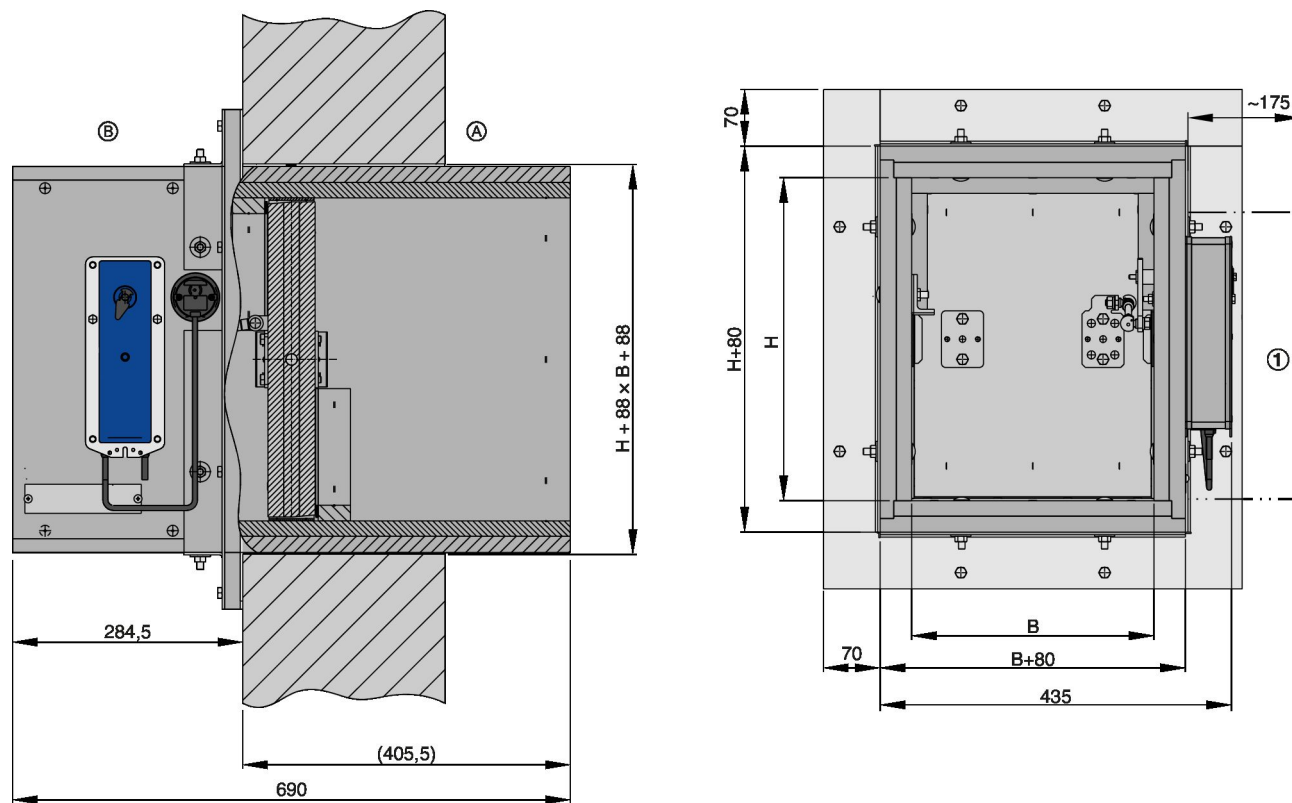


Fig. 2: FKT-EU with spring return actuator

- ① Keep clear to provide access for operation
- Ⓐ Installation side, exposed side (i)
- Ⓑ Operating side, non-exposed side (o)

- B Width of the fire damper (side B)
- H Height of the fire damper (side H)

H [mm]	Weight [kg]						
	B [mm]						
	300	350	400	450	500	550	600
400	50	53	57	60	63	66	70
450	53	56	60	63	67	70	73
500	56	59	62	67	70	74	77
550	59	62	65	70	74	77	81
600	62	65	70	73	77	81	85

Spring return actuator BF...			
Construction		230-T TR	24-T-ST TR
Supply voltage		230 V AC, 50/60 Hz	24 V AC/DC, 50/60 Hz
Functional range		198 ... 264 V AC	19.2 ... 28.8 V AC 21.6 ... 28.8 V DC
Power rating	Spring compression	8.5 W	7 W
	Hold position	3 W	2 W
	Rating	11 VA	10 VA
Running time	Actuator / spring return	< 120 s / approx. 16 s	
Limit switch	Type of contact	2 changeover contacts	
	Switching voltage	5 ... 120 V DC / 5 ... 250 V AC	
	Switching current	1 mA ... 6 A	
	Contact resistance	< 100 mΩ	
IEC protection class		II	III
Protection level		IP 54	
Storage temperature		-40 ... 50 °C	
Ambient temperature		-30 ... 50 °C ¹	
Ambient humidity		≤ 95 % RH, non-condensing	
Connecting cable	Actuator	1 m / 2 × 0.75 mm ² (free of halogens)	
	Limit switch	1 m / 6 × 0.75 mm ² (free of halogens)	

¹ Up to 75 °C the safe position will definitely be reached.

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.

- Tunnel fire damper
 - Attachments/accessories, if any
- Operating manual (1 per shipment)



Colour hues on the damper blade

The blades of fire dampers are treated with a greenish impregnating agent. Resulting colour hues on the damper blade are due to technical reasons and do not constitute a defect of any kind.

Transport on site

If possible, take the fire damper 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

Tunnel fire dampers are used as safety related components in ventilation systems. The fire damper is used as a shut-off device to prevent fire and smoke from spreading through ducting. During normal operation the damper blade is open to enable air passage through the ventilation system.

If the temperature increases in the event of a fire, the damper blade closes. Closure is triggered at 72 °C. If the damper blade 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 damper, a test can be carried out. ↪ 18

- Temperature in the fire damper > 72 °C
- Ambient temperature outside the release mechanism > 72 °C
- The power supply is interrupted (power off to close)

As standard, the spring return actuator is equipped with limit switches that can be used to indicate the damper blade position.

4.1 FKT-EU with spring return actuator

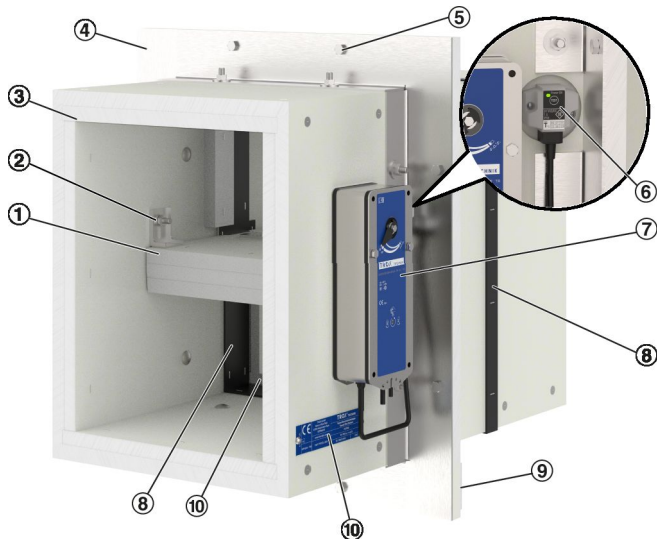


Fig. 3: FKT-EU with spring return actuator

- ① Damper blade (calcium silicate)
- ② Travel stop, damper OPEN
- ③ Casing (calcium silicate)
- ④ Installation subframe
- ⑤ Fixing screws for sealing strips (during transport)
- ⑥ Thermoelectric release mechanism BAT
- ⑦ Spring return actuator
- ⑧ Intumescent seal
- ⑨ Sealing strips
- ⑩ Rating plate
- ⑪ Travel stop, damper CLOSED

Functional description

The spring return actuator enables the motorised opening and closing of the damper blade; it can be activated by the central BMS. As long as power is supplied to the actuator, the damper blade remains open. In the event of a fire, the internal thermoelectric release mechanism closes the damper blade when at least one of the following is true:

5 Installation

5.1 Installation situations

Note

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

Supporting construction	Installation location	Minimum thickness [mm]	Performance class (EI TT)	Installation type	Installation details on page
Solid walls Gross density $\geq 2300 \text{ kg/m}^3$	Solid walls	250	EI 120 ($v_e i \rightarrow o$) S	T	☞ 14

T = dry mortarless installation

5.2 Safety notes regarding 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.

- For dry mortarless installation, the cut hole in the solid wall has to be of the exact size, i.e. $B/H + 88 \text{ mm}$.
- Before installation: Perform a functional test, then close the fire damper. ☞ 18

Installation position

The fire damper may be installed such that the damper blade shaft is horizontal. The position of the release mechanism is not critical but the mechanism must remain accessible for maintenance.

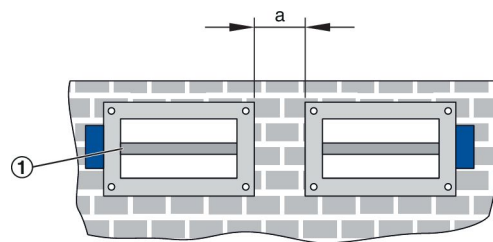


Fig. 4: Horizontal installation

- a Minimum distance between two fire dampers. The distance depends on the installation situation and the position of the actuators.
- 1 Horizontal installation

5.3 General installation information

NOTICE!

Risk of damage to the fire damper

- Protect the fire damper from contamination and damage.
- Cover openings and release mechanism (e.g. with plastic) to protect them from mortar and dripping water.
- Do not remove the transport and installation protection (if any) until installation is complete.

Please note:

- Control elements, electric actuator and inspection access panel must remain accessible for inspection and maintenance.
- Loads imposed on the casing may impair the function of the fire damper. The fire damper must hence be installed without torsion.

Installation opening in solid walls

Depending on the local conditions and the size of the fire damper, installation openings in solid walls require a lintel. The size of each installation opening is given in the installation details.

5.3.1 After installation

- Clean the fire damper.
- Remove transport and installation protection, if any.
- Test the function of the fire damper.
- Connect the ductwork.
- Make electrical connections.

5.4 Solid walls

5.4.1 Dry mortarless installation

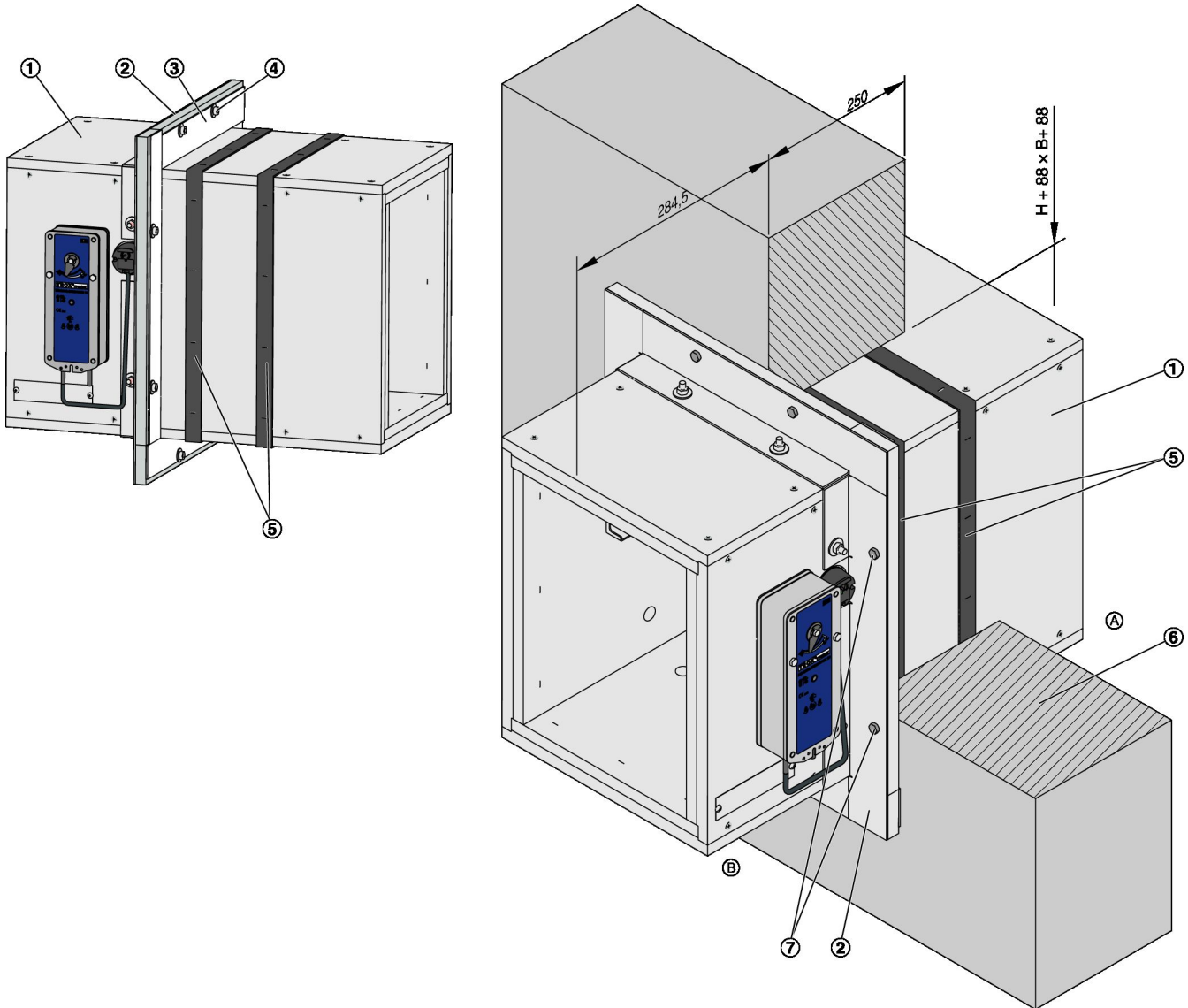


Fig. 5: Installation into a solid wall

- | | |
|---|--|
| ① FKT-EU fire damper | ⑥ Solid wall |
| ② Installation subframe | ⑦ Screw fix connection |
| ③ Sealing strips | Ⓐ Installation side, exposed side (i) |
| ④ Fixing screws for sealing strips (during transport) | Ⓑ Operating side, non-exposed side (o) |
| ⑤ Intumescent seal | |

Installation after completing the wall

Personnel:

- Specialist personnel

Requirements

- Performance class EI 120 S
- Solid walls or compartment walls made of, for example, concrete, aerated concrete or masonry, gross density $\geq 2300 \text{ kg/m}^3$ and $W \geq 250 \text{ mm}$

- > 100 mm distance to load-bearing structural elements, ≥ 75 mm on side B (depending on construction).
- ≥ 200 mm distance between two fire dampers
- 1. ▶ Create an installation opening with H + 88 mm and B + 88 mm.
- 2. ▶ Ensure that the two perimeter seals and the sealing strips are intact. If any of the seals has been damaged, do not install the fire damper.
- 3. ▶ Remove the sealing strip fixing screws that were used during transport (Fig. 5 /4).
- 4. ▶ Push the fire damper into the installation opening and secure it. Ensure that the installation subframe rests on the face of the wall and that the sealing strips provide complete sealing between the subframe and the wall.
- 5. ▶ Screw-fix the fire damper with anchors and M8 screws, or with M8 fixing tabs (Fig. 5 /7).
Use only fire-rated screw fixing systems with suitability certificate, e.g. Hilti M8 × 95/30 anchors or equivalent.

6 Connecting the ductwork

When you connect ducts to the fire damper, keep the following in mind:

- Connect calcium silicate smoke extract ducts according to the manufacturer's instructions.
- The interior of the fire damper must remain accessible for repairs. Depending on the installation configuration it may be necessary to provide inspection panels in the connecting ducts.
- Sheet steel ducts may be connected but require a connecting subframe (one side or both sides).
- Ducts may be connected without any flexible connectors.
- Any side on which no duct is to be connected requires a cover grille as a safety guard and as a protection against birds etc. (galvanised steel, mesh aperture ≤ 20 mm).

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 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.

7.2 Connecting the spring return actuator

Personnel:

- Skilled qualified electrician

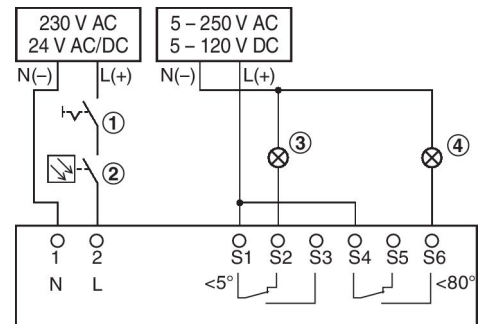


Fig. 6: Actuator connection, example

- 1 Switch for opening and closing, to be provided by others
 - 2 Optional release mechanism, e.g. TROX duct smoke detector Type RM-O-3-D or RM-O-VS-D
 - 3 Indicator light for CLOSED position, to be provided by others
 - 4 Indicator light for OPEN position, to be provided by others
- The fire damper may be equipped with a spring return actuator for a supply voltage of 230 V AC or 24 V AC/DC. See the performance data on the rating plate.
 - The spring return actuator must be connected according to the wiring example shown. Several actuators can be connected in parallel as long as the performance specifications are taken into consideration.
 - Connection boxes must be fixed to the adjoining structure (wall or ceiling slab). They must not be fixed to the fire damper.

Actuators with 24 V AC/DC

Safety transformers must be used. The connecting cables are fitted with plugs. This ensures quick and easy connection to the TROX AS-i bus system. For connection to the terminals, shorten the connecting cable.

8 Functional test

General

During operation at normal temperatures, the damper blade is open. A functional test involves closing the damper blade and opening it again.

8.1 Fire damper with spring return actuator

Status indicator

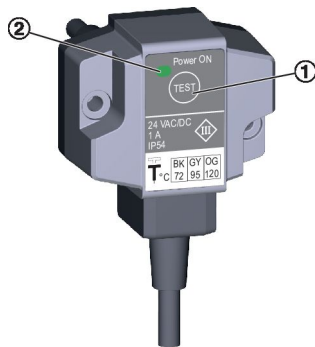


Fig. 7: Thermoelectric release mechanism BAT

- 1 Push button for functional test
- 2 Indicator light

The indicator light (2) for the thermoelectric release mechanism is illuminated when all of the following conditions apply:

- Power is being supplied.
- The thermal fuses are intact.
- The push button is not being pushed.

Closing/opening the damper blade with spring return actuator

CAUTION!

Danger of injury when reaching into the fire damper while the damper blade is moving. Do not reach into the fire damper while actuating the release mechanism.

Requirement

- Power is being supplied
1. ▶ Push toggle switch ①.
 - ⇒ This interrupts the power supply, and the damper blade closes.
 2. ▶ Release the push button ①.
 - ⇒ Power is supplied again, and the damper blade opens.

Functional test with automatic control unit

The function of fire dampers with a spring return actuator can also be tested with an automatic control unit. The control unit should have the following functions:

- Opening and closing fire dampers in regular intervals (intervals to be set by the system owner)
- Monitoring of the actuator running times
- Issuing an alarm when the running times are exceeded and when fire dampers close
- Recording the test results

TROXNETCOM systems such as TNC-EASYCONTROL or AS-interface meet all these requirements. For more information see www.troxtechnik.com.

TROXNETCOM systems allow for automatic functional tests; they do not replace maintenance and cleaning, which have to be carried out in regular intervals or depending on the condition of the product. The documentation of test results makes trends visible, e.g. the run time of actuators. They may also indicate the need for additional measures which help to maintain the system's function, e.g. removing heavy contamination (dust in extract air systems).

Opening the damper blade using the crank handle



Fig. 8: Functional test (without power supply)


⚠ DANGER!

Danger due to malfunction of the fire damper.

If the damper blade has been opened by means of the crank handle (without power supply), it will no longer be triggered by a temperature increase, i.e. in the event of a fire. In other words, the damper blade will not close.

To re-establish its function, connect the power supply.

Requirement

- The damper blade is CLOSED
- 1. ▶ Insert the crank handle ① into the opening for the spring-winding mechanism. (The crank handle is clip-fixed to the connecting cable.)
- 2. ▶ Turn the crank handle into the direction of the arrow ② to just short of the travel stop.
- 3. ▶ Then quickly rotate the crank handle by approx. 90° towards the 'lock' position .
 - ⇒ The damper blade remains in the OPEN position.
- 4. ▶ Remove the crank handle.

Closing the damper blade using the crank handle




Fig. 9: Functional test (without power supply)

⚠ CAUTION!

Danger of injury when reaching into the fire damper while the damper blade is moving. Do not reach into the fire damper while actuating the release mechanism.

Requirement

- The damper blade is OPEN
- 1. ▶ Insert the crank handle ① into the opening for the spring-winding mechanism. (The crank handle is clip-fixed to the connecting cable.)
- 2. ▶ Rotate the crank handle by approx. 90° towards the 'unlock' position  until a click can be heard.
 - ⇒ The damper blade is released and closes.
- 3. ▶ Remove the crank handle.

9 Commissioning

Before commissioning

Before commissioning, each fire damper must be inspected to determine and assess its actual condition. The inspection measures to be taken are listed in the table on ↪ *Chapter 10.3 'Inspection, maintenance and repair measures' on page 22*.

Operation

During normal operation the damper blade 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 ($\geq 72^\circ$), the thermal release mechanism is triggered and closes the damper blade.



CLOSED fire dampers

Fire dampers 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 21.

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 due to inadvertently actuating the fire damper. Inadvertent actuation of the damper blade or other parts can lead to injuries.

Make sure that the damper blade cannot be released inadvertently.

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

The system owner is responsible for the maintenance of the fire damper.


The system owner is responsible for creating a maintenance plan, for defining the maintenance goals, and for the functional reliability of the equipment.

Functional test

The functional reliability of the fire damper should be tested at least every six months; this has to be arranged by the system owner. 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

The function of fire dampers with a spring return actuator can also be tested with an automatic control unit  'Functional test with automatic control unit' on page 18.

Maintenance

The fire damper and the spring return actuator are maintenance-free with regard to wear but fire dampers must still be included in the regular cleaning of the ventilation system.


Cleaning

The fire damper 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). For disinfection you may use commercially available disinfectants or disinfecting procedures.

Inspection

The fire damper 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 in . The test of each fire damper 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  18 is required after any repair work.

10.2 Lubricating points

Only lubricate the fire damper if the damper blade cannot be opened or closed easily. Use only oil or grease that is free of resins or acids.

10.3 Inspection, maintenance and repair measures

Interval	Maintenance work	Personnel
A	Access to the fire damper <ul style="list-style-type: none"> ■ Internal and external accessibility <ul style="list-style-type: none"> – Provide access 	Specialist personnel
	Installation of the fire damper ↪ <i>Chapter 5 'Installation' on page 12</i> <ul style="list-style-type: none"> ■ Installation into walls according to this manual <ul style="list-style-type: none"> – Install the fire damper correctly. 	Specialist personnel
	Transport and installation protection, if any <ul style="list-style-type: none"> ■ Transport/installation protection removed <ul style="list-style-type: none"> – Remove transport/installation protection 	Specialist personnel
	Connection of ductwork/cover grille/flexible connector <ul style="list-style-type: none"> ■ Connection according to this manual <ul style="list-style-type: none"> – Establish correct connection 	Specialist personnel
	Power supply to the spring return actuator <ul style="list-style-type: none"> ■ Power supply according to spring return actuator rating plate <ul style="list-style-type: none"> – Provide correct power supply 	Skilled qualified electrician
A / B	Check fire damper for damage <ul style="list-style-type: none"> ■ Fire damper, damper blade and seal must be intact <ul style="list-style-type: none"> – Replace the damper blade – Repair or replace the fire damper. 	Specialist personnel
	Function of the release mechanism <ul style="list-style-type: none"> ■ Function OK ■ Fusible link intact/no corrosion <ul style="list-style-type: none"> – Replace the fusible link – Replace the release mechanism 	Specialist personnel
	Functional test of the fire damper (with spring return actuator) ↪ 18 <ul style="list-style-type: none"> ■ Actuator function OK ■ Damper blade closes ■ Damper blade opens <ul style="list-style-type: none"> – Determine and eliminate the cause of the fault – Replace the spring return actuator – Repair or replace the fire damper 	Specialist personnel
	Function of external smoke detector <ul style="list-style-type: none"> ■ Function OK ■ Fire damper closes when triggered manually or when smoke is detected ■ Fire damper opens after reset <ul style="list-style-type: none"> – Determine and eliminate the cause of the fault – Repair or replace smoke detector 	Specialist personnel
C	Cleaning the fire damper <ul style="list-style-type: none"> ■ No contamination in the interior or on the exterior of the fire damper ■ No corrosion <ul style="list-style-type: none"> – Remove contamination with a damp cloth – Remove corrosion or replace part 	Specialist personnel

Interval**A = Commissioning****B = Regularly**

The functional reliability of fire dampers 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. ▶ Close the damper blade.
4. ▶ Remove the fire damper.

Disposal

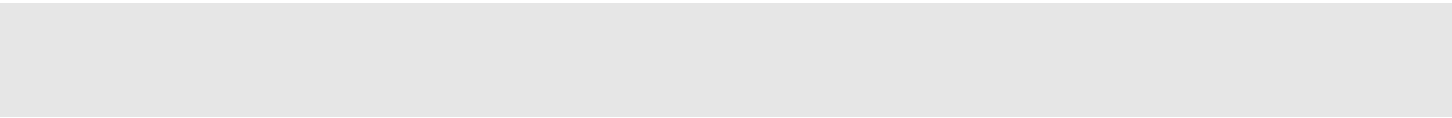
For disposal, the fire damper must be disassembled.

ENVIRONMENT!

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

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