MANDÍK

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Version 2026-11-04

Instructions for use
Fire dampers
In a non-explosive design

This document is a compilation of Instructions for Use 154/19 (FDMB , FDMA-PM , FDMQ , FDMR) and 166/23 (FDMQ 120, FDMQ 180, FDMR 180)

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I. GENERAL

- These Instructions for Use apply to fire dampers in design variants intended for use in potentially explosive atmospheres in accordance with the ATEX Directive 2014/34/EU.
- They supplement the Technical Specifications for individual types specified in the documents listed below:
  - FDMB – square damper acc. to TPM 075/09
  - FDMA-PM – round damper acc. to TPM 145/20
  - FDMQ – square damper acc. to TPM 103/14
  - FDMQ 120 – square damper acc. to TPM 162/22
  - FDMQ 180 – square damper acc. to TPM 149/21
  - FDMR – round damper acc. to TPM 140/19
  - FDMR 180 – round damper acc. to TPM 148/21
- This means that the technical conditions specified in the documents listed above remain valid for the individual fire damper, with the provision that, in the event of any conflict between the technical documentation stated above and this document, this document shall apply.

Description

Fire dampers are closures in the ducts of air-conditioning units, which prevent the spread of fire and combustion products from one fire section to another by closing the air ducts in the places of installation according to EN 15650.

The damper blade automatically closes the air passage by means of the closing the mechanism's spring or the actuator's return spring. The impulse to release the lowering lever can be manual (pressing the lowering button on the mechanism) or thermal (pressing the thermal fuse).

The actuator return spring is activated when the ExPro-TT thermoelectric activation device ExPro-TT is activated (pressing the reset button on the sensor or temperature activation) or the actuator power supply is interrupted. After closing the leaf, the damper is sealed against the passage of smoke with a silicone or rubber seal. At the same time, the damper blade is embedded in the mass, which increases its volume due to the increasing temperature and closes the air duct airtight.

Damper fire resistance tests were performed according to the test standard EN 1366-2 and harmonised product standards EN 15650. The classification was performed according to the standard EN 13501-3+A1. Fire resistance depends on the installation method on the construction site. The installation must be in accordance with the latest current version of the relevant TPMs.

The dampers are designed for environments protected against weather conditions with climatic conditions in 3K22 class with temperature limitation -20 °C to +50 °C, without condensation, icing, ice formation, without water and sources other than rain according to EN 60721-3-3 zmA2 and environment with danger of explosion of group and category 2G Ex h IIC T6… T3 Gb according to EN ISO 80079-36. If the damper is equipped with electrical elements, the temperature range is narrowed according to the temperature range of the electrical elements used. The non-explosive group of a damper with electrical elements depends on the non-explosive design of the installed electrical elements on the damper. Electrical equipment installed together with the damper must be of a design corresponding to the given zone. When determining spaces, the principle is that it does not matter whether the specified environment is outside or inside the damper.

Fire dampers are designed for air without abrasive, chemical and adhesive particles.

Maximum surface temperature in relation to the flowing medium temperature and the activation temperature of thermal fuses:

Initialisation temperature of thermal fuses	Max. Temperature of the flowing medium / Max. Surface temperature (Without thermal fuse initialisation)	Temperature class
≥ 72 °C	68 °C	T6
≥ 104 °C	93 °C	T5
≥ 147 °C	140 °C	T3

II. DESIGN

The dampers are supplied in the following non-explosive versions:

Design with manual control

- (manual control) with thermal fuse, which activates the closing device within 120 seconds at the latest when the nominal activation temperature of 72 °C is reached. Up to a temperature of 70 °C, the closing device will not self-start. If other activation temperatures are required, thermal fuses with a nominal activation temperature of + 104 °C or + 147 °C can be supplied (must be specified in the order).

Version with manual control with limit switch

- Design with manual control can be supplemented by signalling the damper blade position "CLOSED" or "OPEN" with a limit switch.

Version with actuator

- Schischek ExMax-15-BF with ExPro-TT thermoelectric activation device (hereinafter only actuator). After connection to supply 230V AC or 24V AC/DC the actuator moves the damper blade to the "OPEN" operating position and at the same time biases its return spring.
- As long as the actuator is energised, the damper blade is in the "OPEN" position and the return spring is preloaded. The time for completely opening the damper blade from the "CLOSED" position to the "OPEN" position is approximately 30 secs. If the actuator's power supply is interrupted (loss of supply voltage, activating the thermoelectric activation device ExPro-TT or by pressing the reset button on the thermoelectric activation device ExPro-TT), the return spring moves the damper blade to the emergency position "CLOSED". The time for moving the leaf from the "OPEN" position to the "CLOSED" position is approximately 10 secs. If the supply voltage is restored (the leaf can be in any position), the actuator starts moving the damper blade again to the "OPEN" position, but only if the thermoelectric activation device ExPro-TT has not been activated. The sensor's temperature activation occurs when the temperature exceeds +72 °C. Then the supply voltage is permanently and irrevocably interrupted and the actuator moves the damper blade to emergency "CLOSED" position by means of a pre-loaded return spring.The signalling of the damper blade positions "OPEN" and "CLOSED" is ensured by two built-in, permanently set limit switches

The damper function can be verified:

a) by interrupting and re-applying the supply voltage, e.g. by a signal from the EFS.

b) directly on the built-in damper using the button on the thermoelectric activation device ExPro-TT (simulates fuse failure).

Actuator control without voltage:

- Using a special key (supplied with the actuator), the damper blade can be manually adjusted to any position and the position secured. Unlocking is done manually with a key or automatically by applying the supply voltage.

CAUTION!
If the actuator is locked manually, the damper blade will not close in the event of a fire after the thermoelectric activation device ExPro-TT has been activated. To restore the damper´s correct function, it is necessary to unlock the actuator (manually with a key or by applying the supply voltage).

The design version of the dampers is indicated by a two-digit number after the TP number:

Damper design	Double digit behind TP number	Non-explosive design
manual and temperature (ZONE 1, 2)	.02	II 2G
manual and temperature with limit switch ("CLOSED") (ZONE 1, 2)	.12	II 2G
with actuator ExMax-15- BF AC 230 V or AC/DC 24 V, with thermoelectric activation ExPro-TT equipment (ZONE 1, 2)	.42	II 2G
manual and thermal with two limit switches ("OPEN", "CLOSED") (ZONE 1, 2)	.81	II 2G

III. DIMENSIONS

Square dampers - are manufactured in the size range (A x B): from 150 x 150 mm to 1500 x 800 mm.

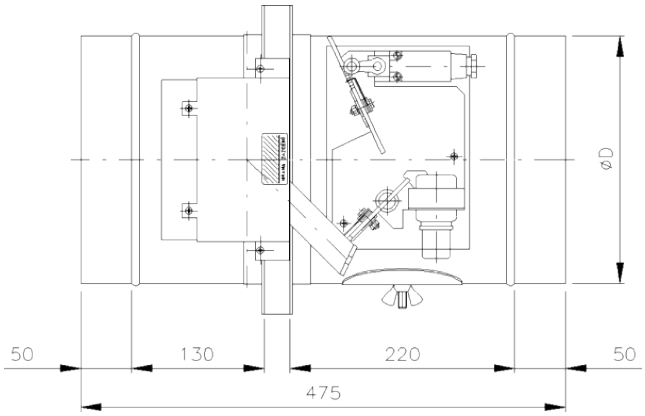
- FDMB: from 160x160 to 1000x500, or 500x1000 (max. area 0,5 m^2, max. side length 1000 mm)
- FDMQ: from 150x150 to 1500x800

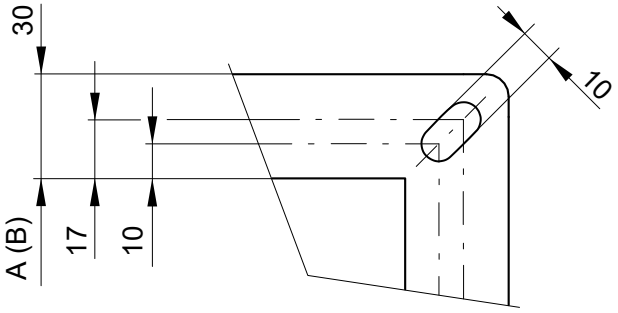
Circular dampers - from a diameter of 100 mm to 1000 mm.

- FDMR: from Ø100 to Ø800 mm
- FDMA-PM: Ø900 and Ø1000 mm

Flange

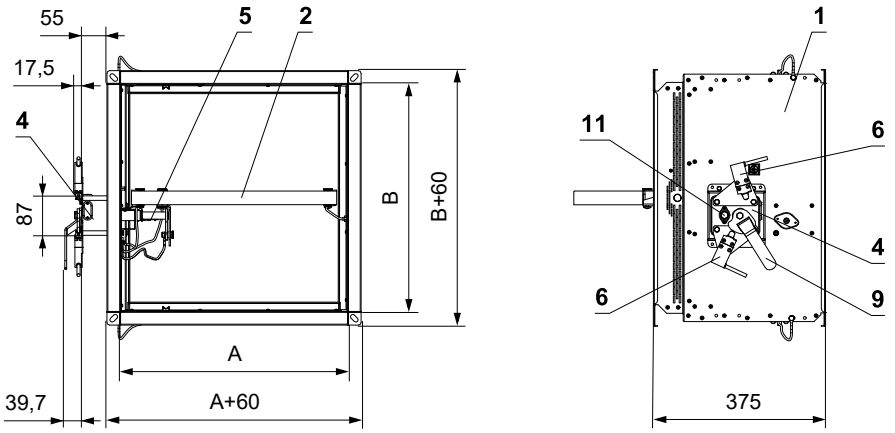
- Square damper flanges with a width of 30 mm are provided with oval holes in the corners. The connection dimensions of the round damper flanges are according to ON 120517.
- In the case of dampers for SPIRO ducting, the circular dampers are supplied without flanges with a fitted lip seal.



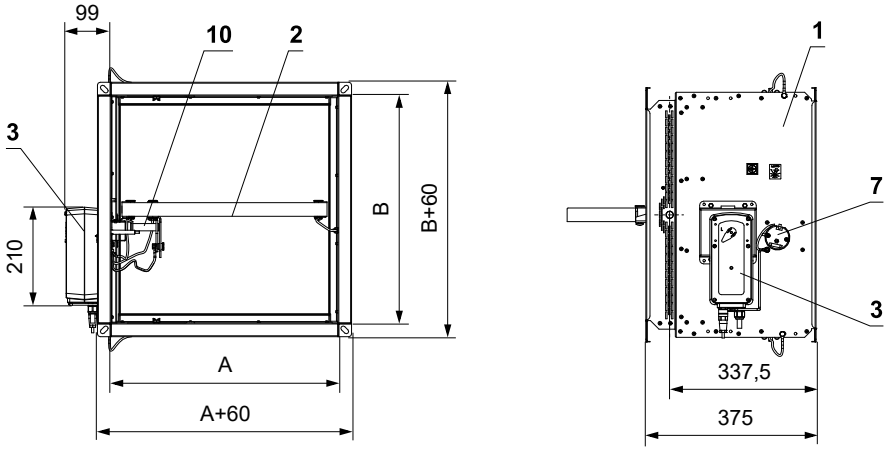


FDMB

Design with manual control with thermal fuse



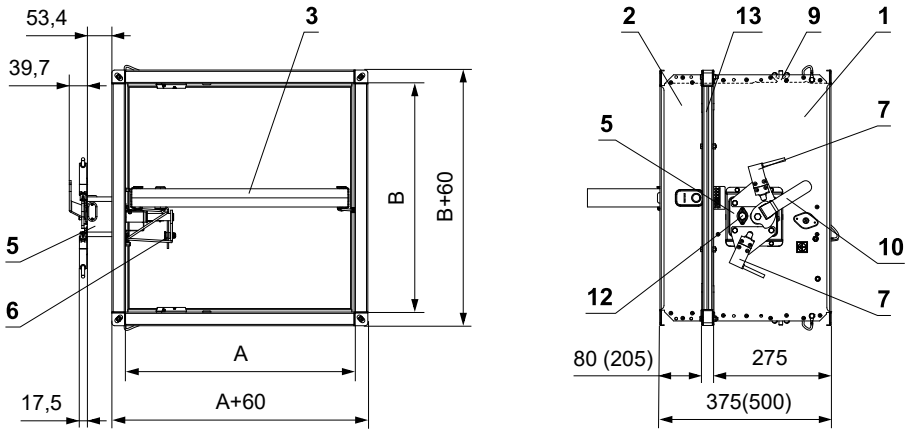
Design with spring return actuator



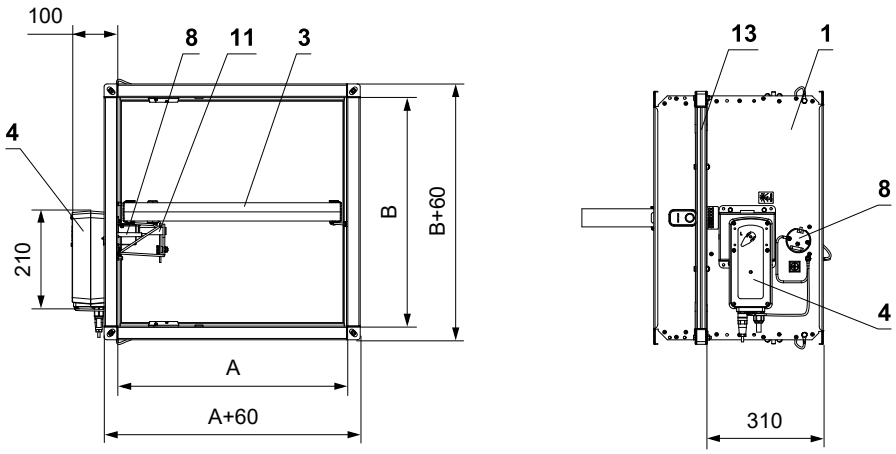
1 Damper casing
2 Damper blade
3 Spring return actuator Schischek ExMax-15BF
4 Manual control ATEX
5 Thermal fuse
6 Limit switch
7 Thermoelectric activation device ExPro-TT
8 Inspection opening cover
9 Control lever
10 Pin with lever
11 Release button

FDMQ

Design with manual control with thermal fuse



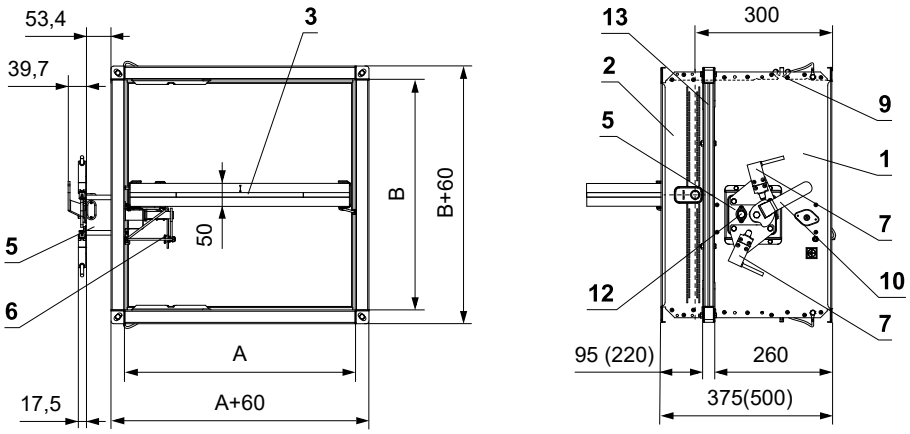
Design with spring return actuator



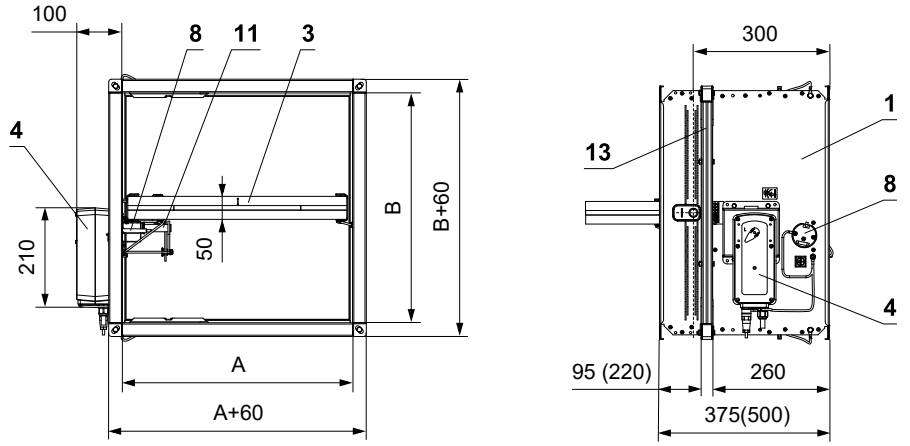
1 Body – 1 damper
2 Body – 2 damper
3 Damper blade
4 Spring return actuator Schischek ExMax-15BF
5 Manual control ATEX
6 Thermal fuse
7 Limit switch
8 Thermoelectric activation device ExPro-TT
9 Inspection opening cover
10 Control lever
11 Pin with lever
12 Release button
13 Insulation partition (promat)

FDMQ 120

Design with manual control with thermal fuse



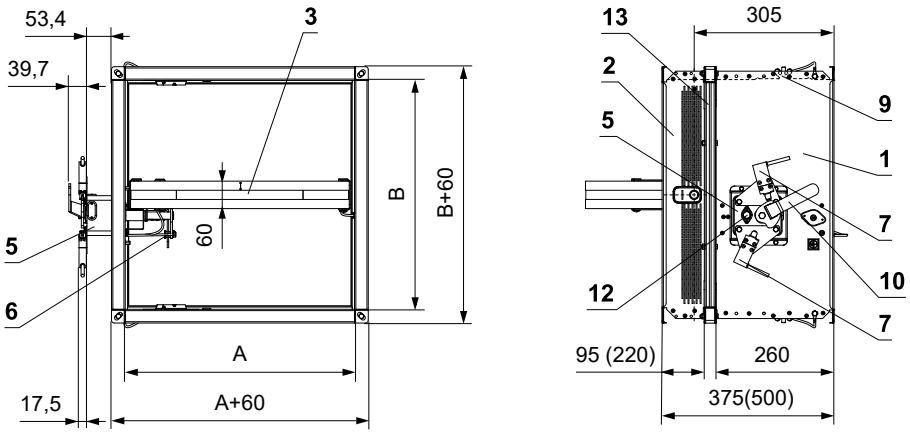
Design with spring return actuator



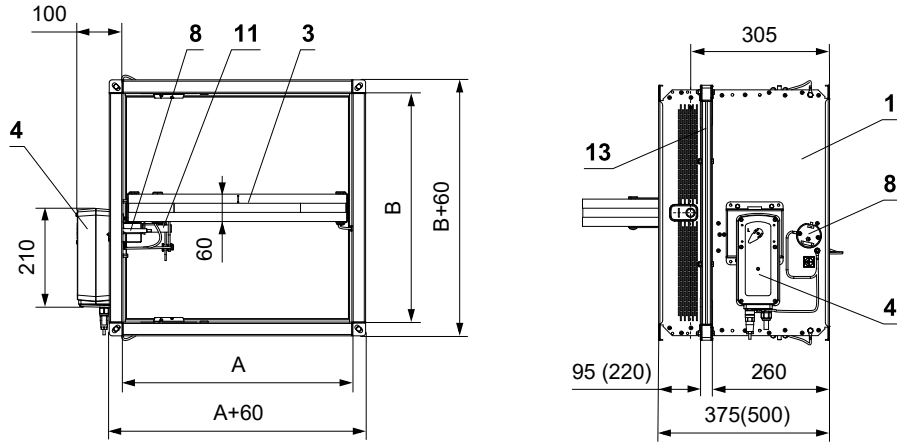
1 Body – 1 damper
2 Body – 2 damper
3 Damper blade
4 Spring return actuator Schischek ExMax-15BF
5 Manual control ATEX
6 Thermal fuse
7 Limit switch
8 Thermoelectric activation device ExPro-TT
9 Inspection opening cover
10 Control lever
11 Pin with lever
12 Release button
13 Insulation partition (promat)

FDMQ 180

Design with manual control with thermal fuse



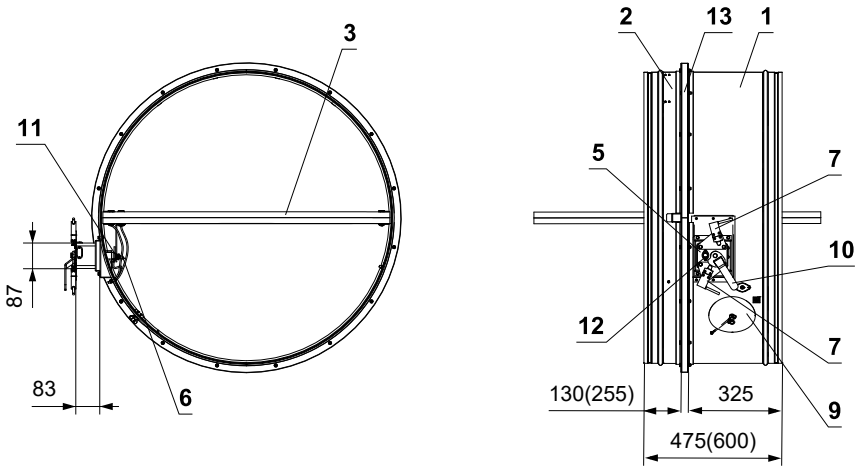
Design with spring return actuator



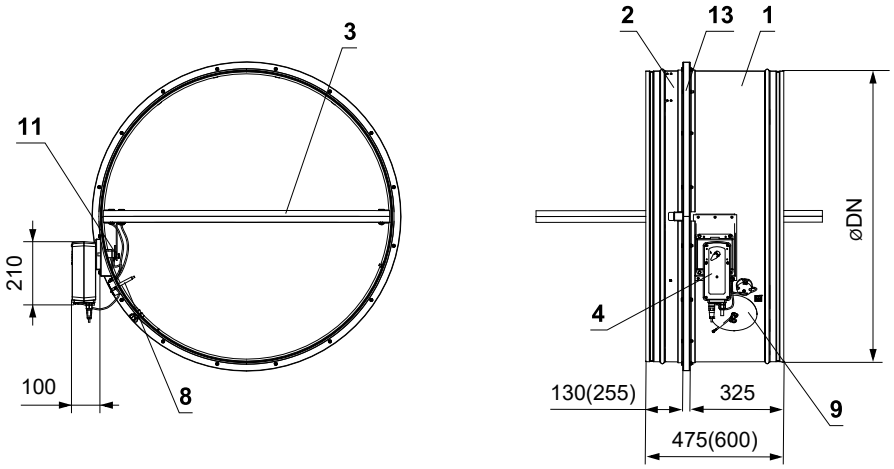
1 Body – 1 damper
2 Body – 2 damper
3 Damper blade
4 Spring return actuator Schischek ExMax-15BF
5 Manual control ATEX
6 Thermal fuse
7 Limit switch
8 Thermoelectric activation device ExPro-TT
9 Inspection opening cover
10 Control lever
11 Pin with lever
12 Release button
13 Insulation partition (promat)

FDMA-PM

Design with manual control with thermal fuse



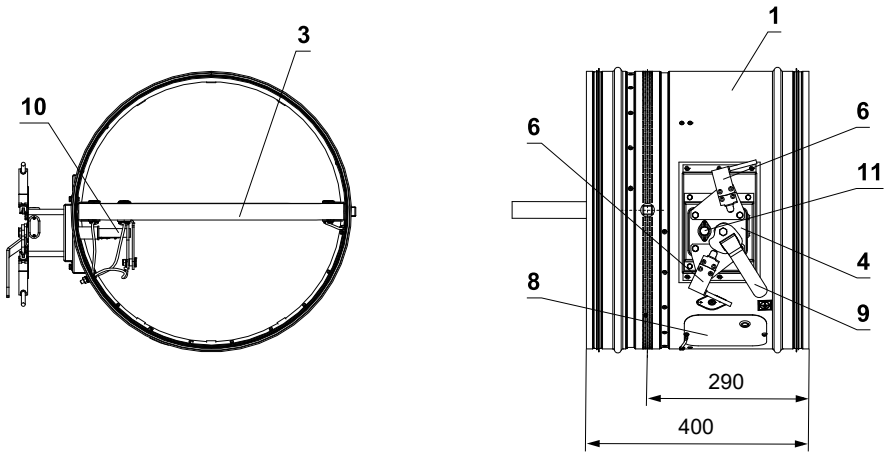
Design with spring return actuator



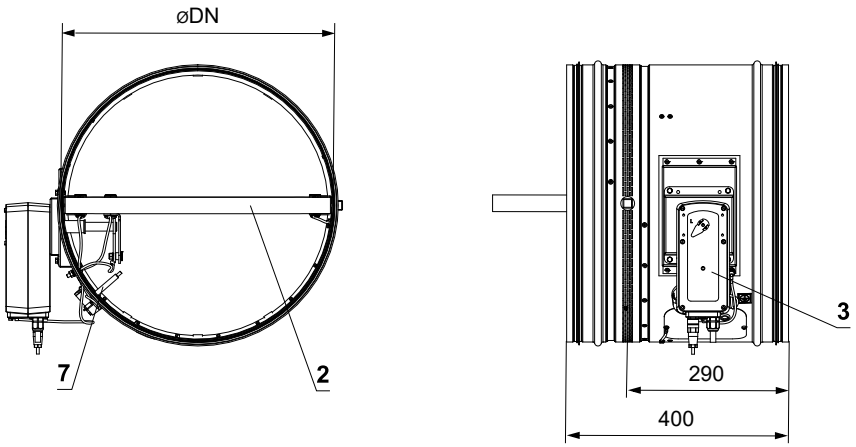
1 Body – 1 damper
2 Body – 2 damper
3 Damper blade
4 Spring return actuator Schischek ExMax-15BF
5 Manual control ATEX
6 Thermal fuse
7 Limit switch
8 Thermoelectric activation device ExPro-TT
9 Inspection opening cover
10 Control lever
11 Pin with lever
12 Release button
13 Insulation partition (promat)

FDMR

Design with manual control with thermal fuse



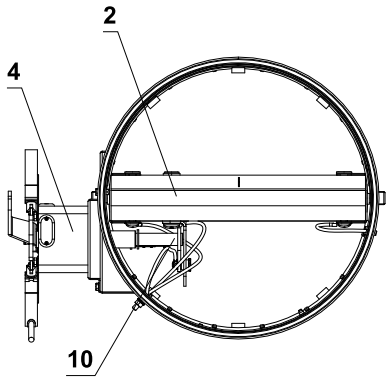
Design with spring return actuator

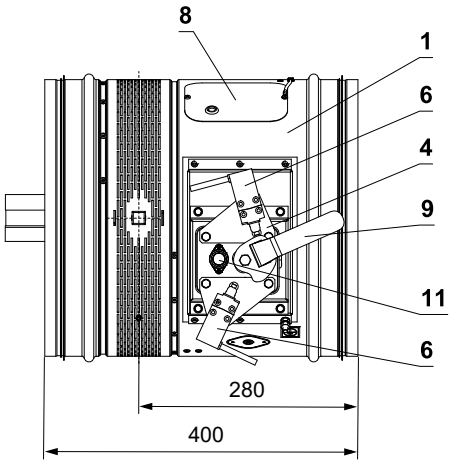


1 Damper casing
2 Damper blade
3 Spring return actuator Schischek ExMax-15BF
4 Manual control ATEX
5 Thermal fuse
6 Limit switch
7 Thermoelectric activation device ExPro-TT
8 Inspection opening cover
9 Control lever
10 Pin with lever
11 Release button

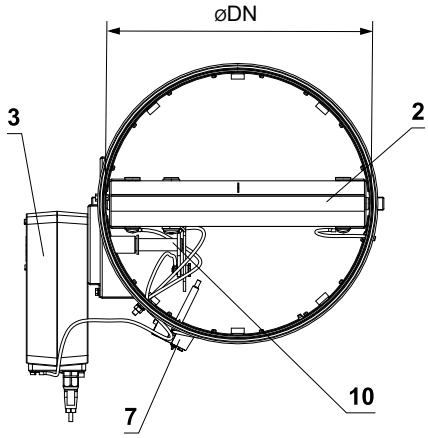
FDMR 180

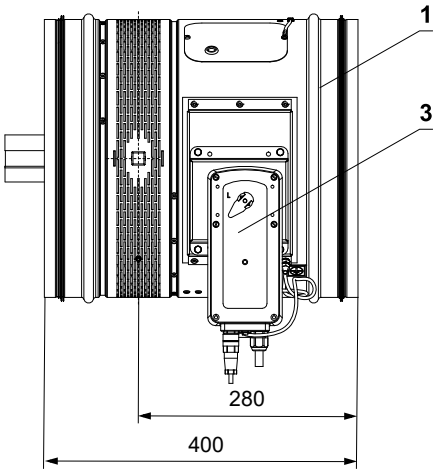
Design with manual control with thermal fuse





Design with spring return actuator





1 Damper casing
2 Damper blade
3 Spring return actuator Schischek ExMax-15BF
4 Manual control ATEX
5 Thermal fuse
6 Limit switch
7 Thermoelectric activation device ExPro-TT
8 Inspection opening cover
9 Control lever
10 Pin with lever
11 Release button

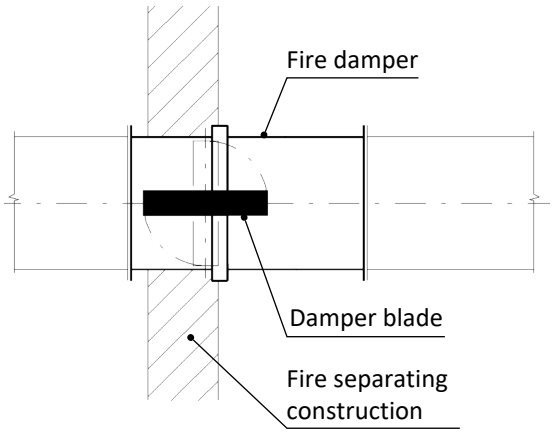
IV. INSTALLATION

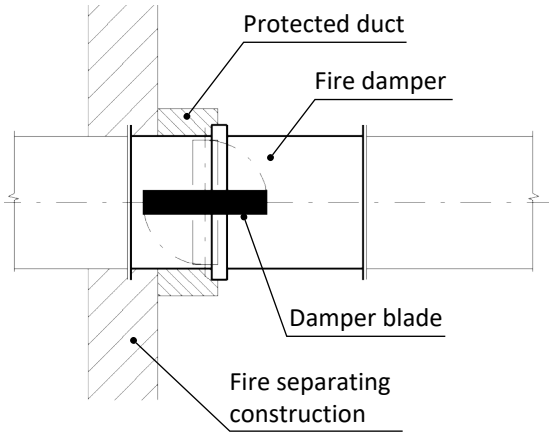
Placement and installation

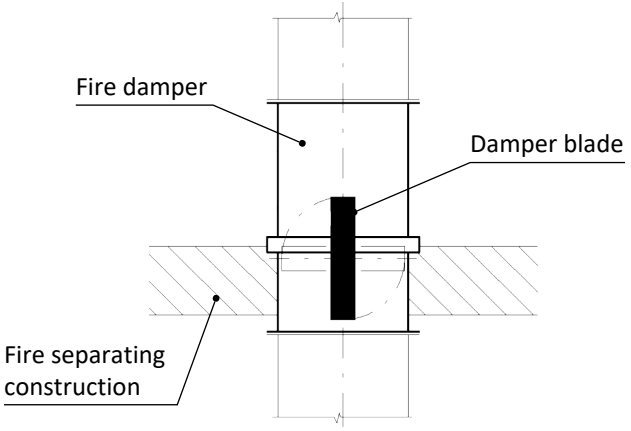
- Fire dampers are suitable for installation in vertical and horizontal passages of fire separating constructions. Penetrations regarding damper installation must be done in such a way that the transfer of all loads from the fire separating constructions to the damper body is completely excluded. The following duct must be suspended or supported in such a way that load transfer from the adjoining duct to the damper flange is completely ruled out.
- To ensure the necessary space for access to the control device, it is recommended that other objects be at least 350 mm away from the control parts of the damper. At least one inspection opening must be accessible.
- The distance between the fire damper and the construction (wall, ceiling) must be at least 75 mm. If two or more dampers are to be installed in one fire separating construction, the distance between adjacent dampers must be at least 200 mm

Ways of installing a fire damper

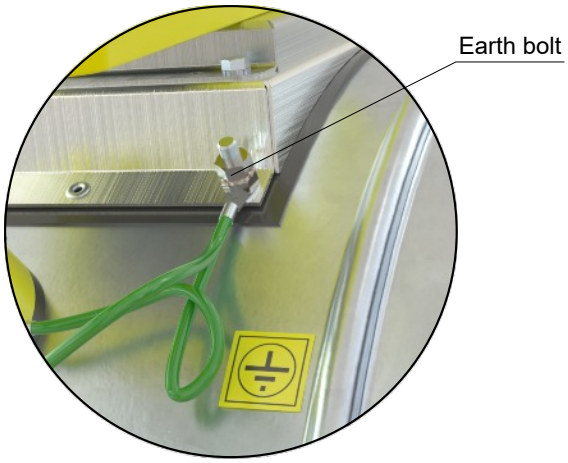
- The damper must be installed so that the damper blade (in a closed position) is placed on the edge with the fire separating construction or in the fire separating construction - marked on the damper with the sticker "BUILT-IN EDGE" (Fig. 1 and 2). If this solution is not possible, the duct between the fire separating construction and the damper must be min. to the BUILT-IN EDGE protected (Fig. 3) as specified in the standard EN 15650. The design must be in accordance with the relevant TPM for the given type of damper. Until the wall is plastered it is necessary to protect the control mechanism from damage and contamination by covering it. The damper body must not be deformed during walling. After installing the damper, the damper blade must not scrub on the damper body when opening or closing.
- The fire damper can be built into a rigid wall construction made of e.g. ordinary concrete/masonry, aerated concrete with min. 100mm thickness or into a rigid ceiling construction made of e.g. Ordinary concrete, aerated concrete with min. 110mm thick. Construction openings and penetrations must be made in accordance with the relevant TPM for the given type of damper.
- The fire damper can be built into a light plasterboard wall construction with a min.100 mm thickness
- The fire damper can be installed outside the wall construction. The ducting and the part of the damper between the wall construction and the damper blade (marked with the BUILT-IN EDGE sticker on the damper) must be protected by fire insulation. The insulation and penetration must be made in accordance with the relevant TPM for the damper type.







Explosion-proof dampers must be earthed with an earth bolt:

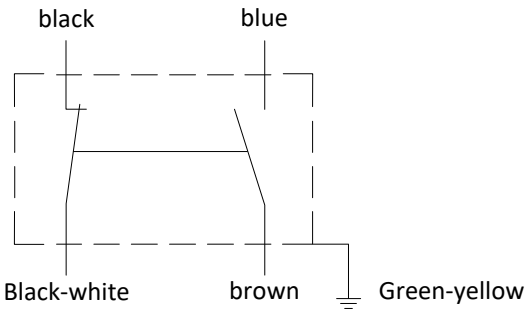


V. TECHNICAL DATA

Electrical elements, wiring diagram

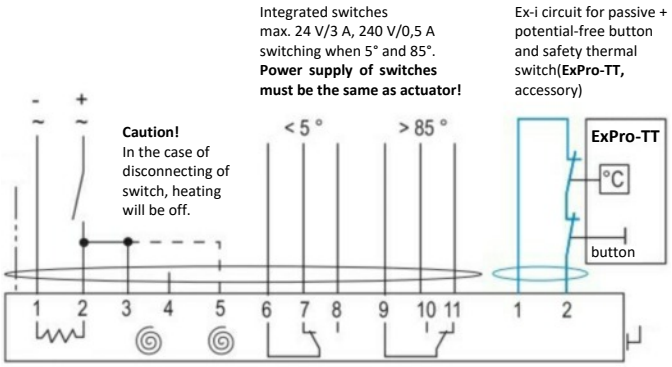
Limit switch XCWD 2115

Max. nominal voltage	AC 400V
Max. nominal tep. Current	6A
Non-explosive version Ex d IIC T6 Gb, Ex tb IIIC T85°C Db IP66-67	II 2 GD
Ambient operating temp.	-20°C … +60°C



Electrical actuator ExMax-15-BF

24…240 VAC/DC



Normal connection = return spring ~ 10 sec.
next connector for 5 = return spring ~ 3 sec.



Electrical actuator ExMax-15-BF	
Power voltage	AC/DC 24/240 V 50/60Hz
Power consumption - when opening the damper - max. in the rest position	max 20 W max. 12 W
Protection class	I (grounded)
Coverage according to EN 60 529	IP 66
Non-explosion design	II2 (1) G Ex d [ia] IIC T6,T5 zone 1 and 2 II2 (1) D Ex tD A21 [iaD] IP66 T80 °C zone 21 and 22
Adjustment time- drive - reverse gear	~ 30 s ~ 10 s
Ambient operating temperature - T5 - T6	-40°C … +50°C -40°C … +40°C
Storage temperature	-40°C … +70°C Humidity 0…95%rH non-condensing
Connection - optional accessory	ExBox terminal block For connecting power supply and auxiliary limit switches

VI. MATERIAL, FINISHING

- The damper bodies are usually supplied in galvanised sheet metal without further surface treatment, alternatively with a special paint Alesta® AS AS3040-7403627 (RAL 7035-GL LIGHT GREY) with a max. total thickness coating 120 ± 20µm, or the body can be completely made of class AISI 304, possibly AISI 316L stainless-steel sheet. The damper leaves are made of asbestos-free fire-resistant boards made of Promatect-H or Promatect-MST. The control damper devices are supplied in a class AISI 304 or AISI 316L stainless-steel material without other surface treatments. The main torsion spring in the manual control is galvanised.
- Thermal fuses are made of 0.5 mm thick brass sheet. The connecting material is galvanised, the moving parts are made of class AISI 304 or AISI 316 stainless-steel.All moving parts in the damper are conductively connected to the frame, the damper body.
- **The damper´s conductive connection parts must never be modified or removed!**

VII. PRODUCT DATA

The data plate is attached to the damper body with the following information:

- company logo - manufacturer
- company name and registered office
- number of technical conditions /TPM/
- fire resistance
- type and design
- size and weight
- serial number
- year of manufacture
- certification
- Furthermore, there is a sign of damper non-explosivity on the damper.

VIII. TRANSPORTATION, STORAGE AND WARRANTY

Logistic terms

- The dampers are delivered as bulk cargo. Any other packing methods must be agreed with the manufacturer in advance. The potential packages will be considered non-returnable and their price will not be included in the product price.
- The dampers are transported by box freight vehicles; no sharp shocks must occur and the ambient temperature must not exceed +40°C. For handling during transport, the dampers must be protected against mechanical damages and weather impact. If the customer wishes it, the dampers can be transported on pallets. During transport, the damper blade must be in the "CLOSED" position.
- Unless another method of reception is specified in the purchase order, the handover of the dampers to the forwarder shall be understood as reception.
- The dampers must be stored in covered buildings, in an environment without aggressive vapours, gases and dust. A temperature in a range of -5°C and +40°C and a relative humidity of max. 80% must be maintained in the buildings. For handling during storage, the dampers must be protected against mechanical damage.
- The scope of delivery includes a complete damper and a certificate of quality and completeness with a stamp of inspection (the certificate is attached to the invoice).

Warranty

- The manufacturer provides a 24-month warranty for the dampers from the date of dispatch.
- The warranty for fire dampers provided by the manufacturer becomes completely null and void after any unprofessional handling by untrained workers , when dismantling electrical components, i.e. limit switches, actuators and thermoelectric activation devices. The warranty also becomes null and void if the dampers are used for purposes, equipment and working conditions other than those permitted by these technical conditions or after mechanical damage during handling.
- If the dampers are damaged by transport, it is necessary to draft a report with the carrier upon acceptance for the possibility of a later complaint.

IX. ASSEMBLY, ATTENDANCE AND MAINTENANCE

- Installation, maintenance and serviceability checks of dampers may only be performed by persons qualified for these activities, i.e. "AUTHORISED PERSONS" trained by the manufacturer. The training is performed by MANDÍK, a.s. and issues a "CERTIFICATE" of professional competence, which is valid for 5 years and its extension is ensured by the "AUTHORISED PERSON" themselves, directly with the trainer. Upon the expiry of the validity of the "CERTIFICATE", it loses its validity and is excluded from the trainer's registration. Only professionals who take over the warranty for the work performed may be trained.
- The dampers must be installed in compliance with all applicable safety standards and regulations.
- Flange and bolt connections must be conductively connected during installation in accordance with EN 332000-4-41, -4-47 and -5-54 for protection against dangerous contact. For conductive connections, 2 pieces of fan-shaped washers in galvanised design are used, which are placed under the head of one bolt and under the screwed-on nut.
- Prior to commissioning the dampers and during subsequent serviceability checks, all versions, including the operation of electrical components, must be inspected and functionally tested, and the conductive connections of all moving and fixed parts (inside and outside the damper) must be checked on the damper. After commissioning, these serviceability checks must be performed at least twice annually. If no fault is found during two consecutive serviceability checks, then it is possible to carry out serviceability checks once a year. In the event that, for any reason, the dampers are found unfit to perform their function, this must be clearly indicated. The operator is obliged to ensure that the damper is brought into a state where it is able to perform its function again and during this time must provide fire protection in another sufficient way.
- The results of regular inspections, deficiencies found and all important facts concerning the dampers function must be entered in the "FIRE BOOK" and reported to the operator immediately.
- For reliable operation of dampers, care must be taken to ensure that the closing mechanism and the bearing surfaces of the leaf are not clogged with dust deposits, fibrous or sticky substances and solvents.

<u>Prior to commissioning dampers after installation and during subsequent serviceability checks, the following checks must be carried out:</u>

- **Visual inspection** - damper's correct installation, the damper's internal space, the damper blade, the bearing surfaces of the leaf and the silicone seal.
- **Removing the inspection cover** - loosen the cover by turning the wing nut and release it from the locking bracket by moving the cover left or right. Then tilting and removing the cover from its original position. In the case of a screw cap, loosen and remove the screws with washers and remove the cap cover.
- **For dampers with manual control:**
  - Checking the thermal fuse of the drive - the drive must be removed
  - Checking damper closing - pressing the release button on the mechanism will release the closing mechanism and move the sheet to the "CLOSED" position. The closing must be vigorous, the leaf must be in the "CLOSED" position on the stops. If the damper closure is not strong enough or the leaf is not in the "CLOSED" position, the mechanism must be replaced.
  - The damper blade is moved to the "OPEN" position by the mechanism's lever to the second extreme position, where it must be locked.
- **For actuator dampers:**
  - Inspection of the leaf movement to the emergency position "CLOSED" is performed after the power supply to the potential-free button is interrupted (e.g. by pressing the reset button on the thermoelectric activation device, by interrupting the power supply from the EFS).
  - The check for moving the leaf back to the "OPEN" position is performed after the supply voltage has been restored (e.g. by releasing the reset button, restoring the power supply from the EFS)

X. ORDERING INFORMATIONS

Ordering key

To view the ordering keys, go to the ORDERING INFORMATIONS chapter in the relevant TPMs for the dampers:

- FDMB – TPM 075/09
- FDMA-PM – TPM 145/20
- FDMQ – TPM 103/14
- FDMQ 120 – TPM 162/22
- FDMQ 180 – TPM 149/21
- FDMR – TPM 140/19
- FDMR 180 – TPM 148/21

The producer reserves the right for innovations of the product.
For actual product information see www.mandik.com

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