142/17 EN
Valid from 4.1.2018

MANDÍK®

INSTALLATION INSTRUCTIONS

FIRE DAMPER
FDMS

GENERAL INFORMATION

Description

Fire dampers are shutters in ventilation duct systems that preventing spreading the fire and combustion gases from one fire compartment to the other one by shutting of closing the air duct in the positions of fire separating constructions. Dampers blade closes automatically air duct using a shutting spring or an return spring of its actuating mechanism in case of fire. The return spring of the actuator is started when the thermal fuse is activated. In the case of thermos electrical fuse the activation (closing) procedure starts, when a reset button on fuse is pushed or when a power supply of the actuating mechanism is stopped. In case of mechanical control with thermal fuse, the return spring is activated after the moment, when thermal fuse is melted. The damper´s blade is sealed with a silicon gasket/packing preventing smoke penetration after closing the blade. At the same time, the damper´s blade will be tighten by intumescent tape, which will be expanding in the case of fire. Dampers have no inspection door. For inspection of the damper, there is an inspection hole for camera. For others service works there must by installed inspection door externally on the duct, next to the fire damper. The damper is equipped with additional collar, around the position of the blade. On the collar, there are positioned several metallic plates (fixtures for easy installation on the wall or ceiling construction.

Damper with mechanical control

Damper with actuating mechanism

Damper characteristic

- CE certified acc. to EN 15650
- Tested in accordance with EN 1366-2
- Classified acc. to EN 13501-3+A1
- Fire resistance EIS 60
- External casing leakage class min. C, internal leakage class 2 acc. EN 1751
- Cycling test in class C 10 000 acc. to EN 15650
- Corrosion resistant acc. to EN 15650
- ES Certificate of conformity No. 1391-CPR-2017/0092
- Declaration of performance No. PM/FDMS/01/17/1

Working conditions

Fire damper´s proper functioning is determined by the following working conditions:

- Maximum air speed: 12m/s.
- Maximum pressure difference: 2500 Pa.
- Operation of the dampers does not depend on the direction of air-flow (circulation).The dampers can be located in any (arbitrary) position.
- Dampers are suitable for ventilation air systems not containing any abrasive, chemical and adhesive particles.
- Dampers are designed for macroclimatic areas with mild climate according to EN 60721-3-3.
- Temperature in the place of installation is permitted to be in the range from - 30°C to + 50°C.

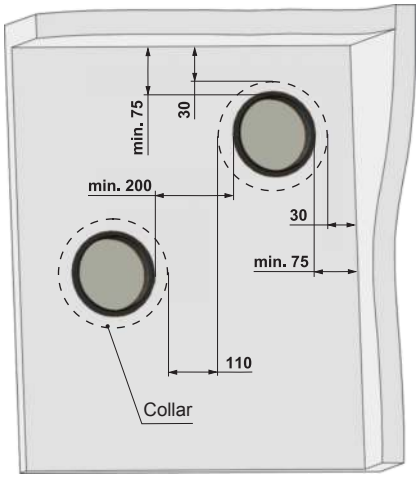
Placement and assembly

Fire dampers are suitable for installation in arbitrary position in vertical and horizontal passages of fire separating constructions. Damper assembly procedures must be done so as all load transfer from the fire separating constructions to the damper body is absolutely excluded. Back-to-back air-ducting must be hung or supported so as all load transfer from the back-to-back piping to the damper is absolutely excluded. Installation gap must be filled by approved material perfectly in all the installation space volume (installation gap). To be able to provide inspection of the inside of the fire damper, the external access door (inspection hall) must be installed on the air duct, next to the fire damper.

The distance between the fire damper and the construction (wall, ceiling) must be minimum 75 mm. In case that two or more dampers are supposed to be installed in one fire separating construction, the distance between the adjacent dampers must be at least 200 mm according to EN 1366-2 paragraph 13.6.

The control mechanism has to be protected (covered) against damage and pollution during installation process. All fire dampers has to be closed during installation process. The damper body should not be deformed in the course of bricking in. Once the damper is built in, its blade should not grind on the damper body during opening or closing.

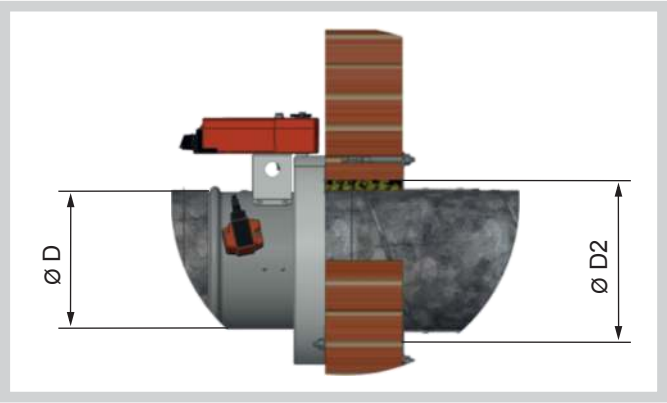
Position of the dampers in the wall [mm]



Installations opening

The dimensions of installation opening for the connected air duct depends on the type of sealant- see the table.

Fire stopper type	Recommended material	D2 (mm)
Fire resistant sealant	**HILTI:** Firestop Acrylic sealant CFS-S ACR or similar	D+10
Stone wool	**ISOVER:** Orstech LSP H thick 20mm + from outside mastic **HILTI:** Firestop coating CFS-CT or PROMASTOP-P or K or similar	D+40
Glass fiber fabric	**ADFORS Saint Gobain:** Araver - thick 8mm **+** from outside **HILTI:** Firestop Acrylic sealant CFS-S ACR or similar	D+20
Mortar or gypsum	**HILTI:** Fire mortar CFS-M RG or similar	D+80



Statement of installation

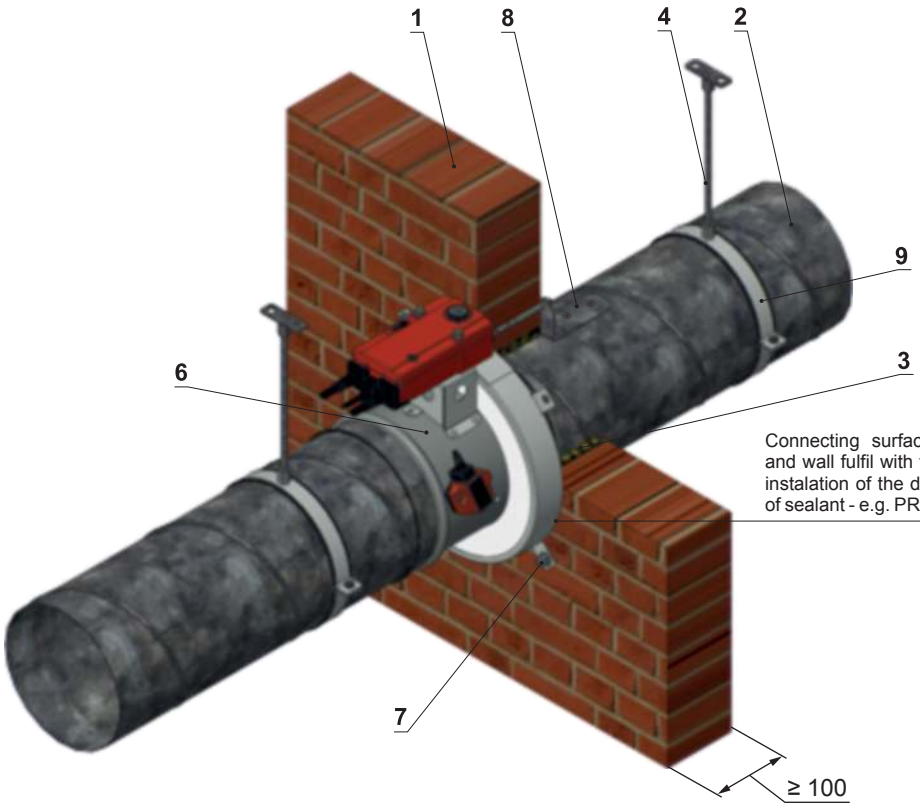
The damper is designed for installation on a wall or intermediate floor for circular air-duct connection.

Construction	Installation in the wall or ceiling	Material of stuffing box
Solid wall construction (t≥100mm)	Dry	Fire resistant sealant or stone wool or glass fiber fabric
Solid wall construction (t≥100mm)	Wet	Mortar or gypsum
Outside solid wall construction with t≥100mm (insulation of the pipe between wall and damper made from stone wool)	Dry	Fire resistant sealant or stone wool or glass fiber fabric
Outside solid wall construction with t≥100mm (insulation of the pipe between wall and damper made from stone wool)	Wet	Mortar or gypsum
Solid ceiling construction (t≥125mm for aerated concrete)	Dry	Fire resistant sealant or stone wool or glass fiber fabric
Solid ceiling construction (t≥125mm for aerated concrete)	Wet	Mortar or gypsum
Outside solid ceiling construction with t≥125mm for aerated concrete (insulation of the pipe between wall and damper made from stone wool)	Dry	Fire resistant sealant or stone wool or glass fiber fabric
Outside solid ceiling construction with t≥125mm for aerated concrete (insulation of the pipe between wall and damper made from stone wool)	Wet	Mortar or gypsum
Gypsum wall construction (t≥100mm)	Dry	Fire resistant sealant or stone wool or glass fiber fabric
Gypsum wall construction (t≥100mm)	Wet	Mortar or gypsum
Outside gypsum wall construction with t≥100mm (insulation of the pipe between wall and damper made from stone wool)	Dry	Fire resistant sealant or stone wool or glass fiber fabric
Outside gypsum wall construction with t≥100mm (insulation of the pipe between wall and damper made from stone wool)	Wet	Mortar or gypsum
Sandwich wall (insulated wall panel) construction	Dry	Fire resistant sealant or stone wool or glass fiber fabric
Outside sandwich wall (insulated wall panel) construction with insulation of the pipe	Dry	Fire resistant sealant or stone wool or glass fiber fabric

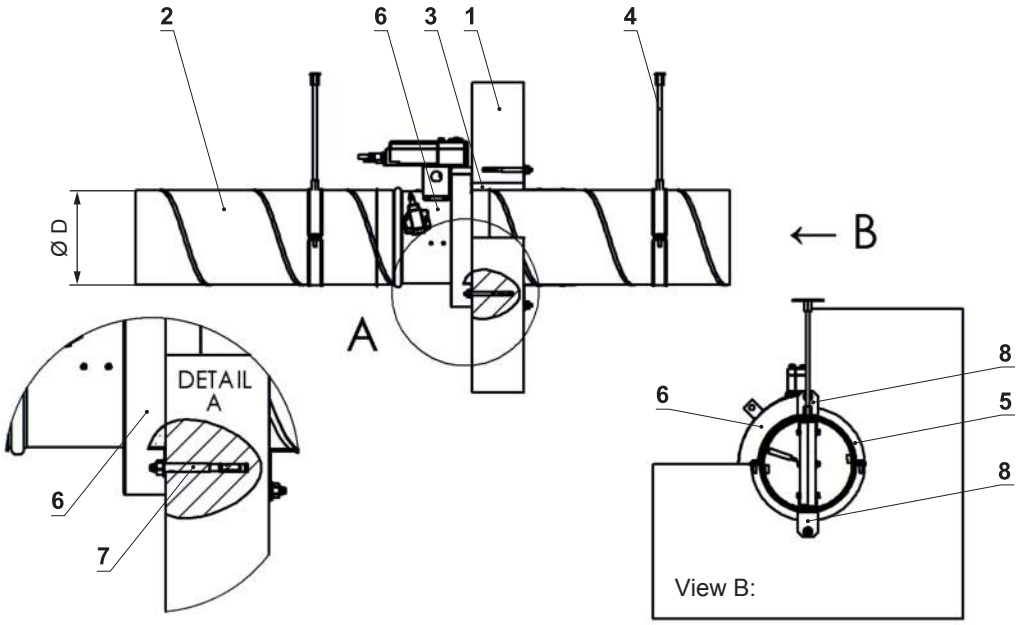
Descriptions of particular installations

FDMS - damper on the solid wall

Fire classification: **EI60S**



Connecting surface between damper collar and wall fulfil with fire resistant sealant before instalation of the damper (recommended type of sealant - e.g. PROMAT K84 or HILTI CFS-S)

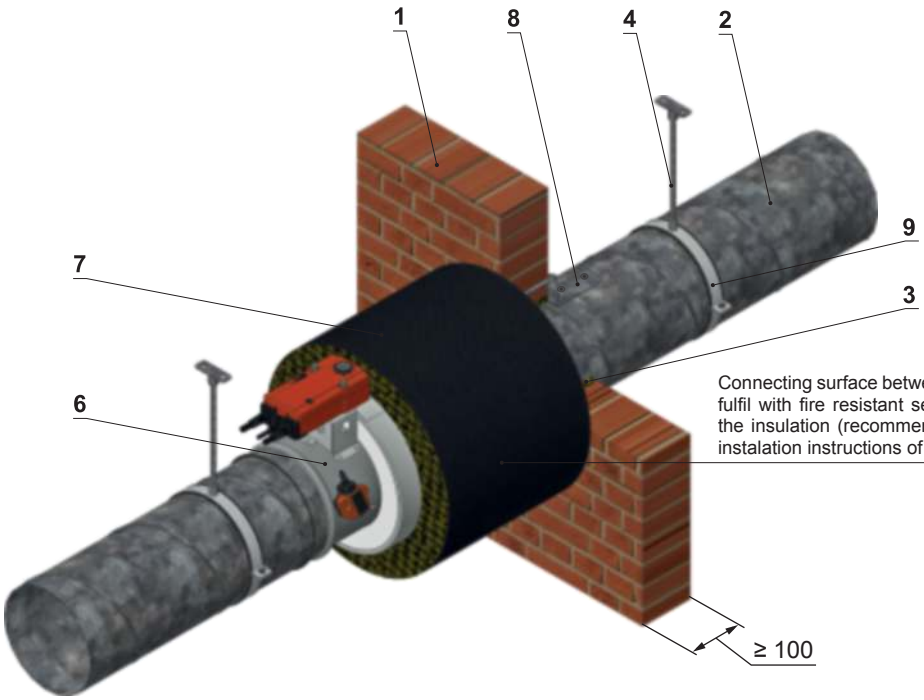


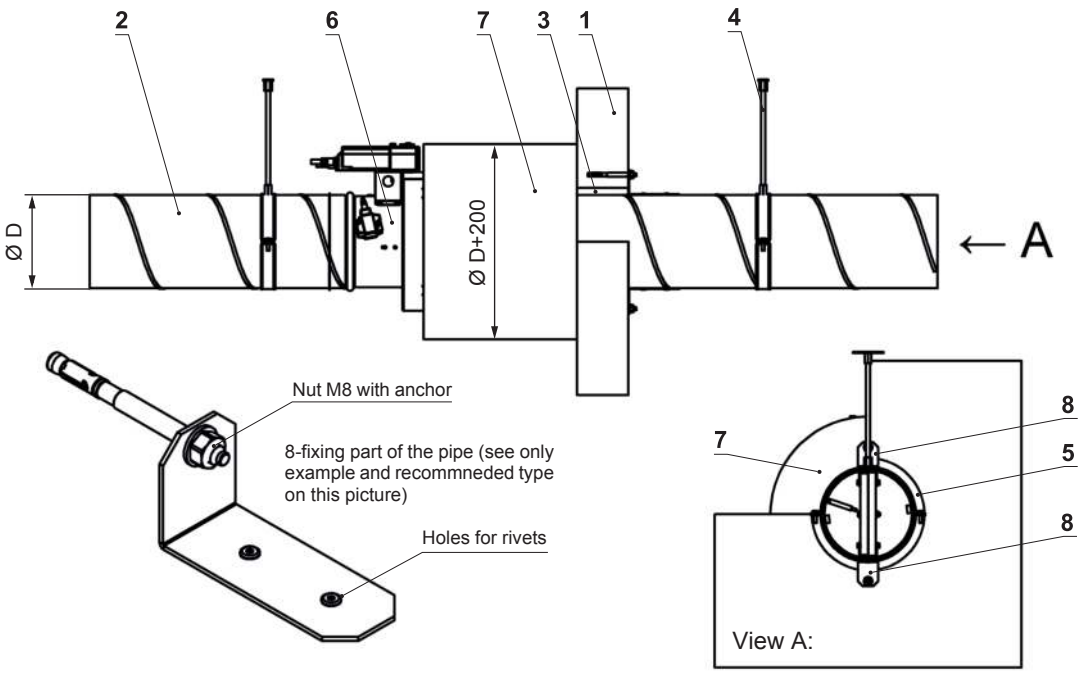
POSITION

1 Solid wall construction
2 Spiral pipe
3 Fire resistant fill (for recommended materials see separate table)
4 Threaded rod and anchor to the wall (or ceiling) (e.g. threaded rod M8 and anchor type according pipe weight)
5 Fire protection mastic min. thickness 1mm (e.g. PROMASTOP-P or K)
6 Fire damper FDMS
7 Anchor for damper collar (e.g.FISCHER - type ZYKON FZA M8x30)
8 Fixing part of the pipe between wall and pipe (only recommended)
9 Hanging ring (e.g. FISCHER - type LGS)

FDMS - damper outside the solid wall

Fire classification: **EI60S**





POSITION

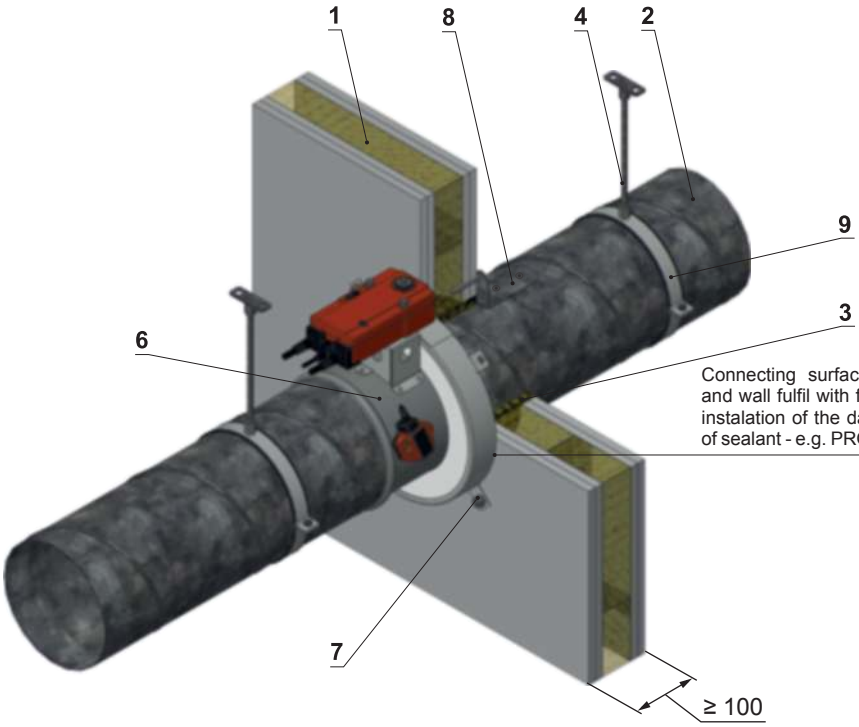
1 Solid wall construction
2 Spiral pipe
3 Fire resistant fill (for recommended materials see separate table)
4 Threaded rod and anchor to the wall (or ceiling) (e.g. threaded rod M8 and anchor type according pipe weight)
5 Fire protection mastic min. thickness 1mm (e.g. PROMASTOP-P or K)
6 Fire damper FDMS
7 Pipe insulation with minimal fire resistance EI60 (e.g. ISOVER Ultimate protect Wired MAT 4.0 ALU1)*
8 Fixing part of the pipe between wall and pipe (mandatory)**
9 Hanging ring (e.g. FISCHER - type LGS)

* Installation of pipe insulation perform according instructions of the manufacturer (e.g. ISOVER, ROCKWOOL,PAROC ...). Minimal wool density for pipe insulation must be 66kg/m^3

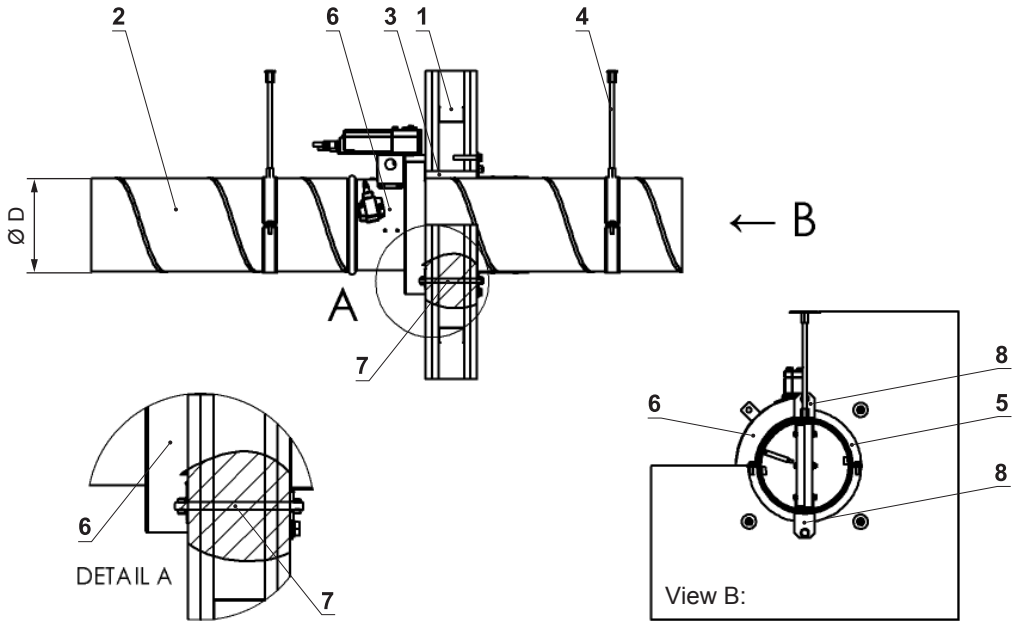
** This fixing part isn't mandatory if the installation opening was fulfill by mortar or gypsum. In other cases of the fire resistant fill is this fixing part of the pipe mandatory. This fixing part can by mounted on the both sides of the wall.

FDMS - damper on the gypsum wall

Fire classification: **EI60S**



Connecting surface between damper collar and wall fulfil with fire resistant sealant before instalation of the damper (recommended type of sealant - e.g. PROMAT K84 or HILTI CFS-S)

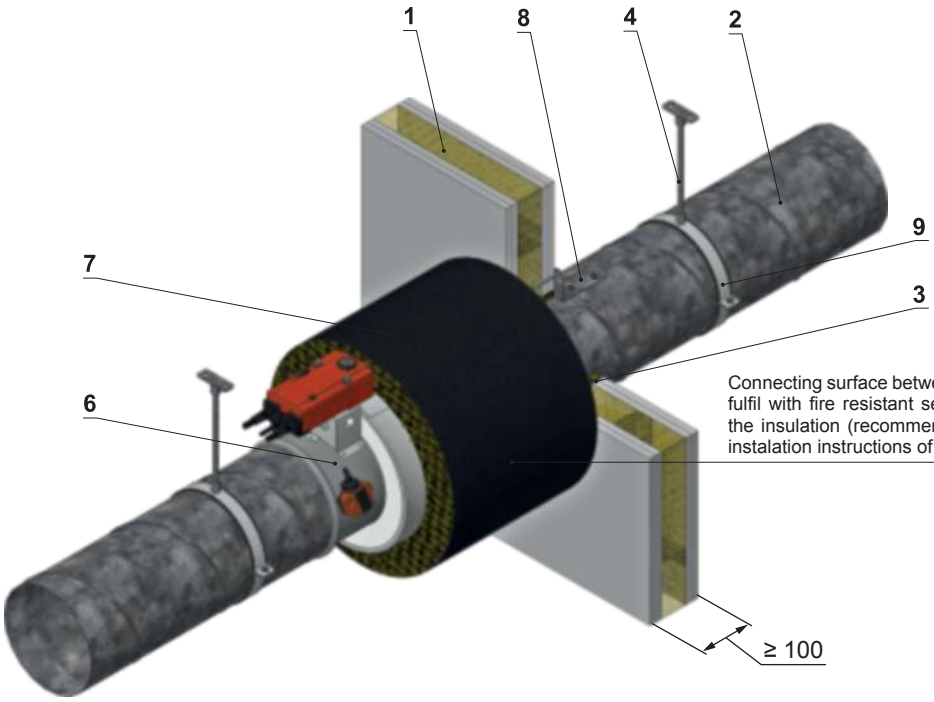


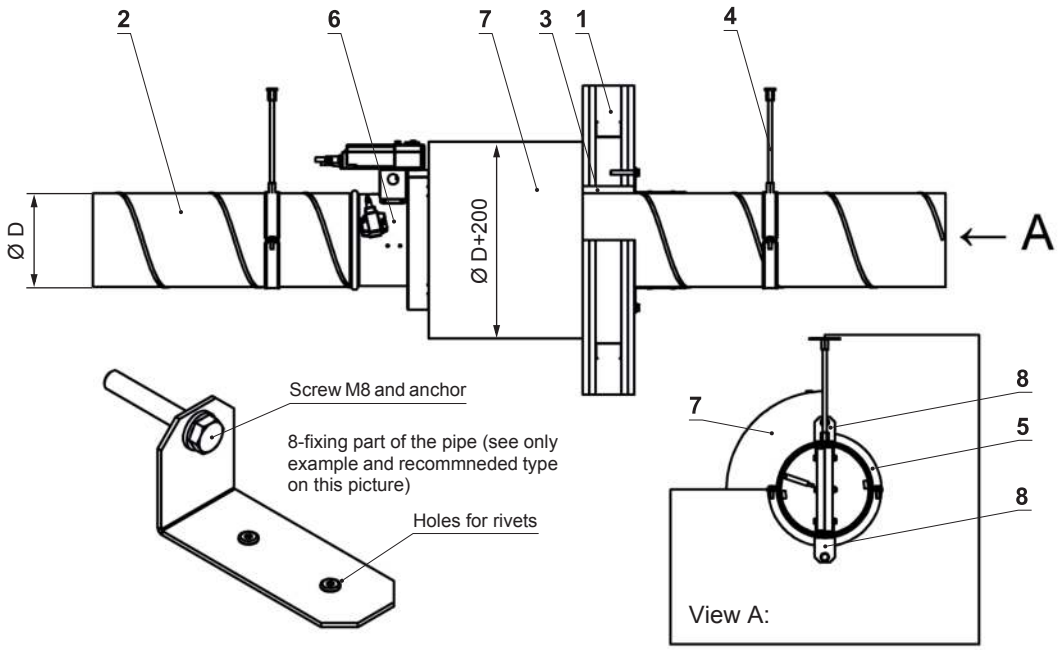
POSITION

1 Gypsum wall construction
2 Spiral pipe
3 Fire resistant fill (for recommended materials see separate table)
4 Threaded rod and anchor to the wall (or ceiling) (e.g. threaded rod M8 and anchor type according pipe weight)
5 Fire protection mastic min. thickness 1mm (e.g. PROMASTOP-P or K)
6 Fire damper FDMS
7 Anchor for damper collar (threaded rod and nuts M8 or e.g. anchor FISCHER - type KD8)
8 Fixing part of the pipe between wall and pipe (only recommended)
9 Hanging ring (e.g. FISCHER - type LGS)

FDMS - damper outside the gypsum wall

Fire classification: **EI60S**





POSITION

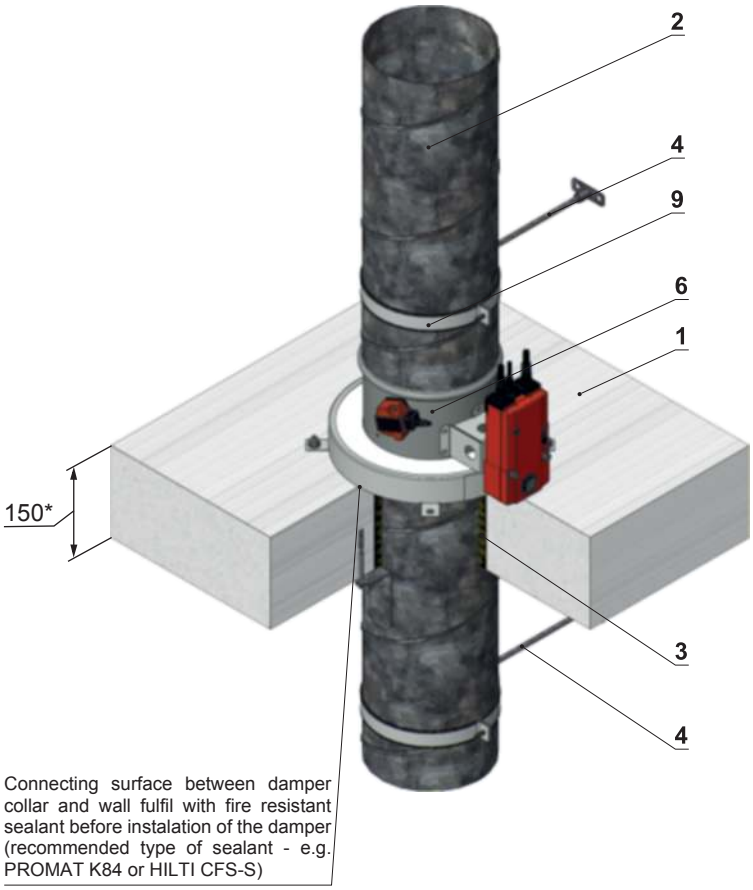
1 Gypsum wall construction
2 Spiral pipe
3 Fire resistant fill (for recommended materials see separate table)
4 Threaded rod and anchor to the wall (or ceiling) (e.g. threaded rod M8 and anchor type according pipe weight)
5 Fire protection mastic min. thickness 1mm (e.g. PROMASTOP-P or K)
6 Fire damper FDMS
7 Pipe insulation with minimal fire resistance EI60 (e.g. ISOVER Ultimate protect Wired MAT 4.0 ALU1)*
8 Fixing part of the pipe between wall and pipe (mandatory)**
9 Hanging ring (e.g. FISCHER - type LGS)

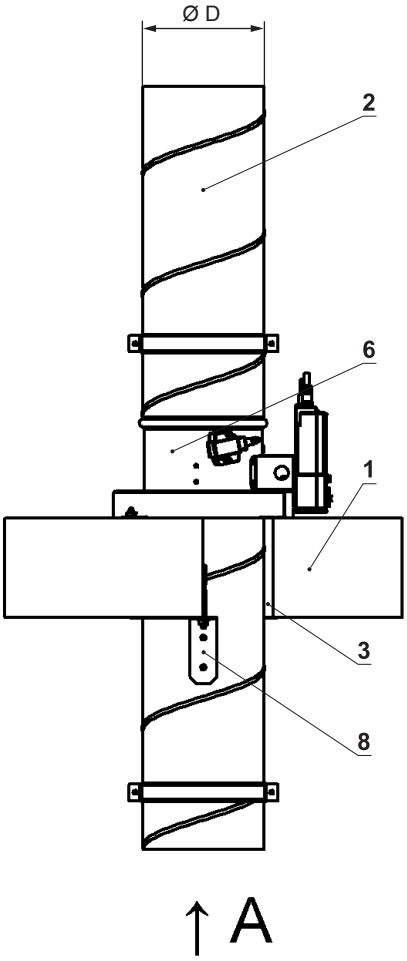
* Installation of pipe insulation perform according instructions of the manufacturer (e.g. ISOVER, ROCKWOOL,PAROC ...). Minimal wool density for pipe insulation must be 66kg/m^3

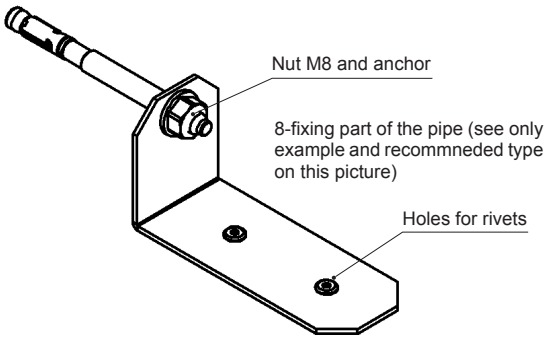
** This fixing part isn't mandatory if the installation opening was fulfill by mortar or gypsum. In other cases of the fire resistant fill is this fixing part of the pipe mandatory. This fixing part can by mounted on the both sides of the wall.

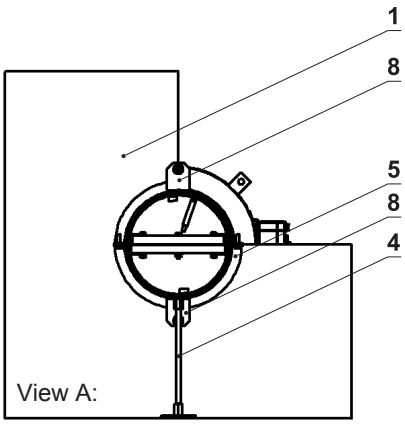
FDMS - damper on the concrete ceiling construction

Fire classification: **EI60S**









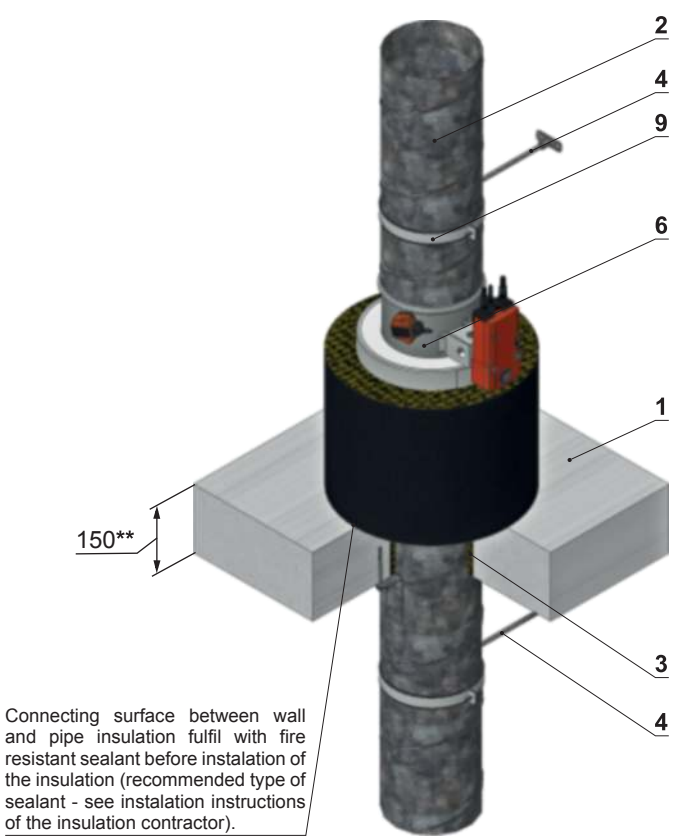
POSITION

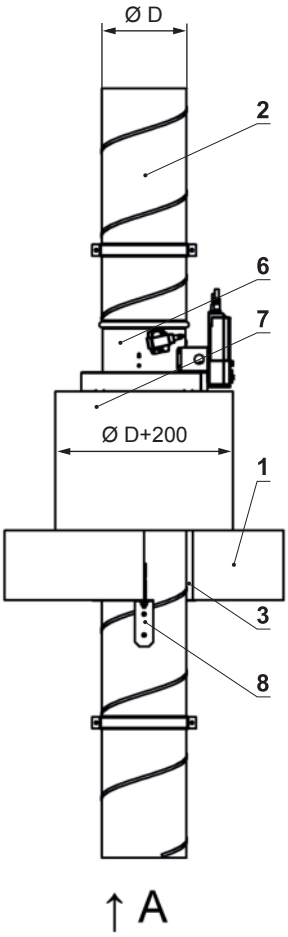
1 Solid ceiling construction
2 Spiral pipe
3 Fire resistant fill (for recommended materials see separate table)
4 Threaded rod and anchor to the wall (or ceiling) (e.g. threaded rod M8 and anchor type according pipe weight)
5 Fire protection mastic min. thickness 1mm (e.g. PROMASTOP-P or K)
6 Fire damper FDMS
7 Anchor for damper collar (e.g. FISCHER - type ZYKON FZA M8x30)
8 Fixing part of the pipe between wall and pipe (mandatory)
9 Hanging ring (e.g. FISCHER - type LGS)

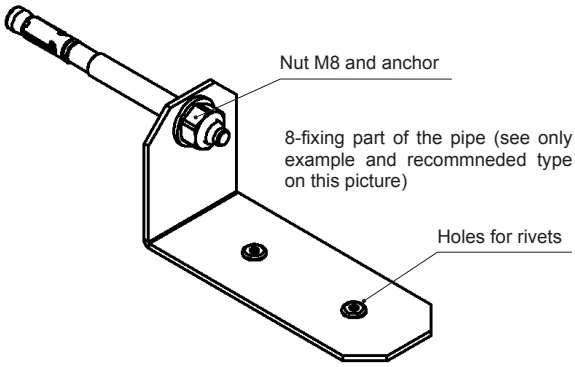
*Minimal thickness of the ceiling is for concrete 110mm and fo aerated concrete 125mm.

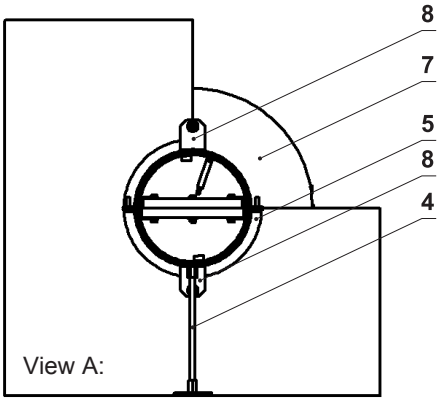
FDMS - damper outside the concrete ceiling construction

Fire classification: **EI60S**









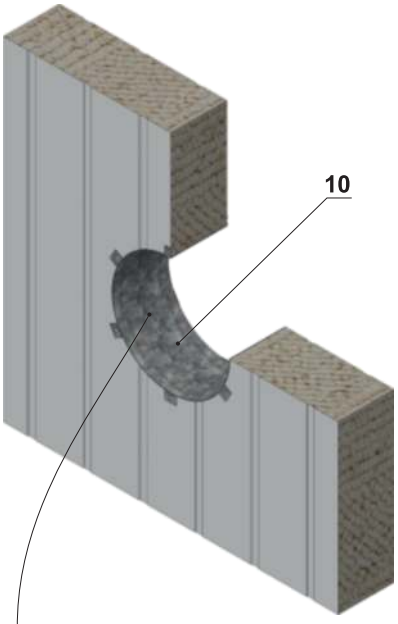
POSITION

1 Solid ceiling construction
2 Spiral pipe
3 Fire resistant fill (for recommended materials see separate table)
4 Threaded rod and anchor to the wall (or ceiling) (e.g. threaded rod M8 and anchor type according pipe weight)
5 Fire protection mastic min. thickness 1mm (e.g. PROMASTOP-P or K)
6 Fire damper FDMS
7 Pipe insulation with minimal fire resistance EI60 (e.g. ISOVER Ultimate protect Wired MAT 4.0 ALU1)*
8 Fixing part of the pipe between wall and pipe (mandatory)***
9 Hanging ring (e.g. FISCHER - type LGS)

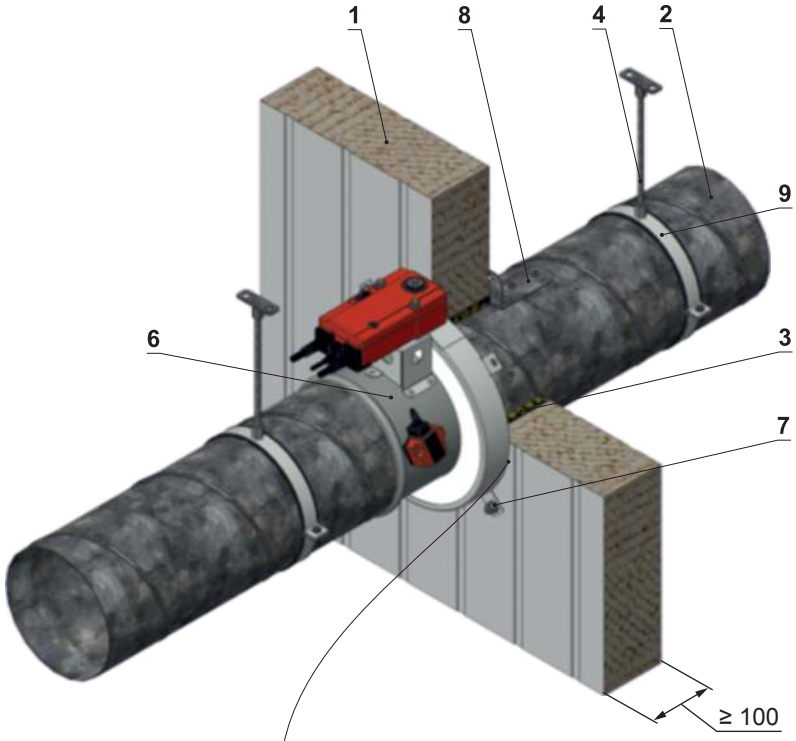
* Installation of pipe insulation perform according instructions of the manufacturer (e.g. ISOVER, ROCKWOOL,PAROC ...). Minimal wool density for pipe insulation must be 66kg/m^3.
** Minimal thickness of the ceiling is for concrete 110mm and fo aerated concrete 125mm.
*** This fixing part isn't mandatory if the installation opening was fulfill by mortar or gypsum. In other cases of the fire resistant fill is this fixing part of the pipe mandatory. This fixing part can by mounted on the both sides of the wall.

FDMS - damper on the insulated wall panels

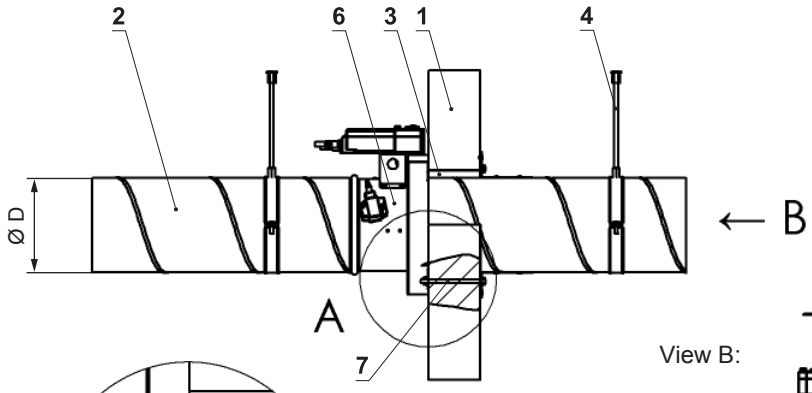
Fire classification: **EI45S**

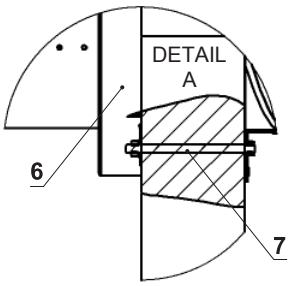


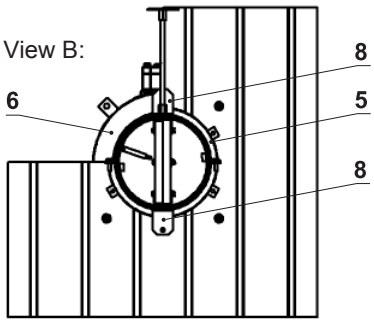
Before instalation of the fire resistant stopper inside the instalation opening put special connection ring. This ring cover insulation inside the panel and connect outside and inside plane of the panel.



Connecting surface between damper collar and wall fulfil with fire resistant sealant before instalation of the damper (recommended type of sealant - e.g. PROMAT K84 or HILTI CFS-S)





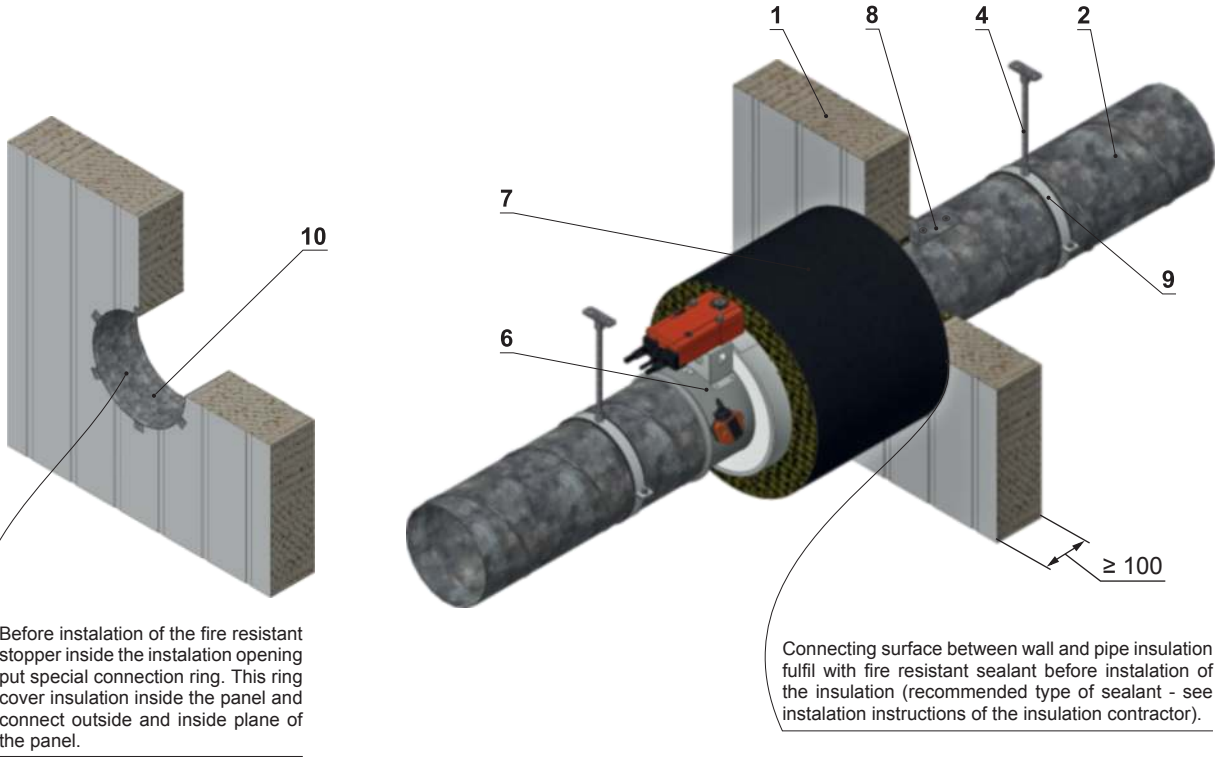


POSITION

1 Insulated wall construction (e.g. KINGSPAN - type KS1150 FR)
2 Spiral pipe
3 Fire resistant fill (for recommended materials see separate table)
4 Threaded rod and anchor to the wall (or ceiling) (e.g. threaded rod M8 and anchor type according pipe weight)
5 Fire protection mastic min. thickness 1mm (e.g. PROMASTOP-P or K)
6 Fire damper FDMS
7 Anchor for damper collar (threaded rod and nuts M8)
8 Fixing part of the pipe between wall and pipe (only recommended)
9 Hanging ring (e.g. FISCHER - type LGS)
10 Installation ring (in scope of supply Mandik company)

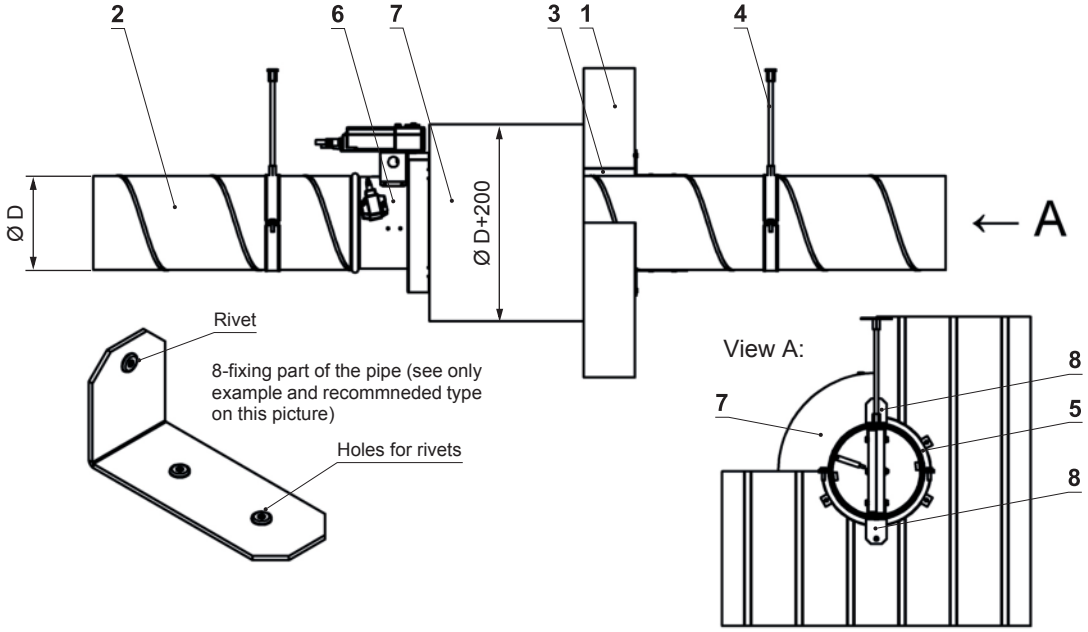
FDMS - damper outside the insulated wall panels

Fire classification: **EI60S**



Before instalation of the fire resistant stopper inside the instalation opening put special connection ring. This ring cover insulation inside the panel and connect outside and inside plane of the panel.

Connecting surface between wall and pipe insulation fulfil with fire resistant sealant before instalation of the insulation (recommended type of sealant - see instalation instructions of the insulation contractor).



POSITION

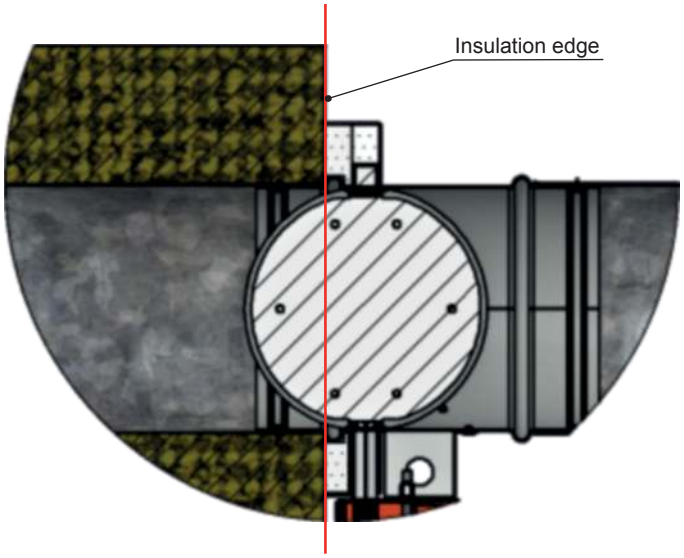
1 Insulated wall construction (e.g. KINGSPAN - type KS1150 FR)
2 Spiral pipe
3 Fire resistant fill (for recommended materials see separate table)
4 Threaded rod and anchor to the wall (or ceiling) (e.g. threaded rod M8 and anchor type according pipe weight)
5 Fire protection mastic min. thickness 1mm (e.g. PROMASTOP-P or K)
6 Fire damper FDMS
7 Pipe insulation with minimal fire resistance EI60 (e.g. ISOVER Ultimate protect Wired MAT 4.0 ALU1)*
8 Fixing part of the pipe between wall and pipe (mandatory)**
9 Hanging ring (e.g. FISCHER - type LGS)
10 Installation ring (in scope of supply Mandik company)

* Installation of pipe insulation perform according instructions of the manufacturer (e.g. ISOVER, ROCKWOOL,PAROC ...). Minimal wool density for pipe insulation must be 66kg/m^3.

** This fixing part isn't mandatory if the installation opening was fulfill by mortar or gypsum. In other cases of the fire resistant fill is this fixing part of the pipe mandatory. This fixing part can by mounted on the both sides of the wall.

Connecting point between pipe insulation and damper collar

The insulation of the pipe must cover the damper collar from back side.



TRANSPORT AND STORAGE

Dampers are transported on trucks, on transport palettes or boxes, so that the fire dampers are protected from direct water impact. During transportation, handling and installation processes. The ambient temperature must not exceed +40°C. During transport, the damper blade must be in CLOSE position. Dampers are stored indoor in environment without any aggressive vapors, gases or dust. Indoor temperature must be in the range from -30 °C to +40 °C and maximum relative humidity 95 % (avoid condensation on the damper body). Dampers must be protected against mechanic damages when transported and manipulated.

ASSEMBLY, ATTENDANCE, MAINTENANCE AND REVISIONS

All effective safety standards and directives must be observed during fire damper assembly. To ensure reliable fire damper function it is necessary to avoid blocking the closing mechanism and contact surfaces with collected dust, fiber and sticky materials and solvents.

Entry into service and revisions

Before entering the dampers into operation after their assembly and by sequential checks, the following checks must be carried out. Visual inspection of proper damper integration , inside damper area, damper blade, contact surfaces and silicon sealing. Check of thermal protective fuse and closing mechanism. Check the closing function of the damper blade. This can be done by removing of thermal fuse from damper body.

Before entering the dampers with actuating mechanism into operation after their assembly and by sequential checks. Check of blade displacement into the breakdown position "CLOSED" can be done after cutting off the actuating mechanism supply (e.g. by pressing the RESET button at the thermoelectrical starting mechanism BAT or cutting off the supply from ELECTRICAL FIRE SIGNALISATION). Check of blade displacement back into the "OPEN" position can be done after restoration of power supply (e.g. by releasing the RESET button or restoration of supply from ELECTRICAL FIRE SIGNALISATION).

Without power supply, the damper can be operated manually and fixed in any required position. Release of the locking mechanism can be achieved manually or automatically by applying the supply voltage. It is recommended to provide periodical checks, maintenance and service actions on Fire Equipment by Authorized persons. The authorized persons can be trained by Producer, or by authorized Distributor. All effective safety standards and directives must be observed during fire damper assembly.

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