CE

MAN 155/20

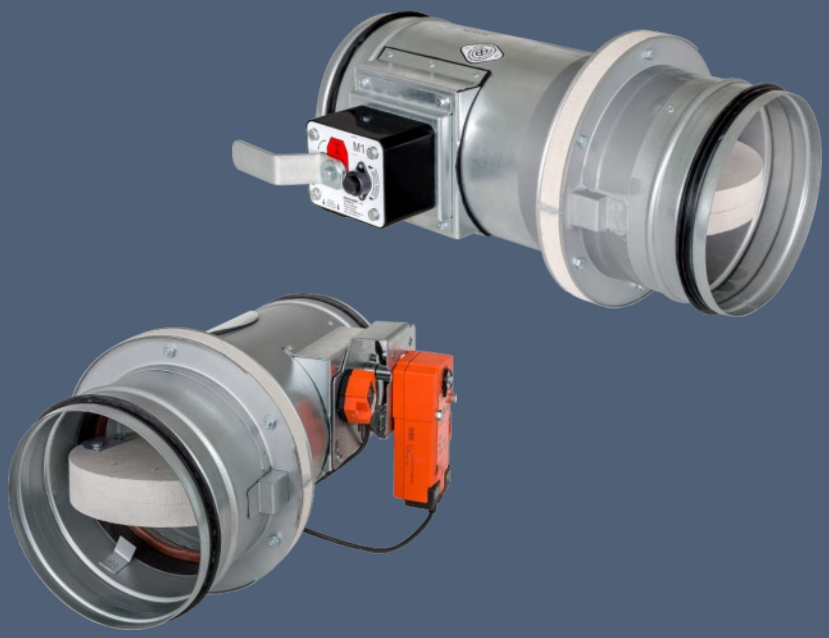
Valid from 5/5/22

EN 15650:2010-09

MANDÍK®

INSTALLATION INSTRUCTIONS

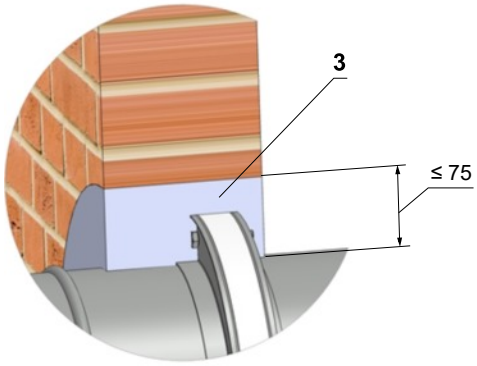
FIRE DAMPER
FDMA-PM



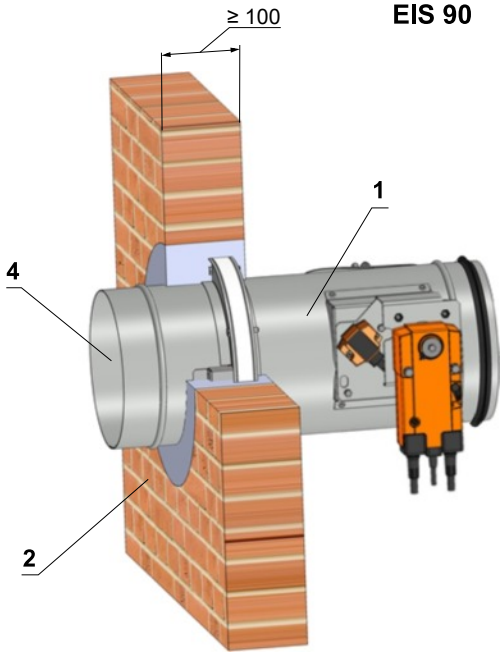
Installation in solid wall construction

Solid wall construction - mortar or gypsum

*** The requirement to EIS 120 must be specified in the order alone. Without specification is supplied the standard flap EIS 90.**



EIS 120*
EIS 90

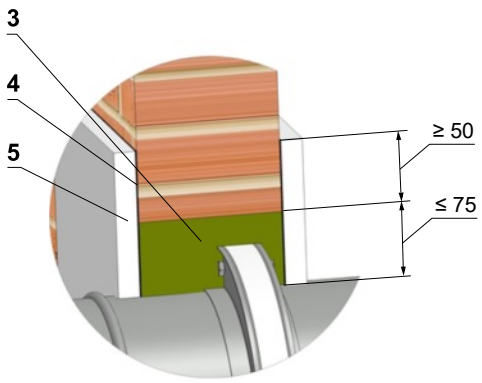


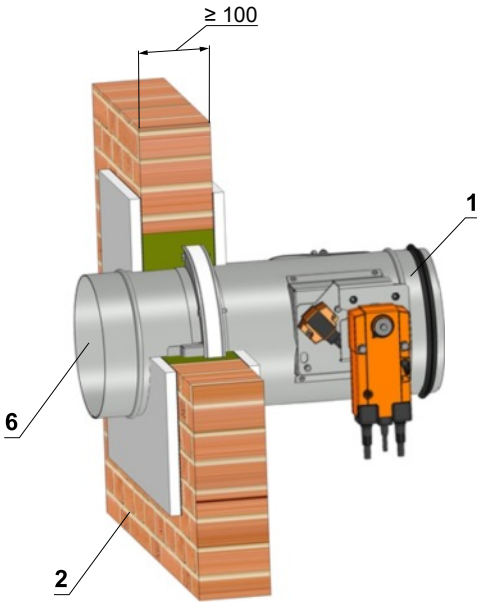
Position:

1 Fire damper
2 Solid wall construction
3 Mortar or gypsum
4 Duct

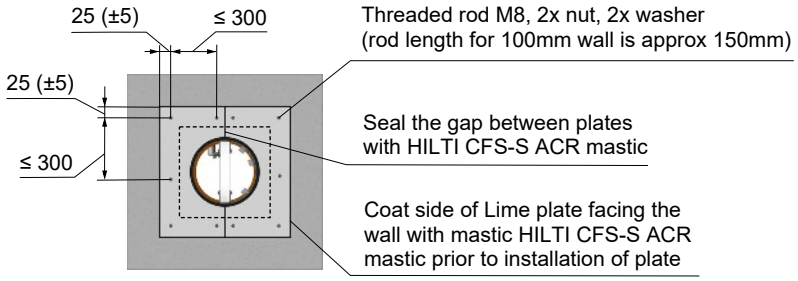
Solid wall construction - stuffing box, fire protection mastic and cement lime plate

EIS 90





Ensure symmetry with rod location



Screws has to be fixed in wall/ceiling construction.
(If it is needed use steel bracket).

Used materials - example:

3 Promapyr, Rockwool Steprock HD, Hilti CFS-CT B 1S 140/50
4 Promastop - P, K, Hilti CFS-CT
5 Promatect - H

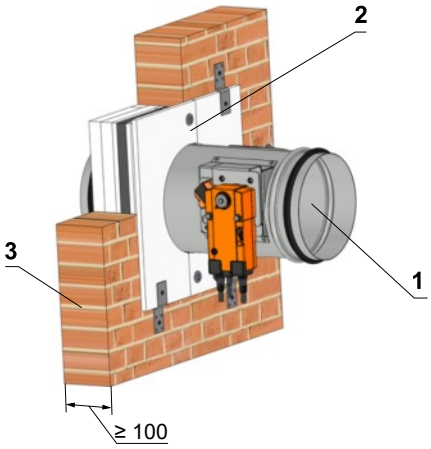
Position:

1 Fire damper
2 Solid wall construction
3 Stuffing box (mineral stone wool min. density 140 kg/m³)
4 Fire protection mastic min. thickness 1 mm
5 Cement lime plate min. thickness 15 mm min. density 870 kg/m³
6 Duct

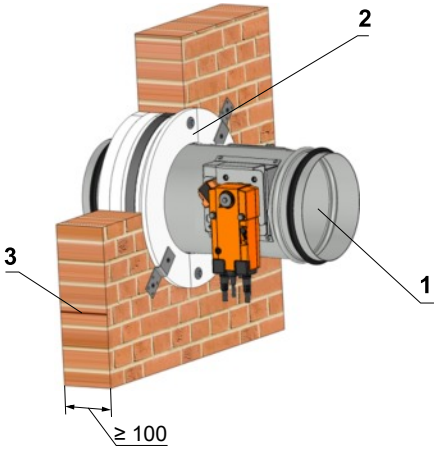
Solid wall construction - Installation frame R1, R2, R3, R4, R5

EIS 90

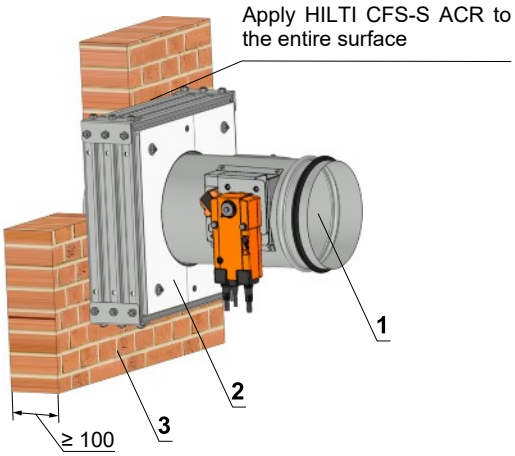
Installation frame R1, R2



Installation frame R3, R4



Installation frame R5

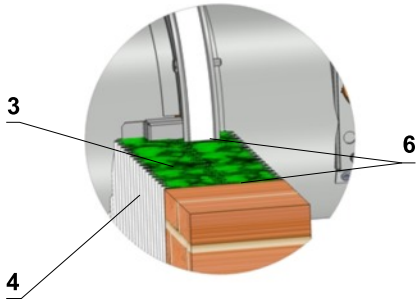


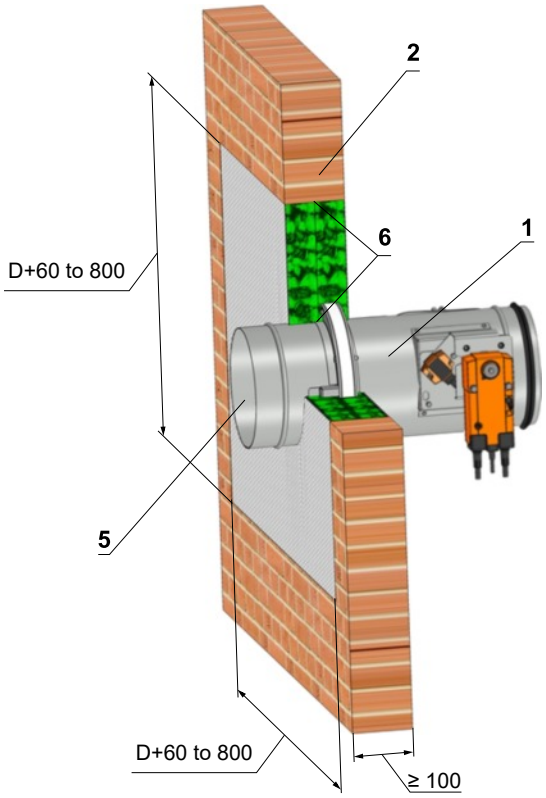
Position:

1 Fire damper
2 Installation frame
3 Solid wall construction

Solid wall construction - Weichschott / Ablative Coated Batt

EIS 90





Position:

1 Fire damper
2 Solid wall construction
3 Fire resistant board
4 Fire stop coating thickness 1 mm
5 Duct
6 Fire resistant mastic - fill the gap on both sides of the fire separation construction and around the perimeter of penetration and damper body.

Used materials - example:

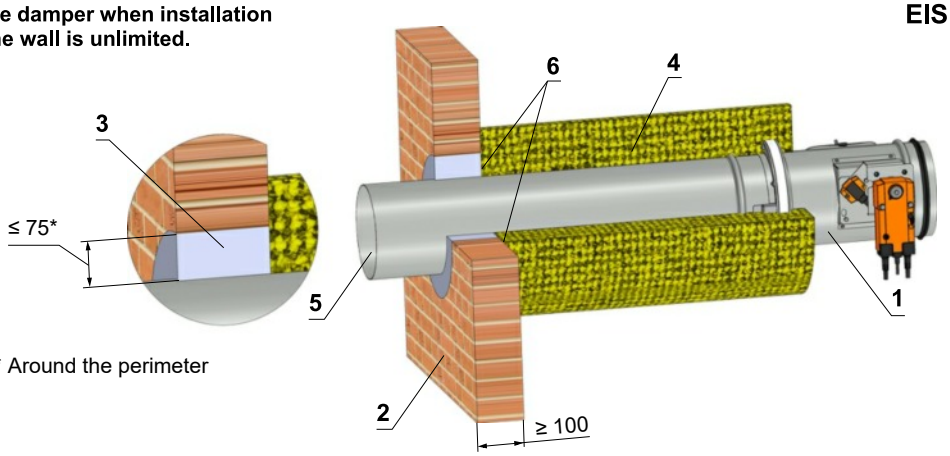
3 Hilti CFS-CT B 1S 140/50
4 Hilti CFS-CT
6 Hilti CFS-S ACR

Installation outside solid wall construction

Outside solid wall construction - mineral wool - mortar or gypsum

Minimum and maximum distance between the wall and fire damper when installation remote from the wall is unlimited.

EIS 45



* Around the perimeter

Position:

1 Fire damper
2 Solid wall construction
3 Mortar or gypsum
4 Stone wool with wired mat on one side, density 66 kg/m³
5 Duct
6 Apply ISOVER Protect BSK glue on the insulation and stick it to the fire separation construction ***

Used materials - example:**

4 Isover Ultimate Protect Wired MAT 4.0, th. 100 mm ALU1

** Insulation materials can be replaced by another approved fire sealing system with equivalent properties.
The maximum distance of the fire damper from the structure is not limited.

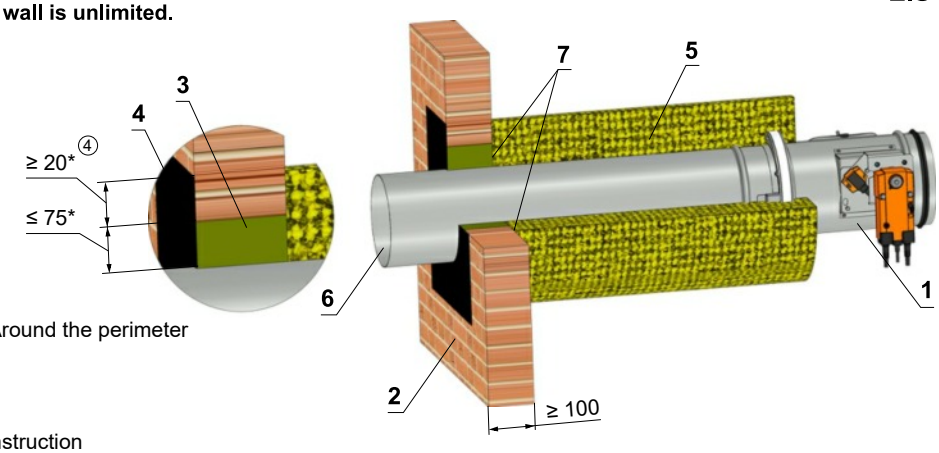
***** When installing the insulation, follow the ISOVER manufacturer's instructions.**

The duct at the point of penetration does not have to be anchored to the fire wall construction.

Outside solid wall construction - mineral wool - stuffing box and fire protection mastic

Minimum and maximum distance between the wall and fire damper when installation remote from the wall is unlimited.

EIS 45



* Around the perimeter

Position:

1 Fire damper
2 Solid wall construction
3 Stuffing box (mineral stone wool min. density 140 kg/m³)
4 Fire protection mastic min. thickness 1 mm
5 Stone wool with wired mat on one side, density 66 kg/m³
6 Duct
7 Apply ISOVER Protect BSK glue on the insulation and stick it to the fire separation construction ***

Used materials - example:**

3 Promapyr, Rockwool Steprock HD, Hilti CFS-CT B 1S 140/50
4 Promastop - P, K, Hilti CFS-CT
5 Isover Ultimate Protect Wired MAT 4.0, th. 100 mm ALU1

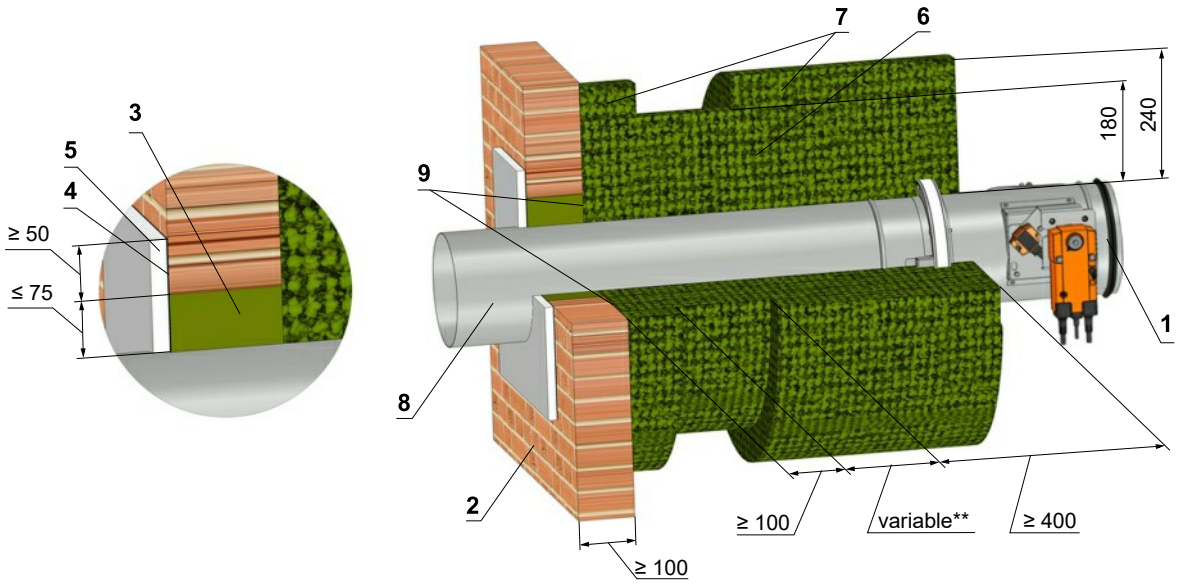
** Insulation materials can be replaced by another approved fire sealing system with equivalent properties.
The maximum distance of the fire damper from the structure is not limited.

***** When installing the insulation, follow the ISOVER manufacturer's instructions.**

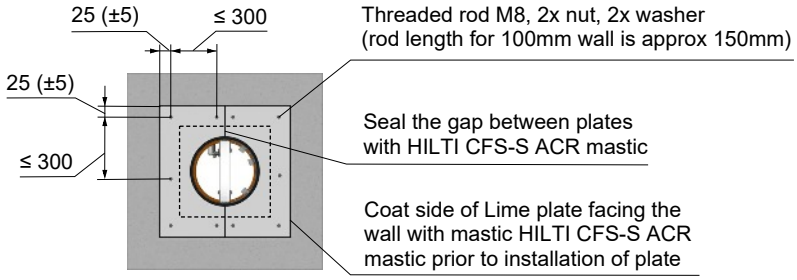
The duct at the point of penetration must be anchored to the fire wall construction.

Outside solid wall construction - mineral wool, stuffing box, fire protection mastic and cement lime plate

EIS 90



Ensure symmetry with rod location



Screws has to be fixed in wall/ceiling construction.
(If it is needed use steel bracket).

Position:

1 Fire damper
2 Solid wall construction
3 Stuffing box (mineral stone wool min. density 140 kg/m³)
4 Fire protection mastic min. thickness 1 mm
5 Cement lime plate min. thickness 15 mm (min. density 870 kg/m³)
6 Stone wool with one side stitched wire fencing (min. density 105 kg/m³), thickness 180 mm (e.g. 3x60 mm)
7 Stone wool with one side stitched wire fencing (min. density 105 kg/m³), thickness 60 mm
8 Duct
9 Apply Rockwool Firepro glue on the insulation and stick it to the fire separation construction ***

Used materials - example:*

3 Promapyr, Rockwool Steprock HD, Hilti CFS-CT B 1S 140/50
4 Promastop - P, K, Hilti CFS-CT
5 Promatect - H
6 Rockwool Wired Mat 105 th. 3x60 mm
7 Rockwool Wired Mat 105 th. 60 mm

* Stuffing box, fire protection mastic, cement lime plate and insulation materials can be replaced by another approved fire sealing system for damper installation with equivalent material properties.

** Depends on the distance of the flap from the construction, when the maximum distance from the construct is not limited and according to EN 15882-2 must use the required number of hinges according to EN 13366-1:2014.

***** When installing the insulation, follow the Rockwool manufacturer's instructions.**

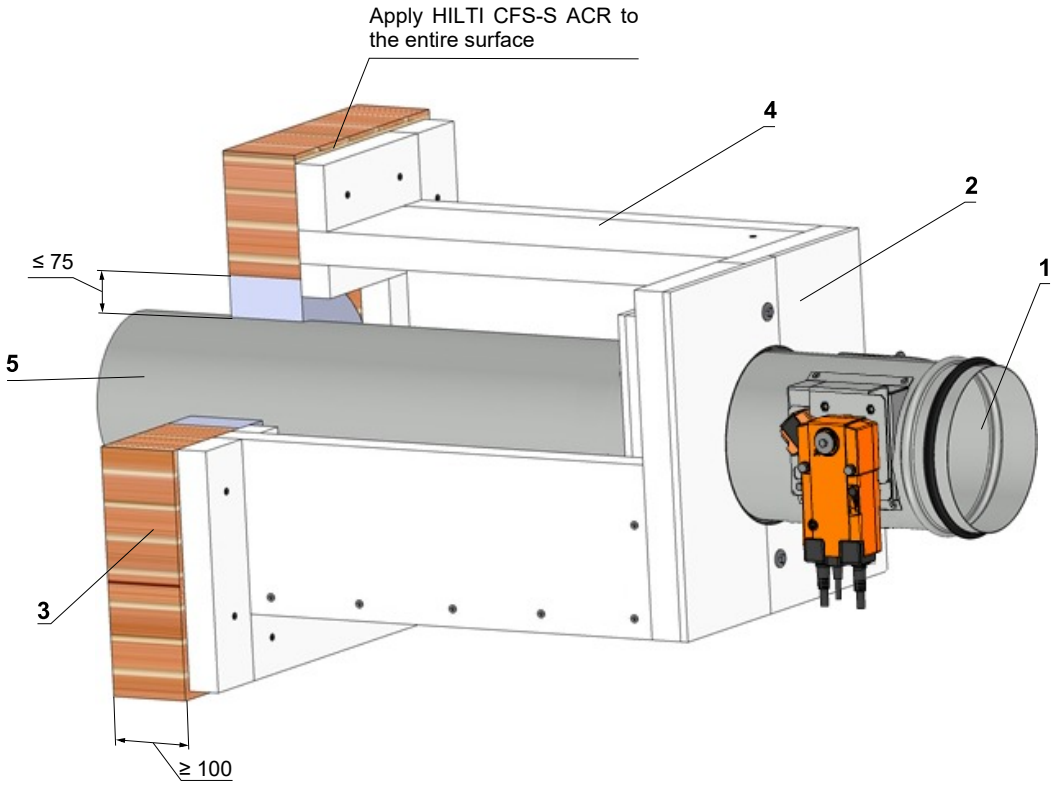
The duct at the point of penetration must be anchored to the fire wall construction.

Outside solid wall construction - installation frame R6 with cement lime plates

Installation frame R6

EIS 90

Minimum and maximum distance between the wall and fire damper when installation remote from the wall is unlimited.



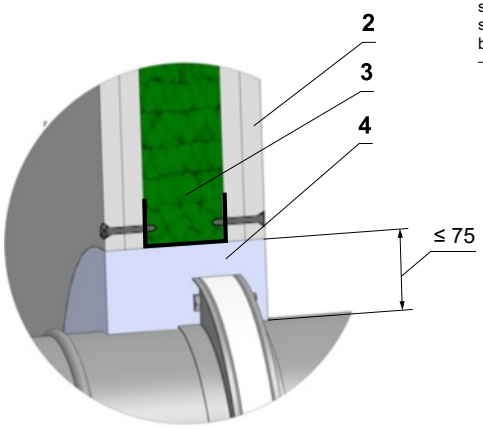
Position:

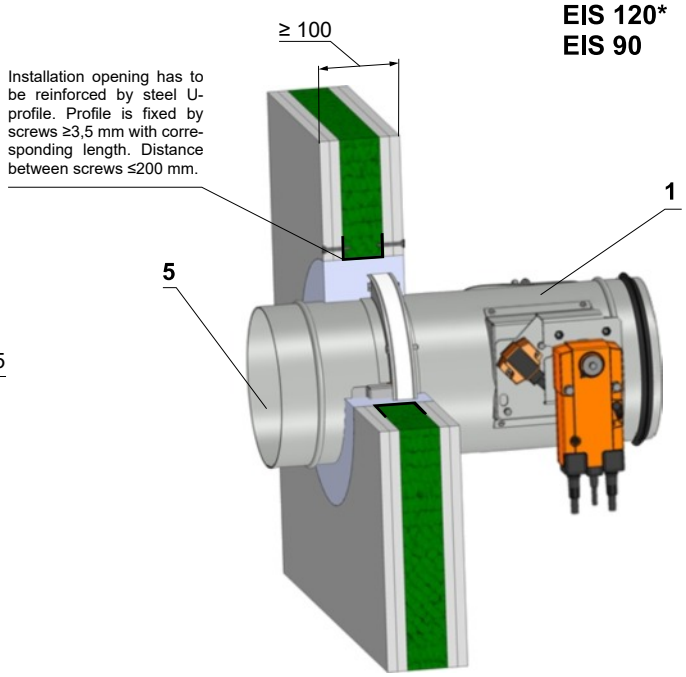
1 Fire damper
2 Installation frame R6
3 Solid wall construction
4 Cement lime plate - all parts are glued with glue Promat K84 and secured by screws.
5 Duct

Installation in gypsum wall construction

Gypsum wall construction - mortar or gypsum

*** The requirement to EIS 120 must be specified in the order alone. Without specification is supplied the standard flap EIS 90.**



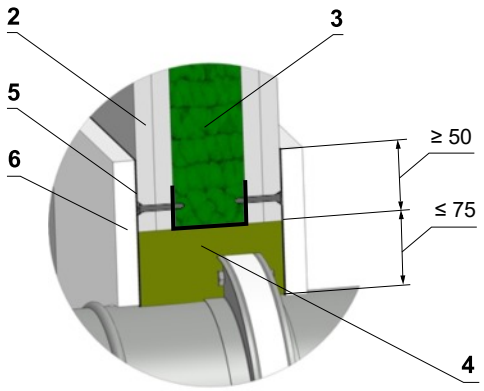


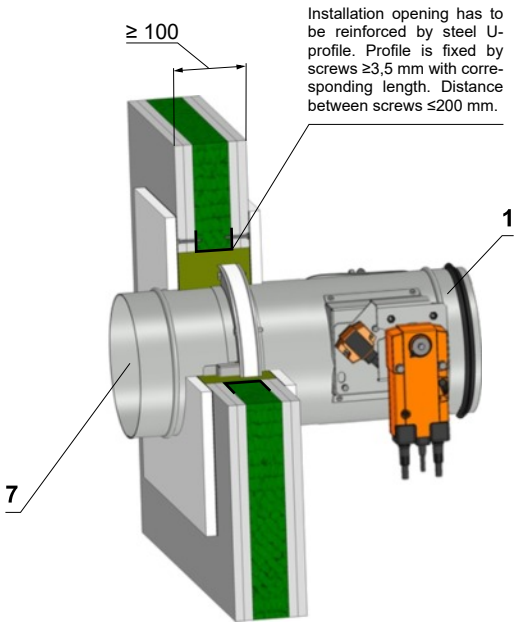
Position:

1 Fire damper
2 Gypsum plate
3 Mineral wool (type depending on the type of construction)
4 Mortar or gypsum
5 Duct

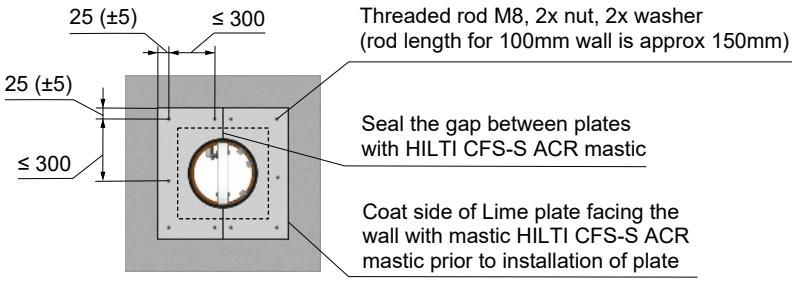
Gypsum wall construction - stuffing box, fire protection mastic and cement lime plate

EIS 90





Ensure symmetry with rod location



Screws has to be fixed in wall/ceiling construction.
(If it is needed use steel bracket).

Used materials - example:

4 Promapyr, Rockwool Steprock HD, Hilti CFS-CT B 1S 140/50
5 Promastop - P, K, Hilti CFS-CT
6 Promatect - H

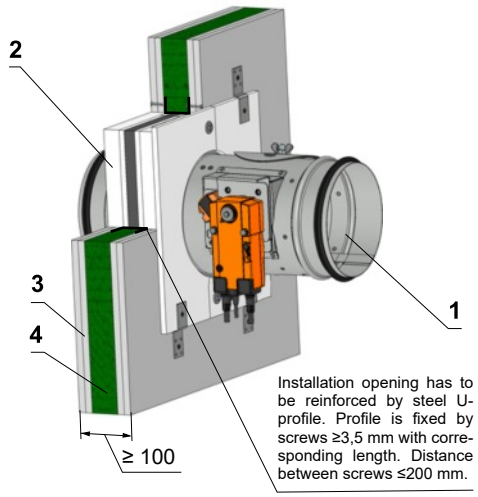
Position:

1 Fire damper
2 Gypsum plate
3 Mineral wool (type depending on the type of construction)
4 Stuffing box (mineral stone wool min. density 140 kg/m³)
5 Fire protection mastic min. thickness 1 mm
6 Cement lime plate min. thickness 15 mm
(min. density 870 kg/m³)
7 Duct

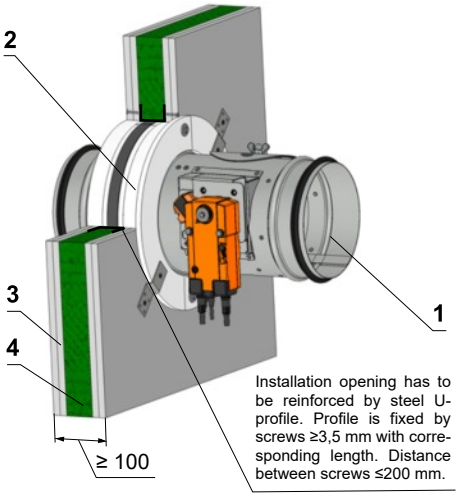
Gypsum wall construction - Installation frame R1, R2, R3, R4, R5

EIS 90

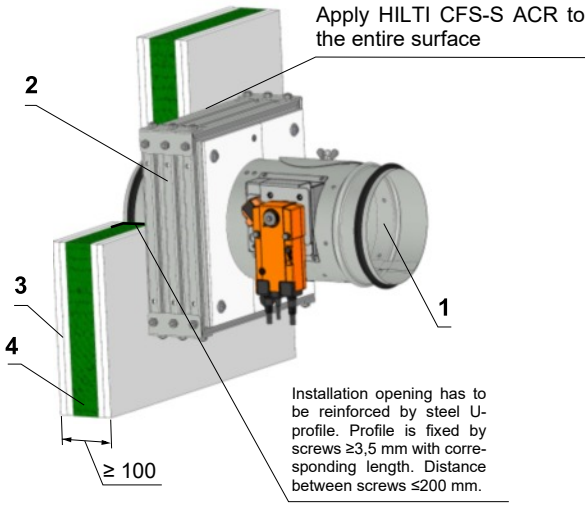
Installation frame R1, R2



Installation frame R3, R4



Installation frame R5

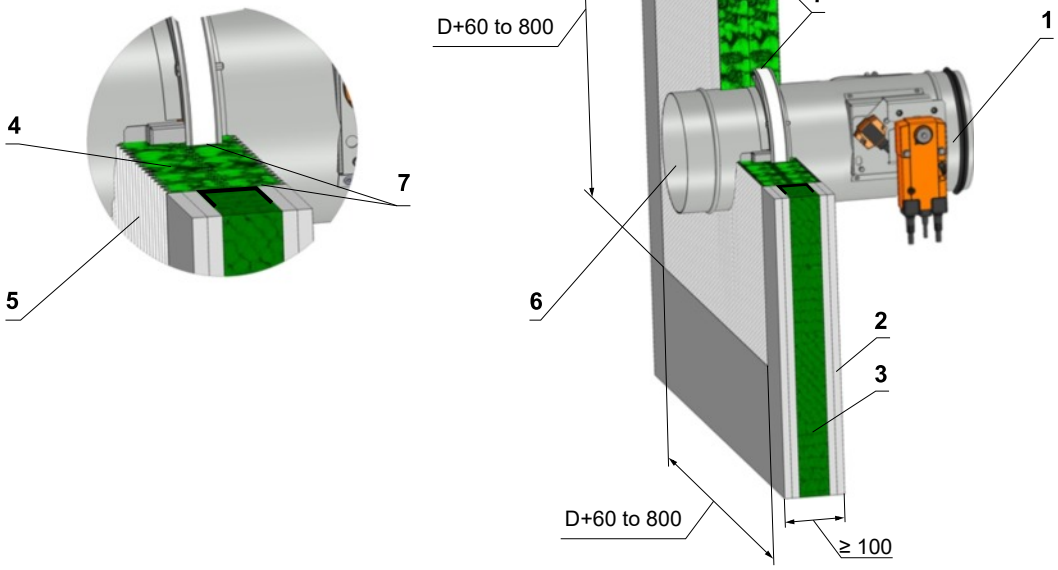


Position:

1 Fire damper
2 Installation frame
3 Gypsum plate
4 Mineral wool (type depending on the type of construction)

Gypsum wall construction - Weichschott / Ablative Coated Batt

EIS 90



Position:

1 Fire damper
2 Gypsum plate
3 Mineral wool
(type depending on the type of construction)
4 Fire resistant board
5 Fire stop coating thickness 1 mm
6 Duct
7 Fire resistant mastic - fill the gap on both sides of the fire separation construction and around the perimeter of penetration and damper body.

Used materials - example:

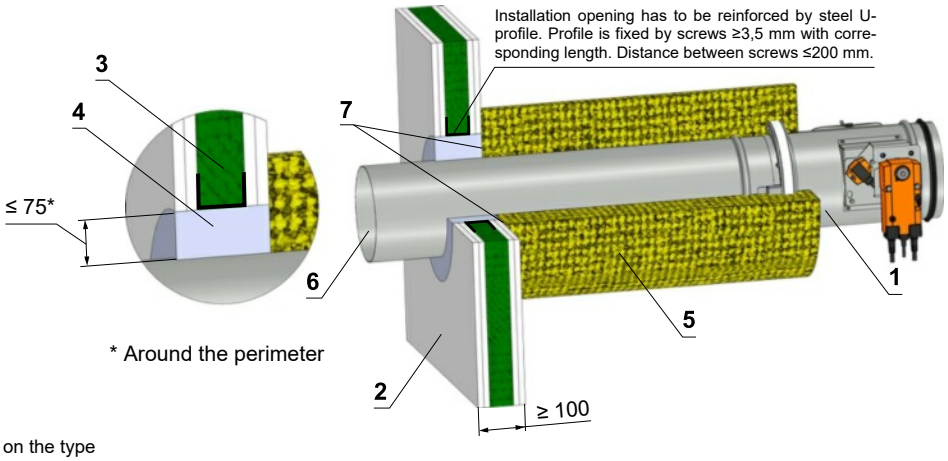
4 Hilti CFS-CT B 1S 140/50
5 Hilti CFS-CT
7 Hilti CFS-S ACR

Installation outside gypsum wall construction

Outside gypsum wall construction - mineral wool - mortar or gypsum

Minimum and maximum distance between the wall and fire damper when installation remote from the wall is unlimited.

EIS 45



* Around the perimeter

Position:

1 Fire damper
2 Gypsum plate
3 Mineral wool (type depending on the type of construction)
4 Mortar or gypsum
5 Stone wool with wired mat on one side, density 66 kg/m³
6 Duct
7 Apply ISOVER Protect BSK glue on the insulation and stick it to the fire separation construction ***

Used materials - example:**

5 Isover Ultimate Protect Wired MAT 4.0, th. 100 mm ALU1

** Insulation materials can be replaced by another approved fire sealing system with equivalent properties.
The maximum distance of the fire damper from the structure is not limited.

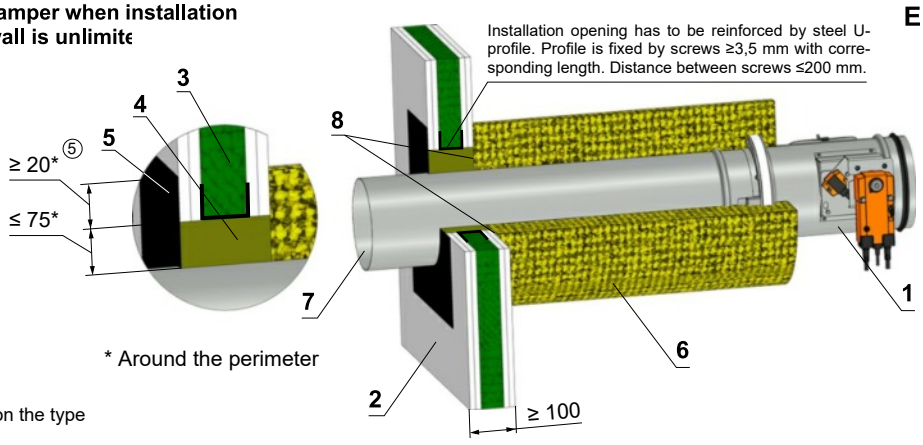
***** When installing the insulation, follow the ISOVER manufacturer's instructions.**

The duct at the point of penetration does not have to be anchored to the fire wall construction.

Outside gypsum wall construction - mineral wool - stuffing box and fire protection mastic

Minimum and maximum distance between the wall and fire damper when installation remote from the wall is unlimite

EIS 45



* Around the perimeter

Position:

1 Fire damper
2 Gypsum plate
3 Mineral wool (type depending on the type of construction)
4 Stuffing box (mineral stone wool min. density 140 kg/m³)
5 Fire protection mastic min. thickness 1 mm
6 Stone wool with wired mat on one side, density 66 kg/m³
7 Duct
8 Apply ISOVER Protect BSK glue on the insulation and stick it to the fire separation construction ***

Used materials - example:**

4 Promapyr, Rockwool Steprock HD, Hilti CFS-CT B 1S 140/50
5 Promastop - P, K, Hilti CFS-CT
6 Isover Ultimate Protect Wired MAT 4.0, th. 100 mm ALU1

** Insulation materials can be replaced by another approved fire sealing system with equivalent properties.
The maximum distance of the fire damper from the structure is not limited.

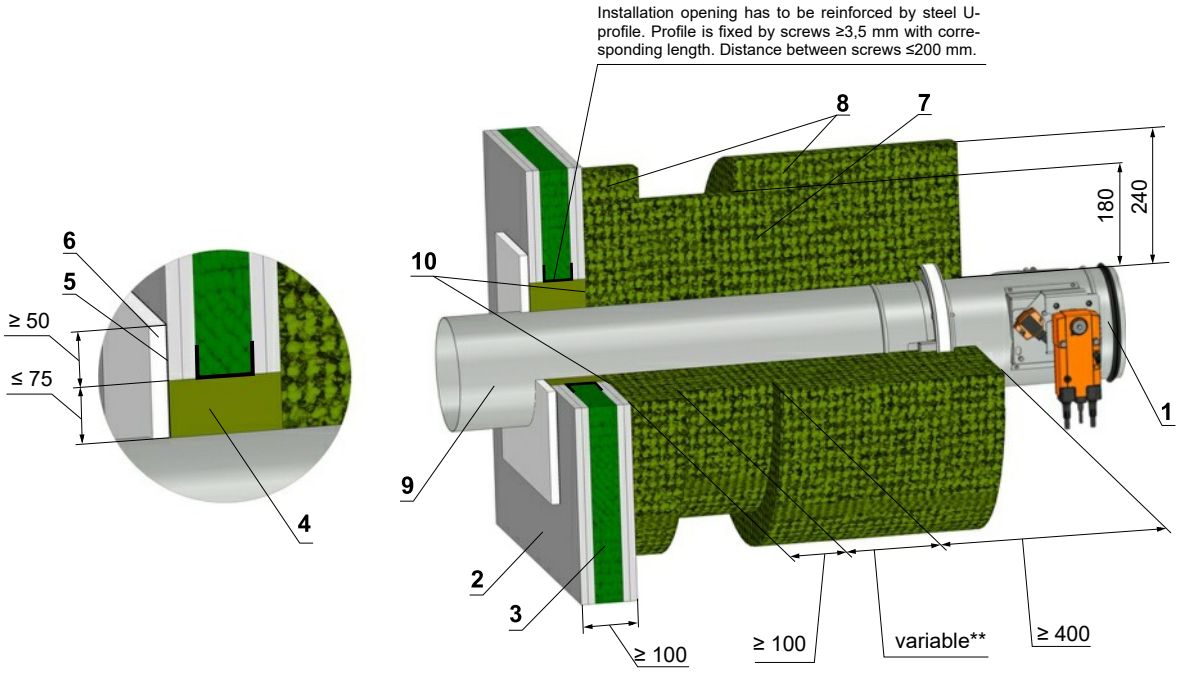
***** When installing the insulation, follow the ISOVER manufacturer's instructions.**

The duct at the point of penetration must be anchored to the fire wall construction.

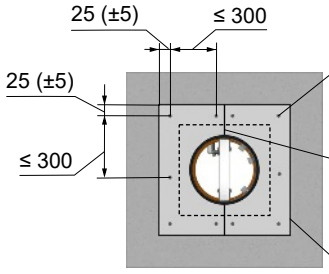
Outside gypsum wall construction - mineral wool, stuffing box, fire protection mastic and cement lime plate

Minimum and maximum distance between the wall and fire damper when installation remote from the wall is unlimited.

EIS 90



Ensure symmetry with rod location



Threaded rod M8, 2x nut, 2x washer (rod length for 100mm wall is approx 150mm)

Seal the gap between plates with HILTI CFS-S ACR mastic

Coat side of Lime plate facing the wall with mastic HILTI CFS-S ACR mastic prior to installation of plate

Screws has to be fixed in wall/ceiling construction.
(If it is needed use steel bracket).

Position:

1 Fire damper
2 Gypsum plate
3 Mineral wool (type depending on the type of construction)
4 Stuffing box (mineral stone wool min. density 140 kg/m³)
5 Fire protection mastic min. thickness 1 mm
6 Cement lime plate min. thickness 15 mm (min. density 870 kg/m³)
7 Stone wool with one side stitched wire fencing (min. density 105 kg/m³), thickness 180 mm (e.g. 3x60 mm)
8 Stone wool with one side stitched wire fencing (min. density 105 kg/m³), thickness 60 mm
9 Duct
10 Apply Rockwool Firepro glue on the insulation and stick it to the fire separation construction ***

Used materials - example:*

3 Promapyr, Rockwool Steprock HD, Hilti CFS-CT B 1S 140/50
4 Promapyr. Rockwool Steprock HD. Hilti CFS-CT C 1S 140/50
5 Promastop - P, K, Hilti CFS-CT
6 Promatect - H
7 Rockwool Wired Mat 105 th. 3x60 mm
8 Rockwool Wired Mat 105 th. 60 mm

* Stuffing box, fire protection mastic, cement lime plate and insulation materials can be replaced by another approved fire sealing system for damper installation with equivalent material properties.

** Depends on the distance of the flap from the construction, when the maximum distance from the construct is not limited and according to EN 15882-2 must use the required number of hinges according to EN 13366-1:2014.

***** When installing the insulation, follow the Rockwool manufacturer's instructions.**

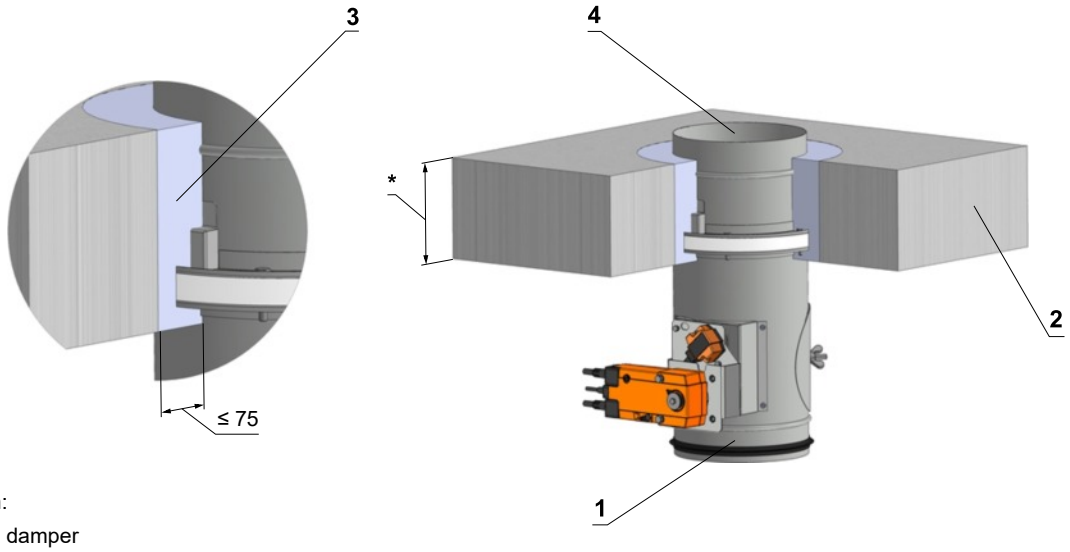
The duct at the point of penetration must be anchored to the fire wall construction.

Installation in solid ceiling construction

Solid ceiling construction - mortar or gypsum

** The requirement to EIS 120 must be specified in the order alone. Without specification is supplied the standard flap EIS 90.

EIS 120
EIS 90



Position:

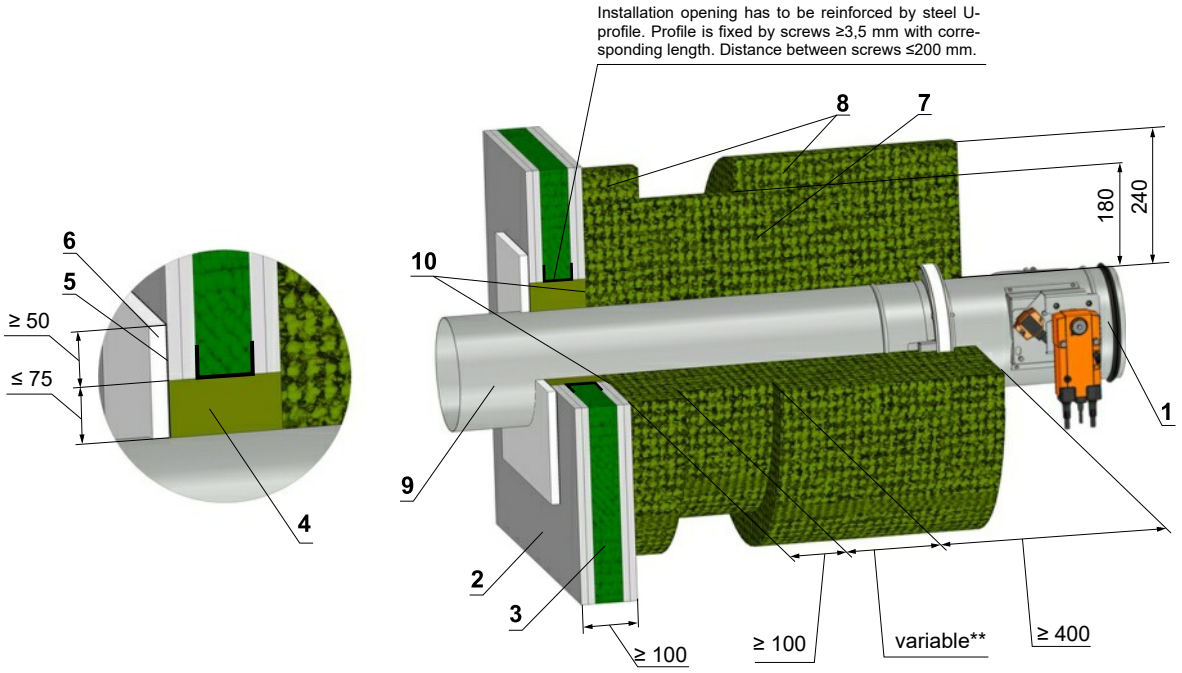
1 Fire damper
2 Solid ceiling construction
3 Mortar or gypsum
4 Duct

* min. 110 - Concrete/ min. 125 - Aerated concrete

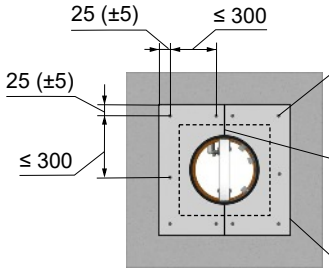
Solid ceiling construction - stuffing box, fire protection mastic and cement lime plate

Minimum and maximum distance between the wall and fire damper when installation remote from the wall is unlimited.

EIS 90



Ensure symmetry with rod location



Threaded rod M8, 2x nut, 2x washer (rod length for 100mm wall is approx 150mm)

Seal the gap between plates with HILTI CFS-S ACR mastic

Coat side of Lime plate facing the wall with mastic HILTI CFS-S ACR mastic prior to installation of plate

Screws has to be fixed in wall/ceiling construction.
(If it is needed use steel bracket).

Position:

1 Fire damper
2 Gypsum plate
3 Mineral wool (type depending on the type of construction)
4 Stuffing box (mineral stone wool min. density 140 kg/m³)
5 Fire protection mastic min. thickness 1 mm
6 Cement lime plate min. thickness 15 mm (min. density 870 kg/m³)
7 Stone wool with one side stitched wire fencing (min. density 105 kg/m³), thickness 180 mm (e.g. 3x60 mm)
8 Stone wool with one side stitched wire fencing (min. density 105 kg/m³), thickness 60 mm
9 Duct
10 Apply Rockwool Firepro glue on the insulation and stick it to the fire separation construction ***

Used materials - example:*

3 Promapyr, Rockwool Steprock HD, Hilti CFS-CT B 1S 140/50
4 Promapyr. Rockwool Steprock HD. Hilti CFS-CT C 1S 140/50
5 Promastop - P, K, Hilti CFS-CT
6 Promatect - H
7 Rockwool Wired Mat 105 th. 3x60 mm
8 Rockwool Wired Mat 105 th. 60 mm

* Stuffing box, fire protection mastic, cement lime plate and insulation materials can be replaced by another approved fire sealing system for damper installation with equivalent material properties.

** Depends on the distance of the flap from the construction, when the maximum distance from the construct is not limited and according to EN 15882-2 must use the required number of hinges according to EN 13366-1:2014.

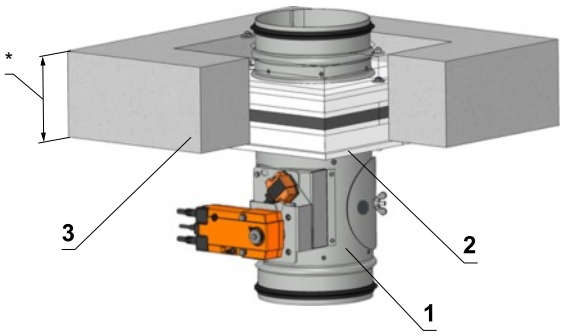
***** When installing the insulation, follow the Rockwool manufacturer's instructions.**

The duct at the point of penetration must be anchored to the fire wall construction.

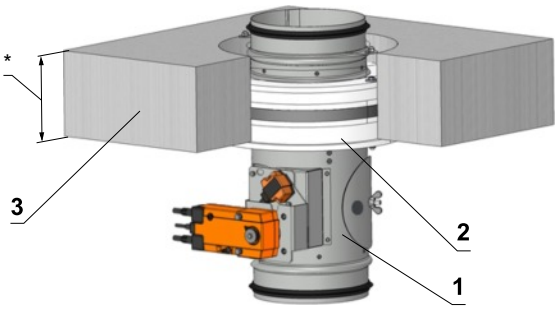
Solid ceiling construction - installation frame R1, R2, R3, R4, R5

EIS 90

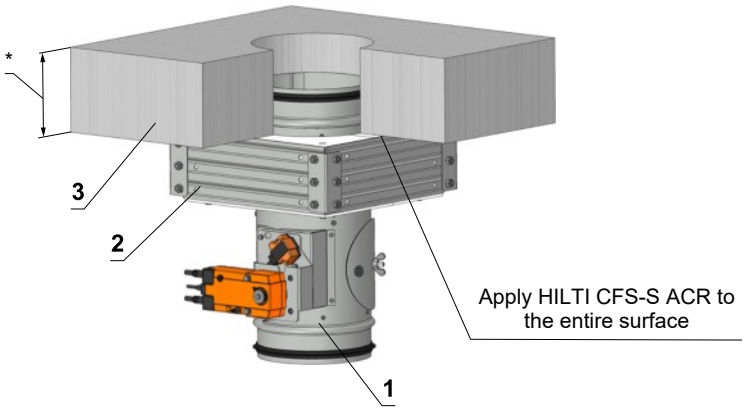
Installation frame R1, R2



Installation frame R3, R4



Installation frame R5



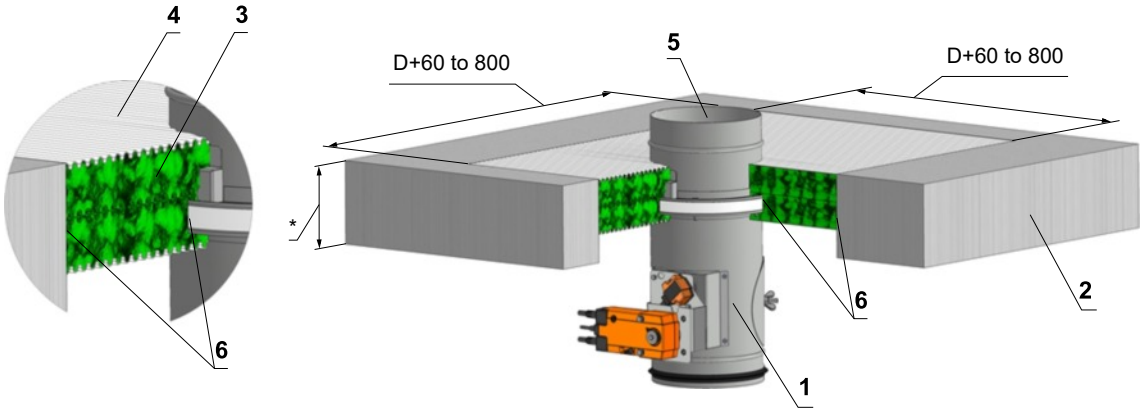
Position:

1 Fire damper
2 Installation frame
3 Solid ceiling construction

* min. 110 - Concrete/ min. 125 - Aerated concrete

Solid ceiling construction - Weichschott / Ablative Coated Batt

EIS 90



Position:

1 Fire damper
2 Solid ceiling construction
3 Fire resistant board
4 Fire stop coating thickness 1 mm
5 Duct
6 Fire resistant mastic - fill the gap on both sides of the fire separation construction and around the perimeter of penetration and damper body.

* min. 110 - Concrete/ min. 125 - Aerated concrete

Used materials - example:

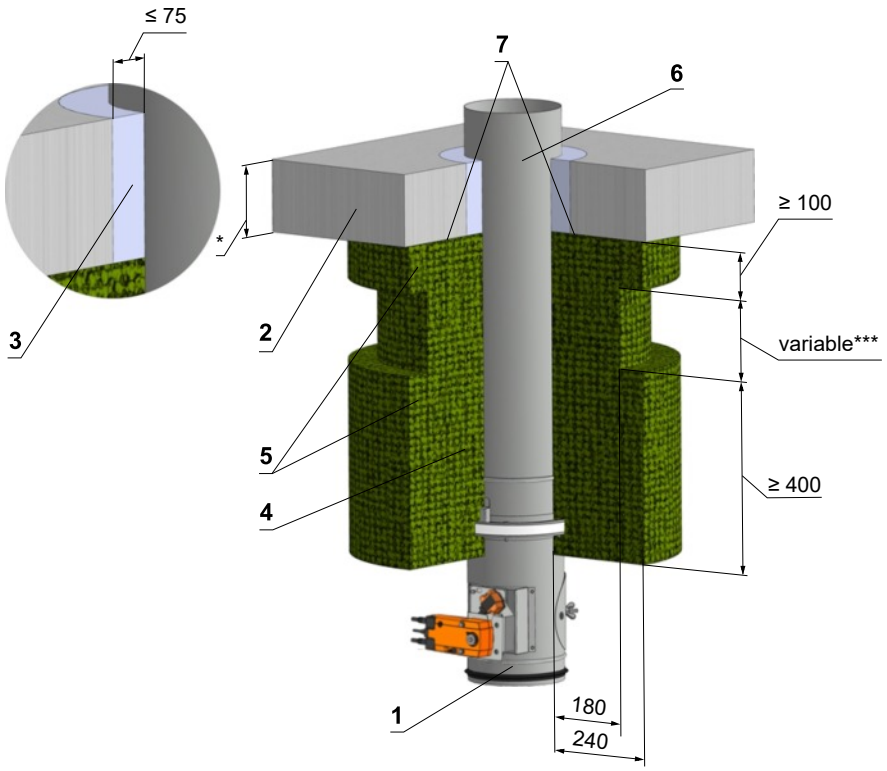
3 Hilti CFS-CT B 1S 140/50
4 Hilti CFS-CT
6 Hilti CFS-S ACR

Installation outside solid ceiling construction

Outside solid ceiling construction - mineral wool - mortar or gypsum

Minimum and maximum distance between the wall and fire damper when installation remote from the wall is unlimited.

EIS 90



* min. 110 - Concrete/ min. 125 - Aerated concrete

Used materials - example:**

4 Rockwool Wired Mat 105 th. 3x60 mm

5 Rockwool Wired Mat 105 th. 60 mm

** Stuffing box, fire protection mastic, cement lime plate and insulation materials can be replaced by another approved fire sealing system for damper installation with equivalent material properties.

*** Depends on the distance of the flap from the construction, when the maximum distance from the construct is not limited and according to EN 15882-2 must use the required number of hinges according to EN 13366-1:2014.

Position:

1 Fire damper

2 Solid ceiling construction

3 Mortar or gypsum

4 Stone wool with one side stitched wire fencing (min. density 105 kg/m³), thickness 180 mm (e.g. 3x60 mm)

5 Stone wool with one side stitched wire fencing (min. density 105 kg/m³), thickness 60 mm

6 Duct

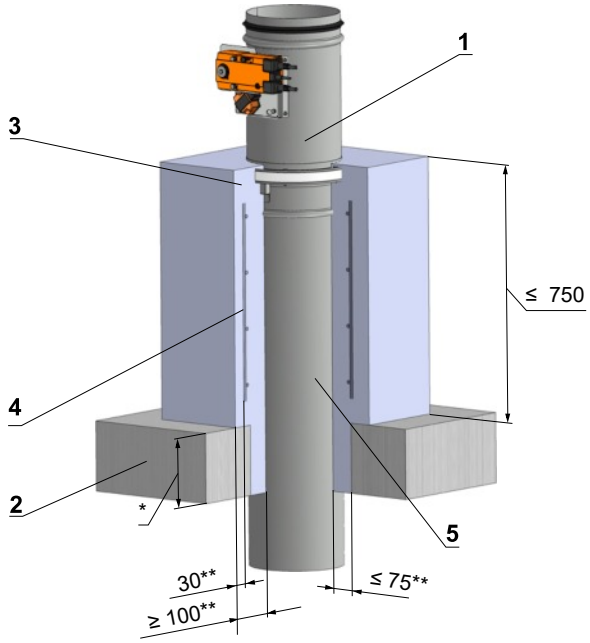
7 Apply Rockwool Firepro glue on the insulation and stick it to the fire separation construction ****

****** When installing the insulation, follow the Rockwool manufacturer's instructions.**

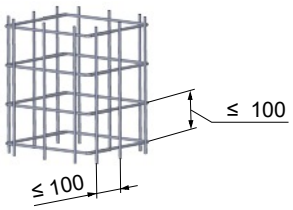
The duct at the point of penetration does not have to be anchored to the fire wall construction.

Outside solid ceiling construction - concrete

EIS 90



Rebar - Steel wire Ø 6 mm



Position:

1 Fire damper
2 Solid ceiling construction
3 Concrete B20
4 Rebar
5 Duct

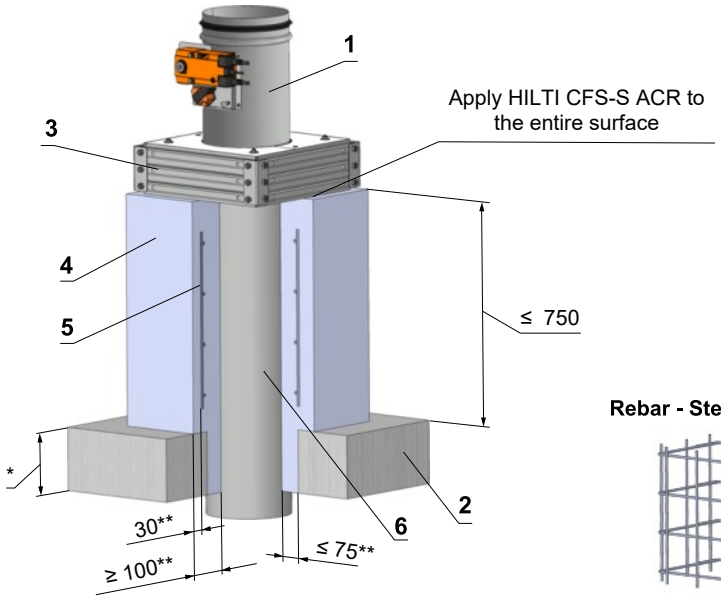
* min. 110 - Concrete/ min. 125 - Aerated concrete

** Around the perimeter

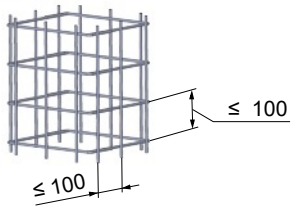
Outside solid ceiling construction - concrete - installation frame R5

Installation frame R5

EIS 90



Rebar - Steel wire Ø 6 mm



Position:

1 Fire damper
2 Solid ceiling construction
3 Installation frame R5
4 Concrete B20
5 Rebar
6 Duct

* min. 110 - Concrete/ min. 125 - Aerated concrete

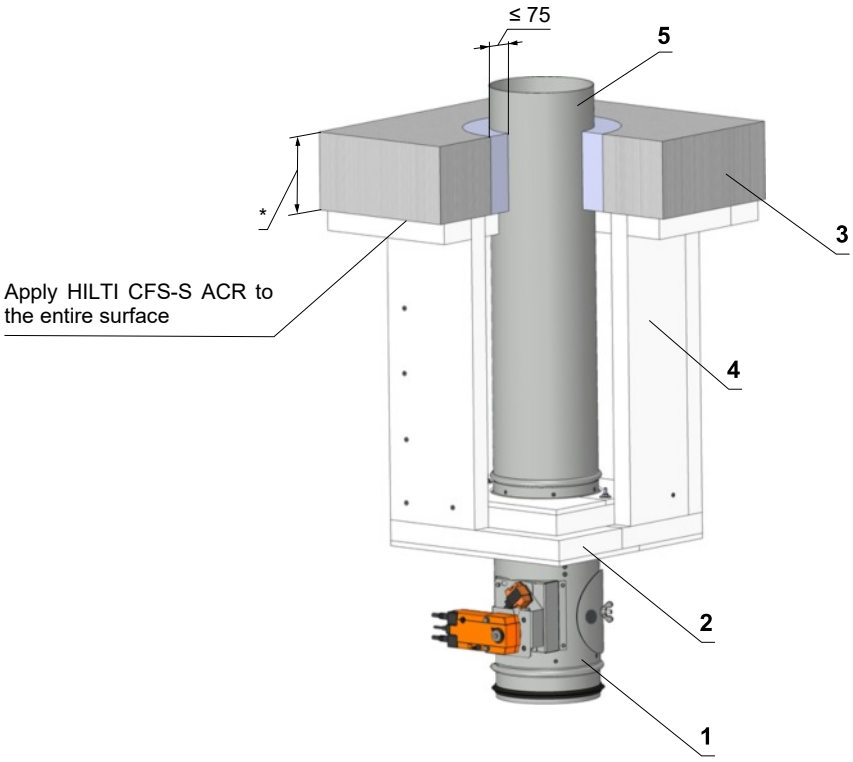
** Around the perimeter

Outside solid ceiling construction - installation frame R6 with cement lime plates

Installation frame R6

EIS 90

Minimum and maximum distance between the wall and fire damper when installation remote from the wall is unlimited.



Position:

1 Fire damper
2 Installation frame R6
3 Solid ceiling construction
4 Cement lime plate - all parts are glued with glue Promat K84 and secured by screws.
5 Duct

* min. 110 - Concrete/ min. 125 - Aerated concrete

Thin shaft walls

Thin shaft wall description

Shaft wall is a vertical, non-bearing partition construction meeting the double-sided fire requirements. The shaft wall can be mounted only from one side. No mineral insulation is used in the construction.

First of all, the shaft wall structure must be laid out. Apart from other vertical constructions, the perimeter sections must be fitted with connection sealing made from A1 or A2 fire reaction materials (for instance floor strips Orsil N/PP). The perimeter sections must be anchored using steel plugs Ø 6 mm (for example DN6 or ZHOP) with 500 mm span.

Sheathing is carried out using two layers of Glasroc F boards Ridurit with 20 mm thickness, the boards are oriented horizontally. First sheathing layer is fixed with TN 212 screws in spacing 200mm to the support structure. The boards are mounted to tight butt joints without need of cementing. The second sheathing layer is screwed to the first sheathing layer using screws Rodurit in square net 250 mm. Reset of joints of the first and second layer of Ridurit sheathing is set to 600 mm vertically and 300 mm horizontally.

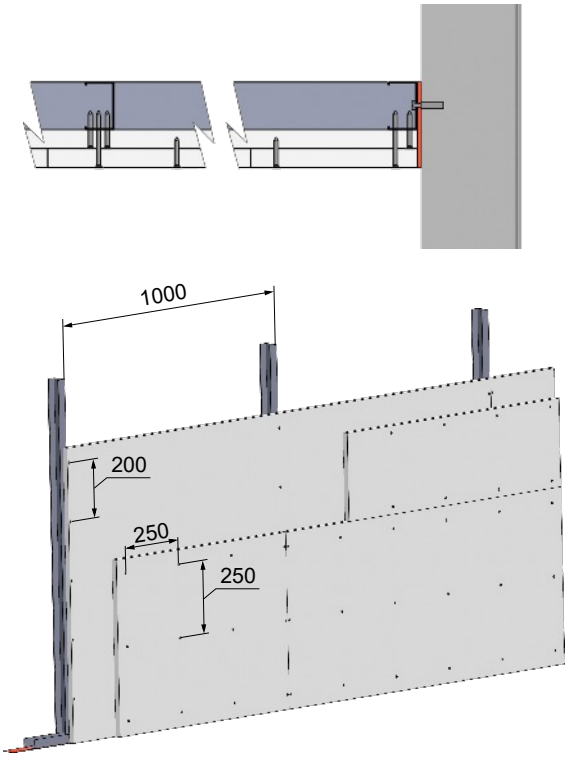
Assembly with support structure

Vertical intermediate R-CW sections are fixed in 1000 mm layout spacing between R-UW sections and vertical perimeter R-CW sections.

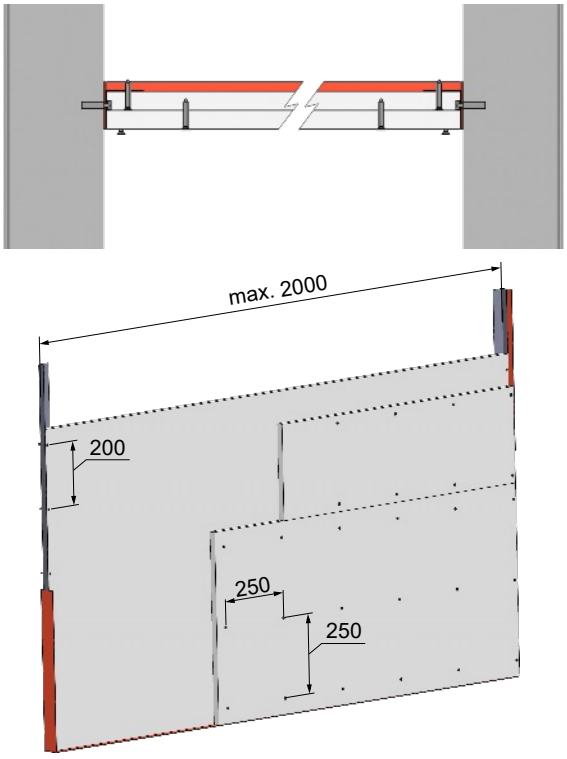
Assembly without support structure

Maximum width of the shaft wall is 2 metres in this case (board length). Steel squares made from steel galvanized plate metal 40/20/1 mm are used as perimeter sections, they are anchored to bearing wall using Ø 6 mm steel plugs (for example DN6 or ZHOP) with 500 mm spacing.

Assembly with support structure



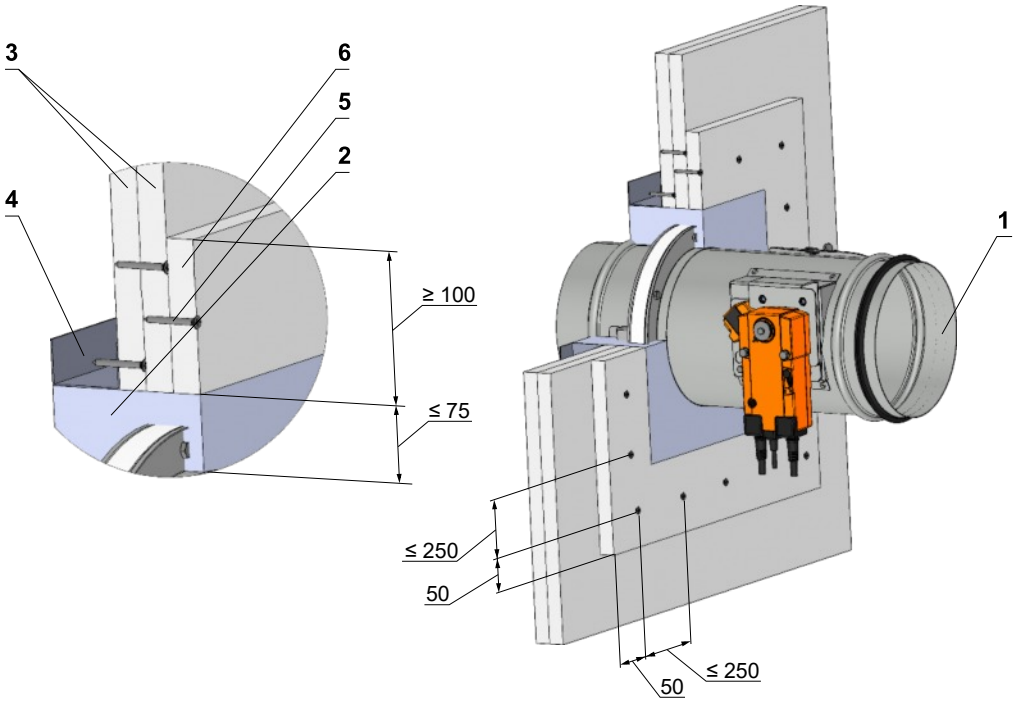
Assembly without support structure

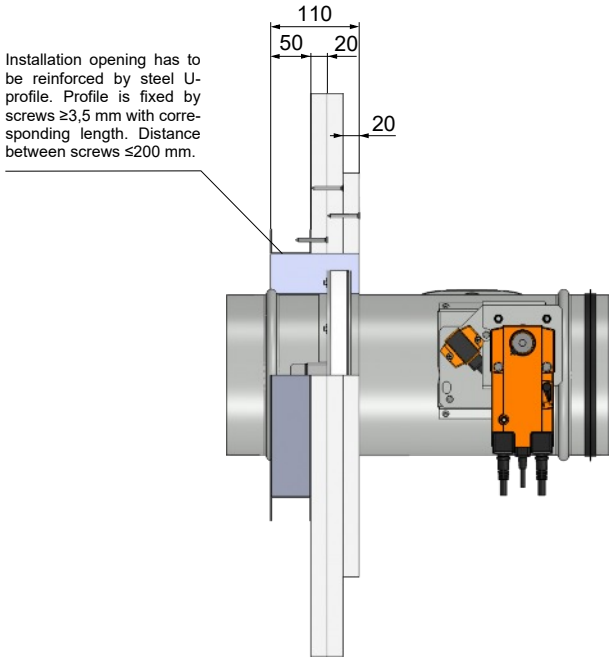


Notice: Rigips solution is shown here as an example. Alternatively it is possible to apply the solution from Knauf or Promat. In such a case follow the instructions of the producer.

Thin shaft wall - mortar or gypsum

EIS 90

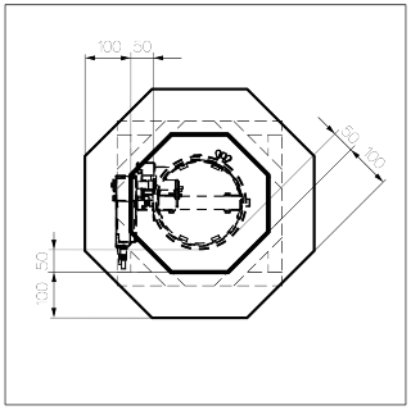




Installation opening:

a x b = (D + 100 mm) x (D + 100 mm)

Alternatively solution of installation opening



Position:

1 Fire damper
2 Mortar or gypsum
3 Fire resistant board
4 Steel U-profile
5 Screw
6 Additional fire resistant board

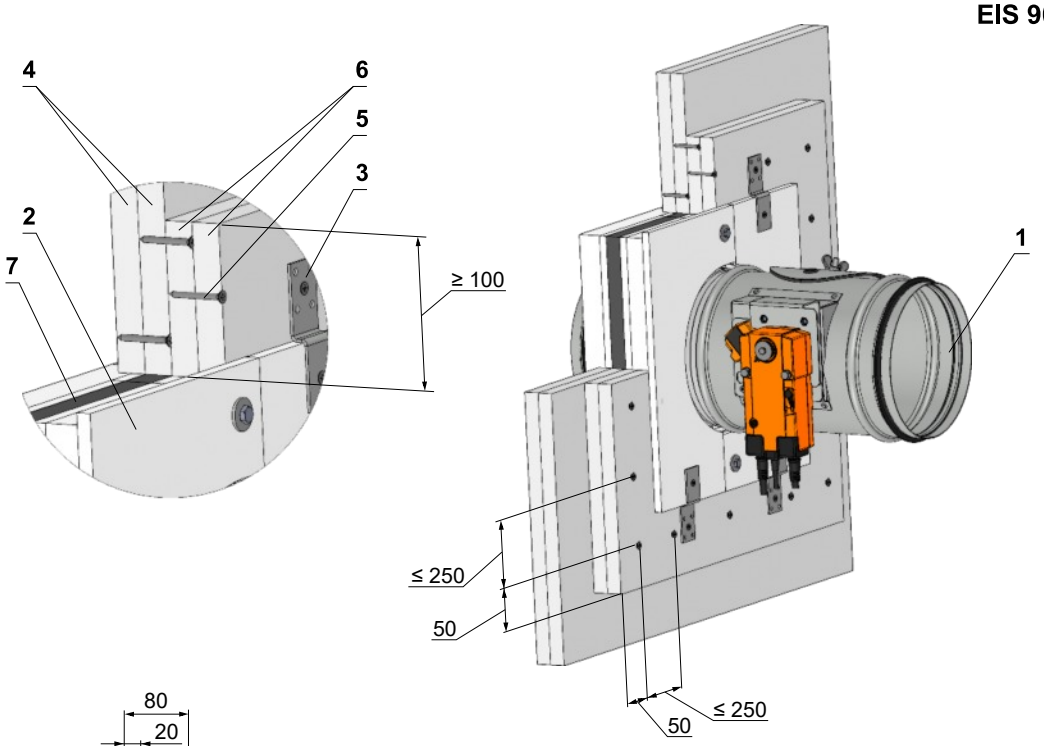
Used materials - example:*

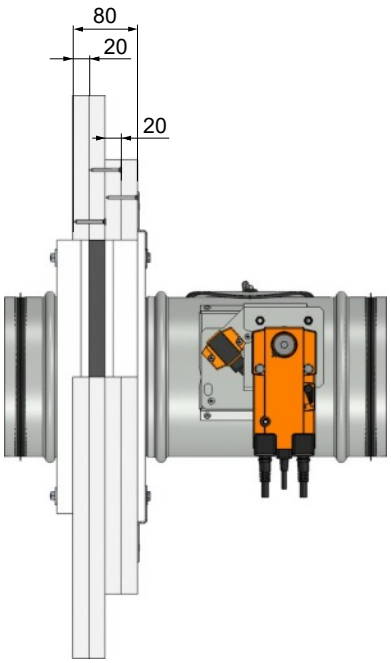
3 Glasroc F Ridurit th. 20 mm
4 Steel U-profile 50
5 Screw Ridurit
6 Glasroc F Ridurit th. 20 mm

* It is alternatively possible to use Knauf or Promat solution.

Thin shaft wall - installation frame R1

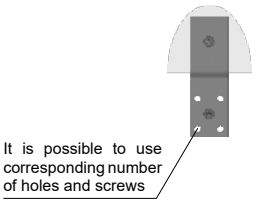
EIS 90





Installation opening:

a x b = (D + 141^{+3}mm) x (D + 141^{+3}mm)



Holders No.: 8x
Screws No.: 16x

Position:

1 Fire damper
2 Installation frame R1
3 Holder (including in installation frame R1 packing)
4 Fire resistant board
5 Screw
6 Additional fire resistant board
7 Fire resistant foam tape

Used materials - example:*

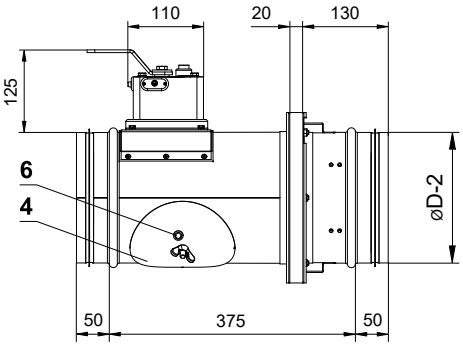
4 Glasroc F Ridurit th. 20 mm
5 Screw Ridurit
6 Glasroc F Ridurit th. 20 mm
7 Promaseal XT

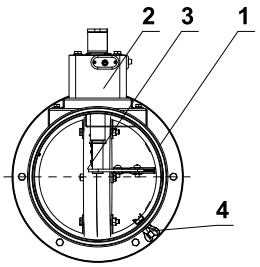
* It is alternatively possible to use Knauf or Promat solution.

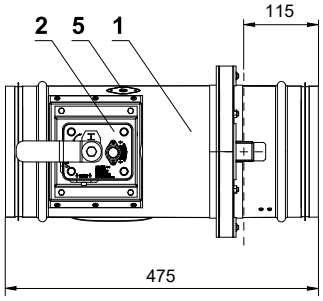
Notice: Gap between frame and thin shaft wall construction must be filled by glue (PROMAT K84).

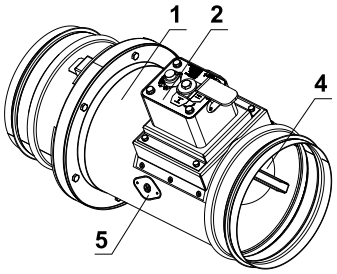
Dimensions

Design with mechanical control





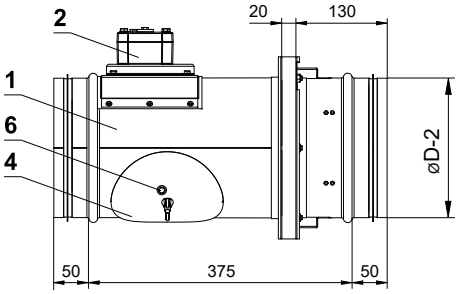


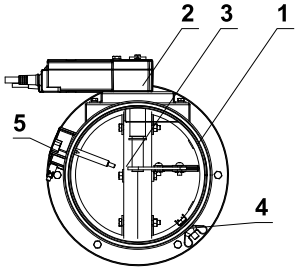


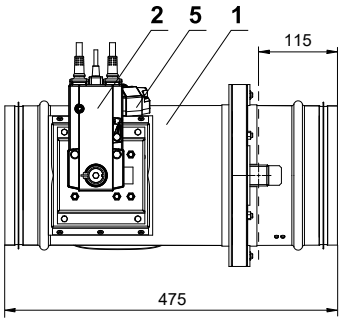
Position:

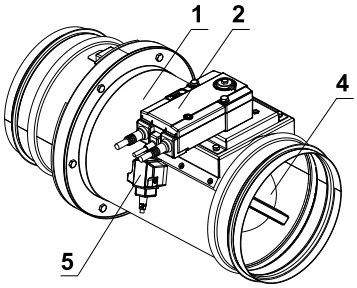
1 Damper casing
2 Mechanics
3 Damper blade
4 Inspection hole covering
5 Sensor sticker
6 Hole for camera

Design with actuating mechanism





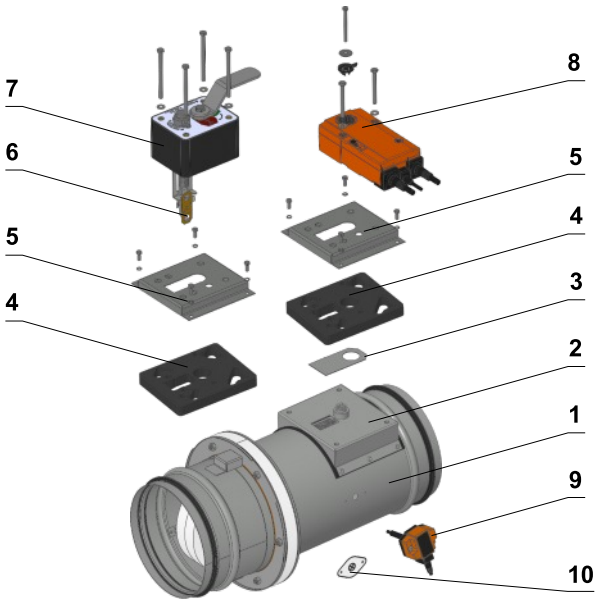




Position:

1 Damper casing
2 Actuating mechanism
3 Damper blade
4 Inspection hole covering
5 BAT thermoelectrical starting mechanism
6 Hole for camera

Change of mechanical design for the motorised one or vice versa

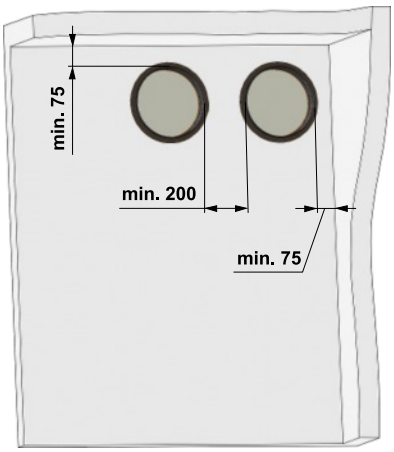


Position:
1 Damper
2 Mounting plate
3 Sealing cover
4 Seal plates
5 Mounting plate cover
6 Thermal fuse
7 Mechanics
8 Actuator
9 Temperature sensor
10 Sensor sticker

Installation instructions

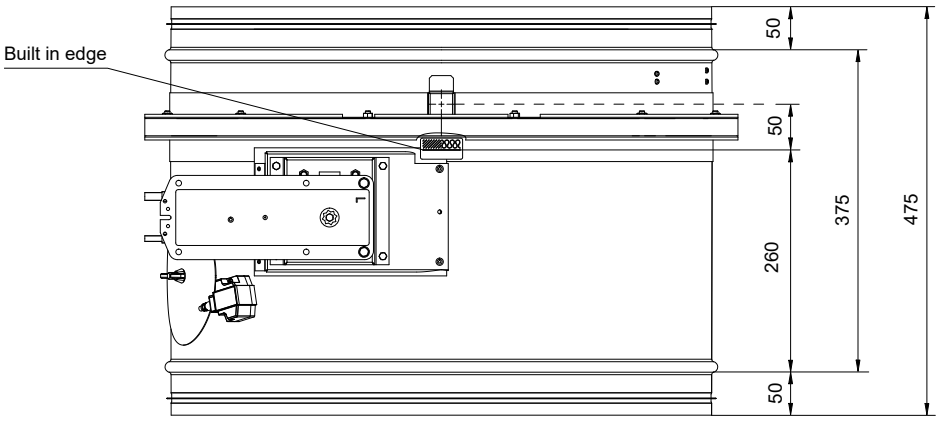
1. During the installation process, the blade position must be “CLOSED”.
2. During the installation process, the control mechanism must be protected against pollution and damage.
3. Fire dampers are suitable for installation in any position in vertical and horizontal passages of fire separating structures.
4. The gap between the installed damper and structure must be completely filled with approved material.
5. The distance between the fire damper and structure (wall, ceiling) must be at least 75 mm. If two or more dampers are to be installed in one fire separating structure, the distance between the adjacent dampers must be at least 200 mm.

Installation of two and more dampers in one fire separating structure



6. The damper blade (in its closed position) must be inside of the fire separating structure. The fire damper may also be installed outside the wall structure. The piping and damper part between the wall structure and damper blade (marked with the BUILT-IN EDGE label on the damper body) must be protected by fire insulation.

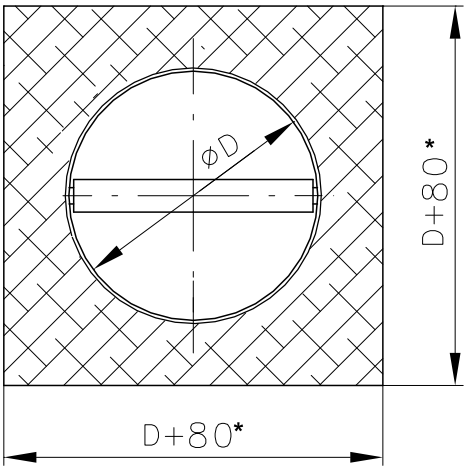
Built in edge



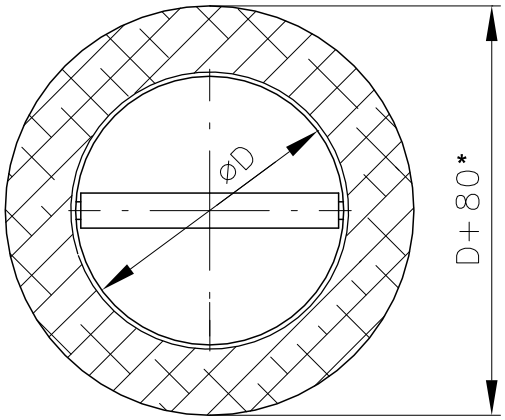
"Wall edge sticker" indicates the recommended edge of installation of fire damper into the fire partition structure (wall).
The damper must be installed so that the entire damper blade - in the closed position - is located inside the fire separating structure (wall) and at the same time the control mechanism and inspection openings are freely accessible.

Installation opening

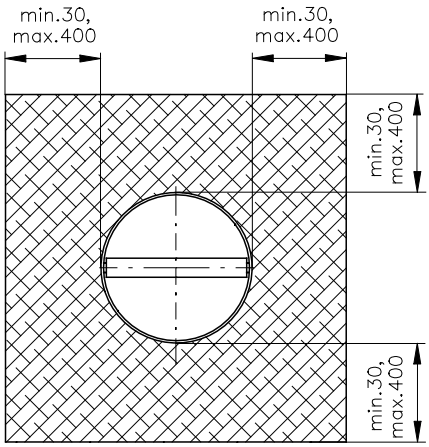
Installation opening - round damper



Installation opening - round damper



Installation opening
Weichschott / Ablative Coated Batt



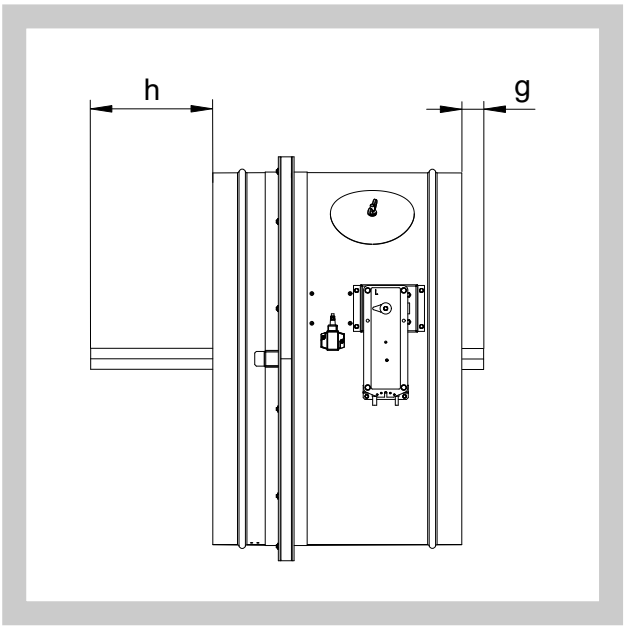
*** For dampers with flanges is valid D + 160 mm**

7. The damper body must not get deformed during its installation process. Once the damper is built installed, its blade must not grind on the damper body during its opening or closing.

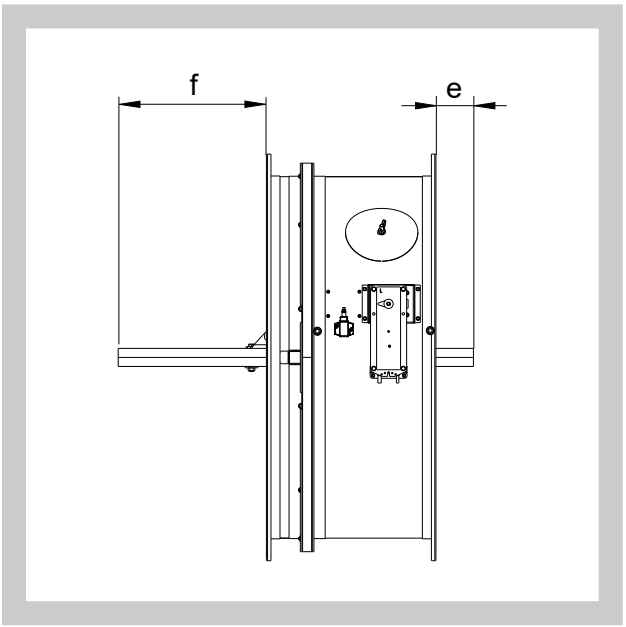
8. To provide needed access space to the control device, all the other objects must be situated at least 350 mm away from the damper control parts. At least one inspection hole must be accessible.

9. Damper blade overlaps

SPIRO damper overlaps



FLANGE damper overlaps



Damper blade overlaps SPIRO

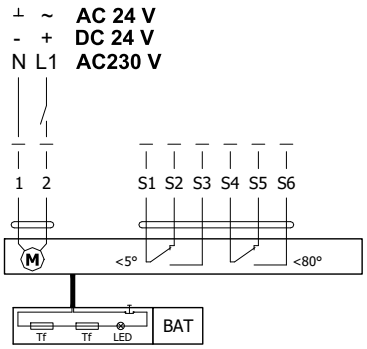
Nom. dimension øD [mm]	g [mm]	h [mm]
900	84,5	326,5
1000	134,5	376,5

Damper blade overlaps with FLANGE

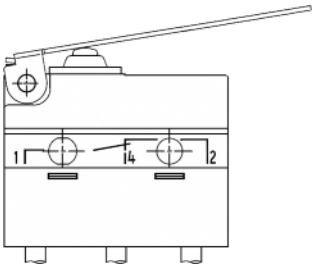
Nom. dimension øD [mm]	e [mm]	f [mm]
900	134,5	376,5
1000	184,5	426,5

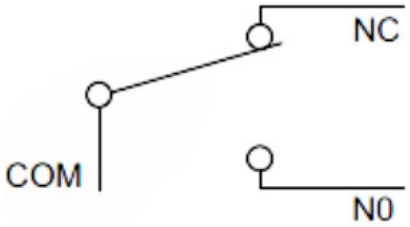
10. Wiring diagrams

Actuator BELIMO BF 24-TN(-ST), BF 230-TN



Limit switch G905-300E03W1





1(COM) - black wire
2(NC) - gray wire
4(NO) - blue wire

Nominal voltage and maximal current	AC 230V / 5A
Class of protection	IP 67
Working temperature	-25°C … +120°C

This limit switch is possible to connect in following two versions:

a) **CUT-OFF** if the arm is moving … connect wire 1+2
b) **SWITCH-ON** if the arm is moving … connect wire 1+4

11. Before commissioning the dampers and during their subsequent operational checks, it is necessary to check and functionally test all the designs, including the operation of any electronic elements. Upon commissioning, these operational checks must be completed at least twice a year. If no defect is found during two consecutive operational checks, then operational checks may be completed once a year.

12. Prior to the commissioning of the dampers and subsequent operational checks, the following checks must be completed with all the designs:

Visual inspection for proper damper installation, damper interior, damper blade, blade seating surfaces, and silicone seal.

Removing the inspection opening cover: Turn the wing nut to loosen the cover and move the cover left or right to release it from the locking bracket. Then tilt the lid back from its original position.

13. For dampers with mechanical control (designs .01, .11, .80), the following checks must be carried out:

Check of closing mechanism and thermal fuse

To check the function of the mechanism proceed as follows:

Move the damper blade to "CLOSED" position as follows:

- The damper is in "OPEN" position.
- Press the control button of the mechanism to move the damper to "CLOSED" position.
- Check the damper blade shift to "CLOSED" position.
- Damper closing shall be sharp, the control lever shall be in „CLOSED“ position.

Move the damper blade to "OPEN" position as follows:

- Turn the control lever by 90°.
- The lever will automatically lock in "OPEN" position.
- Check the damper blade shift to "OPEN" position.

Check of function and condition of the thermal fuse:

- To check the function and the status of the fuse is possible to remove whole mechanism from the body of fire damper - mechanism is attached to the dampers body with four screws M6.
- Removing the thermal fuse from the fuse holder of initiation device, check its correct functionality.
- The mechanism is identified as M5.

14. The actuator design must be checked as follows:

The blade turn to its breakdown “CLOSED” position may be checked upon cutting off the actuator power supply (e.g. by pressing the RESET button at the thermoelectric starting mechanism BAT or by cutting off the fire alarm power supply). The blade turn back to its “OPEN” operating position may be checked upon restoration of power supply (e.g. by releasing the RESET button or restoration of the fire alarm power supply).

15. Actuator control without electric voltage:

A special lever (part of the actuator) may be used to manually set the dampers to any position. When the lever is turned in the direction of the arrow, the damper blade turns to its open position. As the blade movement is stopped, in every position, the actuator will be locked. Unlocking is possible even manually as per instructions on the actuator, or by the activation of the supply voltage.

WARNING!
If the actuator is manually locked, the damper blade will not close in the event of a fire after the activation of the BAT thermoelectric trigger. To restore correct damper operation, the actuator must be unlocked (manually or by applying power supply)

16. Installation, maintenance, and operational checks of the dampers may only be completed by persons qualified for these activities, i.e. “AUTHORIZED PERSONS: trained by the manufacturer.

The dampers must be installed in compliance with all the applicable safety standards and regulations.

17. Actuator reset after the fuses activation:

If the thermal protection fuse Tf1 (for the temperature around the fire damper) is burned, it is necessary to replace the actuator, including the thermoelectric trigger.

If the thermal protection fuse Tf2 (for the temperature inside the piping) is burned, separate spare part ZBAT72 or ZBAT95 may be replaced (according to the starting temperature).

Material and Surface Finish

- The damper bodies are normally supplied in their galvanized sheet steel design (alternatively stainless steel) without any additional surface finish.
- The damper blades are made of asbestos-free fire-resistant mineral fibre boards.
- The damper control devices are made of galvanized materials (alternatively of stainless steel) without any additional surface finish.
- The springs are galvanized (alternatively made of stainless steel).
- The thermal protection fuses are made of brass sheet 0.5 mm thick.
- The connecting material is galvanized (alternatively made of stainless steel).

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