

EN 15650:2010-09

MANDÍK[®]

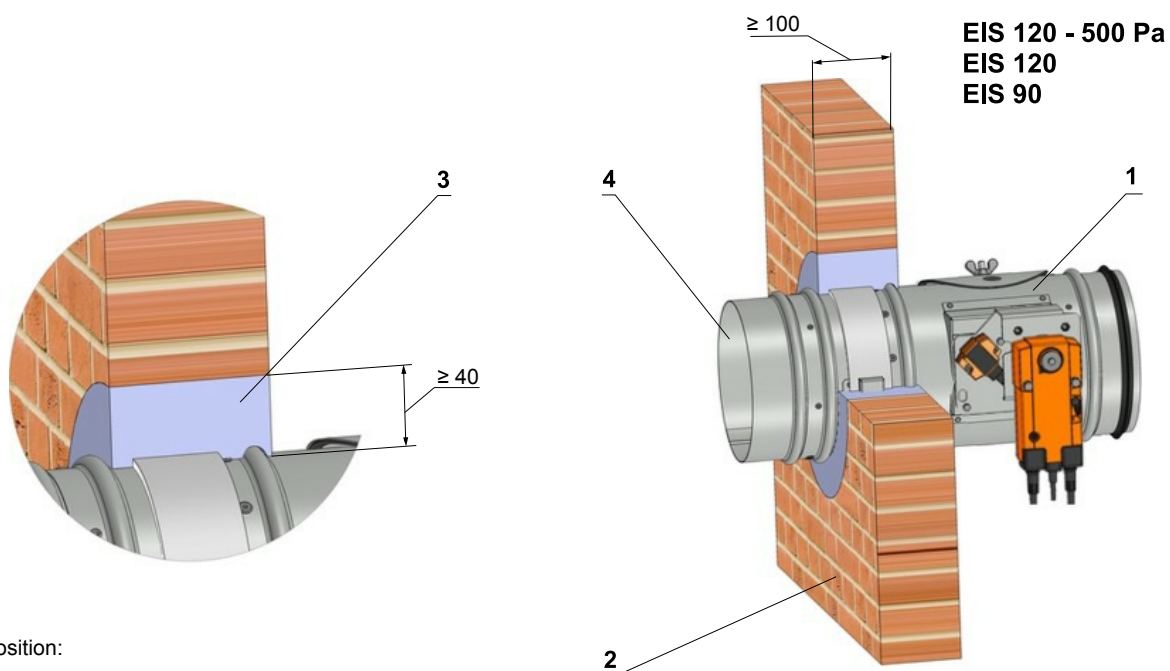
INSTALLATION INSTRUCTIONS

FIRE DAMPER FDMR



Installation in solid wall construction

Solid wall construction - mortar or gypsum

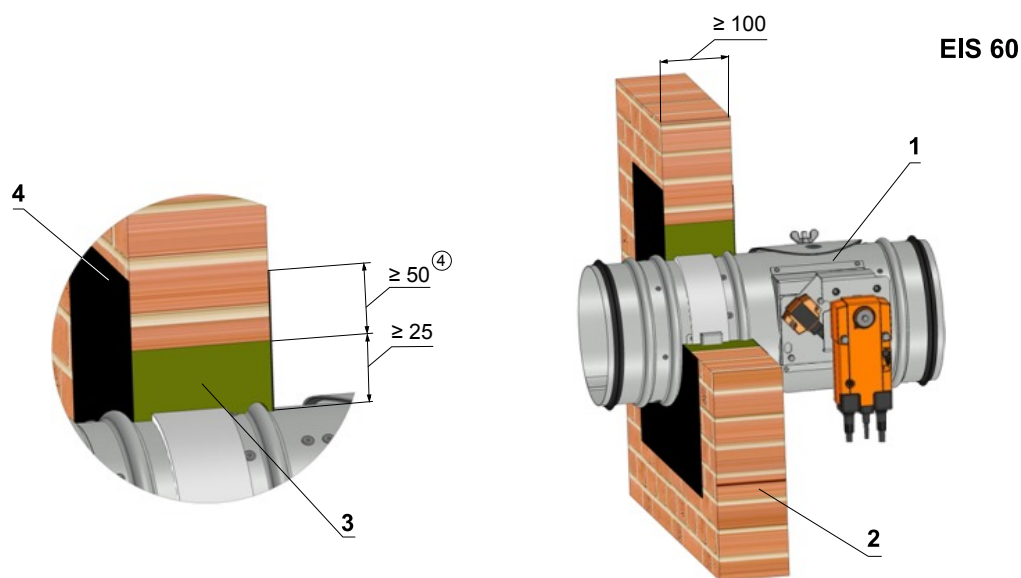


Position:

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

Shown schemes of incorporation and damper are illustrative only !

Solid wall construction - stuffing box and fire protection mastic



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

Used materials - example:*

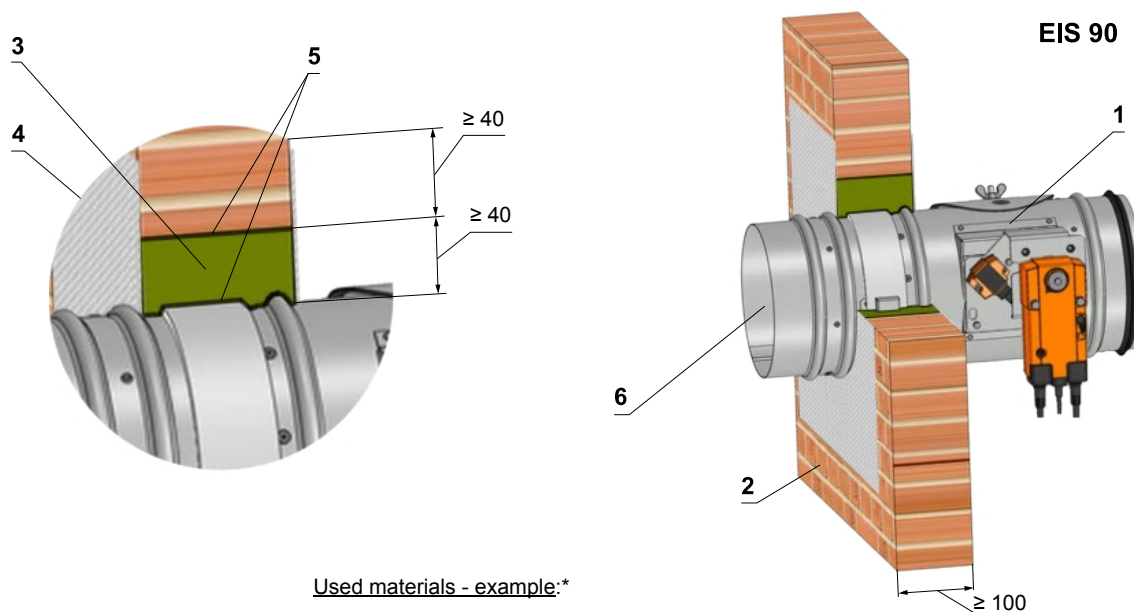
- 3 Promapyr, Rockwool Steprock HD, Hilti CFS-CT B 1S 140/50
- 4 Promastop - P, K, Hilti CFS-CT

* Fire resistant insulation and fire resistant board can be replaced by another approved fire sealing system for damper installation with equivalent material properties.

The damper must be anchored to the fire wall construction !

Shown schemes of incorporation and damper are illustrative only !

Solid wall construction - stuffing box with fire protection mastic and coating

Used materials - example:*

3 HILTI CFS-CT B 1S 140/50 or
ROCKWOOL HARDROCK + coating HILTI CFS-CT

4 HILTI CFS-CT

5 HILTI CFS-S ACR

Position:

1 Fire damper

2 Solid wall construction

3 Stuffing box (mineral stone wool min. density 150 kg/m³)

4 Fire protection coating th. 1 mm

5 Fire protection mastic th. 1 mm

6 Duct

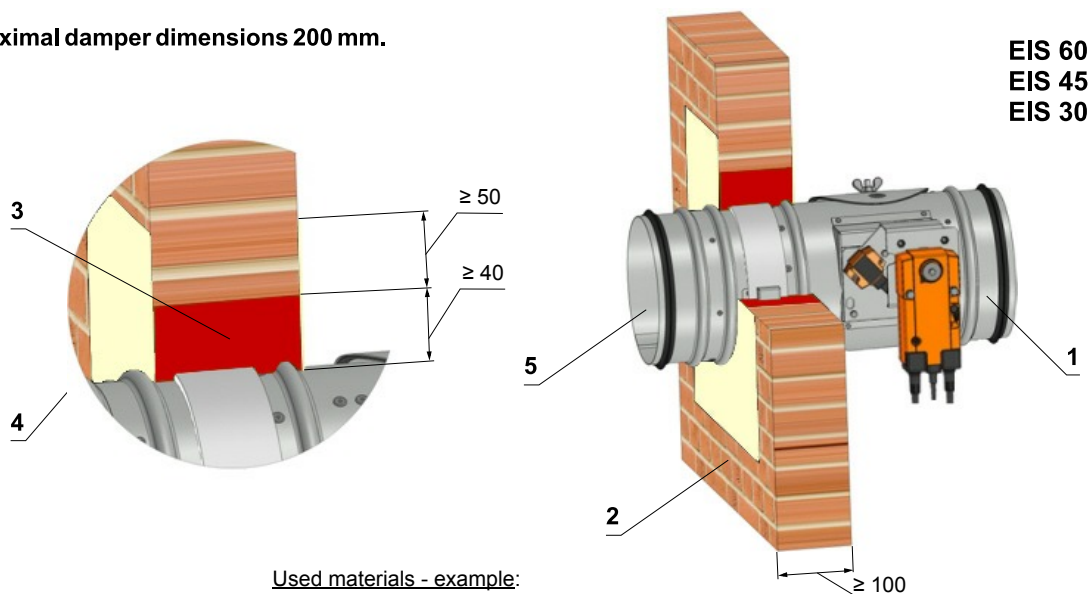
* Fire resistant insulation and fire resistant board can be replaced by another approved fire sealing system for damper installation with equivalent material properties.

The damper must be anchored to the fire wall construction !

Shown schemes of incorporation and damper are illustrative only !

Solid wall construction - fire protection foam with stucco plaster

Maximal damper dimensions 200 mm.

Used materials - example:

3 HILTI CFS-F FX - EIS 60

PROMAFOAM-C - EIS 45

Soudal, Soudafoam FR-B1 - EIS 30

DenBraven, Fire protection foam - EIS 30

Position:

1 Fire damper

2 Solid wall construction

3 Fire protection foam

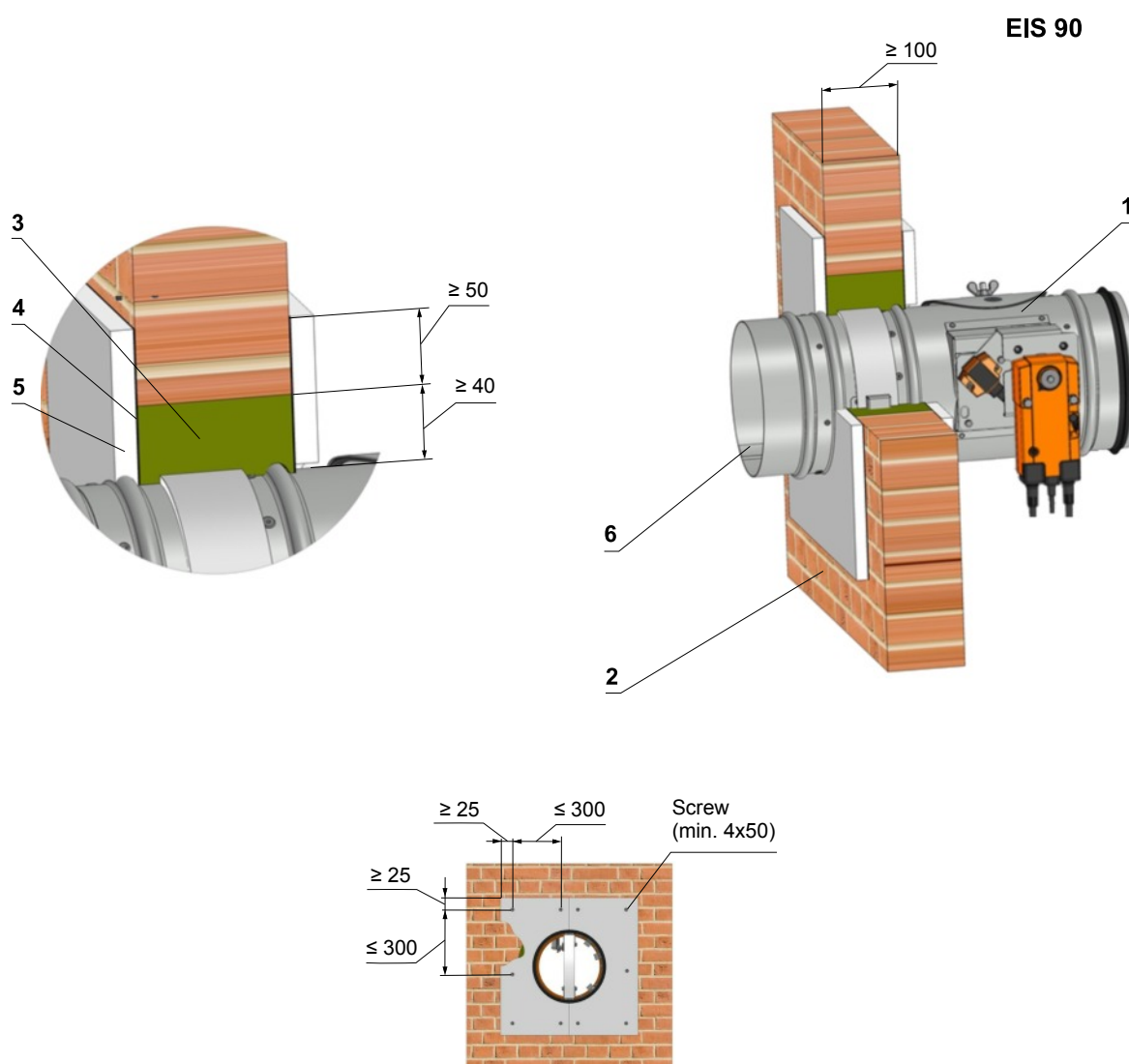
4 Stucco plaster

5 Duct

The damper must be anchored to the fire wall construction !

Shown schemes of incorporation and damper are illustrative only !

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



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

Used materials - example:*

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

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

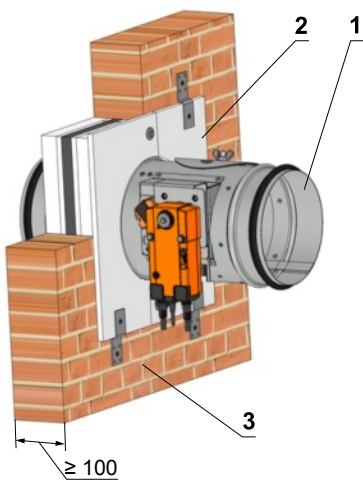
* Fire resistant insulation and fire resistant board can be replaced by another approved fire sealing system for damper installation with equivalent material properties.

**The damper must be anchored to the fire wall construction !
Shown schemes of incorporation and damper are illustrative only !**

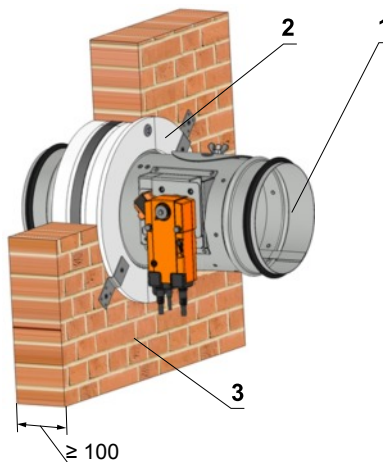
Solid wall construction - installation frame R1, R2, R3, R4, R5

EIS 90

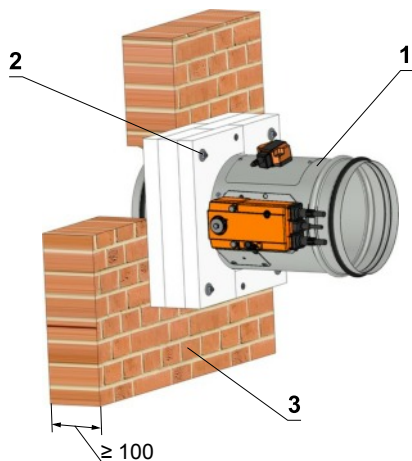
Installation frame R1, R2



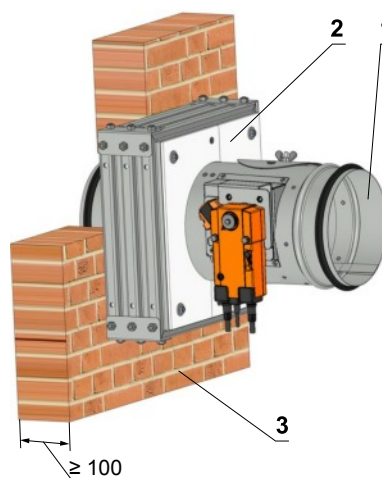
Installation frame R3, R4



Installation frame R5 (DN 100 - 200)



Installation frame R5 (DN 225 - 800)



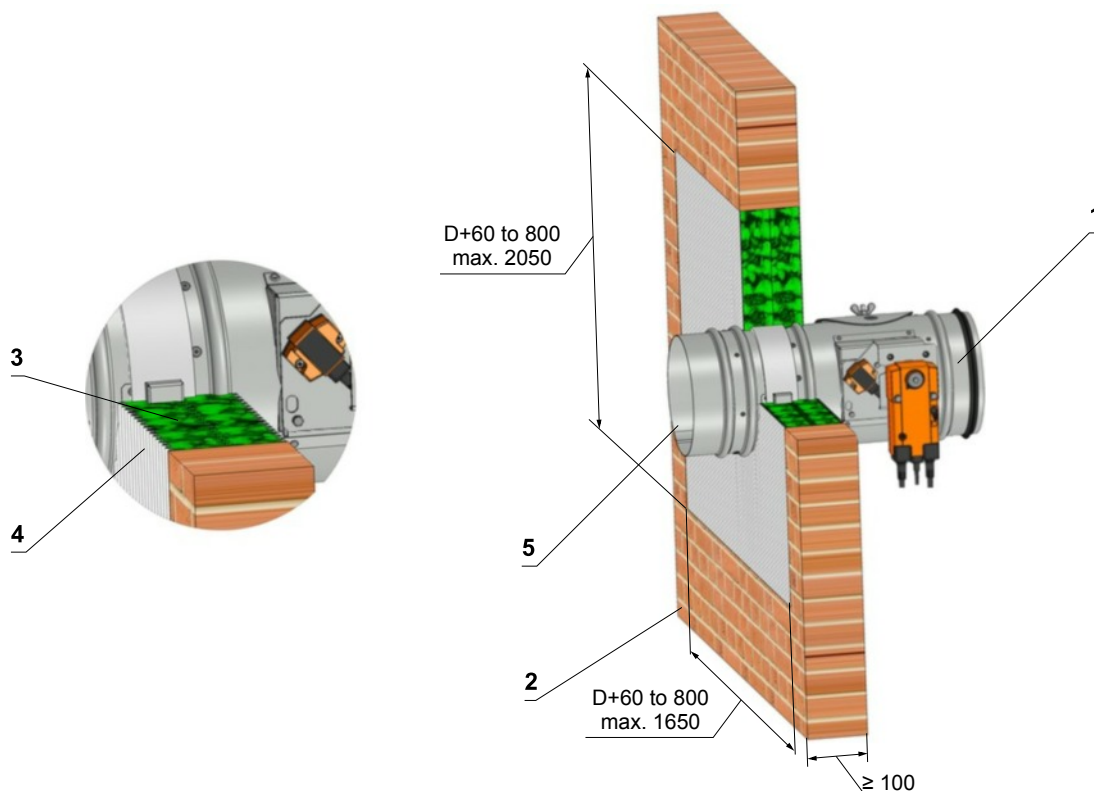
Position:

- 1 Fire damper
- 2 Installation frame
- 3 Solid wall construction

Shown schemes of incorporation and damper are illustrative only !

Solid wall construction - Weichschott

EIS 90



Position:

- 1 Fire damper
- 2 Solid wall construction
- 3 Fire resistant board
- 4 Fire stop coating thickness 1 mm
- 5 Duct

Used materials - example:*

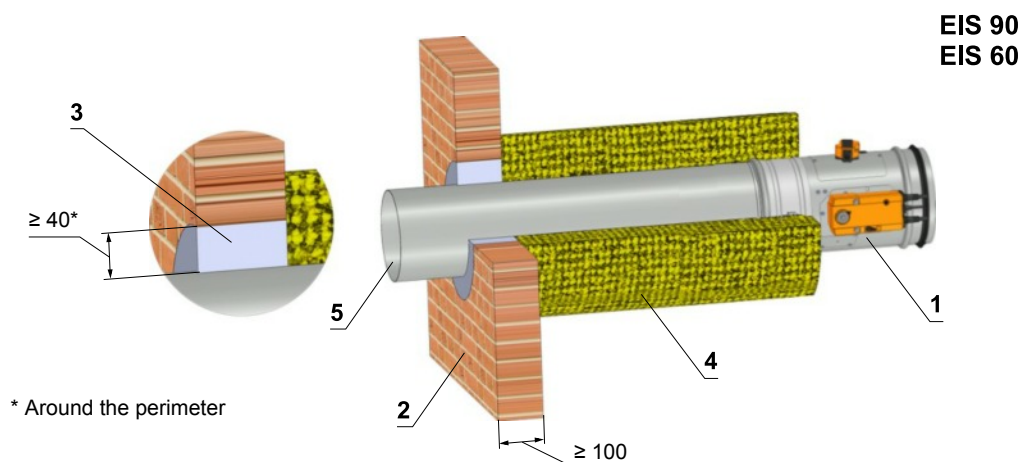
- 3 Hilti CFS-CT B 1S 140/50
- 4 Hilti CFS-CT

* Fire resistant insulation and fire resistant board can be replaced by another approved fire sealing system for damper installation with equivalent material properties.

Shown schemes of incorporation and damper are illustrative only !

Installation outside solid wall construction

Outside solid wall construction - mineral wool - mortar or gypsum



* Around the perimeter

Used materials - example:**

- 4 DN 100 ÷ DN 800 - System ISOVER_ULTIMATE PROTECT, th. 100 mm - EIS 60
- DN 100 ÷ DN 315 - System ISOVER_ULTIMATE PROTECT, th. 120 mm (2x60 mm) - EIS 90
- DN 350 ÷ DN 800 - System ISOVER_ULTIMATE PROTECT, th. 160 mm (100+60 mm) - EIS 90

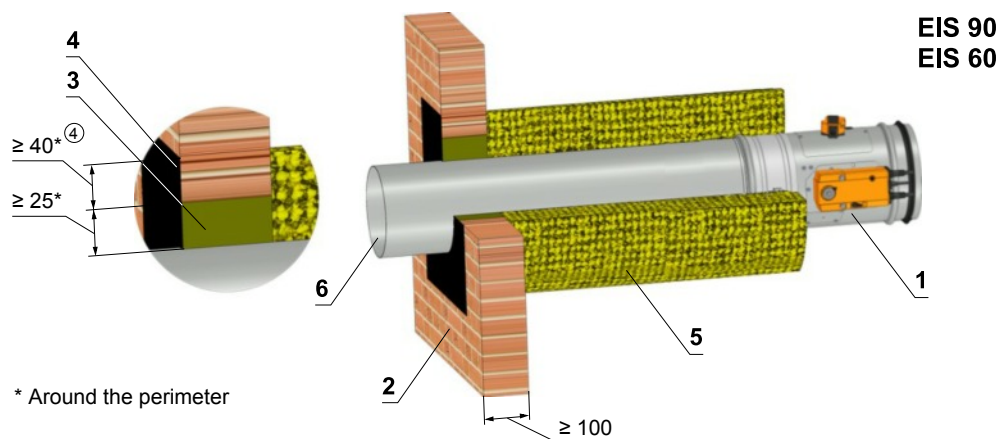
Position:

- 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

** The materials for stuffing box, fire protection mastic, lining and 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 and according to EN 15882-2, the required number of suspensions acc. to EN 1366-1:2014 must be used.

**The duct at the point of penetration can be anchored to the fire wall construction !
Shown schemes of incorporation and damper are illustrative only !**

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



* Around the perimeter

Used materials - example:**

- 3 Promapyr, Rockwool Steprock HD, Hilti CFS-CT B 1S 140/50
- 4 Promastop - P, K, Hilti CFS-CT
- 5 DN 100 ÷ DN 800 - System ISOVER_ULTIMATE PROTECT, th. 100 mm - EIS 60
- DN 100 ÷ DN 315 - System ISOVER_ULTIMATE PROTECT, th. 120 mm (2x60 mm) - EIS 90
- DN 350 ÷ DN 800 - System ISOVER_ULTIMATE PROTECT, th. 160 mm (100+60 mm) - EIS 90

Position:

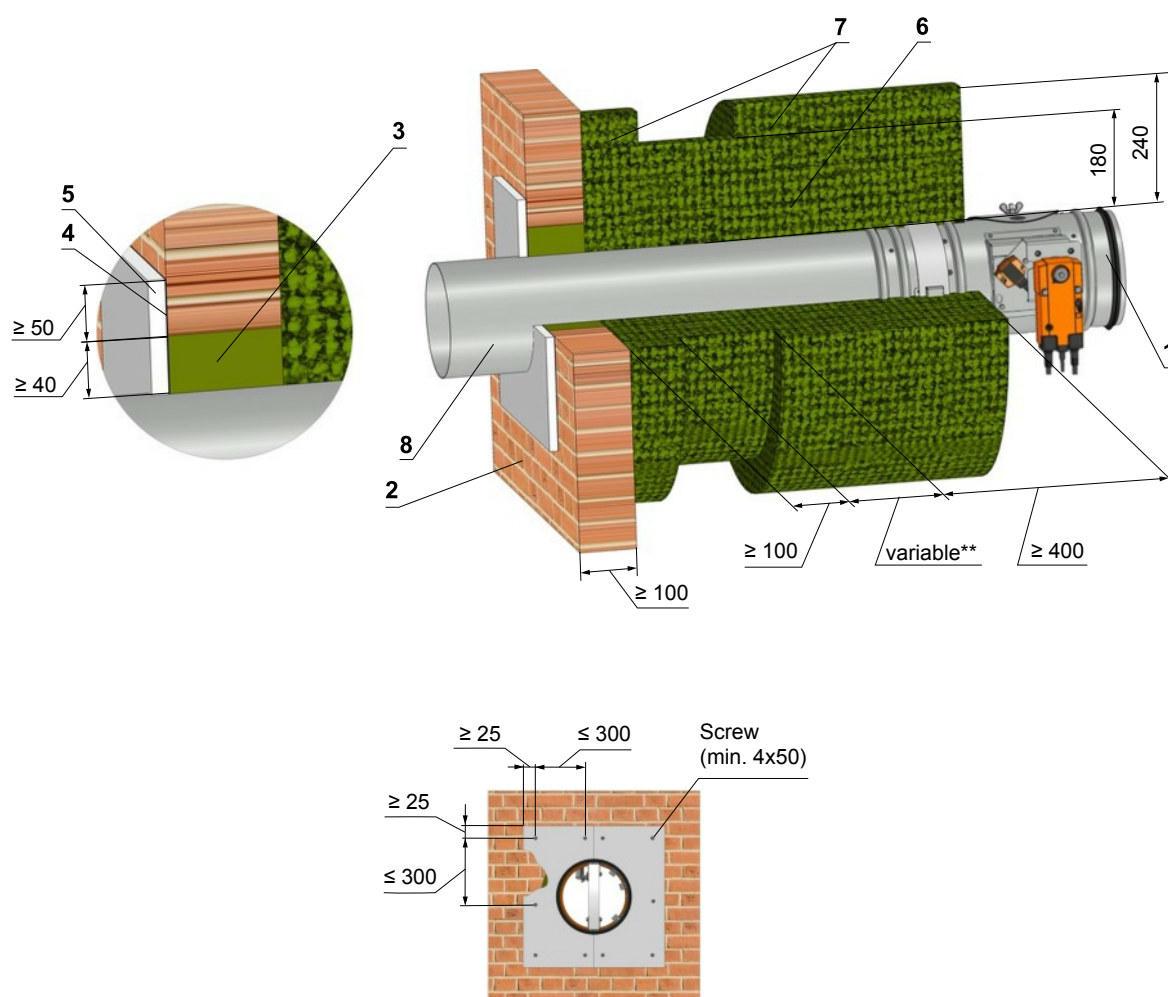
- 1 Fire damper
- 2 Solid wall construction
- 3 Stuffing box (mineral stone wool min. density 150 kg/m³)
- 4 Fire protection mastic min. thickness 1 mm
- 5 Stone wool with wired mat on one side, density 66 kg/m³
- 6 Duct

** The materials for stuffing box, fire protection mastic, lining and 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 and according to EN 15882-2, the required number of suspensions acc. to EN 1366-1:2014 must be used.

**The duct at the point of penetration must be anchored to the fire wall construction !
Shown schemes of incorporation and damper are illustrative only !**

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

EIS 90



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

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

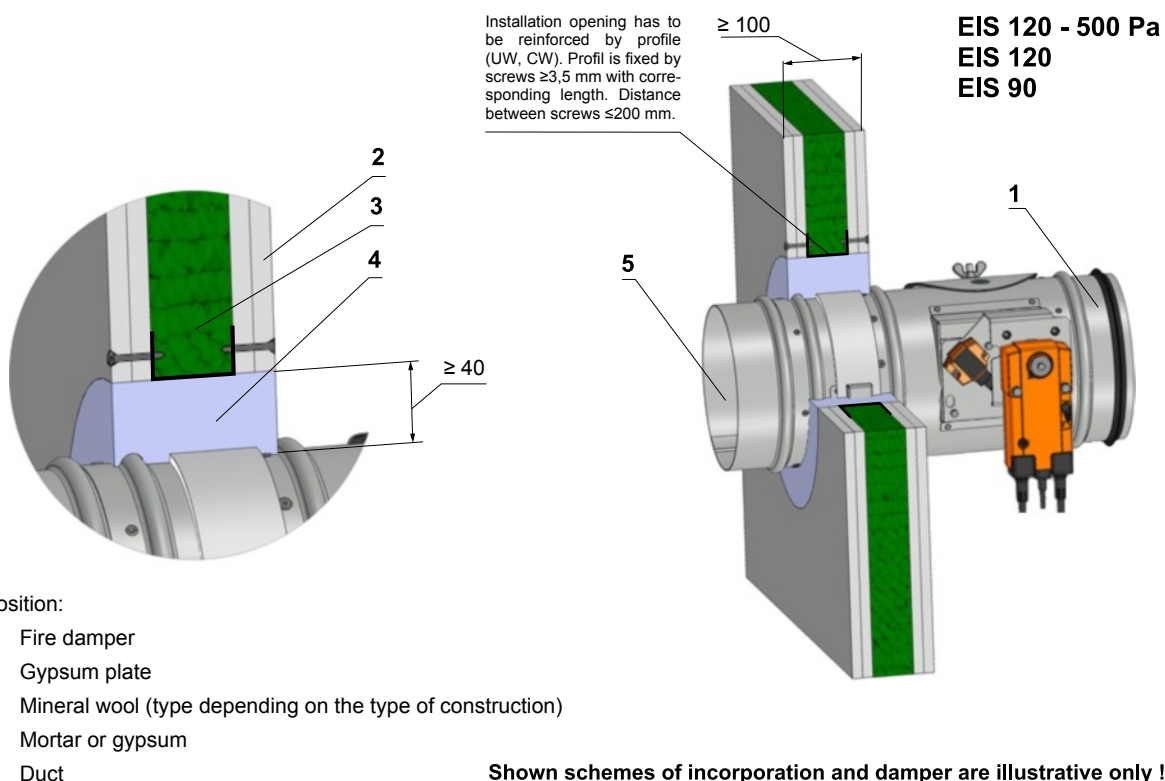
* Stuffing box, fire protection mastic, cement lime plate and insulation materials can be replaced by another approved fire sealing system for damper installation with equivalent material properties.

** 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.

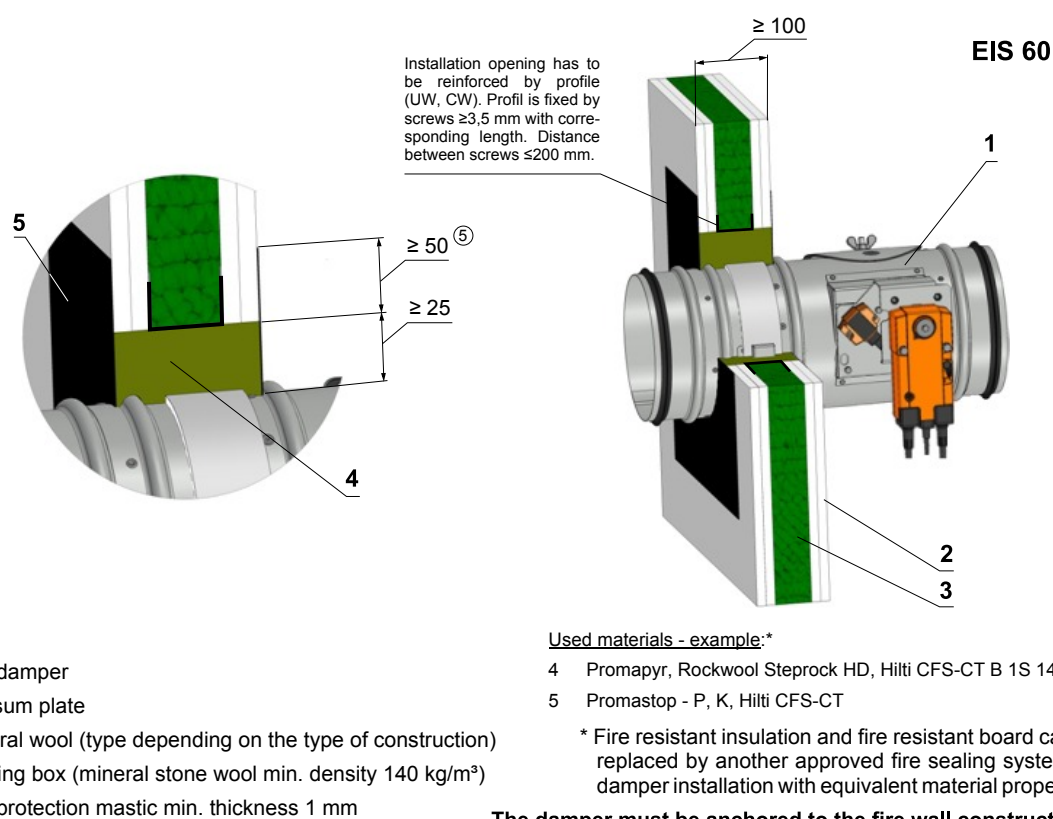
The duct at the point of penetration must be anchored to the fire wall construction !
Shown schemes of incorporation and damper are illustrative only !

Installation in gypsum wall construction

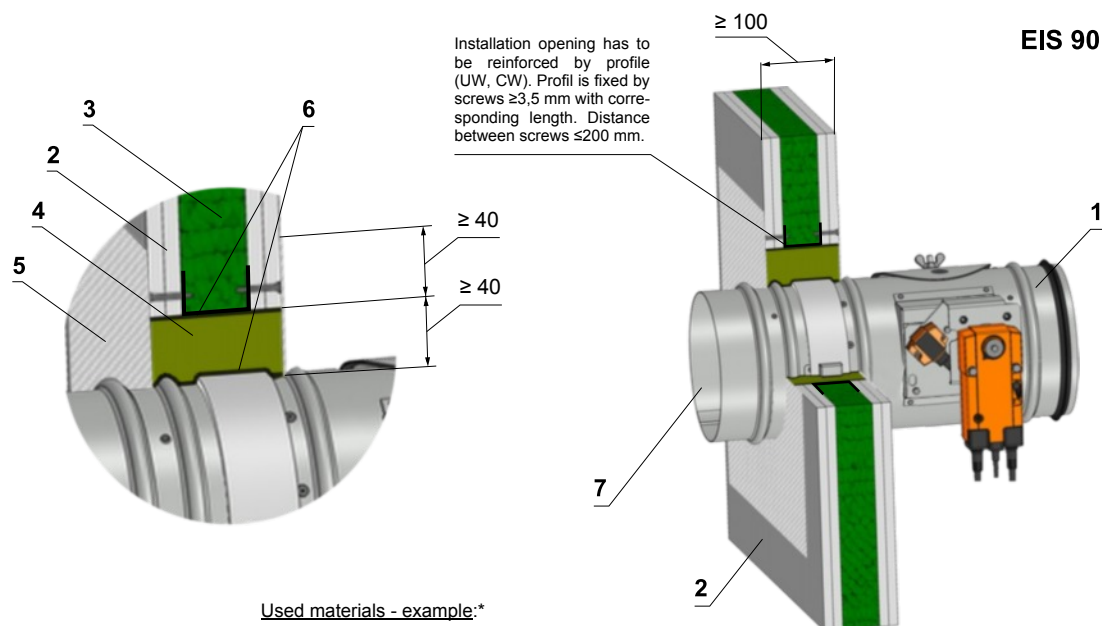
Gypsum wall construction - mortar or gypsum



Gypsum wall construction - stuffing box and fire protection mastic



Gypsum wall construction - stuffing box with fire protection mastic and coating



Used materials - example:*

Position:

- 1 Fire damper
- 2 Gypsum plate

- 4 HILTI CFS-CT B 1S 140/50 or
ROCKWOOL HARDROCK + coating HILTI CFS-CT
- 5 HILTI CFS-CT
- 6 HILTI CFS-S ACR

- 3 Mineral wool (type depending on the type of construction)
- 4 Stuffing box (mineral stone wool min. density 150 kg/m³)
- 5 Fire protection coating th. 1 mm
- 6 Fire protection mastic th. 1 mm
- 7 Duct

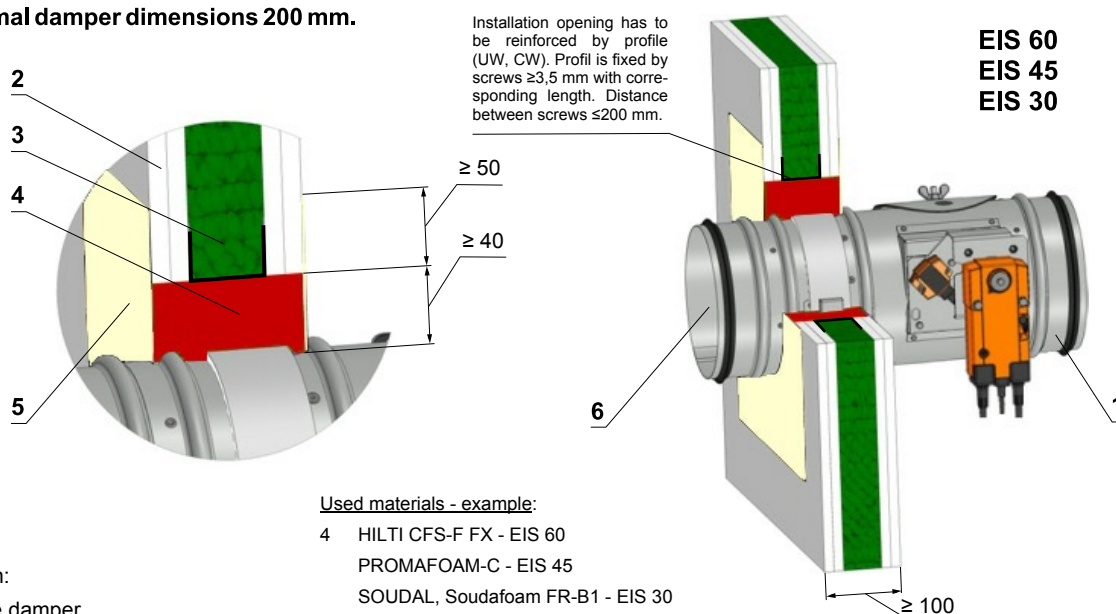
* Fire resistant insulation and fire resistant board can be replaced by another approved fire sealing system for damper installation with equivalent material properties.

The damper must be anchored to the fire wall construction !

Shown schemes of incorporation and damper are illustrative only !

Gypsum wall construction - fire protection foam with stucco plaster

Maximal damper dimensions 200 mm.



Used materials - example:

Position:

- 1 Fire damper
- 2 Gypsum plate

- 4 HILTI CFS-F FX - EIS 60
PROMAFOAM-C - EIS 45
Soudal, Soudafoam FR-B1 - EIS 30
DenBraven, Fire protection foam - EIS 30

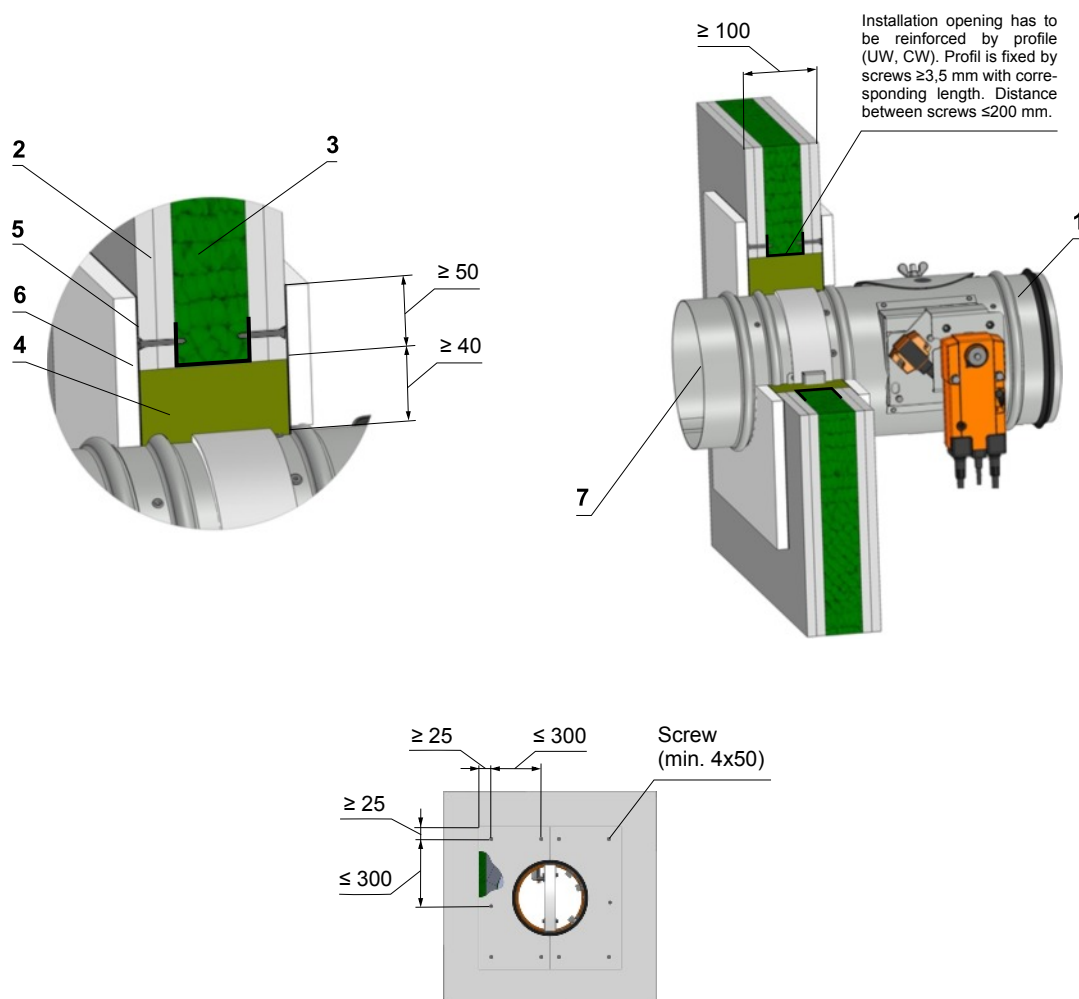
- 3 Mineral wool (type depending on the type of construction)
- 4 Fire protection foam
- 5 Stucco plaster
- 6 Duct

The damper must be anchored to the fire wall construction !

Shown schemes of incorporation and damper are illustrative only !

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

EIS 90



The screws must be firmly anchored in the profile of gypsum wall construction.

Used materials - example:*

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/m^3)
- 5 Fire protection mastic min. thickness 1 mm
- 6 Cement lime plate min. th. 15 mm (min. density 870 kg/m^3)
- 7 Duct

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

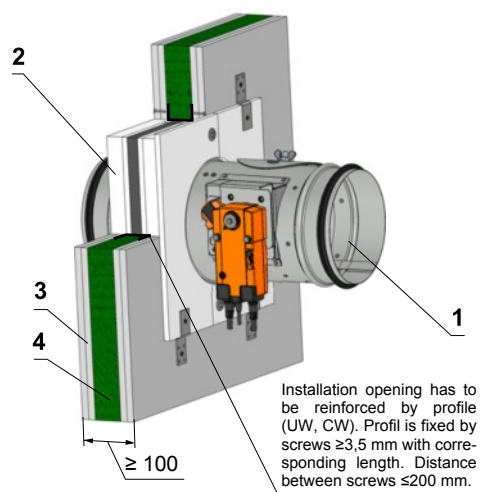
* Fire resistant insulation and fire resistant board can be replaced by another approved fire sealing system for damper installation with equivalent material properties.

**The damper must be anchored to the fire wall construction !
Shown schemes of incorporation and damper are illustrative only !**

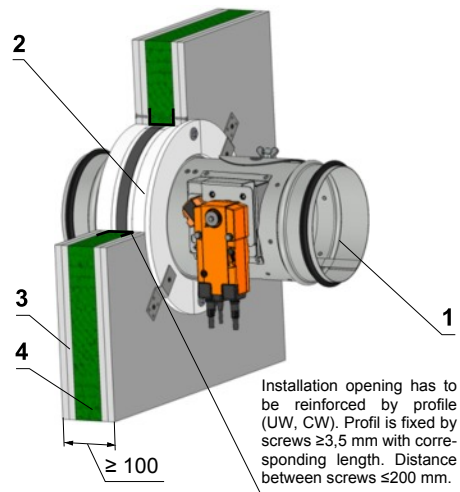
Gypsum wall construction - installation frame R1, R2, R3, R4, R5

EIS 90

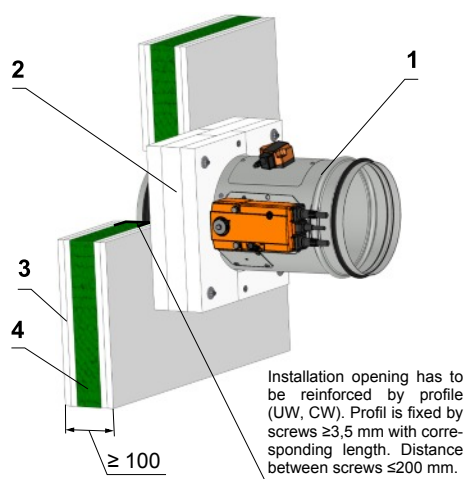
Installation frame R1, R2



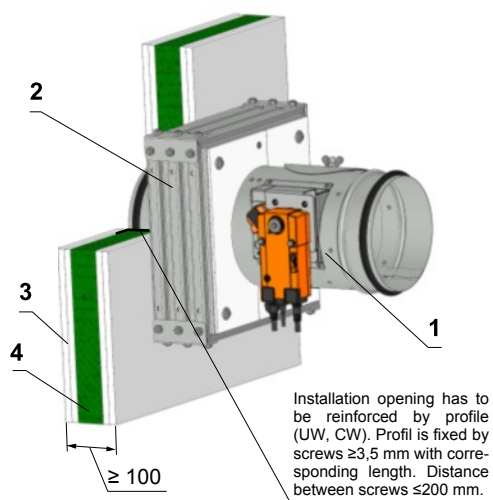
Installation frame R3, R4



Installation frame R5 (DN 100 - 200)



Installation frame R5 (DN 225 - 800)



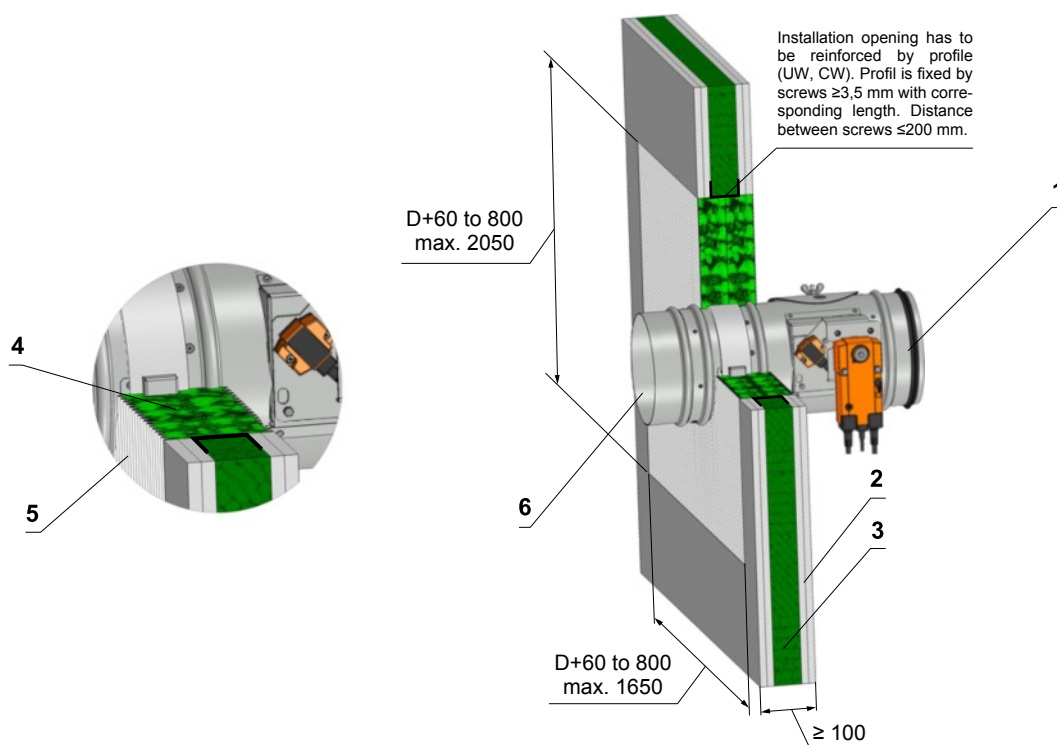
Position:

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

Shown schemes of incorporation and damper are illustrative only !

Gypsum wall construction - Weichschott

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

Used materials - example:*

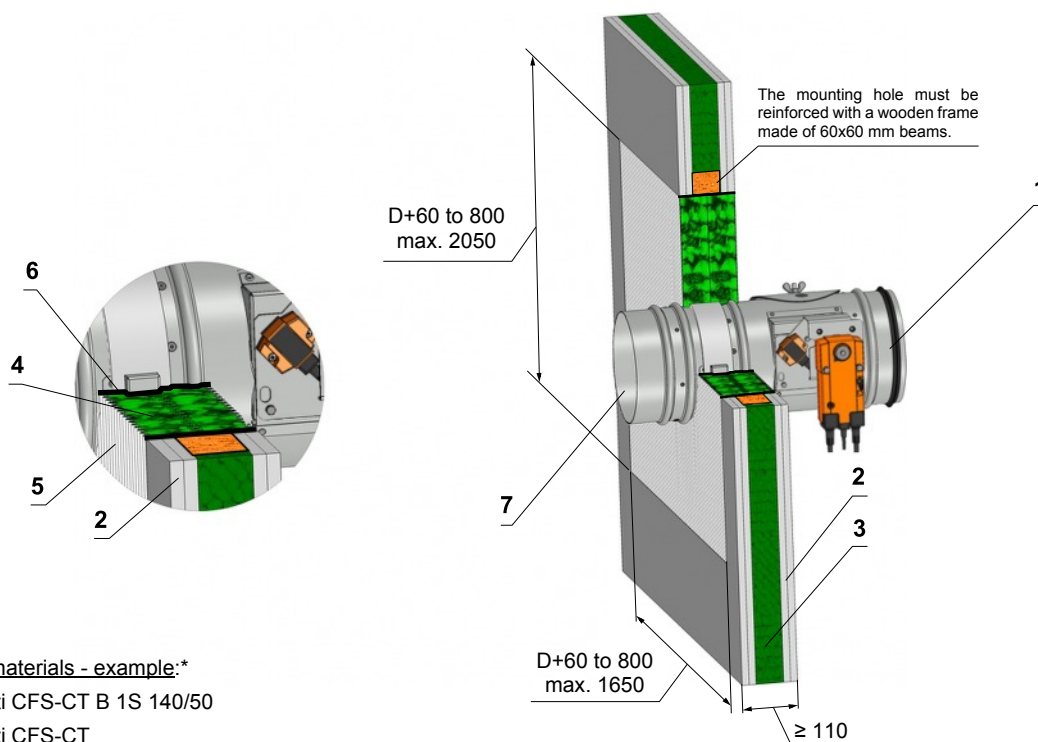
- 3 Hilti CFS-CT B 1S 140/50
- 4 Hilti CFS-CT

* Fire resistant insulation and fire resistant board can be replaced by another approved fire sealing system for damper installation with equivalent material properties.

Shown schemes of incorporation and damper are illustrative only !

Gypsum wall construction - with load-bearing construction of wooden beams min. cross-section 60x60 mm – Weichschott

EIS 90



Used materials - example:*

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

Position:

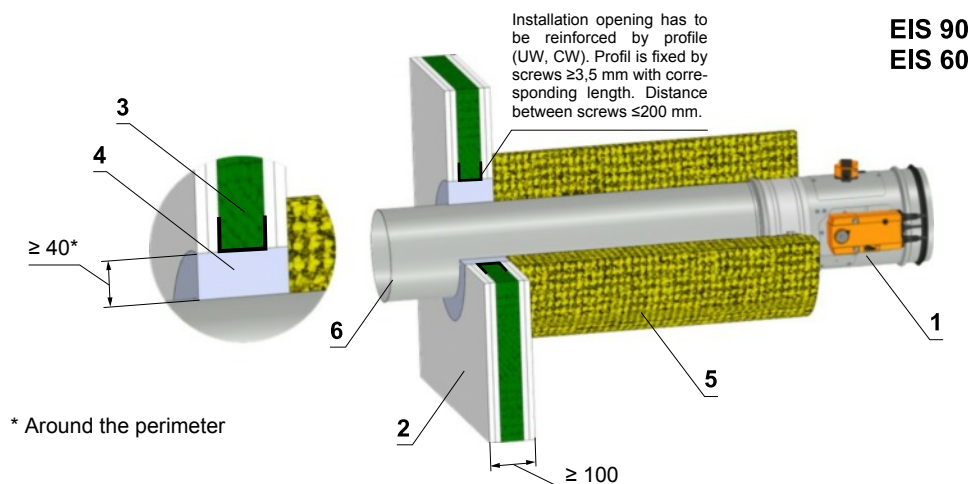
- 1 Fire damper
- 2 Gypsum plate
- 3 Mineral wool
(type depending on the type of construction)
- 4 Fire resistant board
- 5 Fire stop coating thickness 1 mm
- 6 Fire protection coating th. 1 mm
- 7 Duct

* Fire resistant insulation and fire resistant board can be replaced by another approved fire sealing system for damper installation with equivalent material properties.

Shown schemes of incorporation and damper are illustrative only !

Installation outside gypsum wall construction

Outside gypsum wall construction - mineral wool - mortar or gypsum



* 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

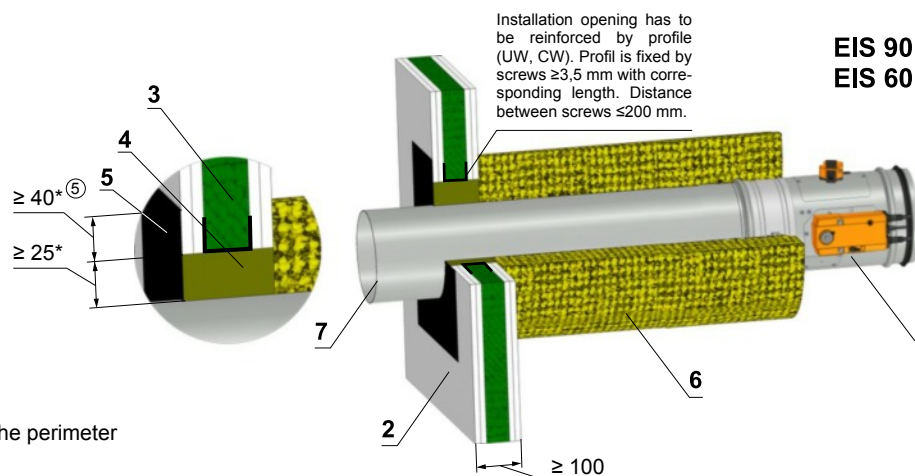
Used materials - example:**

- 5 DN 100 ÷ DN 800 - System ISOVER_ULTIMATE PROTECT, th. 100 mm - EIS 60
- DN 100 ÷ DN 315 - System ISOVER_ULTIMATE PROTECT, th. 120 mm (2x60 mm) - EIS 90
- DN 350 ÷ DN 800 - System ISOVER_ULTIMATE PROTECT, th. 160 mm (100+60 mm) - EIS 90

** The materials for stuffing box, fire protection mastic, lining and 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 and according to EN 15882-2, the required number of suspensions acc. to EN 1366-1:2014 must be used.

**The duct at the point of penetration can be anchored to the fire wall construction !
Shown schemes of incorporation and damper are illustrative only !**

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



* 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 150 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

Used materials - example:**

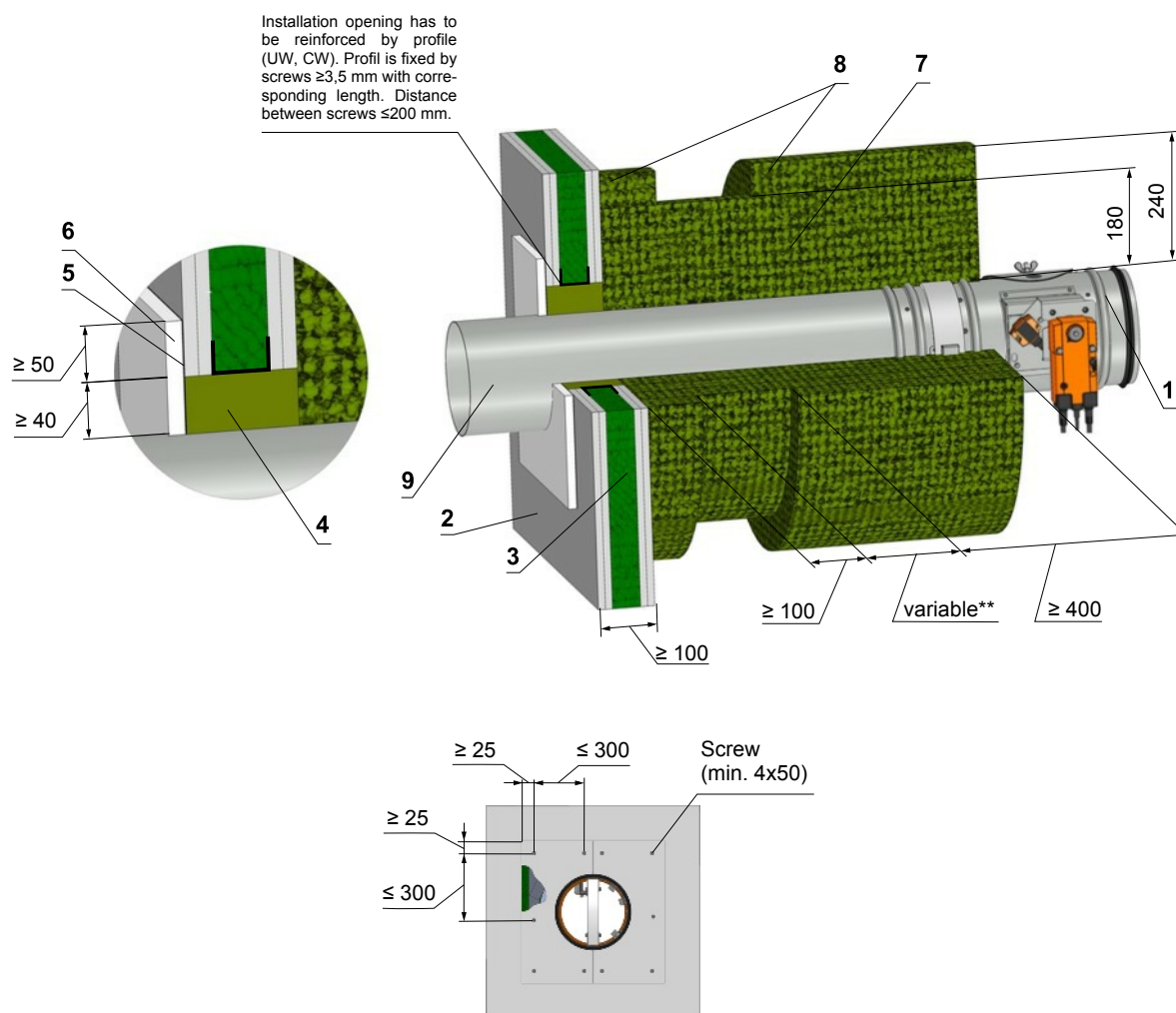
- 4 Promapyr, Rockwool Steprock HD, Hilti CFS-CT B 1S 140/50
- 5 Promastop - P, K, Hilti CFS-CT
- 6 DN 100 ÷ DN 800 - System ISOVER_ULTIMATE PROTECT, th. 100 mm - EIS 60
- DN 100 ÷ DN 315 - System ISOVER_ULTIMATE PROTECT, th. 120 mm (2x60 mm) - EIS 90
- DN 350 ÷ DN 800 - System ISOVER_ULTIMATE PROTECT, th. 160 mm (100+60 mm) - EIS 90

** The materials for stuffing box, fire protection mastic, lining and 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 and according to EN 15882-2, the required number of suspensions acc. to EN 1366-1:2014 must be used.

**The duct at the point of penetration must be anchored to the fire wall construction !
Shown schemes of incorporation and damper are illustrative only !**

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

EIS 90



The screws must be firmly anchored in the profile of gypsum wall 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.

Position:

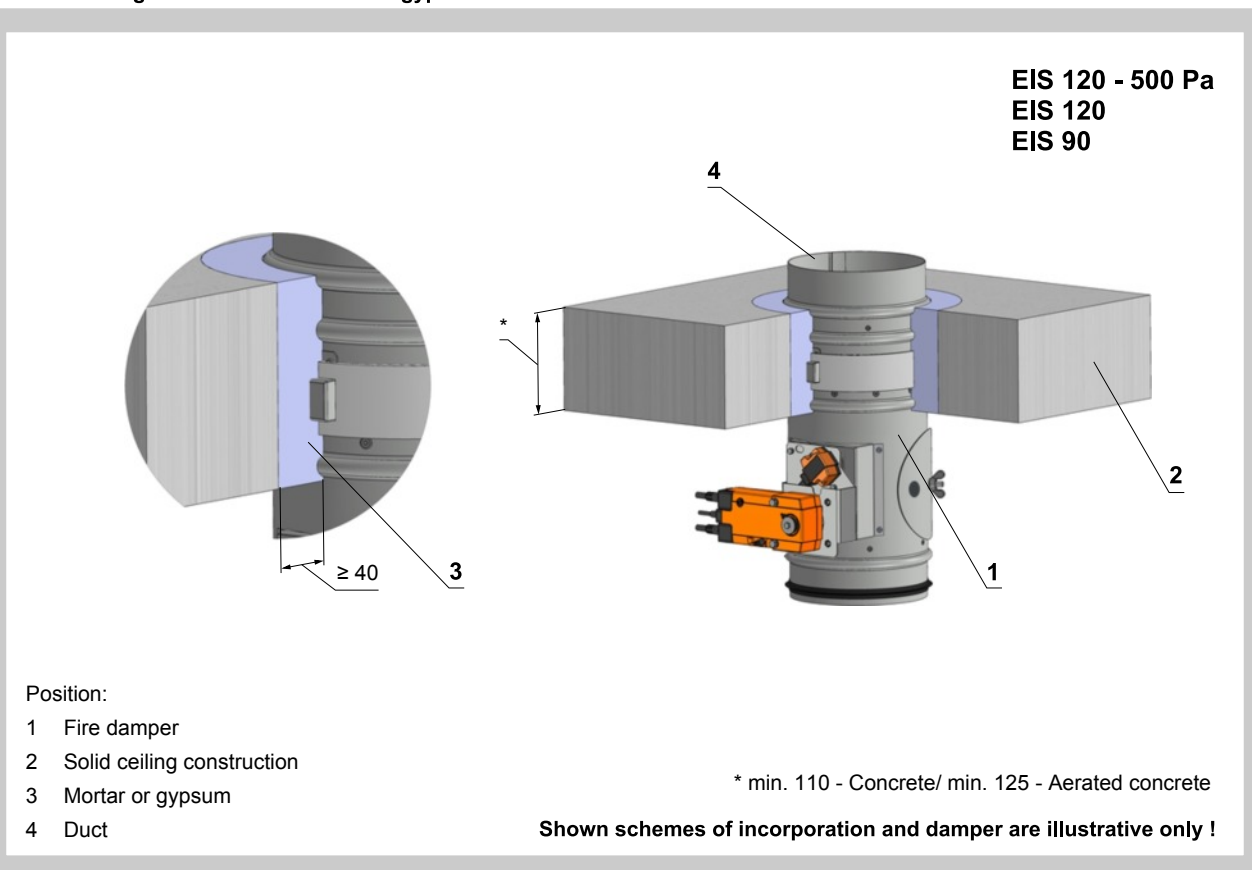
- 1 Fire damper
- 2 Gypsum plate
- 3 Mineral wool (type depending on the type of construction)
- 4 Stuffing box (mineral stone wool min. density 140 kg/m³)
- 5 Fire protection mastic min. thickness 1 mm
- 6 Cement lime plate min. thickness 15 mm (min. density 870 kg/m³)
- 7 Stone wool with one side stitched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

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

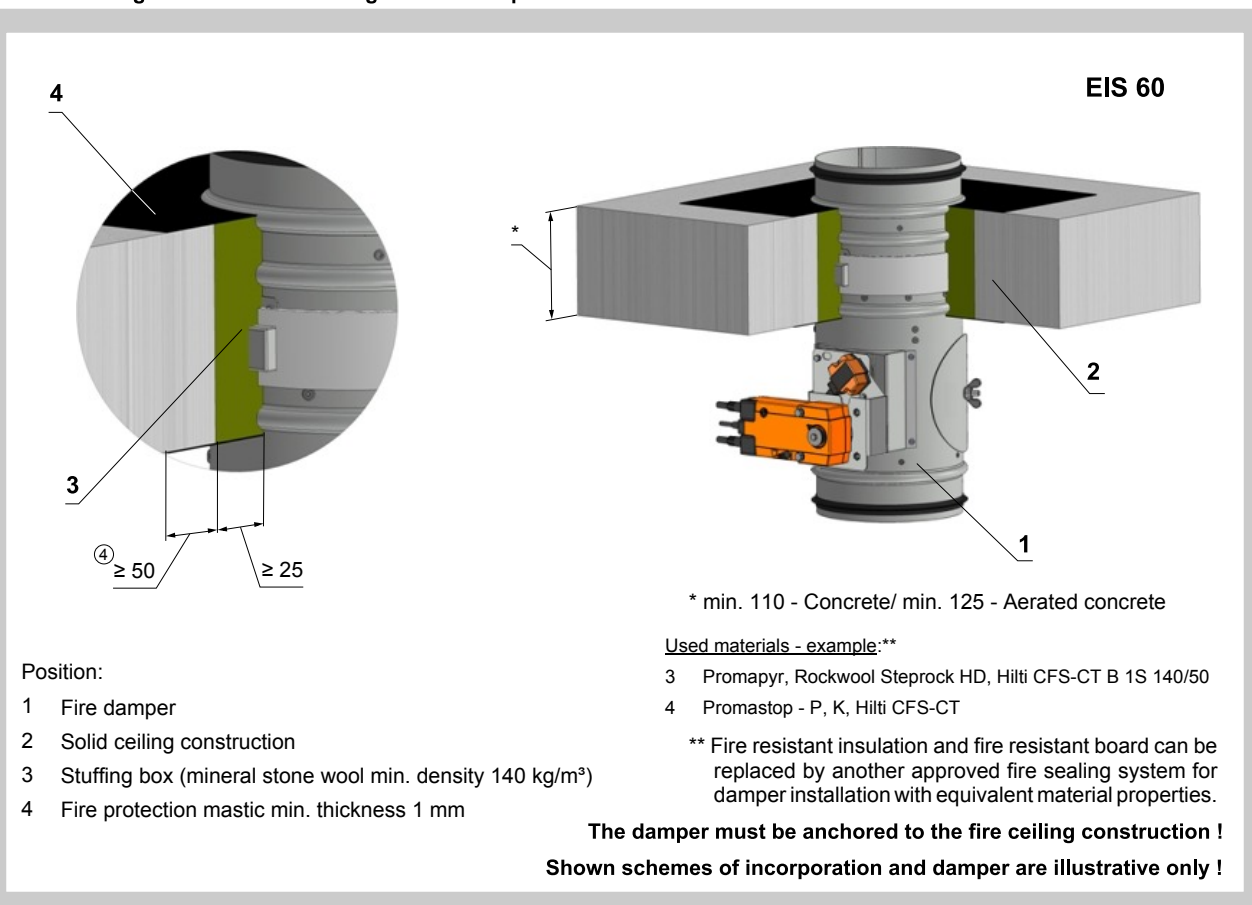
Shown schemes of incorporation and damper are illustrative only !

Installation in solid ceiling construction

Solid ceiling construction - mortar or gypsum

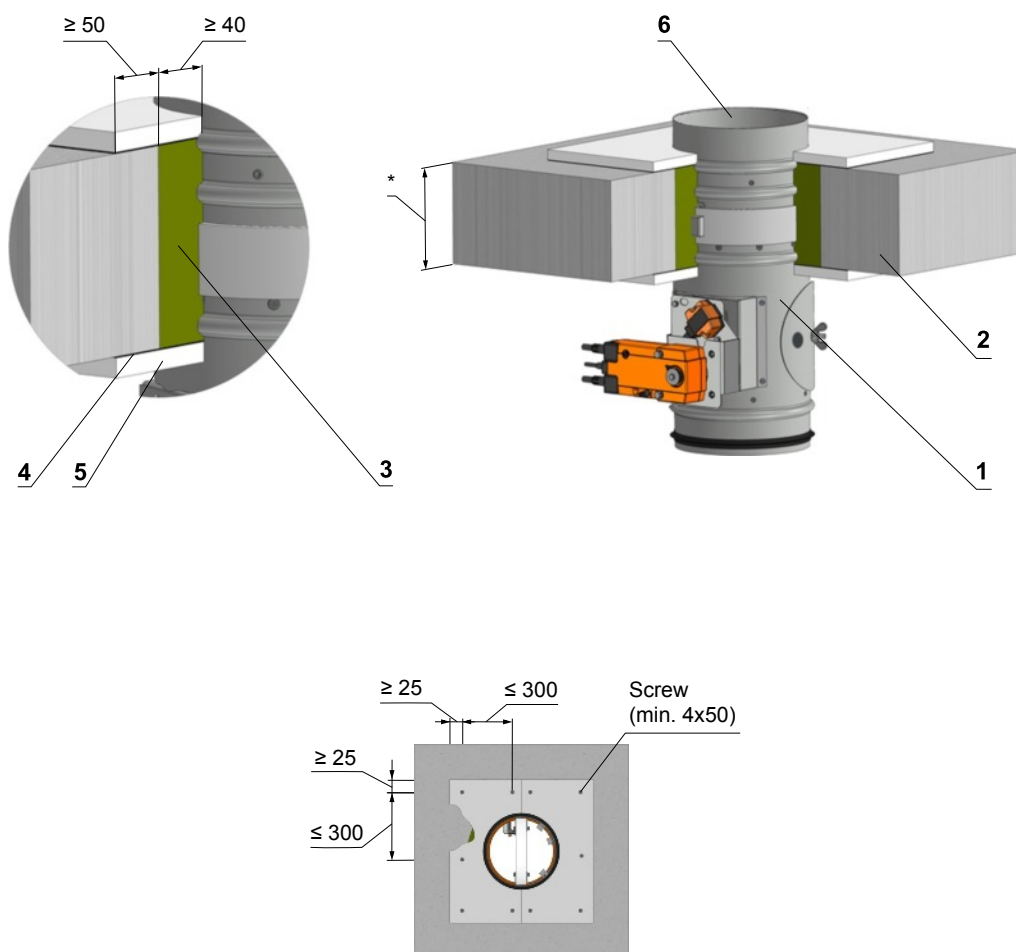


Solid ceiling construction - stuffing box and fire protection mastic



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

EIS 90



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

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

Used materials - example:*

Position:

- 1 Fire damper
- 2 Solid ceiling 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. thick. 15 mm min. density 870 kg/m³
- 6 Duct

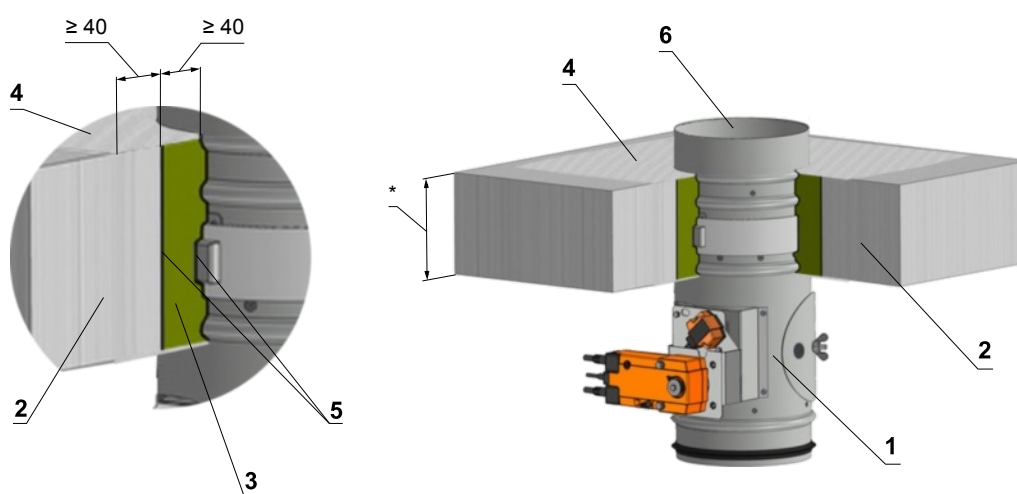
- 3 Promapyr, Rockwool Steprock HD, Hilti CFS-CT B 1S 140/50
- 4 Promastop - P, K, Hilti CFS-CT
- 5 Promatect - H

** Fire resistant insulation and fire resistant board can be replaced by another approved fire sealing system for damper installation with equivalent material properties.

The damper must be anchored to the fire ceiling construction !
Shown schemes of incorporation and damper are illustrative only !

Solid ceiling construction - stuffing box with fire protection mastic and coating

EIS 90



Position:

- 1 Fire damper
- 2 Solid ceiling construction
- 3 Stuffing box (mineral stone wool min. density 150 kg/m³)
- 4 Fire protection coating th. 1 mm
- 5 Fire protection mastic th. 1 mm
- 6 Duct

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

Used materials - example:**

- 3 HILTI CFS-CT B 1S 140/50 or
ROCKWOOL HARDROCK + coating HILTI CFS-CT
- 4 HILTI CFS-CT
- 5 HILTI CFS-S ACR

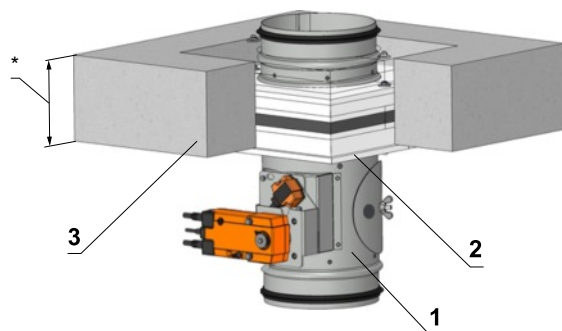
** Fire resistant insulation and fire resistant board can be replaced by another approved fire sealing system for damper installation with equivalent material properties.

The damper must be anchored to the fire ceiling construction !
Shown schemes of incorporation and damper are illustrative only !

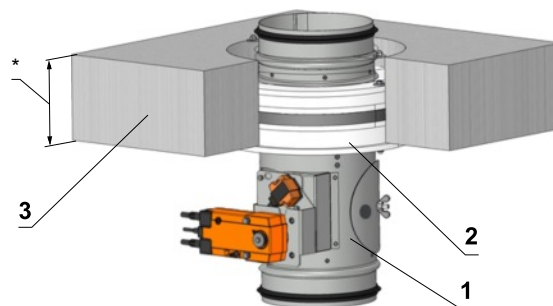
Solid ceiling construction - installation frame R1, R2, R3, R4, R5

EIS 90

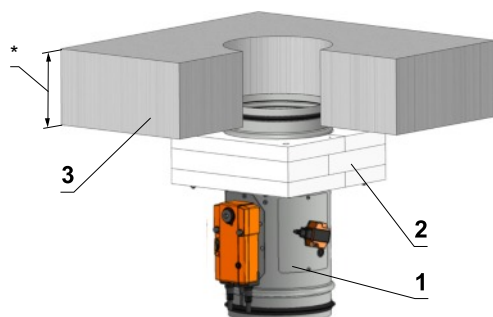
Installation frame R1, R2



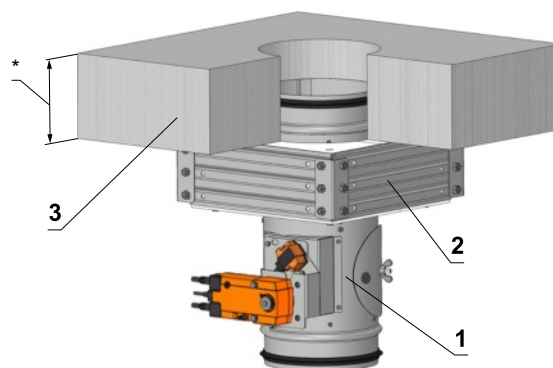
Installation frame R3, R4



Installation frame R5 (DN 100 - 200)



Installation frame R5 (DN 225 - 800)



Position:

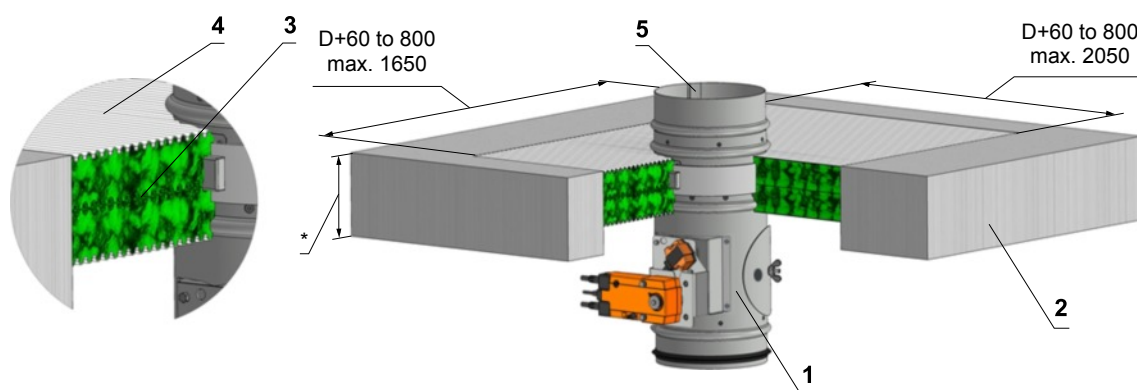
- 1 Fire damper
- 2 Installation frame
- 3 Solid ceiling construction

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

Shown schemes of incorporation and damper are illustrative only !

Solid ceiling construction - Weichschott

EIS 90



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

Used materials - example:**

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

** Fire resistant insulation and fire resistant board can be replaced by another approved fire sealing system for damper installation with equivalent material properties.

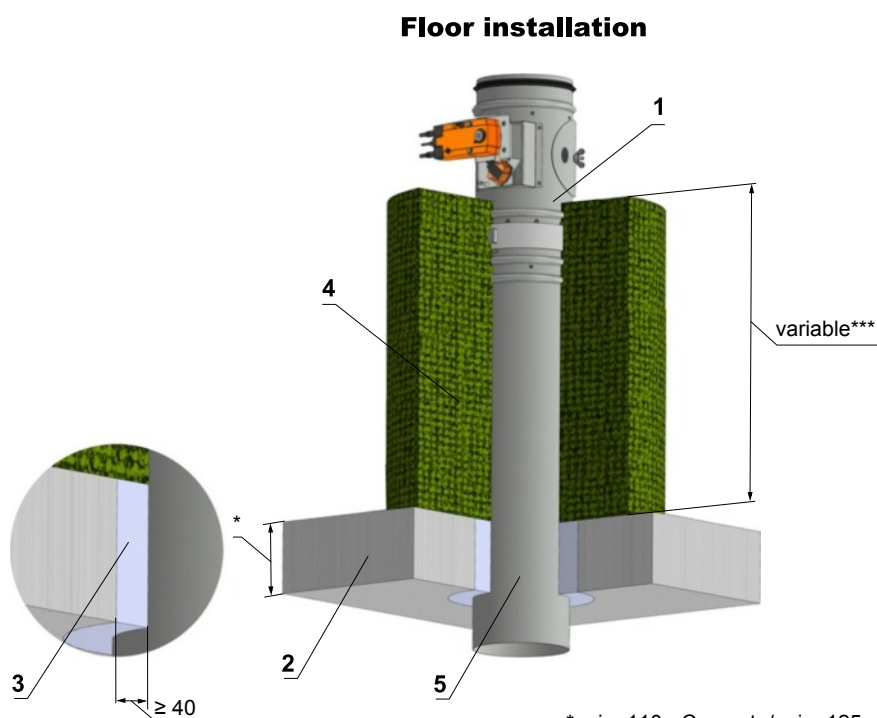
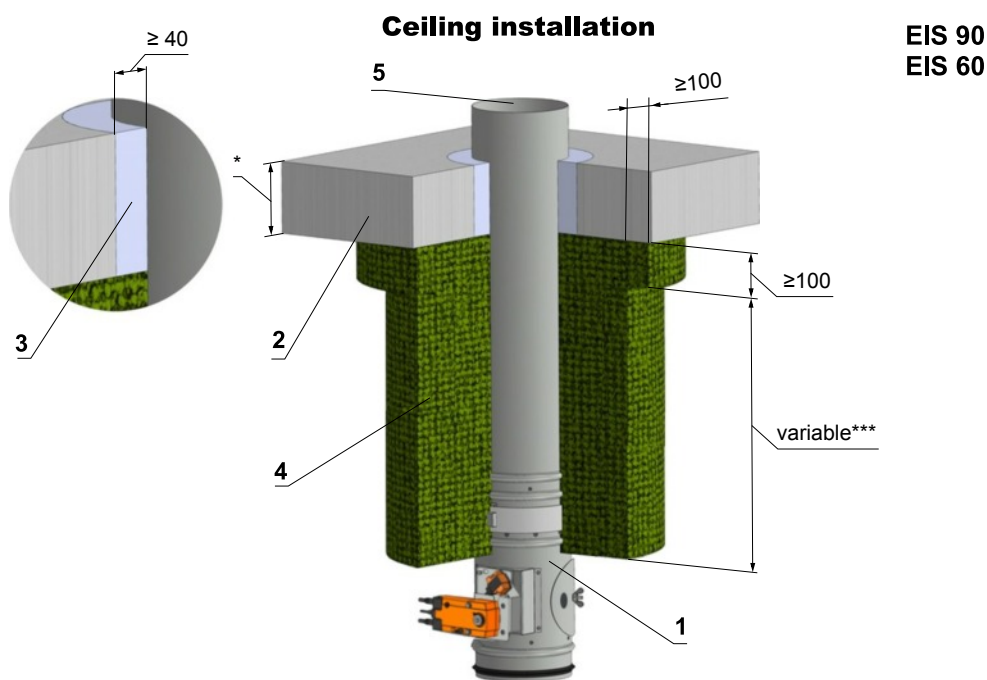
Position:

- 1 Fire damper
- 2 Solid ceiling construction
- 3 Fire resistant board
- 4 Fire stop coating thickness 1 mm
- 5 Duct

Shown schemes of incorporation and damper are illustrative only !

Installation outside solid ceiling construction

Outside solid ceiling construction - mineral wool - mortar or gypsum



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

Used materials - example:**

- 4 DN 100 ÷ DN 800 - System ISOVER_ULTIMATE PROTECT, th. 100 mm - EIS 60
- DN 100 ÷ DN 315 - System ISOVER_ULTIMATE PROTECT, th. 120 mm (2x60 mm) - EIS 90
- DN 350 ÷ DN 800 - System ISOVER_ULTIMATE PROTECT, th. 160 mm (100+60 mm) - EIS 90

** 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.

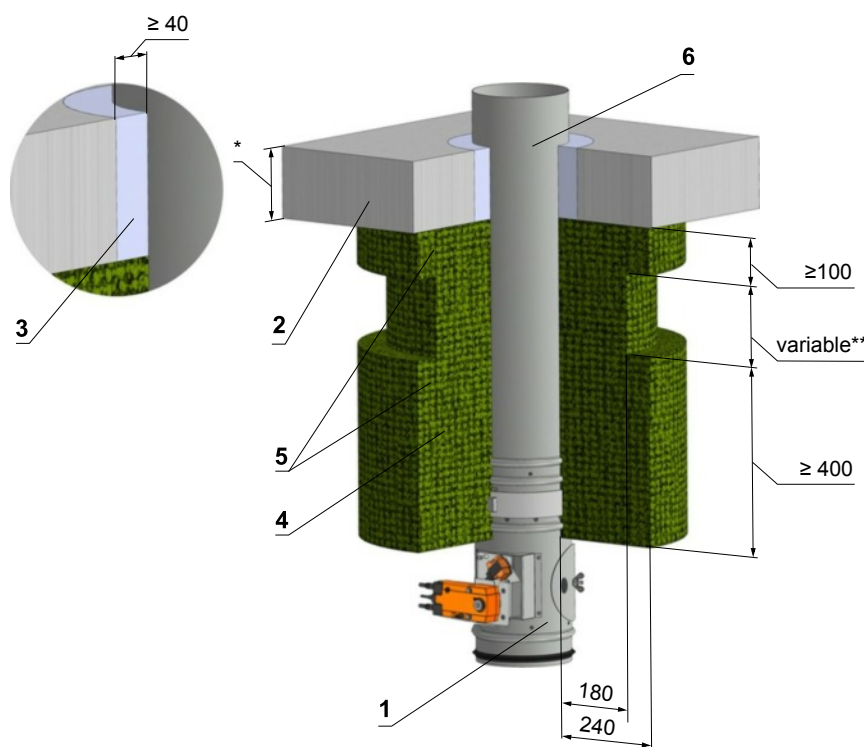
Position:

- 1 Fire damper
- 2 Solid ceiling construction
- 3 Mortar or gypsum
- 4 Stone wool with wired mat on one side, density 66 kg/m³
- 5 Duct

**The duct at the point of penetration can be anchored to the fire ceiling construction !
Shown schemes of incorporation and damper are illustrative only !**

Outside solid ceiling construction - mineral wool - mortar or gypsum

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.

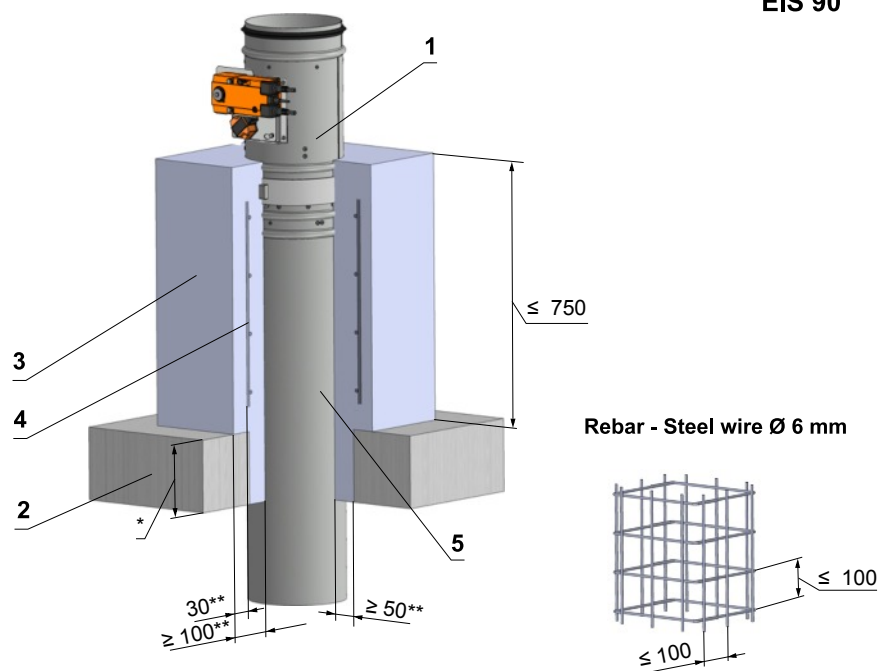
Position:

- 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

**The duct at the point of penetration can be anchored to the fire ceiling construction !
Shown schemes of incorporation and damper are illustrative only !**

Installation outside of solid ceiling construction - concrete

EIS 90



Position:

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

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

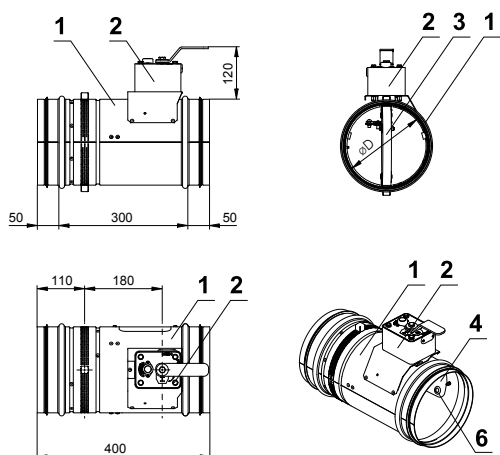
** Around the perimeter

Shown schemes of incorporation and damper are illustrative only !

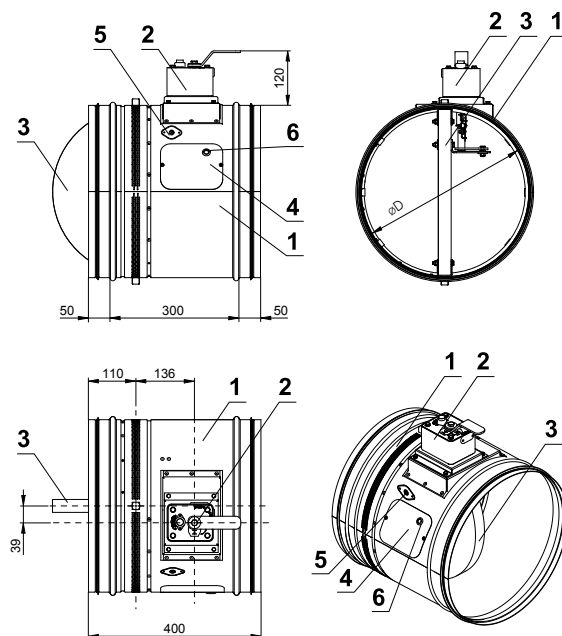
Dimensions

SPIRO design with mechanical control

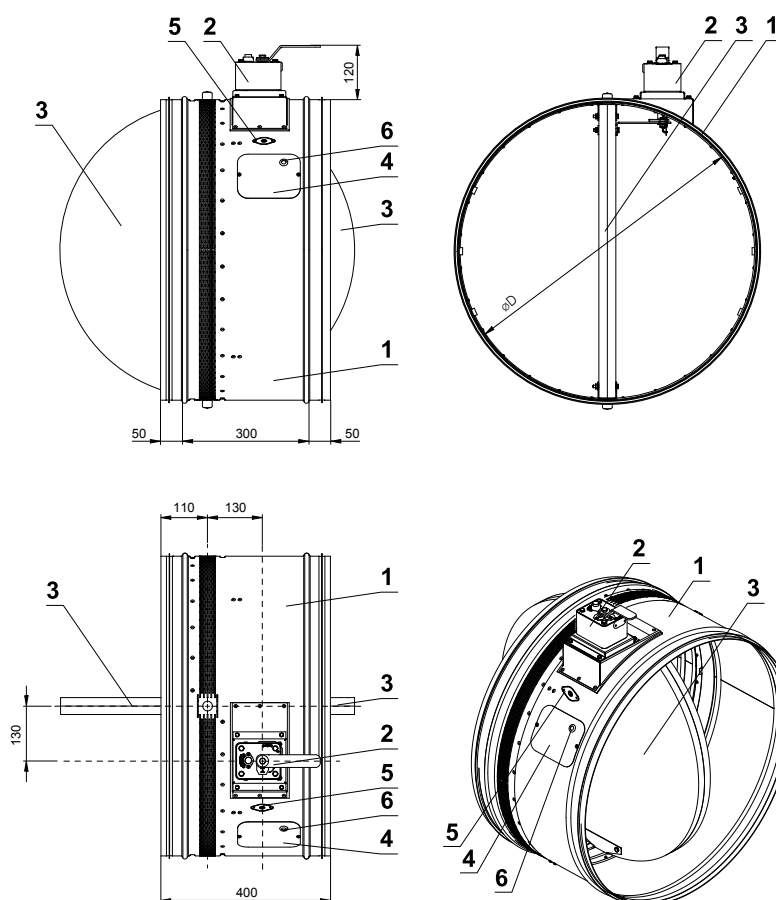
DN 100 - DN 315



DN 350 - DN 500



DN 560 - DN 800

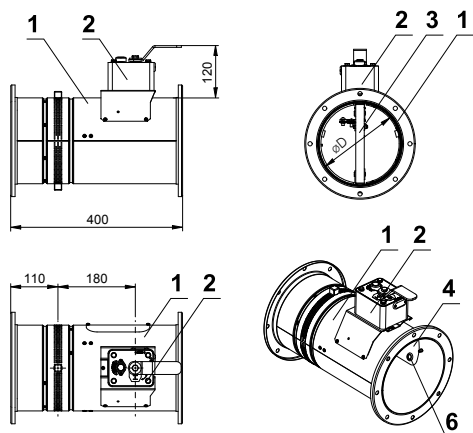


Position:

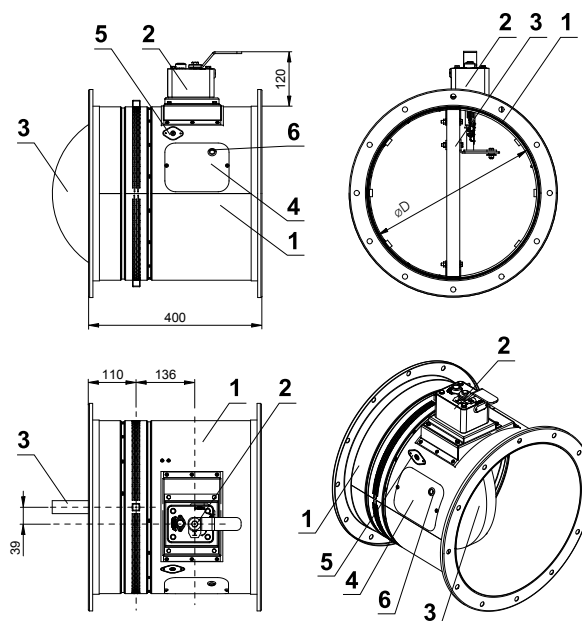
- 1 Damper casing
- 2 Mechanics
- 3 Damper blade
- 4 Inspection hole covering
- 5 Sensor sticker
- 6 Hole for camera

FLANGE design with mechanical control

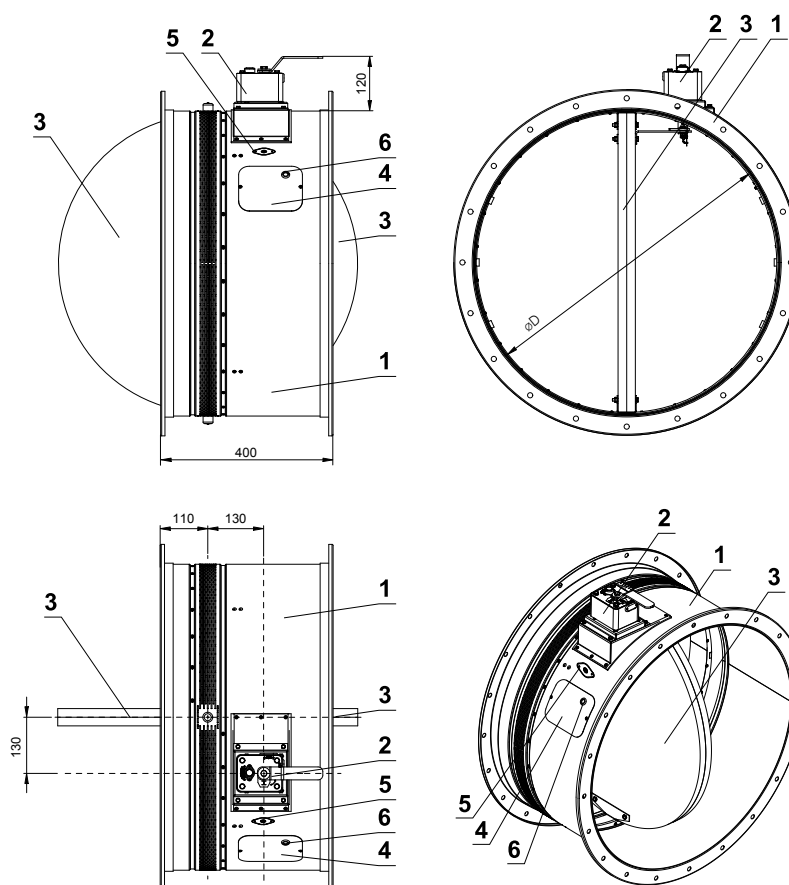
DN 100 - DN 315



DN 350 - DN 500



DN 560 - DN 800



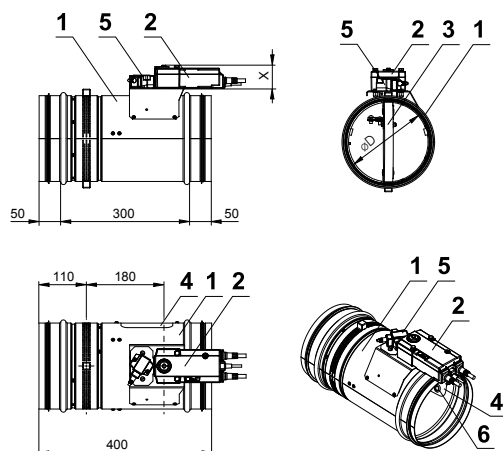
Position:

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

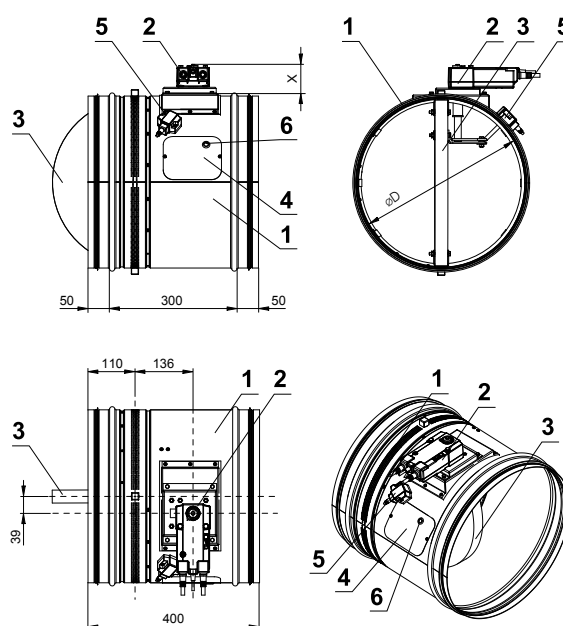
Design SPIRO with actuating mechanism

DN 100 - DN 315

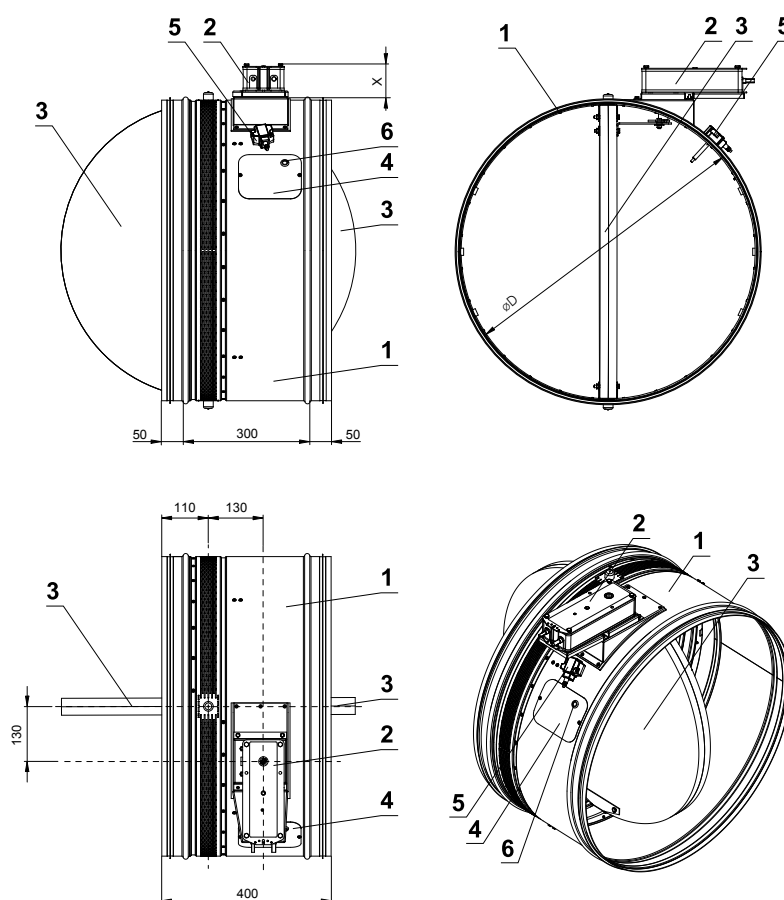
The actuator cannot be rotated

**DN 350 - DN 500**

The actuator can be rotated 90°

**DN 560 - DN 800**

The actuator can be rotated 90°



X=53 mm (BFL)
 X=72 mm (BFN)
 X=78 mm (BF)

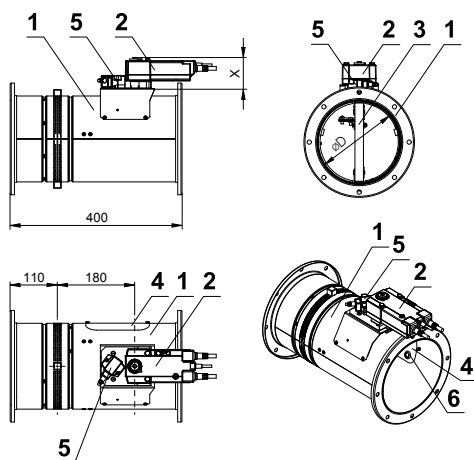
Position:

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

Fig. 30 Design FLANGE with actuating mechanism

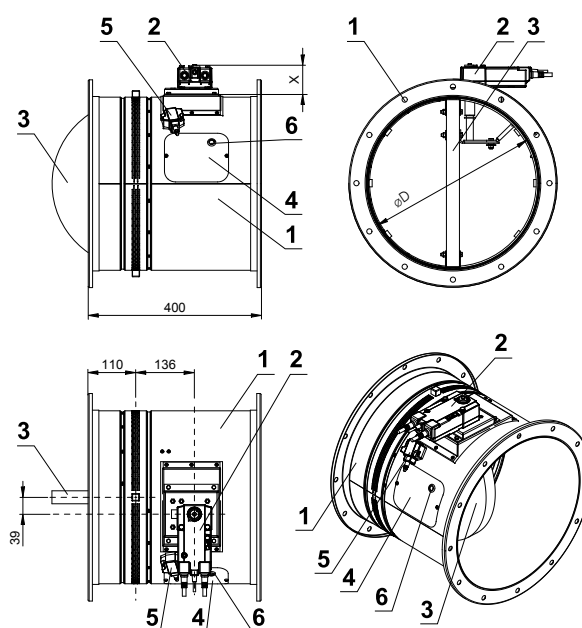
DN 100 - DN 315

The actuator cannot be rotated



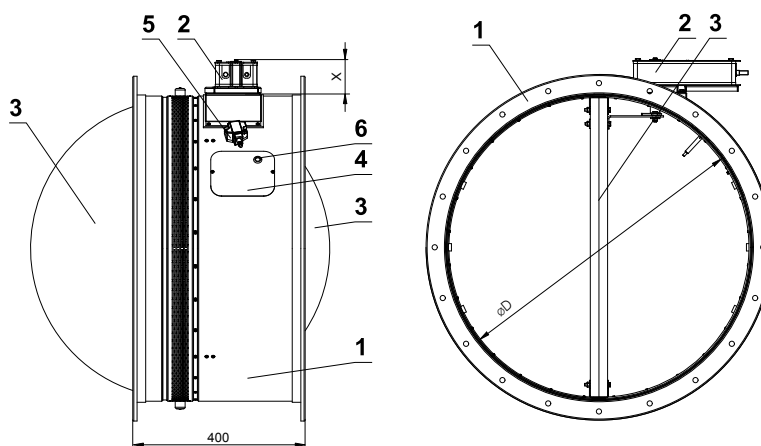
DN 350 - DN 500

The actuator cannot be rotated



DN 560 - DN 800

The actuator cannot be rotated



X=70 mm (BFL - DN 100 ÷ DN 315)

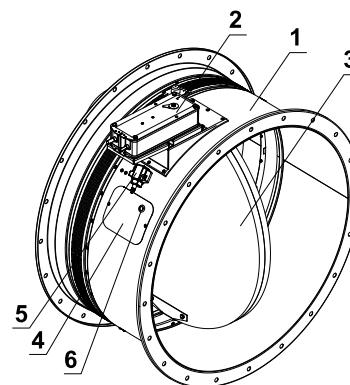
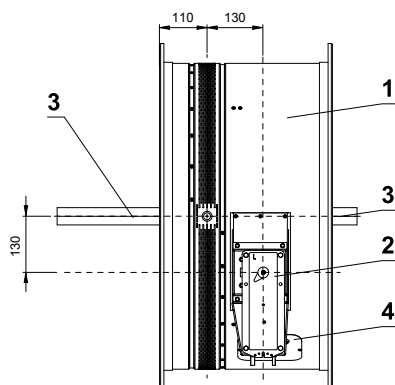
X=53 mm (BFL - DN 355 ÷ DN 400)

X=72 mm (BFN)

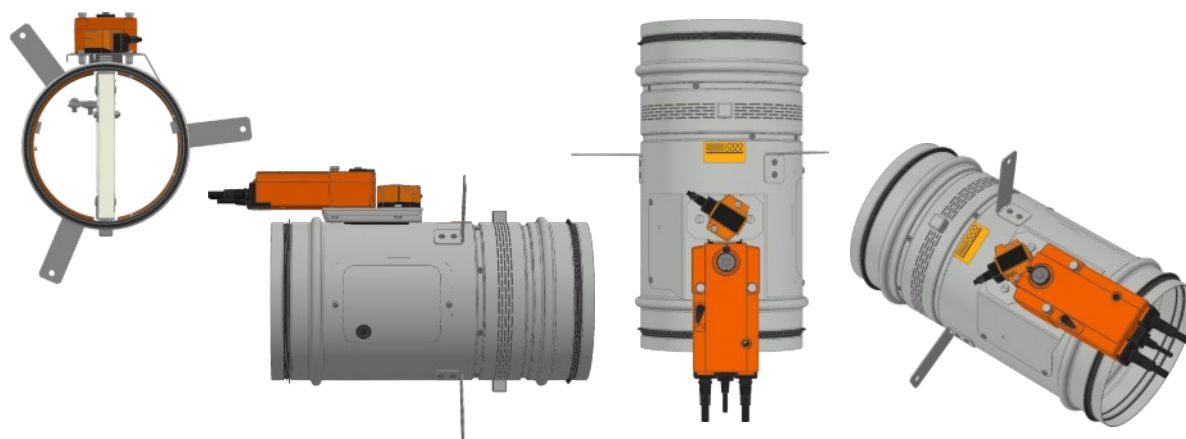
X=78 mm (BF)

Position:

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

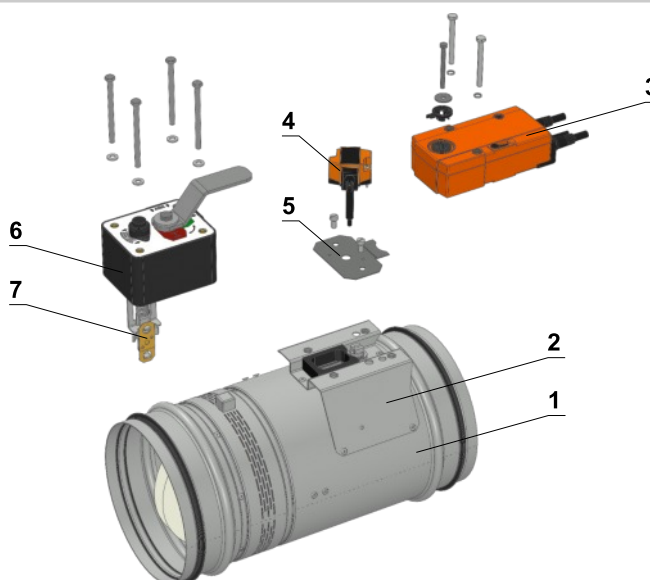


Fire damper with installation holders



Change of mechanical design for the motorised one or vice versa - DN 100 - DN 315

DN 100 - DN 315

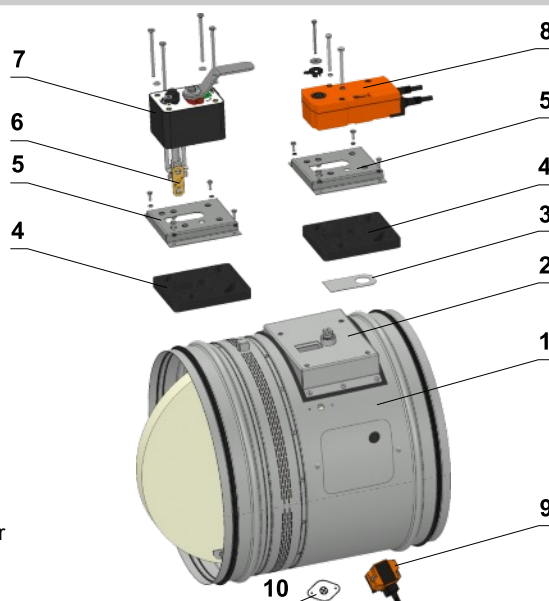


Position:

- 1 Damper
- 2 Mounting plate
- 3 Actuating mechanism
- 4 Temperature sensor
- 5 Mounting plate
- 6 Mechanics
- 7 Thermal fuse

Change of mechanical design for the motorised one or vice versa - DN 355 - DN 800

DN 355 - DN 800



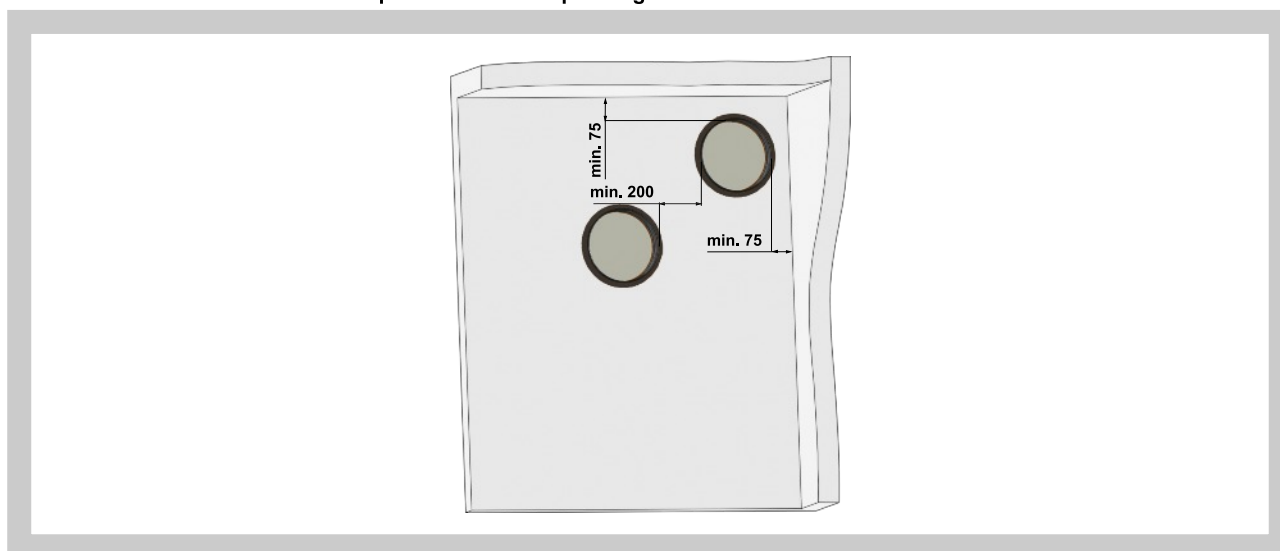
Position:

- 1 Damper
- 2 Mounting plate
- 3 Actuating mechanism
- 4 Temperature sensor
- 5 Mounting plate
- 6 Mechanics
- 7 Thermal fuse
- 8 Sensor sticker
- 9 Hole for temperature sensor / Sensor sticker
- 10 Inspection hole covering
- 11 Hole for camera

Installation instructions

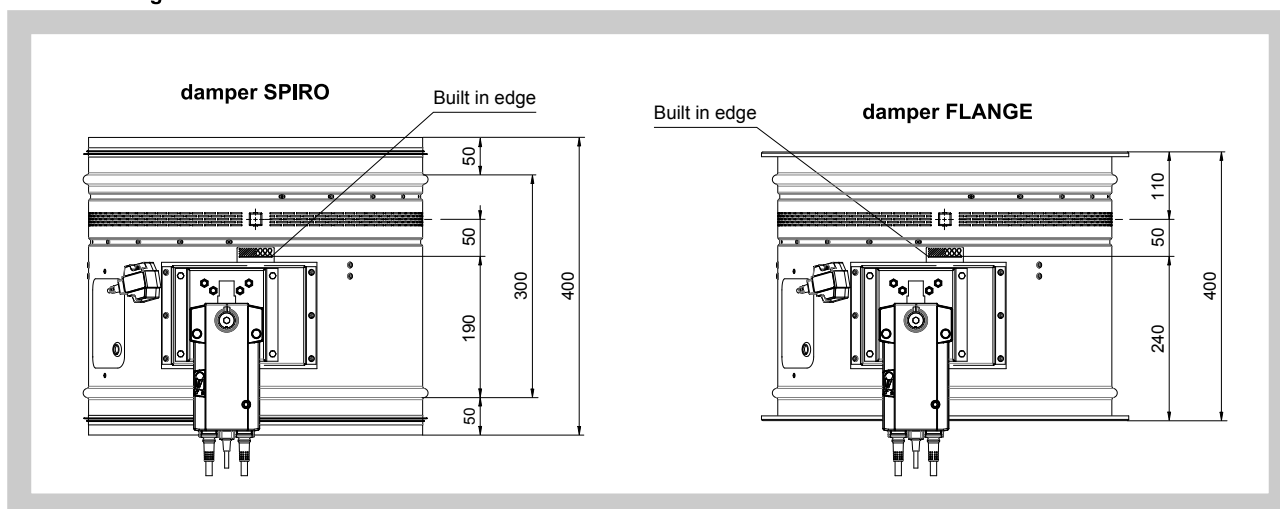
1. During the installation process, the blade position must be "CLOSED".
2. During the installation process, the control mechanism must be protected against pollution and damage.
3. Fire dampers are suitable for installation in any position in vertical and horizontal passages of fire separating structures.
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

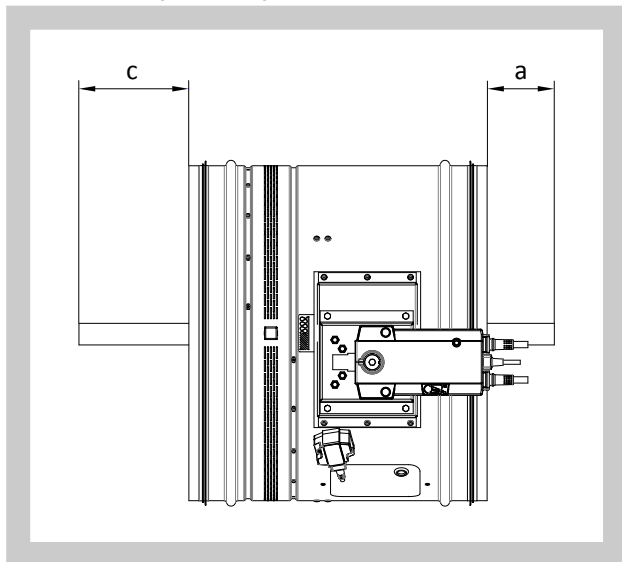


For dampers with installation holders is valid maximal built in edge

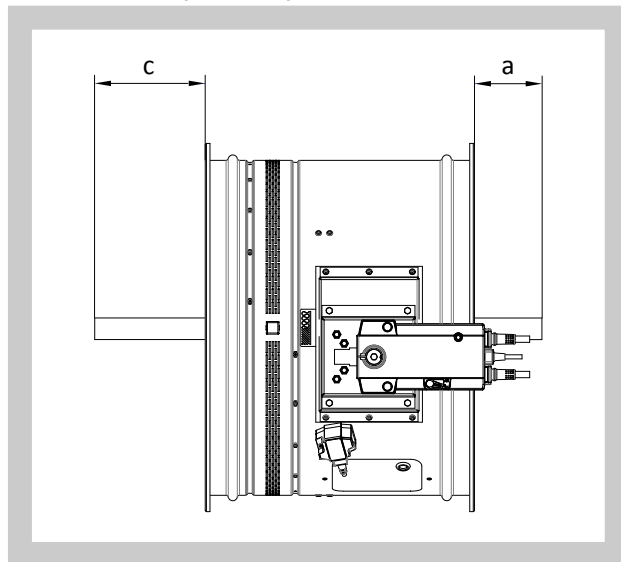
7. The damper body must not get deformed during its installation process. Once the damper is built installed, its blade must not grind on the damper body during its opening or closing.
8. To provide needed access space to the control device, all the other objects must be situated at least 350 mm away from the damper control parts. At least one inspection hole must be accessible.

9. Damper blade overlaps

SPIRO damper overlaps



FLANGE damper overlaps



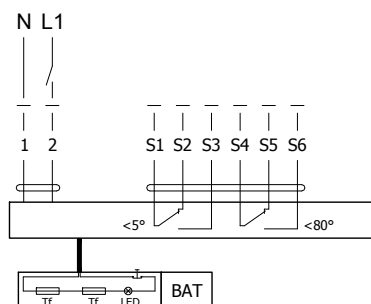
Damper blade overlaps

Nom.dimension øD [mm]	a [mm]	c [mm]
100	-	-
125	-	-
140	-	-
150	-	-
160	-	-
180	-	-
200	-	-
225	-	-
250	-	9
280	-	24
315	-	42
355	-	62
400	-	84
450	-	109
500	-	134
560	-	164
630	19	199
710	59	239
800	104	284

10. Wiring diagrams

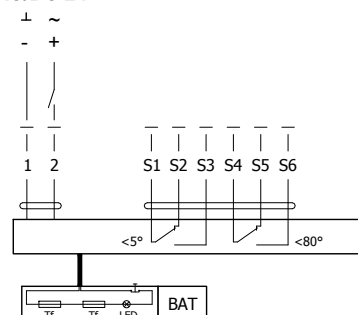
Actuator BELIMO BFL, BFN 230-T

AC230 V



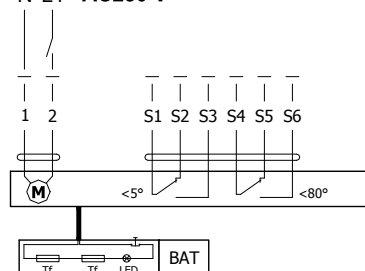
Actuator BELIMO BFL, BFN 24-T(-ST)

AC/DC 24

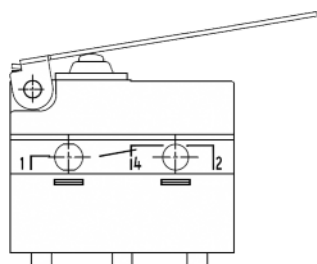


Actuator BELIMO BF 24-TN(-ST), BF 230-TN

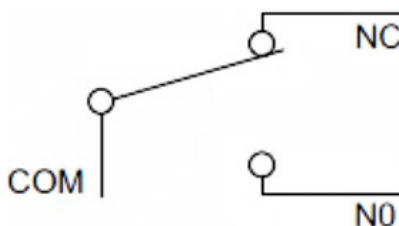
+ ~ AC 24 V
 - + DC 24 V
 N L1 AC230 V



Limit switch G905-300E03W1



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



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

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

- CUT-OFF if the arm is moving ... connect wire 1+2
- 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: Unscrew the pan head screws (2 pcs) and tilt remove the cover.

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

Check of the closing mechanism and thermal protective fuse

The mechanism operation is verified as follows:

The damper blade is turned to its "CLOSED" position as follows:

- The damper is in its "OPEN" position.
- By pressing the control mechanism button, you turn the damper into its "CLOSED" position.
- Check the damper blade adjustment in its "CLOSED" position.
- The closing must be strong, and the control lever and damper blade must be in their "CLOSED" positions.

The damper blade is turned to its "OPEN" position as follows:

- Rotate the control lever by 90°.
- The lever gets automatically locked in its "OPEN" position.
- Check the damper blade adjustment in its "OPEN" position.

The thermal fuse function and status get checked as follows:

- To check the thermal fuse function and status, it is possible to remove the whole mechanism from the fire damper body - the mechanism is attached to the damper body with four M6 screws.
- After the thermal fuse removal from its holder in the initiation device, check its proper operation.
- The mechanism size is marked M1 to M4 per the shutting spring force.

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. To stop the damper blade in any position, the actuator gets locked per the actuator instructions. Unlocking is done manually per the actuator instructions or by supply voltage restoration.

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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