

## SEDM-2D

### Multi compartment smoke control damper

Technical Documentation

Installation, Commissioning, Operation, Maintenance and Service Manual



These technical specifications state a type range of manufactured sizes and models of Multi compartment smoke control damper SEDM-2D. It is valid for production, designing, ordering, delivery, maintenance and operation.

# CONTENT

- I. GENERAL.....3
  - Description.....3
- II. DESIGN.....5
  - Hand-operated designs.....6
  - Grilles designs.....7
  - Electric parameters, wiring diagram.....10
- III. DAMPER CONTROL.....12
- IV. DIMENSIONS.....14
  - Technical parameters.....15
- V. INSTALLATION.....18
  - Placement and Installation.....18
  - Statement of installations.....19
  - Installation procedure.....20
    - Cable connection.....21
    - Shock absorber.....22
    - Installation frame.....22
    - Installation - shaft from concrete or aerated concrete.....25
    - Installation - shaft from fire-resistant panels.....27
- VI. TECHNICAL DATA.....29
  - Pressure loss.....29
- VII. MATERIAL, FINISHING.....30
- VIII. TRANSPORTATION, STORAGE AND WARRANTY.....30
  - Logistic terms.....30
  - Warranty.....30
- IX. ASSEMBLY, ATTENDANCE AND MAINTENANCE.....31
  - Commissioning and revisions.....31
- X. ORDERING INFORMATION.....31
  - Data label.....31
- X. ORDERING INFORMATIONS.....32
  - Ordering key.....32
  - Accessories.....33
  - Spare parts.....33

# I. GENERAL

## Description

Smoke control dampers SEDM-2D (hereinafter named also simply as „the dampers“) are intended to be used in multi compartment smoke control systems in vertical duct (shaft) installations.

In normal situation, the dampers remain closed (stand-by position). Upon an activation signal emitted either in the event of a fire, or during a functional test, the dampers of given compartments open in order to allow smoke and heat from the fire to be extracted outside the building. SEDM-2D dampers open to the inside of the duct. The dampers opened during functional testing may be put back to the stand-by (closed) position by hand.

The dampers consist of a two calcium-silicate blade reinforced by steel crossbeams hanged on spring-equipped hinges, combined calcium-silicate and galvanized steel body, a cold seal (silicon gasket) and a carbon based thermo-expanded hot seal, electrically activated restraint mechanism equipped by a permanent magnet with an electric coil, optional with end switches, and a metallic grille.

The dampers may be installed to the shaft directly using fire-resistant mastic, or using an optional installation frame.



### **SEDM-2D dampers are characterized by**

- Zero power consumption in stand-by position
- Instant opening and fast closing
- Small built-in dimensions
- Light design of high fire and pressure resistance
- Large effective area
- Room protected from moving parts
- Wide range of damper dimensions
- Wide range of colours available
- Easy installation also into thin shaftwall materials
- Availability of spare parts

**Specifications**

- Dimensions width B x height H
  - from 350x300 mm up to 1105 x 1105 mm by 5 mm
- Total depth of 90 mm (built-in depth 83 mm) without grille
- Grilles of 77% to 95% effective cross section available
- Opening and securing within 5 seconds
- Activation signal – pulse of length of 1 s min 24 V DC, or 48 V DC
- Degree of protection IP42 (electric part)
- In acc. with Regulation (EU) 305/2011 (CPR), EU Directive (EU) 2014/30/EU (EMC), Directive (EU) 2011/65/EU (RoHS)
- CE certification according to EN 12101-8
- Tested according to EN 1366-10
- Classified according to 13501-4
- Fire resistance cf. tab. bellow
- Pressure class 3 (underpressure 1500 Pa / overpressure 500 Pa)
- Closed blade tightness class 3 according to EN 1751
- Certificate of Constancy of Performance No. 1391-CPR-XXXX/XXXX
- Declaration of Performance No. PM/SEDM-2D/01/XX/X
- EU Declaration of Conformity No. PM/SEDM-2D/03/XX/X
- Certificate EMC SZÚ N. EMC-B-00933-23 (EMC), test report SZÚ No. 31-10777/1/IP (IP42)
- Efectis France Test report on fitness for use of mechanisms No. EFR-25-000237
- In accordance with NF 61.937-1 and NF 61.937-10

**Classification of Dampers**

Vertical duct (shaft) construction	Classification**
Concrete or aerated concrete of thickness min. 70 mm, with or without installation frame	EI 120 (v <sub>ed</sub> ) S1500[V]C <sub>300</sub> (N)AAmulti
Selected light smoke extraction duct panels of given thickness*, with or without installation frame	EI 120 (v <sub>ed</sub> ) S1500[V]C <sub>300</sub> (N)AAmulti, or EI 90 (v <sub>ed</sub> ) S1500[V]C <sub>300</sub> (N)AAmulti, or EI 60 (v <sub>ed</sub> ) S1500[V]C <sub>300</sub> (N)AAmulti, depending on panel material and thickness*.

\* → see page 19 for the variety of shaft panel materials and thicknesses and installation details with corresponding damper fire resistance class.

\*\* The classification applies only to the damper equipped with a grille.

**Operating conditions**

Both declared performance and faultless operation are ensured under the following conditions:

- The damper shall be equipped with a protection grille
- Maximum vacuum up to 1500 Pa or overpressure up to 500 Pa
- Rearming shall be carried out without air flow and without air pressure
- The dampers are suitable for vertical installation only
- Range of activation voltage shall be respected; dimensioning of voltage sources and of connecting cables shall fit the electrical parameters of the damper
- Connecting cables shall not physically impede free movement of moving parts and sub-assemblies
- Damper shall be always kept closed with the exception of short periods of installation, commissioning and functional tests
- Dampers are designed for macroclimatic areas with mild climate according to EN IEC 60 721-3-3 ed.2., class 3K22. (Environment 3K22 is typically protected place with regulated temperature) and with a temperature range of -25°C to 50°C

## II. DESIGN

Connecting cables shall be guided from a pre-punched hole in one of the corners of the damper frame to the junction box using delivered cable clips. The junction box contains a universal 10-position screw terminal. Damper supply voltage and terminal block positions are printed inside the junction box. Depending on the damper design configuration and connecting cables available, some terminal positions may stay void. Additional junction box with 6-position screw terminal is present for bipolar end-switch module.

The damper is equipped with a restraint mechanism keeping the damper closed. The restraint mechanism includes a permanent magnet combined with an electric coil with

magnetic poles opposite to those of the permanent magnet. In case of the activation of the damper, the coil magnetic field compensates the magnetic field of the magnet and thus, the restraint mechanism lets the damper open. The activation signal represents a simple switching the voltage ON. The damper may be equipped with position end-switch module with end-switches indicating the damper blade position open or closed. The damper is manufactured in hand-operated rearming design. Rearming means getting the damper blades from the position open (security) to the position closed (stand-by).

### SEDM-2D hand-operated design



## Hand-operated designs

### Design .24C0H

- Hand-operated rearming design with a magnet voltage of 24 V DC without end switches. This design is not in accordance with NF 61.937-1, and not in accordance with NF 61.937-10.

### Design .24C2H

- Hand-operated rearming design with a magnet voltage of 24 V DC and with two end switches signaling of the damper blade position "CLOSED" (STAND-BY) and "OPEN" (SECURITY).

### Design .24C4H

- Hand-operated rearming design with a magnet voltage of 24 V DC and with two pairs of end switches signaling of the damper blade position "CLOSED" (STAND-BY) and "OPEN" (SECURITY).

### Design .48C0H

- Hand-operated rearming design with a magnet voltage of 48 V DC without end switches. This design is not in accordance with NF 61.937-1, and not in accordance with NF 61.937-10.

### Design .48C2H

- Hand-operated rearming design with a magnet voltage of 48 V DC and with two end switches signaling of the damper blade position "CLOSED" (STAND-BY) and "OPEN" (SECURITY).

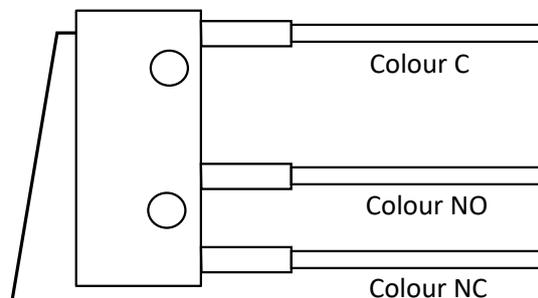
### Design .48C4H

- Hand-operated rearming design with a magnet voltage of 48 V DC and with two pairs of end switches signaling of the damper blade position "CLOSED" (STAND-BY) and "OPEN" (SECURITY).

### End switch module

- End switch module can be equipped with 2 end switches or with 2 pairs of end switches (both positions 2x) CLOSED, OPEN

### End switch G905-200S02D1



- Wiring diagram of end switches → see page 11

### End-switches

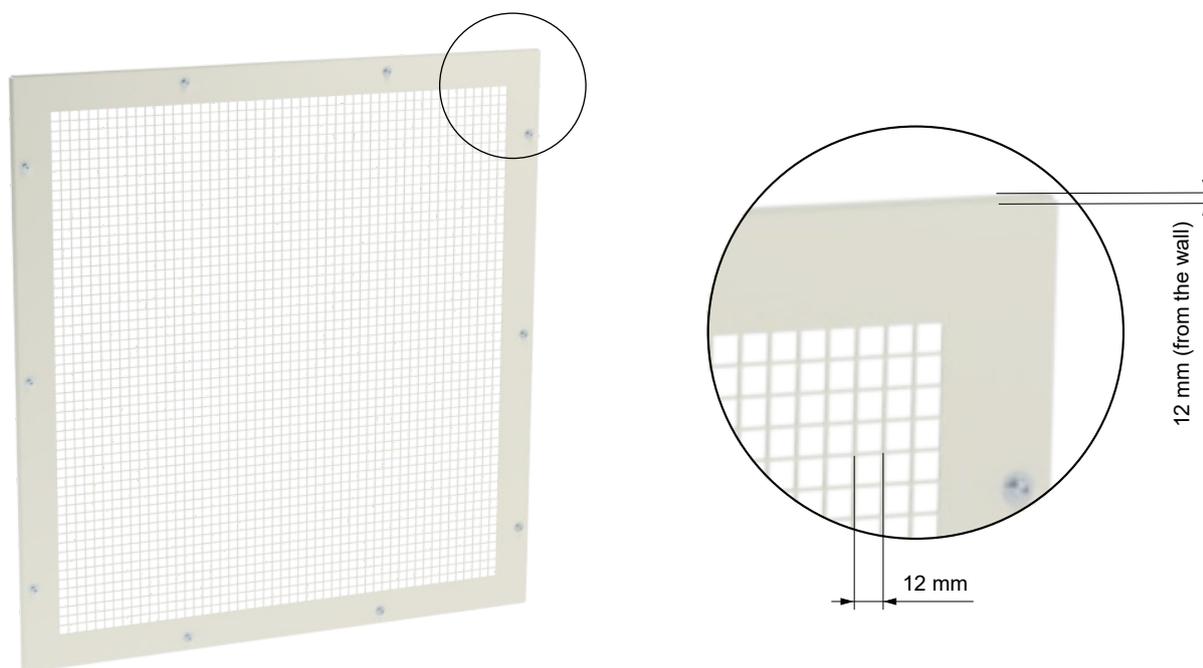
Type; configuration	G905; (C-NO-NC)
Voltage	≤ 60 V DC
Switchable DC current	> 0.5 A
Contact resistance	< 0.1 Ohm
Insulation voltage open contact	> 500 V
Cut-off power (DC)	> 10 W
Longevity – cycles	> 1000
Microswitch AC rating	230 V AC / 5 A
Microswitch degree of protection	IP67
Compliance	NF 61.937-1, NF 61.937-10

## Grilles designs

- The damper shall be equipped with a protection grille G1, G2, G3, G4, G5, G6 or GX.
- Grille G1 is not powder painted as standard. Can be powder painted, if specified in the ordering key.
- Grilles G2, G3, G4, G5, G6 are powder painted. If no colour is specified in the ordering key, the colour will be RAL 9010.
- GX grilles are other grilles that must be additionally reviewed and approved by a third-party. This must be discussed with Mandík company in advance. The review process is based on documentation exchange only.
- Allen screws M5 and washers are used for G1, G2, G4, G5 and G6 grilles.
- Allen screws M4, hexagon head screws M5 and washers are used for G3 grilles.
- Fasteners are delivered with the grille.
- Dimensions for mounting of grilles → see page 14

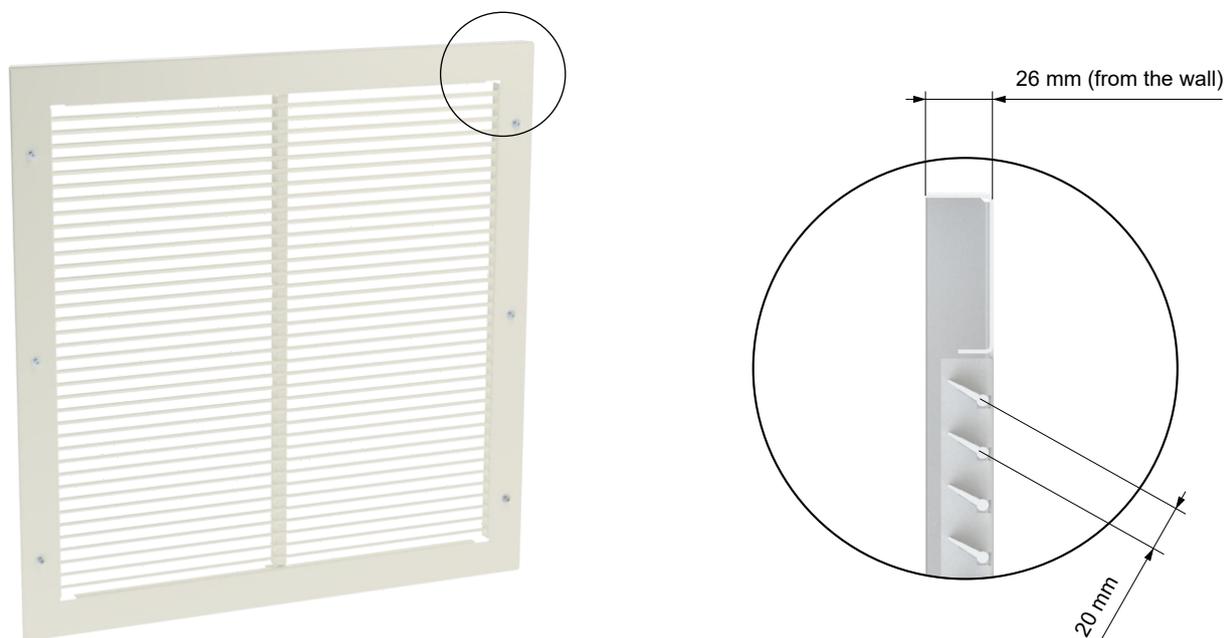
### Grille G1

- Simple, the lightest grille made of a punched 2 mm Al sheet, 77% effective area.



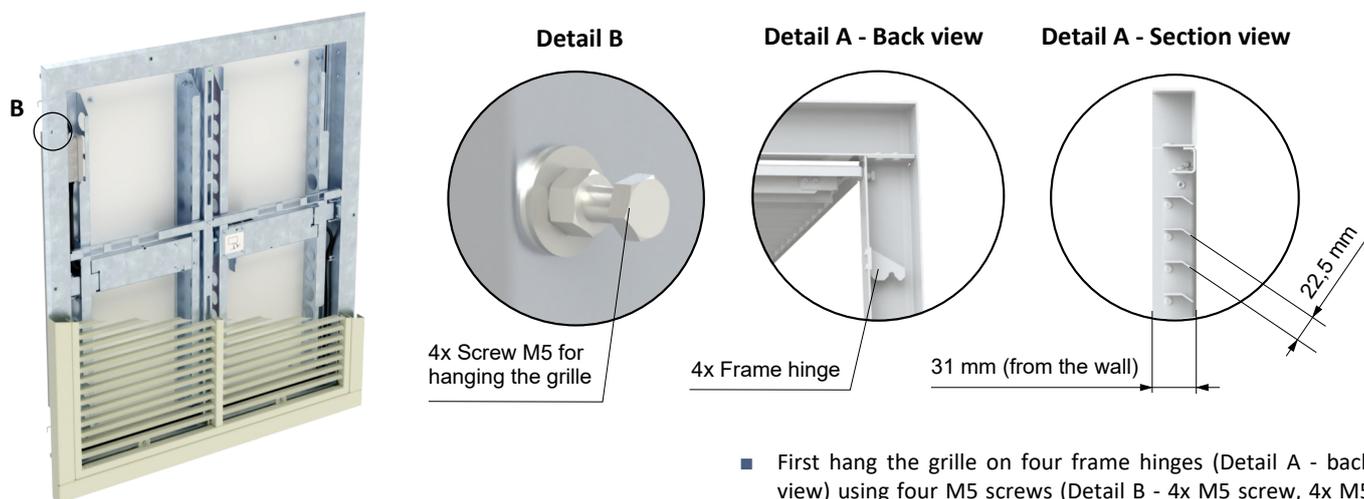
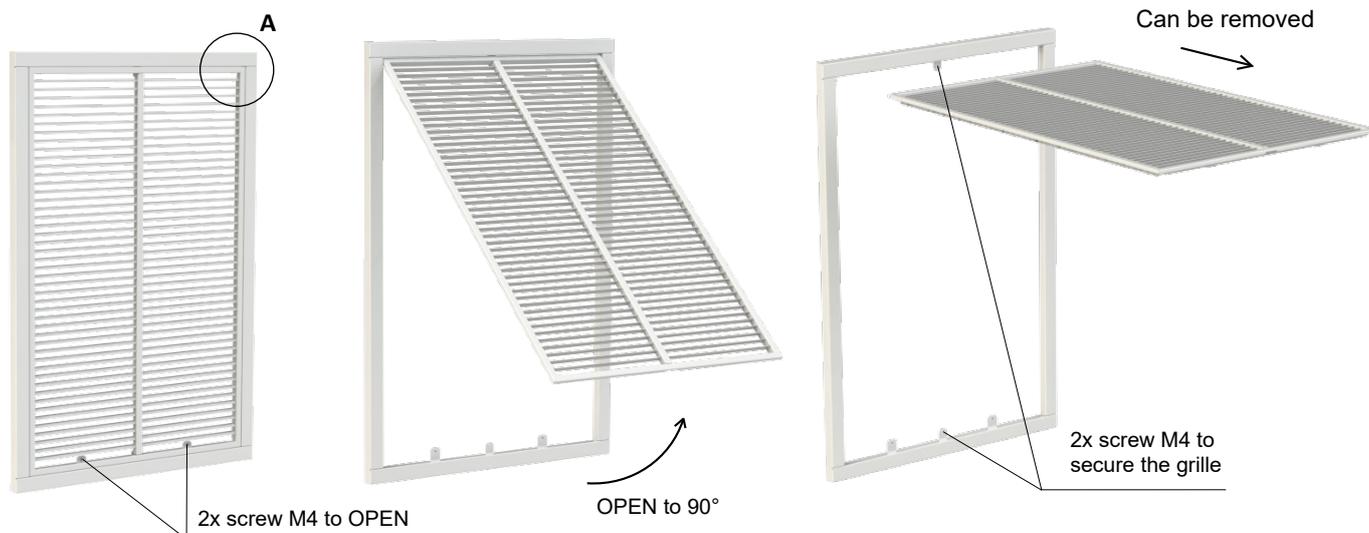
### Grille G2

- Design grille with aerodynamic profile louvers made of Al alloy, 77% effective area.



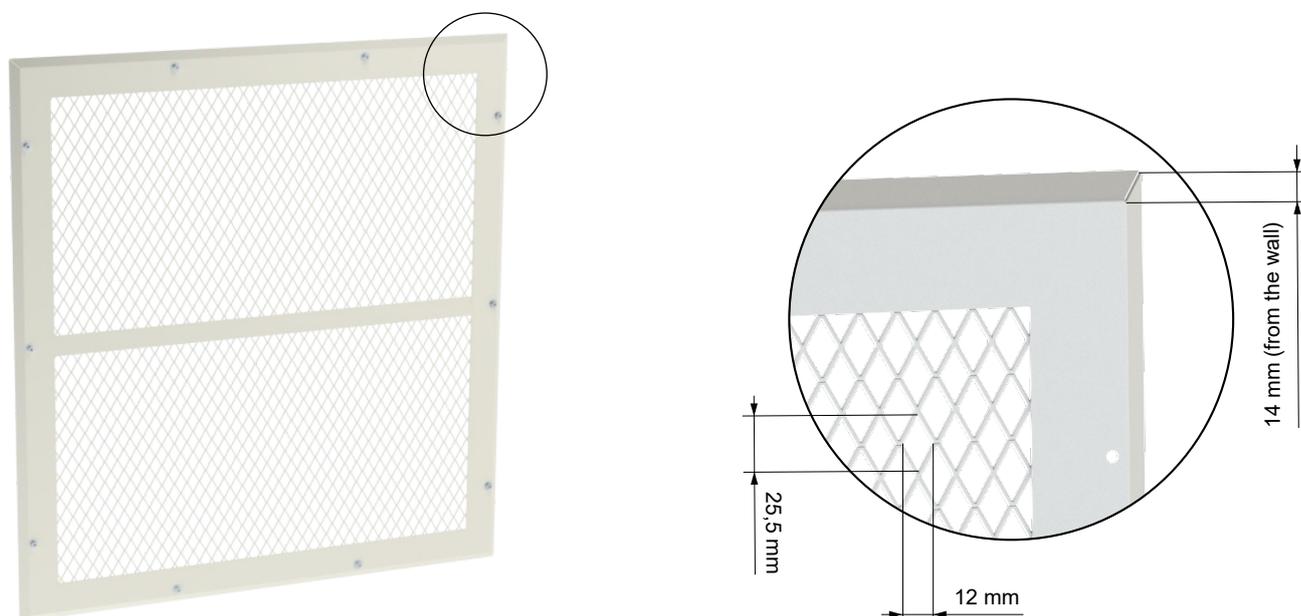
**Grille G3**

- Design grille with thin louvers made of Al sheet, no visible bolts, easy to open and close, 95% effective area.
- The movable central part of the grille can be easily removed from the grille frame completely, and then put back easily.



**Grille G4**

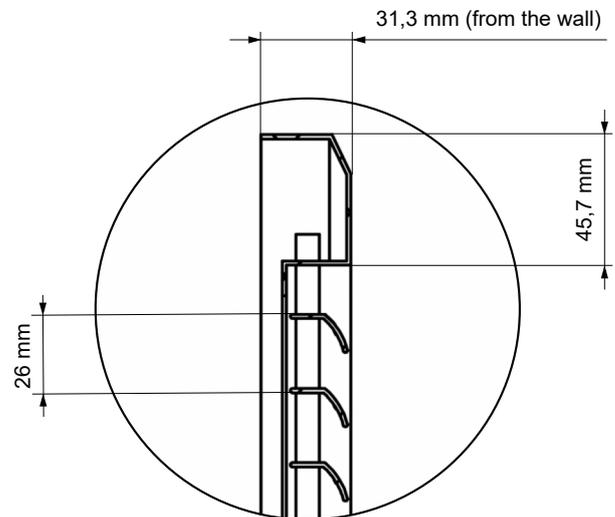
- Design grille made of steel (punched and drawn), 78% effective area.



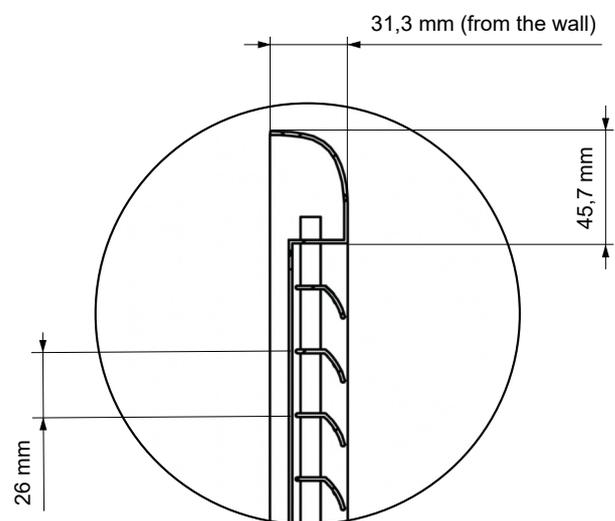
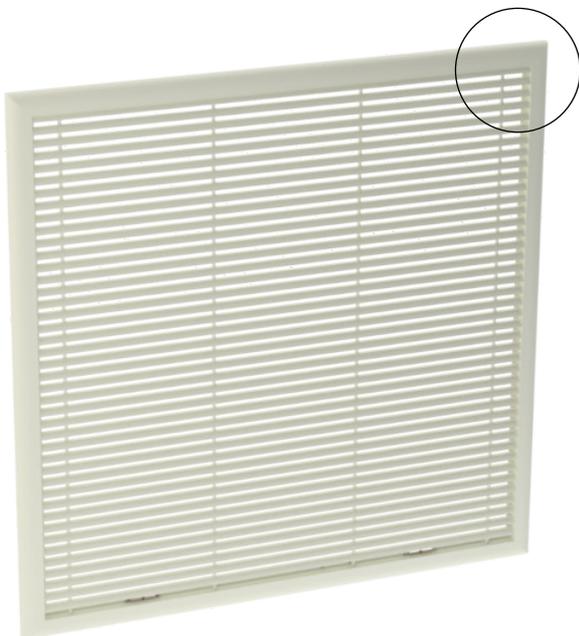
**Grille G5, G6**

- Design grille with aerodynamic profile and with hidden bolts louvers made of Al alloy
- These grilles are supplied on request from an external supplier. Contact the Mandík sales department.

**Grille G5**



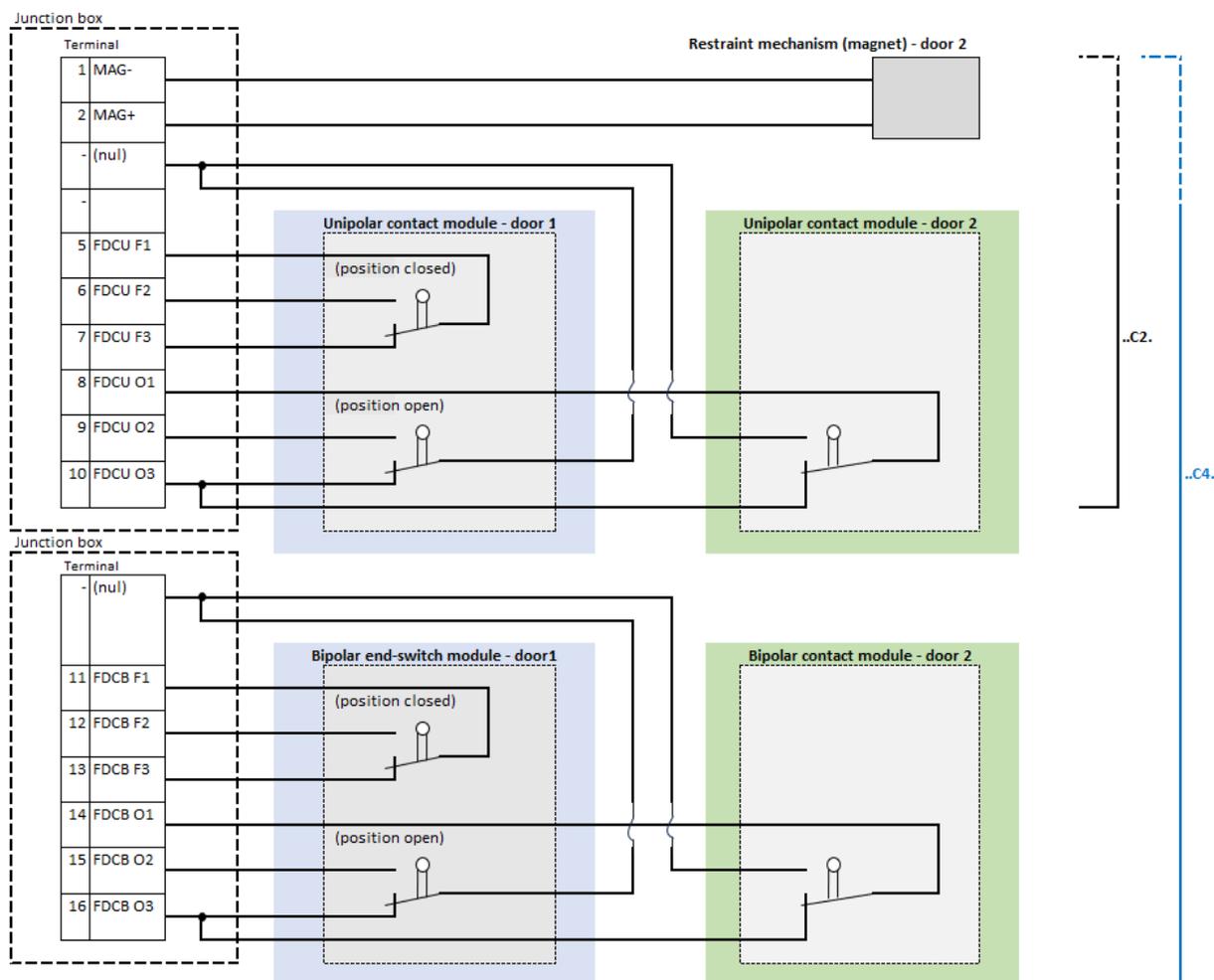
**Grille G6**





Terminal blocks and wires

1	black	MAG-	Magnet -
2	red	MAG+	Magnet +
3	-		
4	-		
5	blue	FC F1 (C)	End-switch position closed – input
6	brown	FC F2 (NO)	End-switch position closed – normally open
7	white	FC F3 (NC)	End-switch position closed – normally contact
8	violet	FC O1 (C)	End-switch position open – input
9	yellow	FC O2 (NO)	End-switch position open – normally open
10	green	FC O3 (NC)	End-switch position open – normally contact
-	-		
11	blue	FCB F1 (C)	End-switch position closed – input
12	brown	FCB F2 (NO)	End-switch position closed – normally open
13	white	FCB F3 (NC)	End-switch position closed – normally contact
14	violet	FCB O1 (C)	End-switch position open – input
15	yellow	FCB O2 (NO)	End-switch position open – normally open
16	green	FCB O3 (NC)	End-switch position open – normally contact



### III. DAMPER CONTROL

#### Stand-by mode

- In the stand-by mode (the damper is closed and waiting for the activation signal) the damper does not need any supply voltage and has zero energy consumption.

#### Activation

- In accordance with the harmonized Standard, the damper has no self-activation function [non-autocomandé]. The damper is remotely activated [télécommande] by voltage pulse [émission du courant].
- Switch ON the voltage of 24 V DC or 48 V DC, respectively, on MAG- and MAG+ for at least 1 second to activate the damper.

#### Rearming

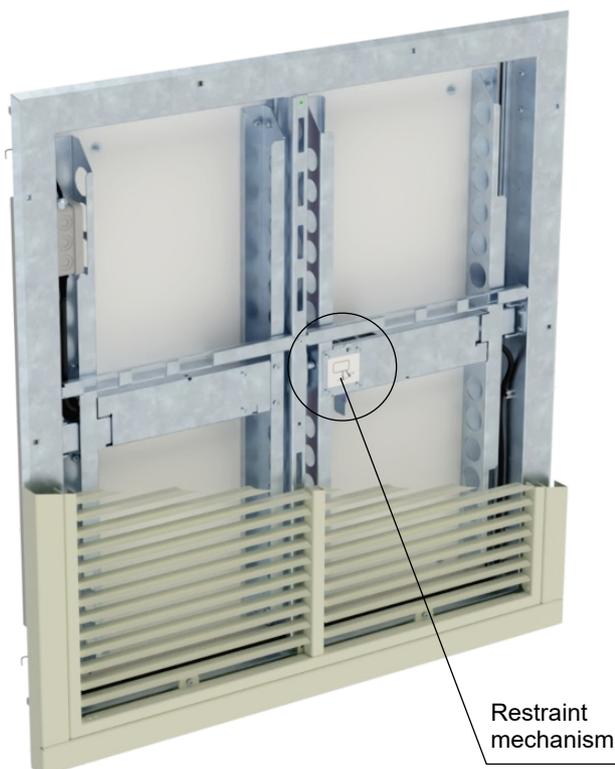
- Rearming means getting the damper back to the stand-by mode. The activation (magnet) voltage shall be safely switched off before starting the rearming process. Rearming should be carried out with the smoke extraction fan off for safety of persons and equipment.

#### Security position

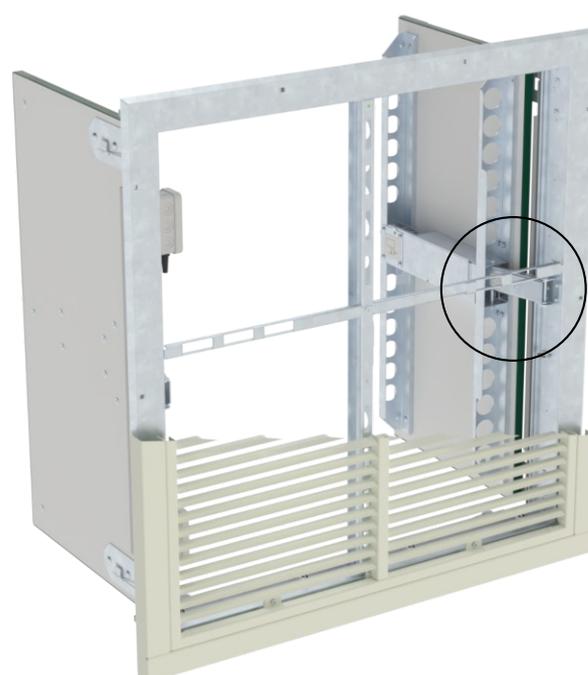
- In the security position (position open), the damper is ready to extract smoke and heat from the fire, even if all electric connections to the damper would be disconnected. The damper has zero energy consumption if the activation voltage (magnet) is switch off (recommendation).

- To test the damper during the commissioning (with the protection grille removed or open), the damper may be activated also by-hand, by pushing the handle of the restraint mechanism in the direction to the center of the damper, as indicated on the damper by an arrow.
- After the activation, the damper opens within 5 seconds (using energy stored in springs integrated into hinges) and secures automatically in the open (security) position.

Stand-by mode (damper is closed)



Security position (damper is open)



Restraint mechanism

### Rearming - hand-operated design

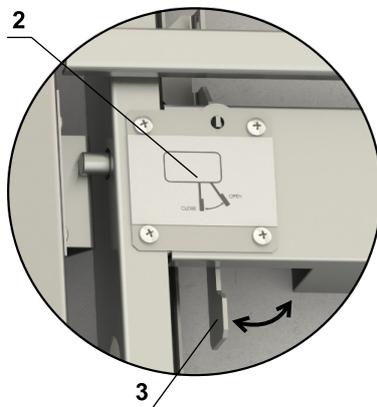
■ The process consists of 6 steps:

- 1) Removing or opening a protection grille
- 2) Release the damper from the open position by pushing a lever (1) marked with label PUSH
- 3) Getting the restraint mechanism (2) back to the stand-by mode by pushing its handle (3) as indicated by the arrow
- 4) Closing the damper completely
- 5) Making sure that the damper is well secured by an attempt to open the damper by pushing a blade
- 6) Installing or closing and securing the protection grille

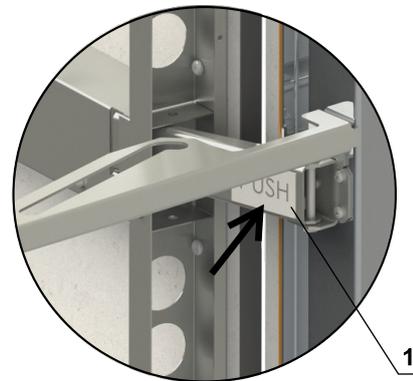
■ For larger dampers, it may be necessary to use both hands to rearm the damper and proceed in 7 steps:

- 1) Removing or opening a protection grille
- 2) Release the damper from the open position by pushing a lever (1) marked with label PUSH
- 3) Closing the damper half-way
- 4) Getting the restraint mechanism (2) back to the stand-by mode by pushing its handle (3) as indicated by the arrow
- 5) Closing the damper completely
- 6) Making sure that the damper is well secured by an attempt to open the damper by pushing the blade
- 7) Installing or closing and securing the protection grille

Stand-by mode (damper is closed)

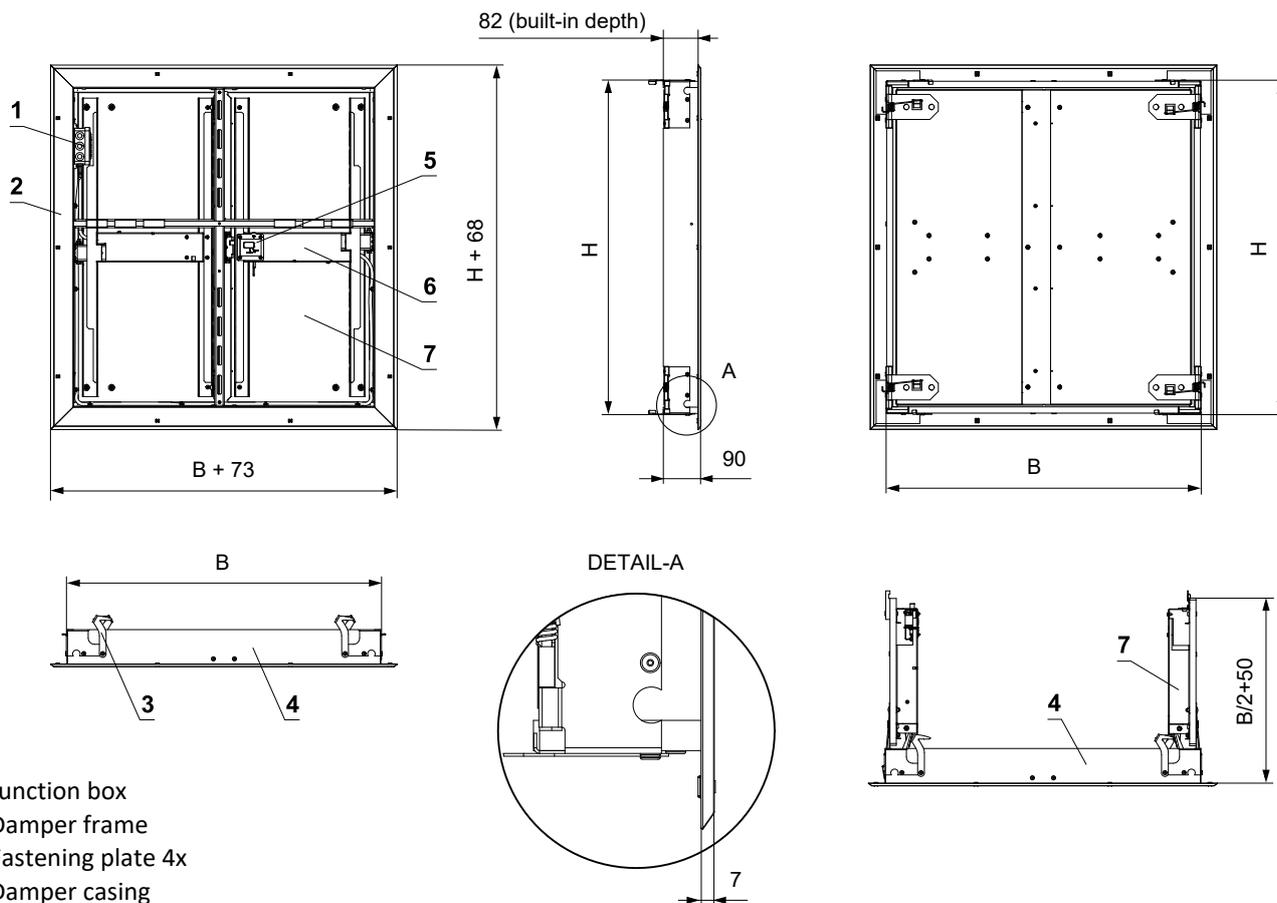


Security position (damper is open)



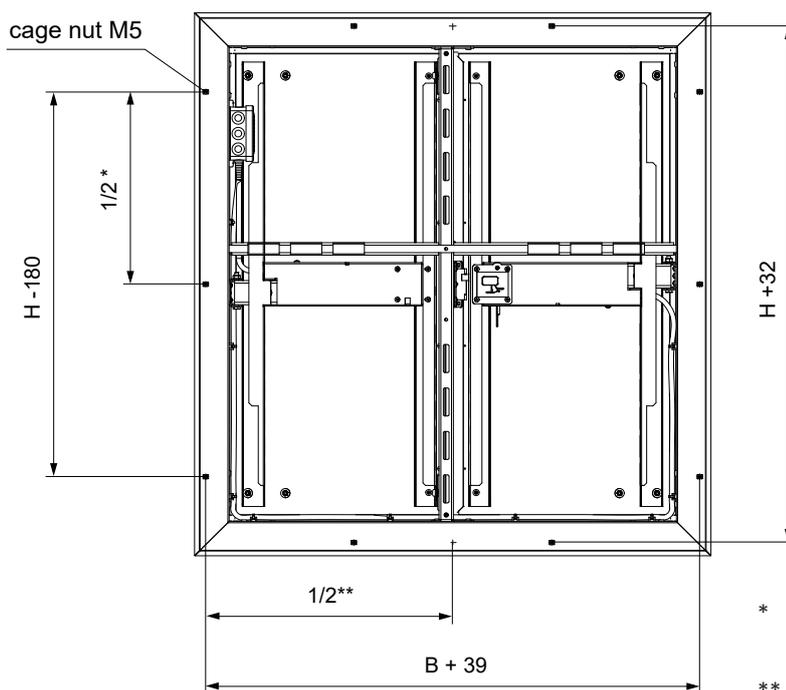
## IV. DIMENSIONS

### (Dimensions without grille)



- 1 Junction box
- 2 Damper frame
- 3 Fastening plate 4x
- 4 Damper casing
- 5 Restraint mechanism
- 6 End switch module (optional)
- 7 Damper blade

### (Dimensions for mounting of grilles)



\* For the side  $H \leq 600$  mm, there are only two cage nuts on this side.

\*\* For the side  $B < 700$  mm, there are only one cage nut on the side.

## Technical parameters

B x H [mm]	Free area S <sub>f</sub> [m <sup>2</sup> ]	Weight [kg]						Install. frame	B x H [mm]	Free area S <sub>f</sub> [m <sup>2</sup> ]	Weight [kg]						Install. frame	
		Damper *	G1 grille	G2 grille	G3 grille	G4 grille					Damper *	G1 grille	G2 grille	G3 grille	G4 grille			
350 x	300	0,0664	9,2	0,6	0,9	1,7	1,3	1,3	500 x	300	0,1030	11	0,8	1,2	1,9	1,6	1,5	
	350	0,0800	10,1	0,7	1	1,8	1,4	1,4		350	0,1241	12,1	0,8	1,3	2	1,7	1,6	1,6
	400	0,0936	10,9	0,7	1,2	1,9	1,5	1,4		400	0,1452	13,2	0,9	1,5	2,2	1,9	1,6	1,6
	450	0,1072	11,8	0,8	1,3	2	1,6	1,5		450	0,1663	14,2	0,9	1,6	2,3	2	1,7	1,7
	500	0,1208	12,6	0,8	1,4	2,2	1,7	1,6		500	0,1874	15,3	1	1,8	2,5	2,1	1,8	1,8
	550	0,1344	13,5	0,9	1,6	2,3	1,9	1,6		550	0,2085	16,4	1,1	2	2,6	2,3	1,8	1,8
	600	0,1480	14,7	0,9	1,7	2,5	2	1,7		600	0,2296	17,9	1,1	2,2	2,9	2,4	1,9	1,9
	650	0,1616	15,5	1	1,8	2,6	2,1	1,8		650	0,2507	18,9	1,2	2,3	3	2,5	2	2
	700	0,1752	16,4	1	1,9	2,8	2,2	1,8		700	0,2718	20	1,3	2,5	3,1	2,7	2,1	2,1
	750	0,1888	17,3	1,1	2	2,9	2,3	1,9		750	0,2929	21,2	1,3	2,6	3,3	2,8	2,1	2,1
	800	0,2024	18,2	1,2	2,2	3	2,4	2		800	0,3140	22,3	1,4	2,8	3,4	3	2,3	2,3
400 x	850	0,2160	19,1	1,2	2,3	3,1	2,6	2,1	850	0,3351	23,4	1,5	2,9	3,5	3,1	2,4	2,4	
	900	0,2296	20	1,3	2,4	3,2	2,7	2,2	900	0,3562	24,5	1,5	3,1	3,6	3,2	2,4	2,4	
	950	0,2432	20,9	1,3	2,5	3,3	2,8	2,3	950	0,3773	25,6	1,6	3,2	3,8	3,4	2,5	2,5	
	1000	0,2568	21,7	1,4	2,6	3,4	2,9	2,3	1000	0,3984	26,7	1,7	3,4	3,9	3,7	2,6	2,6	
	1050	0,2704	22,6	1,4	2,8	3,5	3	2,4	1050	0,4195	27,8	1,7	3,5	4	3,8	2,7	2,7	
	1105	0,2853	23,6	1,5	2,9	3,6	3,2	2,5	1105	0,4427	29	1,8	3,7	4,1	3,9	2,8	2,8	
	300	0,0786	9,8	0,6	1	1,8	1,4	1,4	300	0,1152	11,6	0,8	1,5	2	1,7	1,6	1,6	
	350	0,0947	10,8	0,7	1,1	1,9	1,5	1,4	350	0,1388	12,8	0,9	1,6	2,1	1,9	1,6	1,6	
	400	0,1108	11,7	0,8	1,3	2	1,6	1,5	400	0,1624	13,9	0,9	1,8	2,3	2	1,7	1,7	
	450	0,1269	12,6	0,8	1,4	2,1	1,8	1,6	450	0,1860	15,1	1	2	2,4	2,1	1,8	1,8	
	500	0,1430	13,5	0,9	1,5	2,3	1,9	1,6	500	0,2096	16,2	1,1	2,2	2,6	2,3	1,8	1,8	
550	0,1591	14,5	0,9	1,7	2,4	2	1,7	550	0,2332	17,4	1,1	2,4	2,7	2,4	1,9	1,9		
600	0,1752	15,7	1	1,9	2,6	2,1	1,8	600	0,2568	18,9	1,2	2,5	3	2,6	2	2		
650	0,1913	16,7	1,1	2	2,8	2,2	1,8	650	0,2804	20,1	1,3	2,7	3,1	2,7	2,1	2,1		
700	0,2074	17,6	1,1	2,1	2,9	2,4	1,9	700	0,3040	21,3	1,4	2,9	3,3	2,9	2,1	2,1		
750	0,2235	18,6	1,2	2,2	3	2,5	2	750	0,3276	22,5	1,4	3	3,4	3	2,2	2,2		
800	0,2396	19,6	1,2	2,4	3,1	2,6	2,1	800	0,3512	23,7	1,5	3,2	3,5	3,1	2,4	2,4		
850	0,2557	20,5	1,3	2,5	3,2	2,7	2,2	850	0,3748	24,8	1,6	3,3	3,7	3,3	2,5	2,5		
900	0,2718	21,5	1,4	2,6	3,3	2,8	2,3	900	0,3984	26	1,6	3,5	3,8	3,6	2,5	2,5		
950	0,2879	22,5	1,4	2,8	3,5	3	2,4	950	0,4220	27,2	1,7	3,7	3,9	3,7	2,6	2,6		
1000	0,3040	23,4	1,5	2,9	3,6	3,1	2,4	1000	0,4456	28,4	1,8	3,9	4	3,9	2,7	2,7		
1050	0,3201	24,4	1,5	3	3,7	3,2	2,5	1050	0,4692	29,6	1,8	4	4,2	4	2,7	2,7		
1105	0,3378	25,4	1,6	3,2	3,8	3,4	2,6	1105	0,4951	30,8	1,9	4,2	4,3	4,2	2,8	2,8		
450 x	300	0,0908	8,5	0,7	1,1	1,8	1,5	1,4	300	0,1274	12,2	0,9	1,6	2,1	1,8	1,6	1,6	
	350	0,1094	11,4	0,8	1,2	1,9	1,6	1,5	350	0,1535	13,2	0,9	1,7	2,2	2	1,7	1,7	
	400	0,1280	12,4	0,8	1,4	2,1	1,8	1,6	400	0,1796	14,2	1	1,9	2,3	2,1	1,8	1,8	
	450	0,1466	13,4	0,9	1,5	2,2	1,9	1,6	450	0,2057	15,2	1,1	2,1	2,5	2,3	1,8	1,8	
	500	0,1652	14,4	0,9	1,7	2,4	2	1,7	500	0,2318	16,2	1,1	2,3	2,7	2,4	1,9	1,9	
	550	0,1838	15,4	1	1,9	2,5	2,1	1,8	550	0,2579	17,2	1,2	2,5	2,8	2,6	2	2	
	600	0,2024	16,8	1,1	2	2,8	2,3	1,8	600	0,2840	18,7	1,3	2,7	3,1	2,7	2,2	2,2	
	650	0,2210	17,8	1,1	2,1	2,9	2,4	1,9	650	0,3101	19,7	1,4	2,9	3,3	2,9	2,3	2,3	
	700	0,2396	18,8	1,2	2,3	3	2,5	2	700	0,3362	20,7	1,4	3,1	3,4	3	2,3	2,3	
	750	0,2582	19,9	1,3	2,4	3,1	2,6	2,1	750	0,3623	21,8	1,5	3,2	3,5	3,2	2,4	2,4	
	800	0,2768	20,9	1,3	2,6	3,2	2,8	2,2	800	0,3884	22,8	1,6	3,4	3,7	3,3	2,6	2,6	
850	0,2954	22	1,4	2,7	3,4	2,9	2,3	850	0,4145	23,8	1,7	3,6	3,8	3,7	2,7	2,7		
900	0,3140	23	1,4	2,9	3,5	3,1	2,4	900	0,4406	24,9	1,7	3,8	4	3,8	2,7	2,7		
950	0,3326	24	1,5	3,0	3,6	3,2	2,4	950	0,4667	26	1,8	3,9	4,1	4	2,8	2,8		
1000	0,3512	25,1	1,6	3,2	3,7	3,3	2,5	1000	0,4928	27	1,9	4,1	4,2	4,1	2,9	2,9		
1050	0,3698	26,1	1,6	3,3	3,9	3,4	2,6	1050	0,5189	28	1,9	4,3	4,4	4,2	2,9	2,9		
1105	0,3902	27,2	1,7	3,4	4	3,7	2,7	1105	0,5450	29,1	2	4,5	4,5	4,4	3	3		

Sizes in increments of 5 mm can be manufactured on request.

\* For designs with end switch module a weight of 0,17 kg must be added.

B x H [mm]	Free area S <sub>f</sub> [m <sup>2</sup> ]	Weight [kg]						Install. frame	B x H [mm]	Free area S <sub>f</sub> [m <sup>2</sup> ]	Weight [kg]						Install. frame
		Damper *	G1 grille	G2 grille	G3 grille	G4 grille					Damper *	G1 grille	G2 grille	G3 grille	G4 grille		
650 x	300	0,1396	12,8	0,9	1,7	2,1	1,9	1,7	800 x	300	0,1762	14,4	1,1	2,1	2,9	2,2	2
	350	0,1682	13,8	1	1,8	2,3	2,1	1,8		350	0,2123	15,6	1,2	2,2	3	2,4	2
	400	0,1968	14,9	1,1	2	2,4	2,2	1,8		400	0,2484	16,8	1,2	2,4	3,1	2,6	2,1
	450	0,2254	15,9	1,1	2,2	2,6	2,4	1,9		450	0,2845	18	1,3	2,6	3,2	2,8	2,2
	500	0,2540	17,0	1,2	2,4	2,8	2,5	2		500	0,3206	19,2	1,4	2,8	3,4	3	2,3
	550	0,2826	18,0	1,3	2,6	2,9	2,7	2,1		550	0,3567	20,4	1,5	3,2	3,5	3,1	2,4
	600	0,3112	19,5	1,4	2,9	3,2	2,9	2,3		600	0,3928	22,1	1,6	3,4	3,7	3,3	2,6
	650	0,3398	20,6	1,4	3	3,4	3	2,3		650	0,4289	23,3	1,7	3,6	3,8	3,7	2,7
	700	0,3684	21,6	1,5	3,2	3,5	3,2	2,4		700	0,4650	24,5	1,7	3,8	3,9	3,9	2,8
	750	0,3970	22,8	1,6	3,4	3,7	3,3	2,5		750	0,5011	25,8	1,8	4	4,1	4,1	2,9
	800	0,4256	23,9	1,7	3,6	3,8	3,7	2,7		800	0,5372	27	1,9	4,3	4,2	4,3	3
	850	0,4542	24,9	1,7	3,8	4	3,9	2,7		850	0,5733	28,2	2	4,4	4,4	4,4	3,1
	900	0,4828	26,0	1,8	4	4,1	4	2,8		900	0,6094	29,4	2,1	4,7	4,6	4,6	3,2
	950	0,5114	27,1	1,9	4,1	4,2	4,2	2,9		950	0,6455	30,7	2,2	4,9	4,7	4,8	3,3
1000	0,5400	28,2	2	4,4	4,4	4,3	3	1000	0,6816	31,9	2,3	5,1	4,9	4,9	3,4		
1050	0,5686	29,3	2	4,5	4,6	4,5	3	1050	0,7177	33,1	2,3	5,3	5,1	5,1	3,5		
1105	0,6000	30,4	2,1	4,7	4,7	4,6	3,1	1105	0,7574	34,4	2,4	5,6	5,3	5,3	3,6		
700 x	300	0,1518	13,3	1	1,8	2,2	2,1	1,8	850 x	300	0,1884	15	1,1	2,2	3	2,4	2,1
	350	0,1829	14,4	1	1,9	2,4	2,2	1,8		350	0,2270	16,2	1,2	2,3	3,1	2,6	2,1
	400	0,2140	15,5	1,1	2,2	2,5	2,4	1,9		400	0,2656	17,5	1,3	2,5	3,2	2,7	2,2
	450	0,2451	16,6	1,2	2,3	2,7	2,5	2		450	0,3042	18,7	1,4	2,7	3,4	2,9	2,3
	500	0,2762	17,7	1,3	2,6	2,9	2,7	2,1		500	0,3428	20	1,5	2,9	3,5	3,1	2,4
	550	0,3073	18,8	1,4	2,8	3	2,9	2,1		550	0,3814	21,2	1,6	3,3	3,7	3,3	2,5
	600	0,3384	20,4	1,4	3	3,4	3	2,3		600	0,4200	22,9	1,7	3,6	3,8	3,7	2,7
	650	0,3695	21,5	1,5	3,2	3,5	3,2	2,4		650	0,4586	24,2	1,7	3,8	4	3,9	2,7
	700	0,4006	22,6	1,6	3,4	3,7	3,6	2,5		700	0,4972	25,4	1,8	4	4,1	4	2,8
	750	0,4317	23,8	1,7	3,6	3,8	3,7	2,5		750	0,5358	26,8	1,9	4,1	4,2	4,3	2,9
	800	0,4628	24,9	1,7	3,8	3,9	3,9	2,7		800	0,5744	28	2	4,4	4,4	4,4	3
	850	0,4939	26,0	1,8	4	4,1	4	2,8		850	0,6130	29,3	2,1	4,6	4,6	4,6	3,1
	900	0,5250	27,1	1,9	4,2	4,3	4,2	2,9		900	0,6516	30,5	2,2	4,9	4,7	4,8	3,2
	950	0,5561	28,3	2	4,4	4,4	4,4	3		950	0,6902	31,9	2,3	5,1	4,9	5	3,3
1000	0,5872	29,4	2,1	4,6	4,6	4,5	3	1000	0,7288	33,1	2,4	5,4	5,1	5,2	3,4		
1050	0,6183	30,5	2,1	4,8	4,7	4,7	3,1	1050	0,7674	34,4	2,5	5,6	5,3	5,3	3,5		
1105	0,6525	31,7	2,2	5	4,9	4,8	3,2	1105	0,8098	35,7	2,5	5,8	5,4	5,5	3,6		
750 x	300	0,1640	13,9	1	1,9	2,8	2,1	1,8	900 x	300	0,2006	15,3	1,2	2,3	3,1	2,5	2,1
	350	0,1976	15,0	1,1	2	2,9	2,3	1,9		350	0,2417	16,6	1,3	2,4	3,2	2,7	2,2
	400	0,2312	16,2	1,2	2,2	3	2,5	2		400	0,2828	17,9	1,4	2,6	3,3	2,8	2,3
	450	0,2648	17,3	1,2	2,4	3,1	2,6	2,1		450	0,3239	19,2	1,4	2,9	3,5	3,1	2,4
	500	0,2984	18,5	1,3	2,6	3,3	2,8	2,1		500	0,3650	20,5	1,5	3,1	3,6	3,2	2,4
	550	0,3320	19,6	1,4	3	3,4	3	2,2		550	0,4061	21,7	1,6	3,5	3,8	3,6	2,5
	600	0,3656	21,2	1,5	3,2	3,5	3,2	2,4		600	0,4472	23,5	1,7	3,8	4	3,8	2,7
	650	0,3992	22,4	1,6	3,4	3,7	3,3	2,5		650	0,4883	24,8	1,8	4	4,1	4	2,8
	700	0,4328	23,6	1,7	3,6	3,8	3,7	2,5		700	0,5294	26,1	1,9	4,2	4,3	4,2	2,9
	750	0,4664	24,8	1,8	3,8	3,9	3,9	2,6		750	0,5705	27,5	2	4,6	4,4	4,5	3
	800	0,5000	26,0	1,8	4	4,1	4,1	2,8		800	0,6116	28,8	2,1	4,9	4,5	4,6	3,1
	850	0,5336	27,1	1,9	4,2	4,3	4,2	2,9		850	0,6527	30,1	2,2	5,1	4,7	4,8	3,2
	900	0,5672	28,3	2	4,4	4,4	4,4	3		900	0,6938	31,4	2,3	5,4	4,9	5	3,3
	950	0,6008	29,5	2,1	4,6	4,6	4,6	3,1		950	0,7349	32,8	2,4	5,6	5,1	5,2	3,4
1000	0,6344	30,7	2,2	4,9	4,7	4,7	3,2	1000	0,7760	34,1	2,5	5,9	5,2	5,4	3,5		
1050	0,6680	31,8	2,2	5	4,9	4,9	3,3	1050	0,8171	35,4	2,6	6,1	5,5	5,5	3,6		
1105	0,7049	33,1	2,3	5,3	5,1	5,1	3,4	1105	0,8623	36,8	2,6	6,4	5,6	5,7	3,7		

Sizes in increments of 5 mm can be manufactured on request.

\* For designs with end switch module a weight of 0,17 kg must be added.

B x H [mm]	Free area S <sub>f</sub> [m <sup>2</sup> ]	Weight [kg]						Install. frame	B x H [mm]	Free area S <sub>f</sub> [m <sup>2</sup> ]	Weight [kg]						Install. frame
		Damper *	G1 grille	G2 grille	G3 grille	G4 grille					Damper *	G1 grille	G2 grille	G3 grille	G4 grille		
950 x	300	0,2128	15,9	1,2	2,3	3,2	2,7	2,2	1050 x	300	0,2372	16,9	1,3	2,6	3,4	2,8	2,3
	350	0,2564	17,2	1,3	2,5	3,3	2,8	2,3		350	0,2858	18,4	1,4	2,8	3,5	3	2,4
	400	0,3000	18,5	1,4	2,8	3,5	3	2,4		400	0,3344	19,8	1,5	3	3,7	3,2	2,5
	450	0,3436	19,9	1,5	3	3,6	3,2	2,4		450	0,3830	21,2	1,6	3,3	3,9	3,4	2,6
	500	0,3872	21,2	1,6	3,2	3,8	3,4	2,5		500	0,4316	22,6	1,7	3,5	4	3,8	2,7
	550	0,4308	22,5	1,7	3,7	3,9	3,7	2,6		550	0,4802	24	1,8	4	4,2	4	2,7
	600	0,4744	24,4	1,8	3,9	4,1	4	2,8		600	0,5288	26,1	1,9	4,3	4,4	4,2	2,9
	650	0,5180	25,7	1,9	4,1	4,2	4,2	2,9		650	0,5774	27,5	2	4,5	4,6	4,5	3
	700	0,5616	27,1	2	4,4	4,4	4,4	3		700	0,6260	28,9	2,1	4,8	4,7	4,7	3,1
	750	0,6052	28,5	2,1	4,8	4,6	4,6	3,1		750	0,6746	30,5	2,2	5,2	4,9	5	3,2
	800	0,6488	29,9	2,2	5,1	4,8	4,8	3,2		800	0,7232	31,9	2,3	5,6	5,1	5,2	3,3
850	0,6924	31,2	2,3	5,3	5	5	3,3	850	0,7718	33,3	2,5	5,8	5,4	5,4	3,4		
900	0,7360	32,5	2,4	5,6	5,2	5,2	3,4	900	0,8204	34,8	2,6	6,1	5,5	5,6	3,5		
950	0,7796	34	2,5	5,8	5,4	5,4	3,5	950	0,8690	36,3	2,7	6,4	5,7	5,8	3,6		
1000	0,8232	35,3	2,6	6,1	5,6	5,6	3,6	1000	0,9176	37,7	2,8	6,7	5,9	6	3,7		
1050	0,8668	36,7	2,7	6,3	5,8	5,8	3,7	1050	0,9662	39,2	2,9	6,9	6,2	6,2	3,8		
1105	0,9147	38,1	2,8	6,6	6	5,9	3,8	1105	1,0148	40,7	3	7,2	6,4	6,4	3,9		
1000 x	300	0,2250	16,4	1,3	2,5	3,3	2,7	2,3	1105 x	300	0,2506	17,5	1,4	2,7	3,4	3	2,4
	350	0,2711	17,8	1,4	2,6	3,4	2,9	2,3		350	0,3019	19	1,5	2,9	3,6	3,2	2,5
	400	0,3172	19,1	1,5	2,9	3,6	3,1	2,4		400	0,3533	20,4	1,6	3,2	3,8	3,4	2,6
	450	0,3633	20,5	1,6	3,2	3,7	3,3	2,5		450	0,4046	21,9	1,7	3,4	4	3,7	2,7
	500	0,4094	21,9	1,7	3,4	3,9	3,7	2,6		500	0,4560	23,4	1,8	3,7	4,1	3,9	2,8
	550	0,4555	23,3	1,8	3,9	4	3,9	2,7		550	0,5073	24,8	1,9	4,2	4,3	4,2	2,8
	600	0,5016	25,2	1,9	4,1	4,2	4,1	2,9		600	0,5587	26,9	2	4,5	4,5	4,4	3
	650	0,5477	26,6	2	4,4	4,4	4,3	3		650	0,6100	28,4	2,1	4,7	4,7	4,6	3,1
	700	0,5938	28	2,1	4,6	4,6	4,5	3		700	0,6614	29,9	2,2	5	4,9	4,8	3,2
	750	0,6399	29,5	2,2	5	4,8	4,8	3,1		750	0,7127	31,4	2,3	5,4	5	5,2	3,3
	800	0,6860	30,8	2,3	5,3	5	5	3,2		800	0,7641	32,9	2,4	5,7	5,2	5,4	3,4
850	0,7321	32,2	2,4	5,5	5,2	5,2	3,3	850	0,8154	34,4	2,5	6	5,5	5,6	3,5		
900	0,7782	33,6	2,5	5,8	5,4	5,4	3,4	900	0,8668	35,9	2,6	6,3	5,7	5,8	3,6		
950	0,8243	35,1	2,6	6	5,6	5,6	3,5	950	0,9181	37,4	2,8	6,6	5,9	6	3,7		
1000	0,8704	36,5	2,7	6,3	5,8	5,8	3,6	1000	0,9695	38,9	2,9	6,9	6,1	6,2	3,8		
1050	0,9165	37,9	2,8	6,6	6	6	3,7	1050	1,0208	40,4	3	7,2	6,4	6,4	3,9		
1105	0,9672	39,4	2,9	6,9	6,2	6,2	3,8	1105	1,0773	42	3,1	7,5	6,6	6,6	4		

Sizes in increments of 5 mm can be manufactured on request.

\* For designs with end switch module a weight of 0,17 kg must be added.

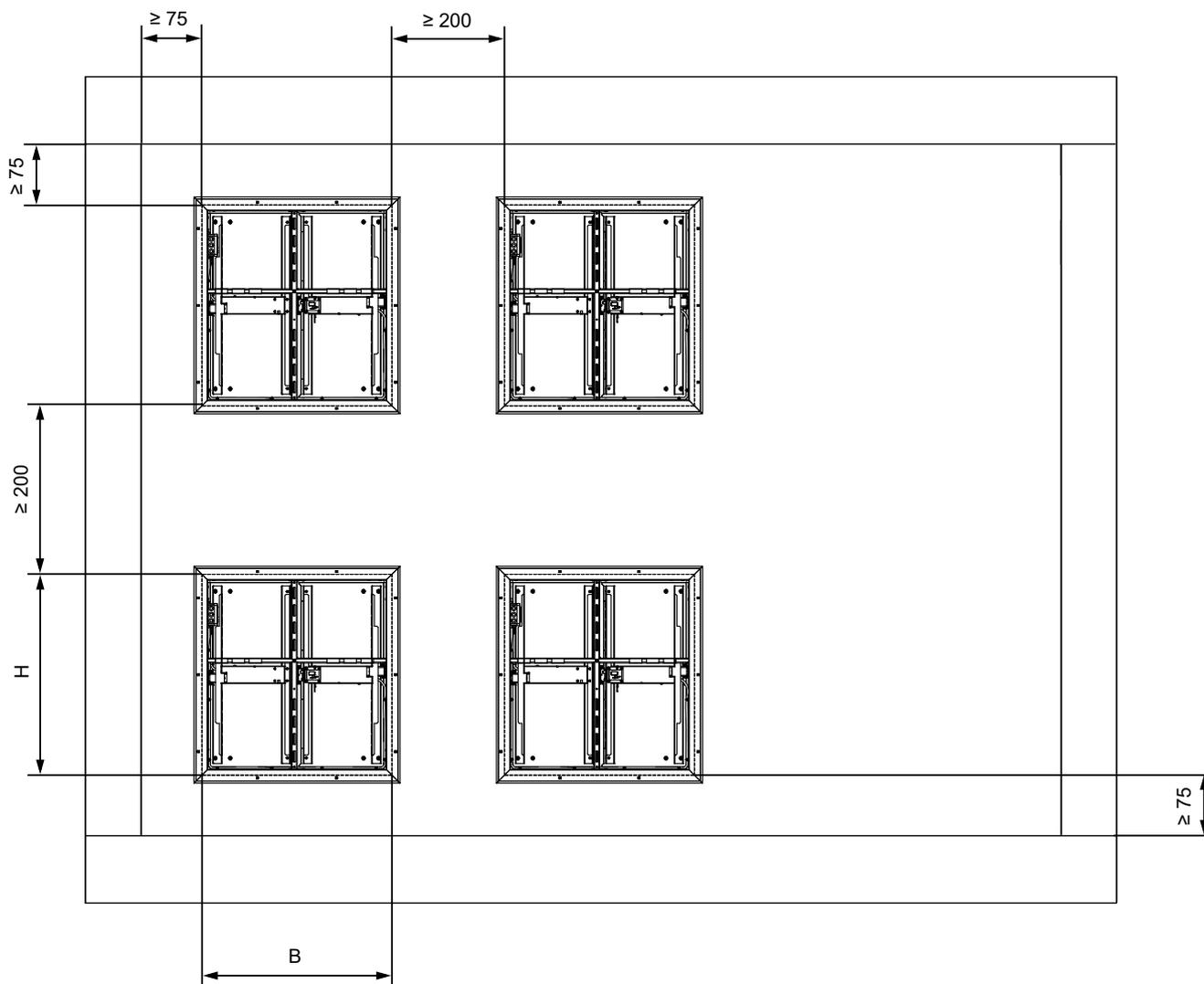
## V. INSTALLATION

### Placement and Installation

- The dampers are suitable for vertical installation only. Damper installation procedures must be done so that all load transfer from the construction to the damper is absolutely excluded. The gap between the installed damper and the construction, or between the installation frame and the construction must be perfectly filled with approved material.
- Once the damper is built in, the damper blade should not grind against the damper casing during opening or closing.
- The distance between the damper and the construction must be 75 mm at the minimum, according to EN 1366-10. If two or more dampers are to be installed in one construction, the distance between adjacent dampers must be 200 mm at the minimum, according to EN 1366-10.

#### Minimum distance between dampers and the construction

- minimum distance 200 mm between dampers, according to EN 1366-10
- minimum distance 75 mm between the damper and the construction, according to EN 1366-10



## Statement of installations

Installation	shaft wall min. thickness [mm]	Filling the gap between the damper and a shaft wall	Fire resistance	Page
Shaft from concrete or aerated concrete	70	Mastic	EI 120 (v <sub>ed</sub> ) S1500[V]C <sub>300</sub> (N)AAmulti	25
		Installation frame - mastic		26
Shaft from fire-resistant panels				
<ul style="list-style-type: none"> <li>– specific weight min 500 kg/m</li> <li>– shaft wall thickness min. 30 mm while respecting shaft wall thickness in accordance with the given duct fire resistance class* for the given pressure; e.g.: <ul style="list-style-type: none"> <li>• 50 mm PROMATECT L 500</li> <li>• 45 mm THERMAX SL (Tecniver)</li> <li>• 45 mm GEOTEC S</li> <li>• 45 mm GEOFLAM F</li> <li>• 35 mm GEOFLAM F Light</li> </ul> </li> </ul>		Mastic	EI 120 (v <sub>ed</sub> ) S1500[V]C <sub>300</sub> (N)AAmulti	27
		Installation frame - mastic		28
Shaft from fire-resistant panels				
<ul style="list-style-type: none"> <li>– specific weight min 500 kg/m</li> <li>– shaft wall thickness min. 30 mm while respecting shaft wall thickness in accordance with the given duct fire resistance class* for the given pressure; e.g.: <ul style="list-style-type: none"> <li>• 40 mm PROMATECT L 500</li> <li>• 45 mm THERMAX SL (Tecniver)</li> <li>• 45 mm GEOTEC S</li> <li>• 35 mm GEOFLAM F</li> <li>• 35 mm GEOFLAM F Light</li> </ul> </li> </ul>		Mastic	EI 90 (v <sub>ed</sub> ) S1500[V]C <sub>300</sub> (N)AAmulti	27
		Installation frame - mastic		28
Shaft from fire-resistant panels				
<ul style="list-style-type: none"> <li>– specific weight min 500 kg/m</li> <li>– shaft wall thickness min. 30 mm while respecting shaft wall thickness in accordance with the given duct fire resistance class* for the given pressure; e.g.: <ul style="list-style-type: none"> <li>• 30 mm PROMATECT L 500</li> <li>• 45 mm THERMAX SL (Tecniver)</li> <li>• 30 mm GEOTEC S</li> <li>• 30 mm GEOFLAM F</li> <li>• 35 mm GEOFLAM F Light</li> </ul> </li> </ul>		Mastic	EI 60 (v <sub>ed</sub> ) S1500[V]C <sub>300</sub> (N)AAmulti	27
		Installation frame - mastic		28
Shaft from fire-resistant panels				
<ul style="list-style-type: none"> <li>– specific weight min 500 kg/m</li> <li>– shaft wall thickness min. 30 mm while respecting shaft wall thickness in accordance with the given duct fire resistance class* for the given pressure; e.g.: <ul style="list-style-type: none"> <li>• 35 mm THERMAX SL (Tecniver)</li> </ul> </li> </ul>		Mastic	EI 60 (v <sub>ed</sub> ) S500[V]C <sub>300</sub> (N)AAmulti	27
		Installation frame - mastic		28

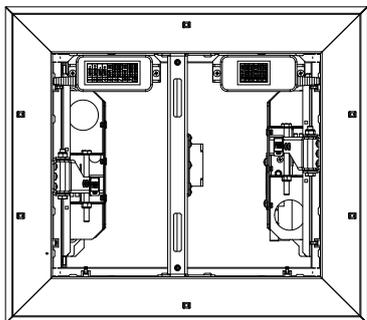
\* Duct system must be tested and classified in accordance with EN 13501-4

## Installation procedure

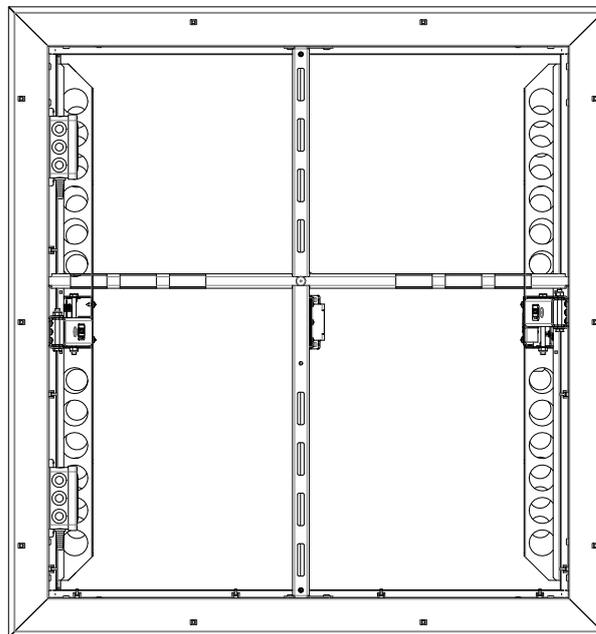
### Approved damper installation positions

- The damper must be installed only in the approved positions shown in the pictures below.

Correct installation position  $H < 570$



Correct installation position  $H \geq 570$



### Installation without installation frame

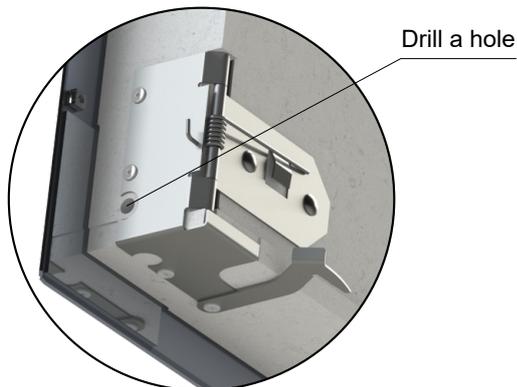
- 1) Drill a hole in the corner of the damper for a connecting cable, prepare a cable passage in the shaft wall.
- 2) Check that all cage nuts or other elements necessary for the connection of the grille are on the damper.
- 3) Fill the inside of the damper frame with mastic.
- 4) Install SEDM-2D into the center of installation opening using wedges or spacers.
- 5) Pull the connecting cable including a special grommet through the wall.
- 6) Fill the gap between the damper and a shaft with mastic. Make sure that the gap is perfectly filled. Let the mastic harden.
- 7) Drill four holes to the damper casing in the place of corners (4 x horizontal) up to the shaft wall, screw the damper into the shaft wall.
- 8) Connect the cable to the junction box, secure the cable on the inside of the damper casing against pulling the end out of the junction box using cable clips.
- 9) Seal the cable passage through the shaft wall and through the damper casing.
- 10) Attach a shock absorber to the shaft wall or damper blade.
- 11) Test opening and closing of the damper blade.
- 12) Install a grille.

### Installation with installation frame

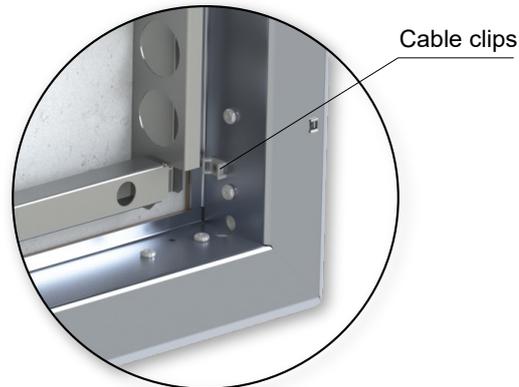
- 1) Install frame into the opening. For frame installation procedure → see page 23
- 2) Drill a hole in the corner of the damper for a connecting cable, prepare a cable passage in the shaft wall.
- 3) Check that all cage nuts or other elements necessary for the connection of the grille are on the damper.
- 4) Install SEDM-2D on the frame and mount it on four fastening plates.
- 5) Pull the connecting cable including the special grommet through the shaft wall.
- 6) Connect the cable to the junction box, secure the cable on the inside of the damper casing against pulling the end out of the junction box using cable clips.
- 7) Seal the cable passage through the shaft wall and through the damper casing.
- 8) Attach a shock absorber to the shaft wall or damper blade.
- 9) Test opening and closing of the damper blade.
- 10) Install a grille.

**Cable connection**

1) Choose one of the 8 pre-punched holes in the corners for the easiest way of cable connection. Drill a hole through the damper. Prepare a cable passage in the shaft wall.



2) Install cable clips on the damper frame. There are pre-drilled holes in the frame for cable clips. The cable clips are delivered with the damper.



3) Electric connection to the junction box should be made **preferably with a cable coming from the bottom**. For bottom connection, those combinations of the elements are allowed:

- Soft cable gland of IP 42 min (grommet 1251347 – Essentra), fixing the user cable by anti-traction on the junction box + additional anti-traction clip on the damper frame.
- Bolt-type cable gland of size PG 7 max with hexagon 15 max key size (SKINTOP STR PG 7 LAPP Group) as reference combined with a round user cable.

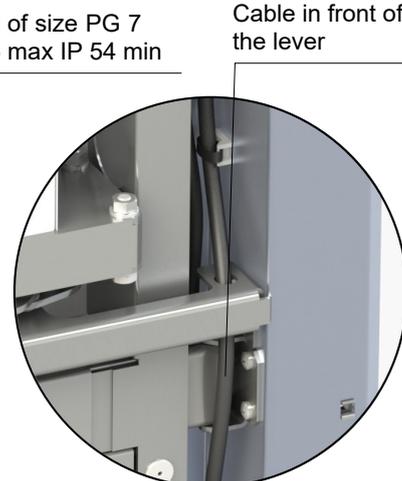
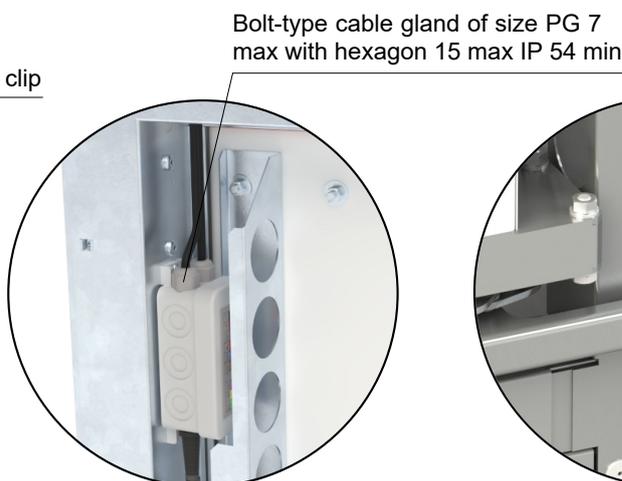
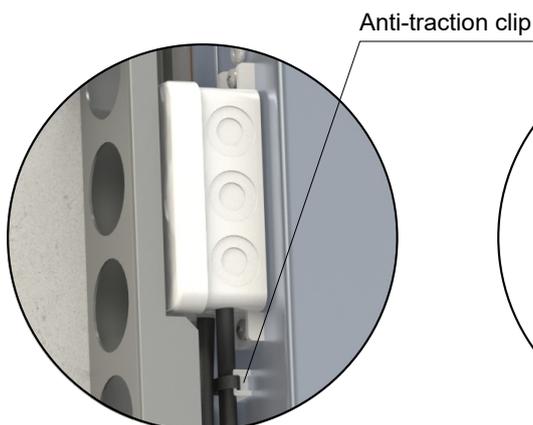
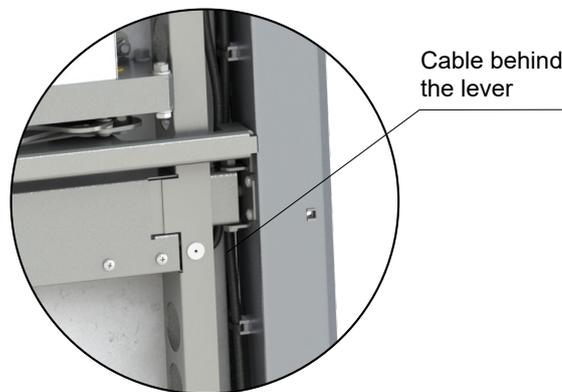
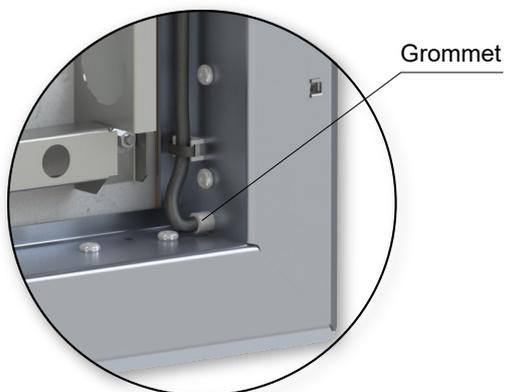
Should the connection to the junction to be made with a cable coming from the top, only this combination of the elements is allowed:

- Bolt-type cable gland(s) of size PG 7 max with hexagon 15 max key size (SKINTOP STR PG 7 LAPP Group) combined with a round user cable(s).

For the connection from the top, it is forbidden to use any other type of passage through the wall of the junction box (as soft cable glands, bundle of individual wires, double line cable, passage of a round cable through the wall, etc.).

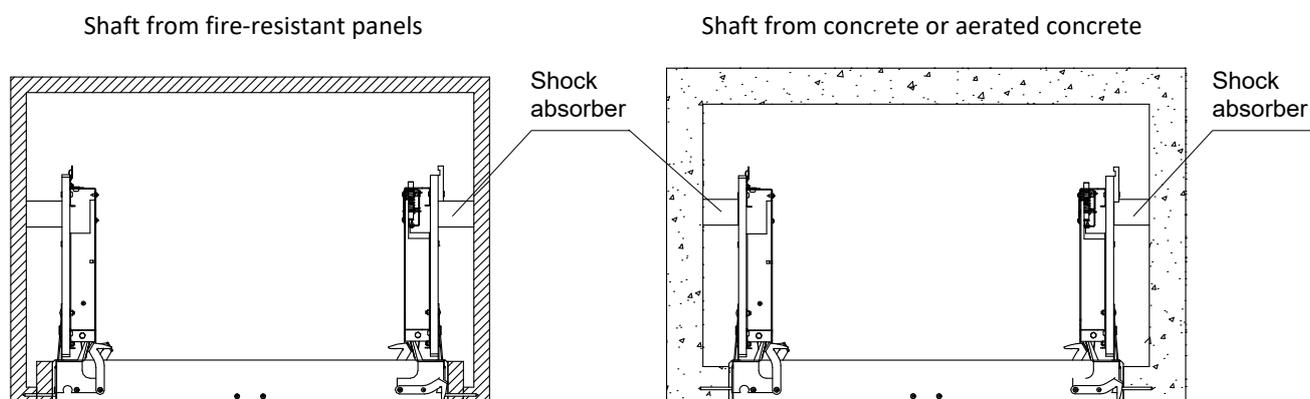
In all cases, cable(s) should be secured against being pulled out of the junction box. Always test the effectiveness of the anti-traction measures after the installation.

4) **Make sure that the cable does not obstruct opening and closing of the damper blade. Check that the cable is not pinched when opening or closing the damper blade!** The cable can be pulled behind the lever or through the hole in the centre reinforcement. Seal the cable passage through the shaft wall and through the damper casing.



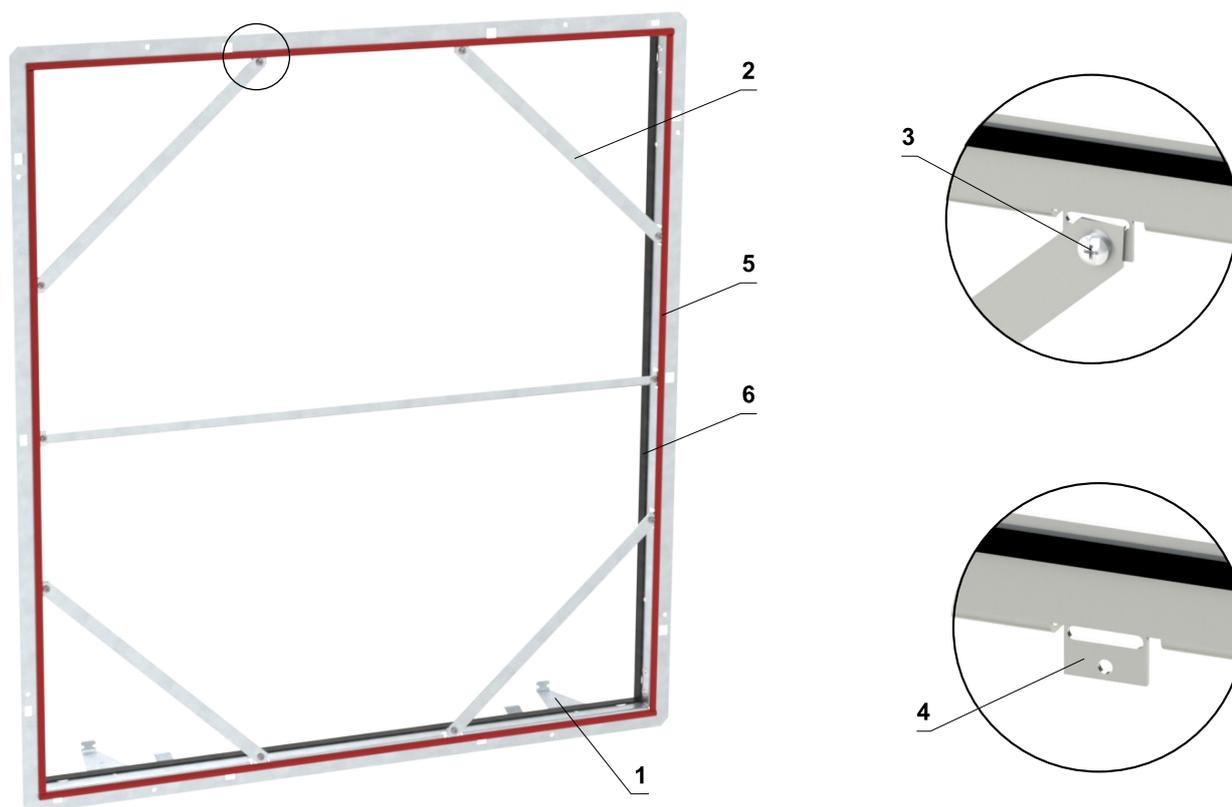
### Shock absorber

- Use a shock absorbers (2pcs) that is delivered with the damper (attach it to the shaft wall or damper blades) to prevent damage of SEDM-2D. Height of the shock absorber depends on the distance of the damper from the shaft wall.



### Installation frame

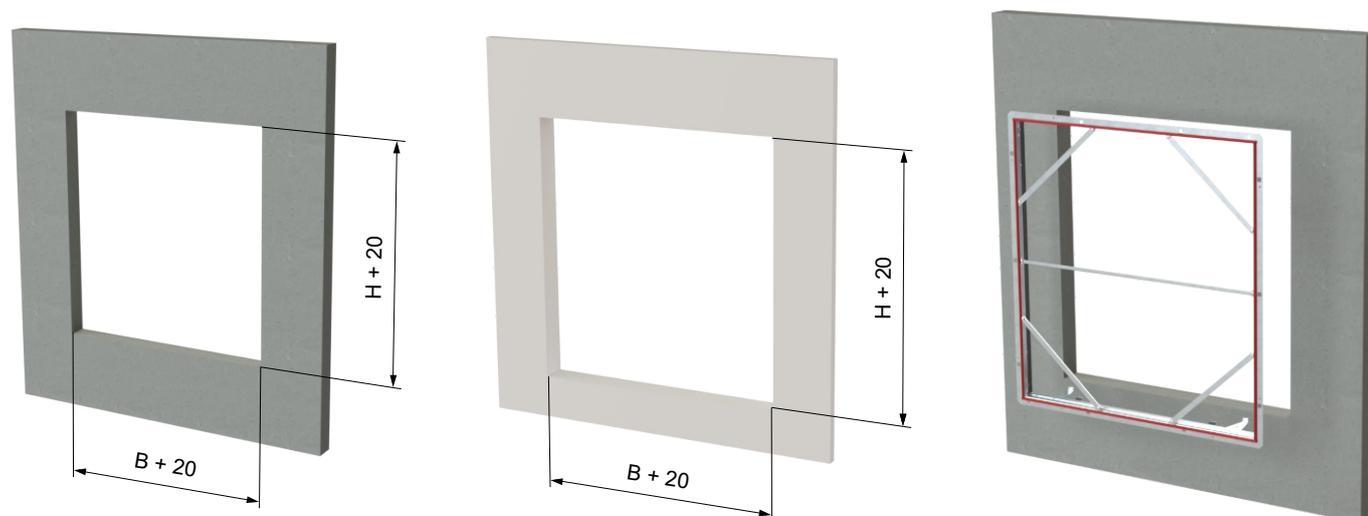
- Installation frame is delivered separately



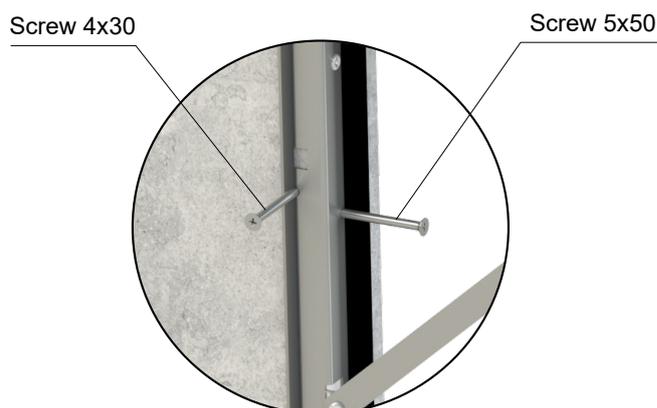
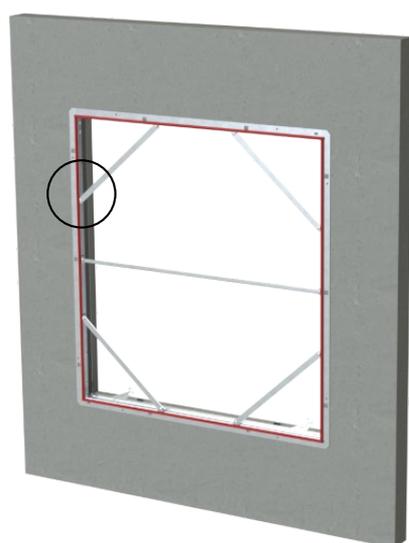
- 1 Fastening plate 4x
- 2 Reinforcement
- 3 Screw for reinforcement
- 4 Mounting plate for reinforcements
- 5 Rubber seal
- 6 Promaseal

**Installation procedure**

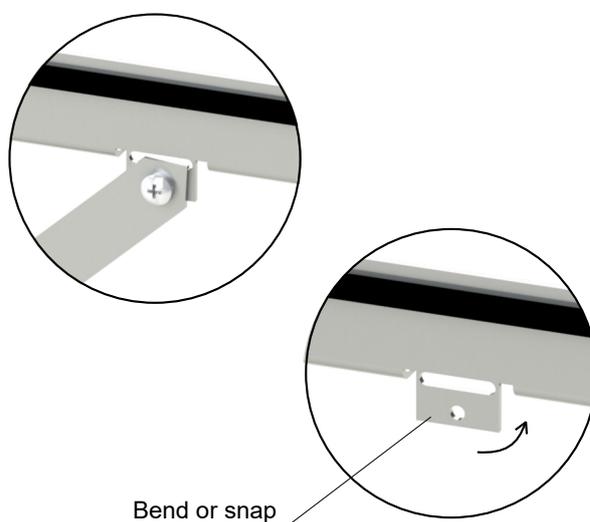
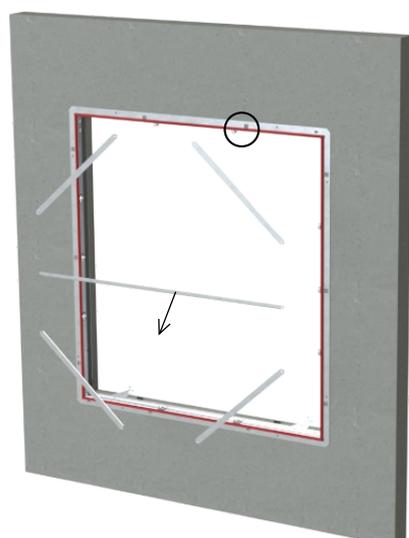
- 1) Prepare an installation opening in dimension  $B+20 \times H+20$ , for more info → see page 26 and 28
- 2) Prepare an installation frame and apply mastic around the frame at the corners.



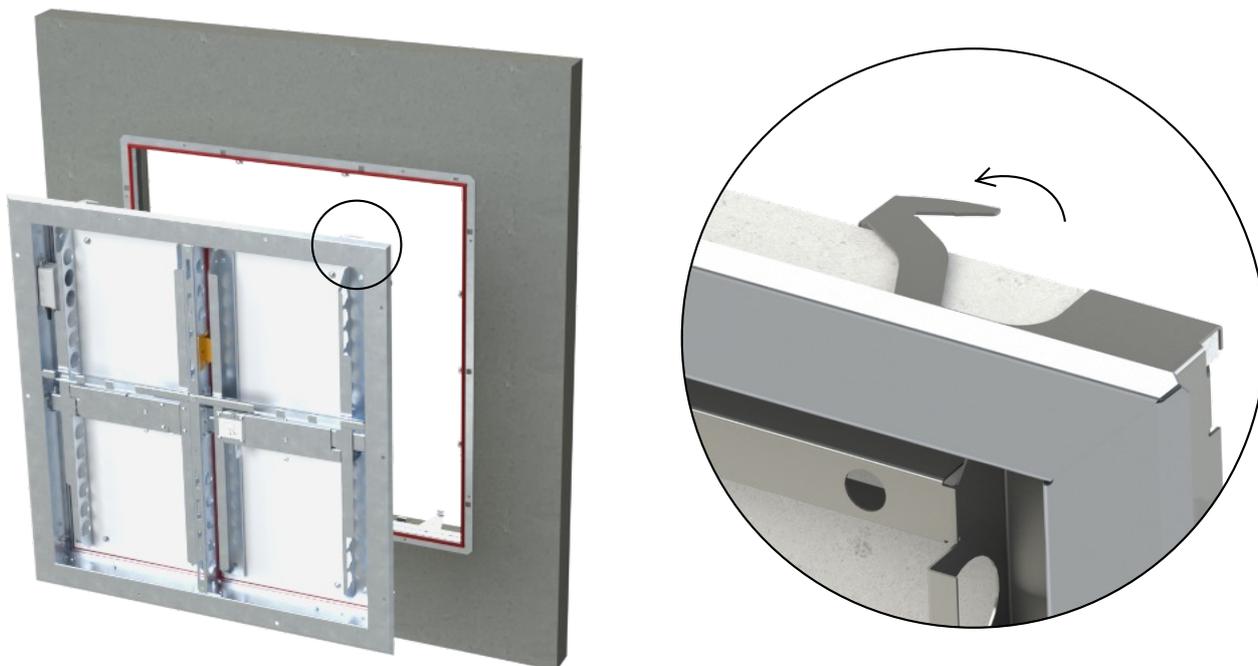
- 3) Install frame into the opening and fix it with screws. Screws 4x30 from the front side of the frame and screws 5x50 from the inner side. Fill the gap between the frame and shaft with mastic. Make sure that the gap is perfectly filled. Let the mastic harden.



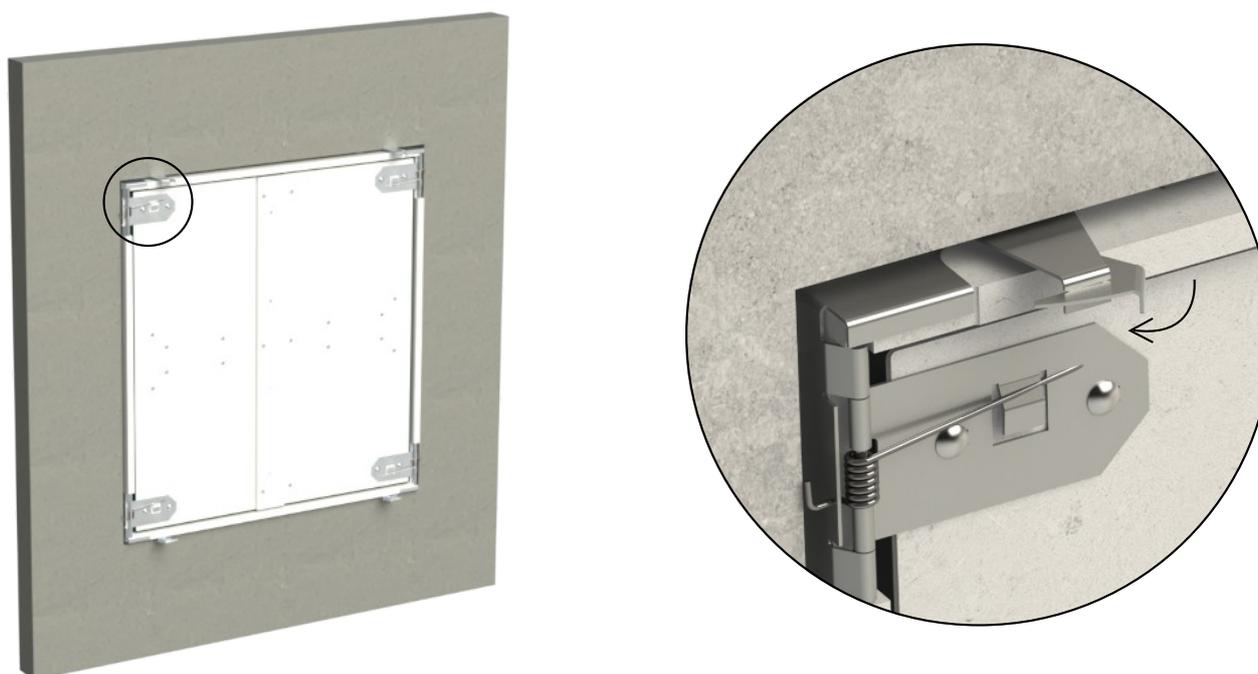
- 4) After hardening the mastic you can remove frame reinforcements by unscrewing the screws and after that, bend or snap mounting plates for frame reinforcements.



5) Prepare SEDM-2D and set four fastening plates to the "open" position.

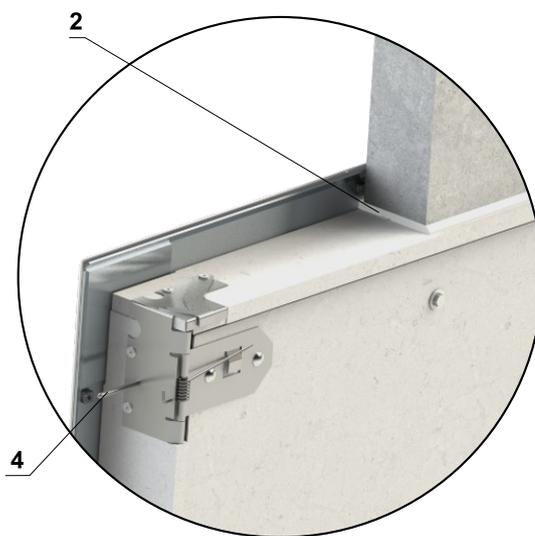


6) Install SEDM-2D on the frame and mount it on four fastening plates.

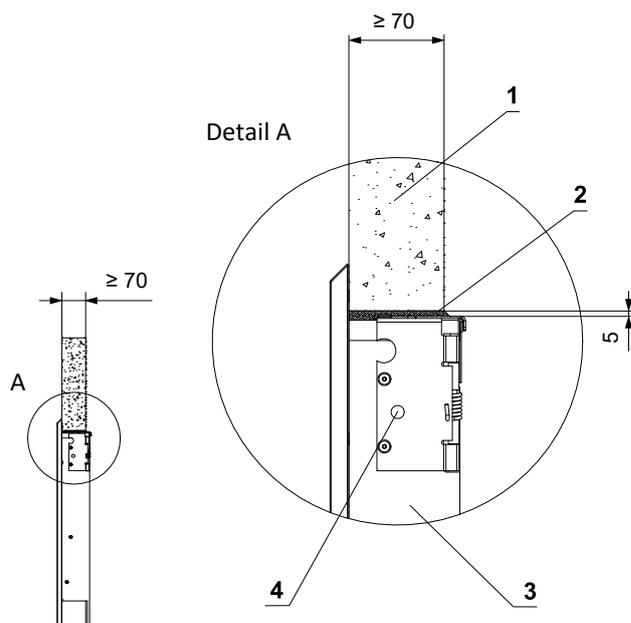
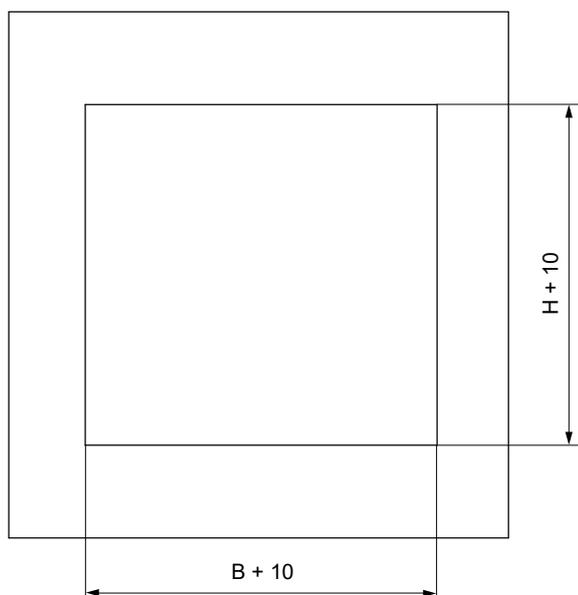


Installation - shaft from concrete or aerated concrete

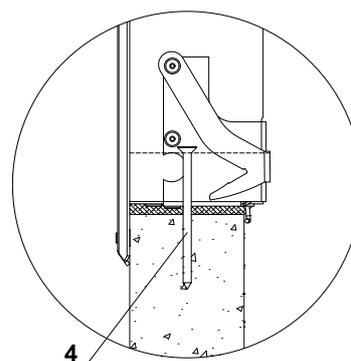
With mastic



Installation opening



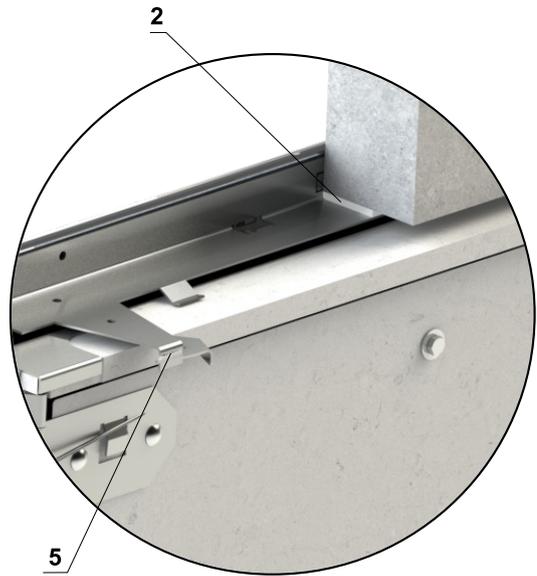
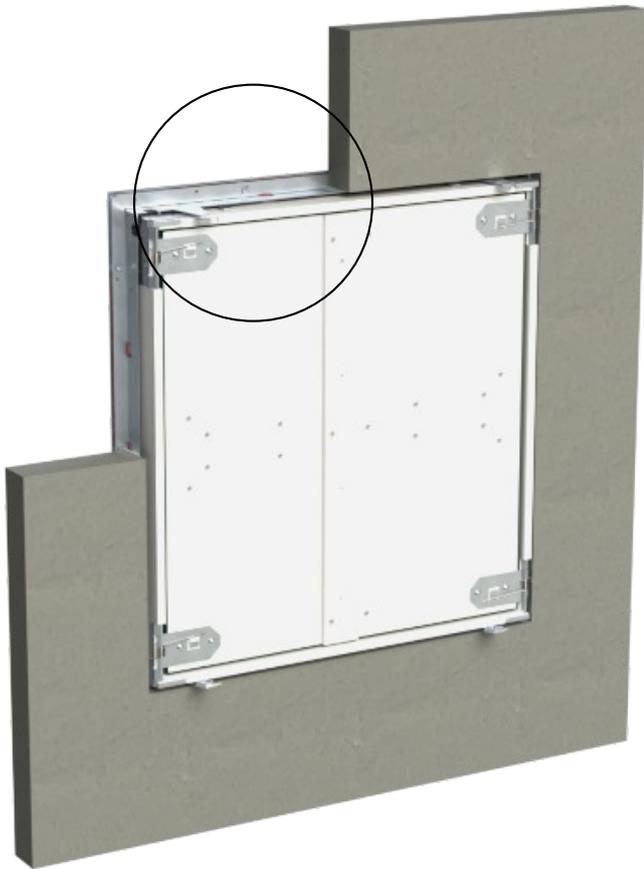
Detail of connection of the damper with shaft



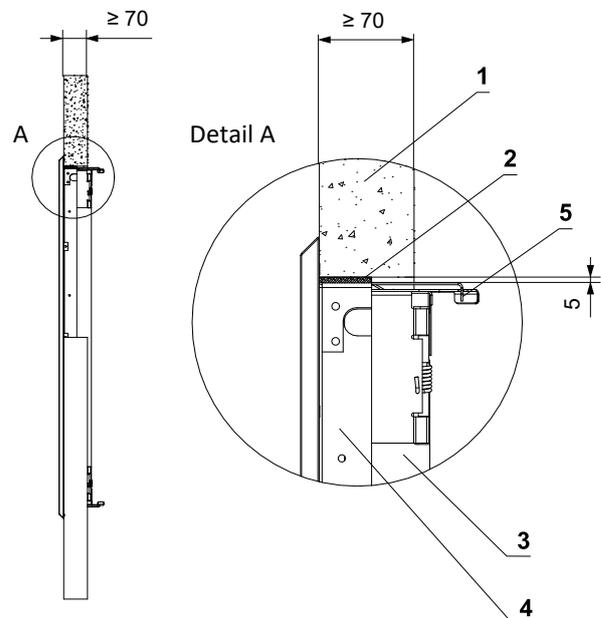
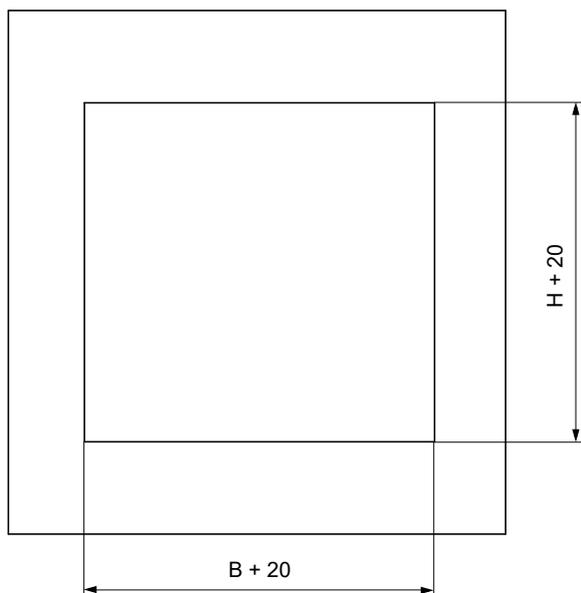
- 1 Concrete or aerated concrete
- 2 Fire-resistant mastic (e.g. HILTI Firestop Acrylic coating SFS-S ACR)
- 3 SEDM-2D
- 4 Screw 6x100 mm 4x (connection of the damper with shaft)

Installation - shaft from concrete or aerated concrete

With installation frame



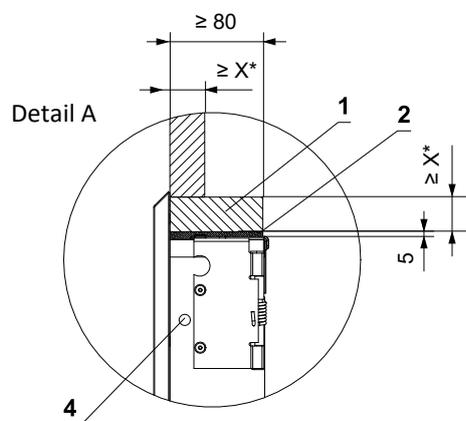
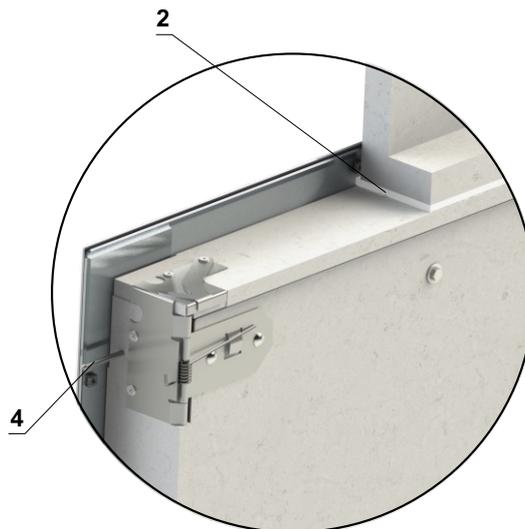
Installation opening



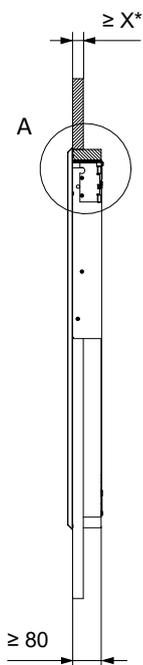
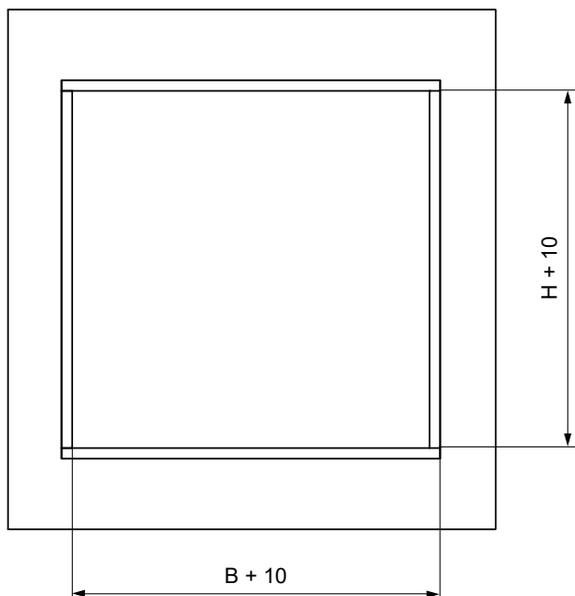
- 1 Concrete or aerated concrete
- 2 Fire-resistant mastic (e.g. HILTI Firestop Acrylic coating SFS-S ACR)
- 3 SEDM-2D
- 4 Installation frame - installation procedure → see page 23
- 5 Installation frame and damper fastening plate 4x

**Installation - shaft from fire-resistant panels**

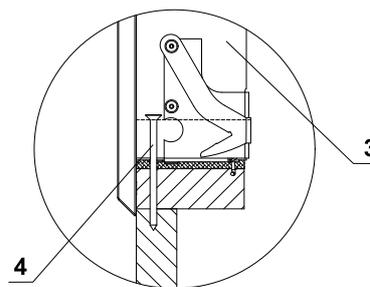
With mastic



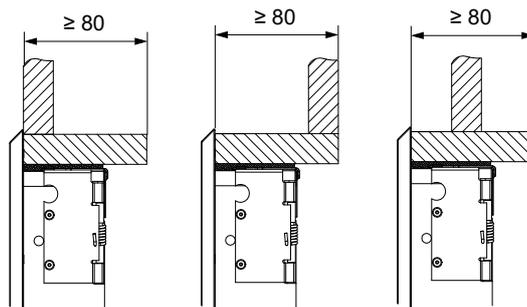
**Installation opening**



**Detail of connection of the damper with shaft**



**Shaft examples**

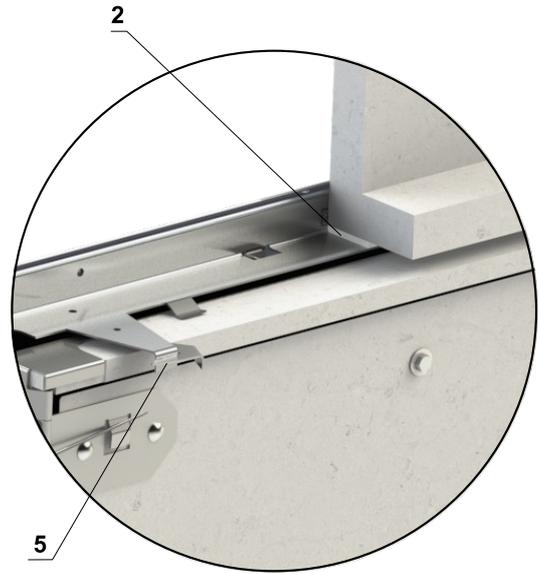


- 1 Fire-resistant panels
- 2 Fire-resistant mastic (e.g. HILTI Firestop Acrylic coating SFS-S ACR)
- 3 SEDM-2D
- 4 Screw 5x70 mm 4x (connection of the damper with shaft)

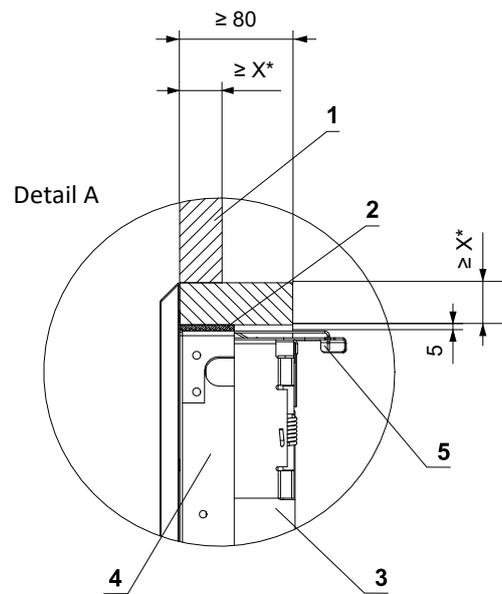
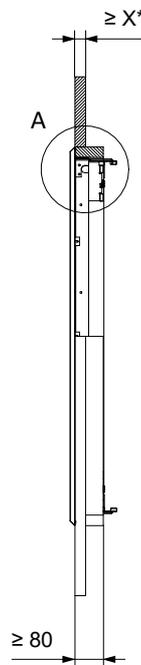
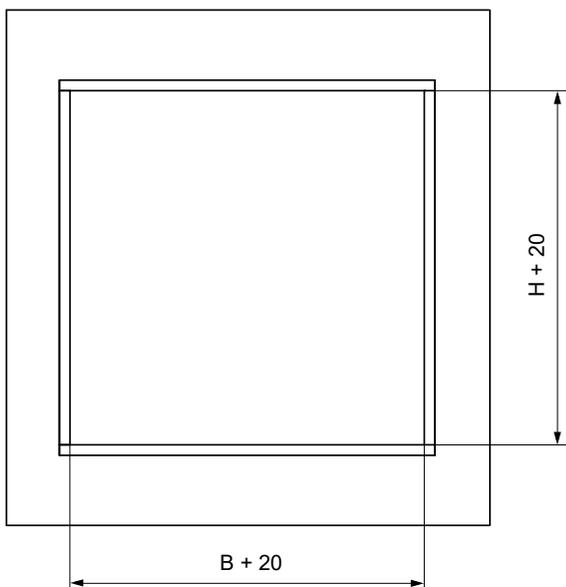
\* X = shaft wall thickness in accordance with the given duct fire resistance class for the given pressure → see page 19

Installation - shaft from fire-resistant panels

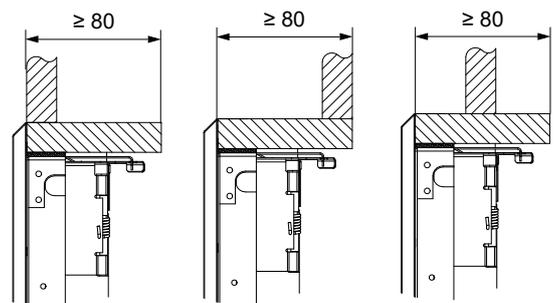
With installation frame



Installation opening



Shaft examples



- 1 Fire-resistant panels
- 2 Fire-resistant mastic (e.g. HILTI Firestop Acrylic coating SFS-S ACR)
- 3 SEDM-2D
- 4 Installation frame - installation procedure → see page 23
- 5 Installation frame and damper fastening plate 4x

\* X = shaft wall thickness in accordance with the given duct fire resistance class for the given pressure → see page 19

## VI. TECHNICAL DATA

### Pressure loss

#### Pressure loss calculation

$$\Delta p = \xi \cdot \rho \cdot \frac{w^2}{2}$$

$\Delta p$	[Pa]	pressure loss
$w$	[m/s]	air flow speed in nominal damper section
$\rho$	[kg/m <sup>3</sup> ]	air density
$\xi$	[-]	coefficient of local pressure loss for the nominal damper section

#### Coefficient of local pressure loss

H	B															
	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1105
300	3,125	2,583	2,187	1,888	1,655	1,467	1,314	1,189	1,032	0,911	0,801	0,700	0,606	0,519	0,437	0,360
350	2,824	2,334	1,979	1,709	1,498	1,330	1,191	1,076	0,937	0,828	0,729	0,637	0,553	0,474	0,400	0,331
400	2,554	2,113	1,792	1,547	1,356	1,204	1,079	0,976	0,850	0,752	0,663	0,580	0,504	0,433	0,366	0,304
450	2,309	1,912	1,621	1,400	1,228	1,090	0,977	0,883	0,770	0,681	0,601	0,526	0,457	0,393	0,333	0,277
500	2,086	1,727	1,466	1,266	1,110	0,986	0,884	0,799	0,698	0,618	0,545	0,478	0,416	0,358	0,304	0,253
550	1,884	1,560	1,324	1,144	1,003	0,890	0,799	0,722	0,631	0,559	0,493	0,432	0,376	0,324	0,275	0,229
600	1,736	1,438	1,219	1,054	0,925	0,820	0,736	0,665	0,581	0,515	0,454	0,398	0,346	0,298	0,253	0,211
650	1,564	1,296	1,100	0,951	0,833	0,739	0,663	0,600	0,523	0,463	0,408	0,358	0,312	0,268	0,228	0,189
700	1,412	1,170	0,993	0,858	0,752	0,668	0,599	0,542	0,474	0,420	0,370	0,325	0,283	0,244	0,207	0,173
750	1,278	1,059	0,899	0,776	0,681	0,605	0,542	0,490	0,429	0,380	0,335	0,294	0,256	0,221	0,188	0,156
800	1,162	0,963	0,817	0,706	0,619	0,550	0,493	0,446	0,391	0,347	0,306	0,269	0,234	0,202	0,172	0,144
850	1,064	0,881	0,748	0,646	0,567	0,504	0,452	0,409	0,358	0,318	0,281	0,247	0,215	0,186	0,158	0,132
900	0,982	0,813	0,691	0,598	0,524	0,465	0,418	0,377	0,330	0,292	0,258	0,226	0,197	0,170	0,145	0,121
950	0,917	0,761	0,646	0,559	0,490	0,435	0,390	0,353	0,308	0,273	0,241	0,212	0,184	0,159	0,135	0,113
1000	0,871	0,721	0,613	0,530	0,465	0,413	0,370	0,335	0,293	0,260	0,229	0,201	0,176	0,151	0,129	0,108
1050	0,840	0,696	0,591	0,511	0,448	0,398	0,358	0,323	0,282	0,250	0,220	0,193	0,168	0,145	0,123	0,103
1105	0,826	0,685	0,581	0,503	0,441	0,392	0,351	0,318	0,278	0,247	0,218	0,191	0,167	0,144	0,123	0,103

## VII. MATERIAL, FINISHING

- Damper casing and blade are made of fire resistant asbestos-free boards made of mineral fibres.
- Damper frame is made of galvanised sheet metal.
- Damper reinforcements and fasteners are galvanized.
- Installation frame is made of galvanised sheet metal.
- Grille G1 and G3 are made of aluminium sheet metal.
- Grille G2, G5, G6 is made of aluminium alloy.
- Grille G4 is made of steel.
- The colour of grilles will be RAL 9010, with the exception of the grille G1, which will be delivered without paint, unless specified in the ordering key.
- Any other requirements for the design will be considered atypical and will be addressed on an individual basis.

## VIII. TRANSPORTATION, STORAGE AND WARRANTY

### Logistic terms

- Dampers are **individually packaged** in a special packaging allowing: easy handling and distribution of the dampers on site minimizing the risk of damage and pollution. Stacking of packaged dampers on 120 x 80 cm or 120 x 120 cm palettes, with a possibility to stack dampers of different sizes together; stacking up to 12 layers of dampers on one palette allowed.
- Grilles and installation frames are packed and put on top of the palette with dampers. Note: palette with dampers is non-stackable. Assembly of the palette is then firmly wrapped in a plastic foil; this foil should be removed as soon as possible after the transportation in order to prevent water condensation and resulting degradation of the dampers.
- The dampers must be stored in clean, dry, well-ventilated and dust-free environment out of direct sunlight. Ensure protection against moisture and extreme temperatures (minimum temperature +5°C). The dampers must be protected against mechanical and accidental damage prior to installation.
- Another required packaging system should be approved and agreed by manufacturer. Packaging material is not returnable in case that another packaging system (material) is required and used and it is not included into final price of damper.
- Dampers are transported by box freight vehicles without direct weather impact, there must not occur any shocks and ambient temperature must not exceed +50°C. Dampers must be protected against impact when transported and manipulated. During transportation, the damper blade must be in the "CLOSED" position.
- Dampers must be stored indoor in environment without any aggressive vapours, gases or dust. Indoor temperature must be in the range from -30°C to +50°C and maximum relative humidity 95%.

### Warranty

- The manufacturer provides a warranty of 24 months from the date of dispatch for the dampers.
- The warranty for fire dampers SEDM-2D, provided by the manufacturer, is completely void if closing and control devices are unprofessionally handled by untrained workers or if electric components, i.e. end switches, permanent magnets are dismantled.
- The warranty is void if dampers are used for other purposes, devices and working conditions than those allowed by these technical conditions or if the dampers are mechanically damaged during handling.
- If the dampers are damaged by transport, a record must be written down with the forwarder at reception for later complaint.

## IX. ASSEMBLY, ATTENDANCE AND MAINTENANCE

- Assembly, maintenance and damper function check can be done only by qualified and trained person, i.e. "AUTHORIZED PERSON" according to the manufacturer documentation. All works done on the fire dampers must be done according international and local norms and laws.
- All effective safety standards and directives must be observed during damper assembly.
- To ensure reliable damper function it is necessary to avoid blocking the actuating mechanism and contact surfaces with collected dust, fiber and sticky materials and solvents.

### End switches

- If the damper is equipped with end switches and these switches are not used during operation (e.g. because of a project change), they can be left on the damper and not connected (they need not be dismantled).
- These facts must be recorded in the respective operation documentation of the damper (record books of the damper, fire logs, etc.) and subsequently, adequate function checks must be carried out.

### Installation / fixing the damper

- The damper casing shall not be deformed in the course of installation.
- Once the damper is built in, the damper blades shall not grind on the damper casing during opening or closing.

### Commissioning and revisions

- Before entering the dampers into operation after assembly and after sequential revisions, checks and functionality tests of all designs including operation of the electrical components must be successfully provided and finished. Check the opening function of the damper blade. After entering into operation, these revisions must be done according to requirement set by national regulations.
- In case that dampers are found unable to serve for their function for any cause, it must be clearly marked. The operator is obliged to ensure that the damper is put into condition in which it is ready for function and meanwhile he is obliged to provide the fire protection by another appropriate way.
- Results of regular checks, imperfections found and all important facts connected with the damper function must be recorded in the "FIRE BOOK" and immediately reported to the operator.
- 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.
- Visual inspection of proper damper installation, inner area of a damper, damper blade, contact surfaces and silicon seal.

## X. ORDERING INFORMATION

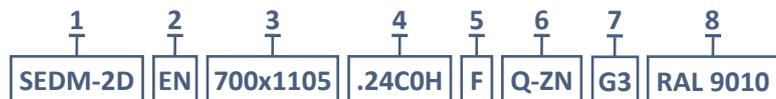
### Data label

- Data label is placed on the damper casing (example)

<b>MANDÍK®</b>		MANDÍK, a.s. Dobříšská 550, 267 24 Hostomice, Czech Republic	
MULTI COMPARTMENT SMOKE CONTROL DAMPER - XXXX			
DIMENSION:		DESIGN:	
SERIAL.NO.:		WEIGHT (kg):	
CLASSIFICATION:		MANUAL	
TPM XXX/XX	Cert. No.: 1391-CPR-XXXX/XXXX, DoP: PM/XXXX/XX/XX/X	XX	EN 12101:2011
			

# X. ORDERING INFORMATIONS

## Ordering key



**EXAMPLE:**

**SEDM-2D EN 700x1105 .24C0H F Q-ZN G3 RAL 9010**

Smoke control damper SEDM-2D, dimension 700x1105 mm , hand-operated rearming design with a magnet voltage of 24 V DC without end switches, with installation frame, galvanized material variant, grille design with thin louvers with hidden bolts, color design RAL 9010.

**1| Smoke control damper type - SEDM-2D**

**2| Country of destination**

**3| Damper dimensions B x H → see pages 15 to 17**

"B" is the width of the damper  
 "H" is the height of the damper

**4| Damper design**

.24C0H*	Hand-operated rearming design with a magnet voltage of 24 V DC without end switches
.24C2H	Hand-operated rearming design with a magnet voltage of 24 V DC and with two end switches
.24C4H	Hand-operated rearming design with a magnet voltage of 24 V DC and with two pairs of end switches
.48C0H*	Hand-operated rearming design with a magnet voltage of 48 V DC without end switches
.48C2H	Hand-operated rearming design with a magnet voltage of 48 V DC and with two end switches
.48C4H	Hand-operated rearming design with a magnet voltage of 48 V DC and with two pairs of end switches

\* This design is not in accordance with NF 61.937-1, and not in accordance with NF 61.937-10.

**5| Installation frame**

	Without installation frame
F	With Installation frame

**6| Material**

Q-ZN	Galvanized
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**7| Grille type**

G1	Simple grille with punched profiles
G2	Design grille with aerodynamic profiles
G3	Design grille with thin louvers with hidden bolts
G4	Design grille from drawn steel
G5	Design grille with aerodynamic profiles and with hidden bolts*
G6	Design grille with aerodynamic profiles and with hidden bolts*
GX	Other grilles**

\* These grilles are supplied on request from an external supplier. Contact the Mandik sales department.

\*\* Additional third-party review and approval is required. The review process is based on documentation exchange only.

**8| Color design of grille**

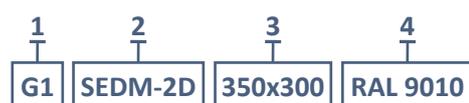
	RAL 9010 *
RAL XXXX	Color shade, acc. to the RAL scale

\* Grille G1 is not powder painted as standard. Can be powder painted, if specified in the ordering key.

Grilles G2, G3, G4, G5, G6 are powder painted. If no colour is specified in the ordering key, the colour will be RAL 9010.

## Accessories

### Grille "Gx"



1 | Grille type G1/G2/G3/G4/G5\*/G6\*/GX\*\*

2 | Smoke control damper type - SEDM-2D

3 | Damper dimensions B x H → see pages 15 to 17

4 | Grille colour RAL - RAL 9010\*\*\*

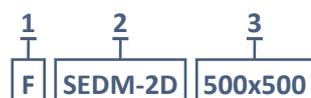
\* These grilles are supplied on request from an external supplier. Contact the Mandík sales department.

\*\* Additional third-party review and approval is required. The review process is based on documentation exchange only.

\*\*\* Grille G1 is not powder painted as standard. Can be powder painted, if specified in the ordering key.

Grilles G2, G3, G4, G5, G6 are powder painted. If no colour is specified in the ordering key, the colour will be RAL 9010.

### Installation frame



1 | Accessory type - Installation frame F

2 | Smoke control damper type - SEDM-2D

3 | Damper dimensions B x H → see pages 15 to 17

## Spare parts

### Restraint mechanism



1 | Spare type - Restraint mechanism

2 | Smoke control damper type - SEDM-2D

3 | Voltage 24V/48V

### End switch module



1 | Spare type - End switch module

2 | Smoke control damper type - SEDM-2D

3 | Module type

C2	Module with one pair of end switches open-close
C4	module with two pairs of end switches open-close (bipolar)

The producer reserves the right for innovations of the product.  
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