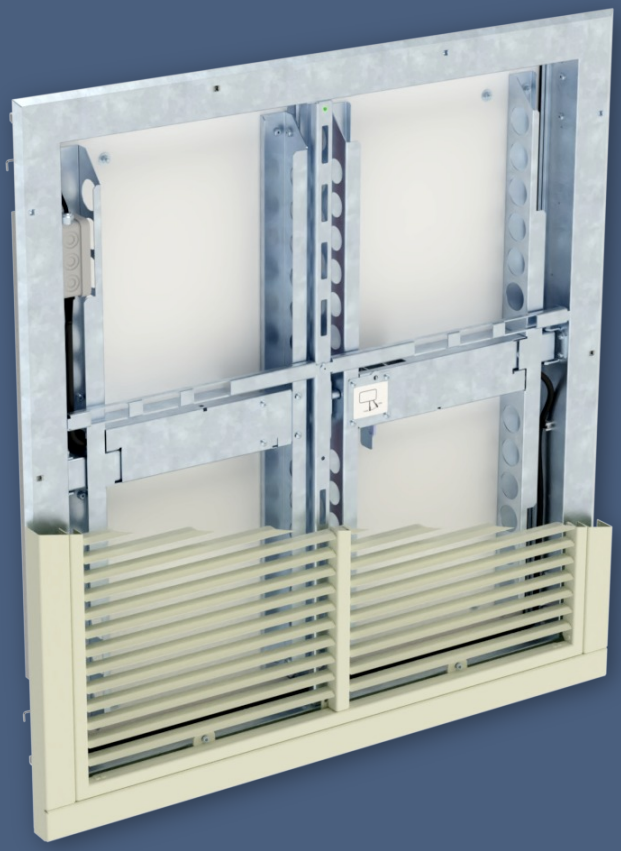
MANDÍK®

TPM 172/25
Version 2025-09-03

SEDM-2D

Multi compartment smoke control damper

Technical Documentation
Installation, Commissioning, Operation, Maintenance and Service Manual



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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

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_{ed}) S1500[V]C_{300}(N)AAmulti
Selected light smoke extraction duct panels of given thickness*, with or without installation frame	EI 120 (v_{ed}) S1500[V]C_{300}(N)AAmulti, or EI 90 (v_{ed}) S1500[V]C_{300}(N)AAmulti, or EI 60 (v_{ed}) S1500[V]C_{300}(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 .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 .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 .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 .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).

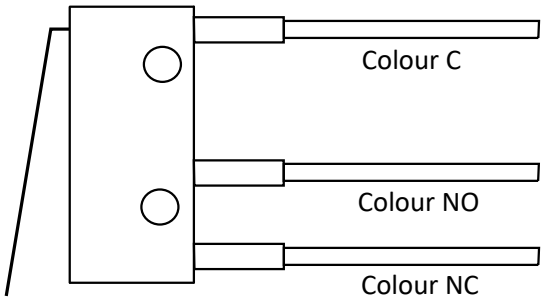
Design .48C4H

- 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

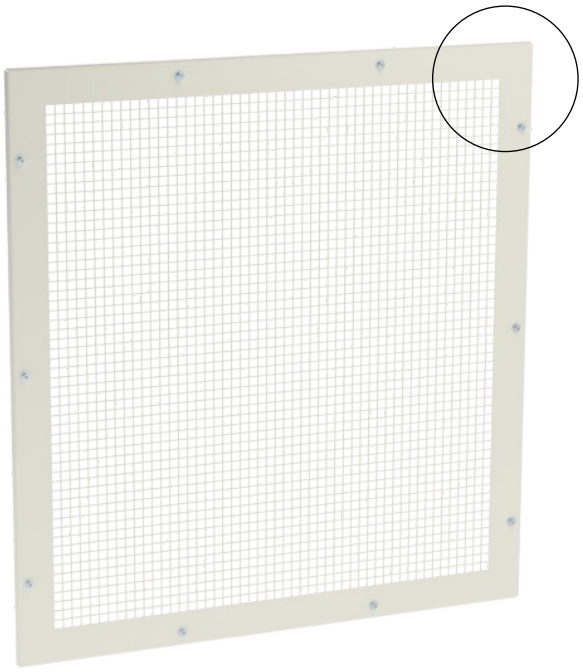
End-switches	
Type; configuration	G905; (C-NO-NC)
Voltage	≤ 60 V DC
Switchable DC current	> 0.5 A
Contact resistance	< 0.1 Ohm
Insulation voltage open contact	> 500 V
Cut-off power (DC)	> 10 W
Longevity – cycles	> 1000
Microswitch AC rating	230 V AC / 5 A
Microswitch degree of protection	IP67
Compliance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

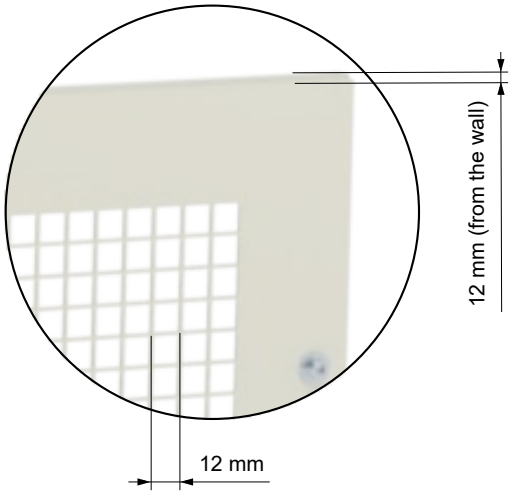
Grilles designs

- 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

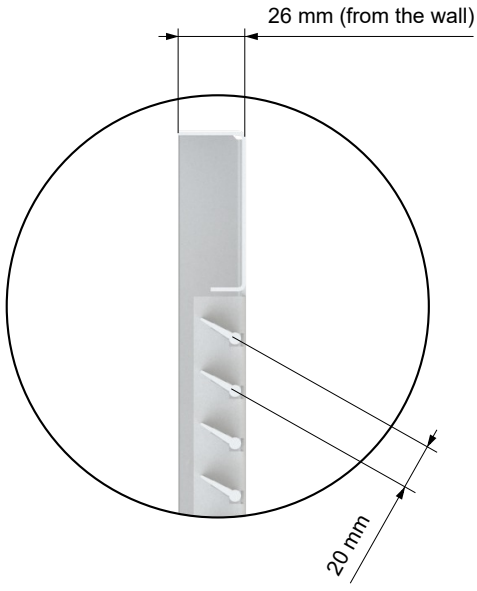
- Simple, the lightest grille made of a punched 2 mm Al sheet, 77% effective area.





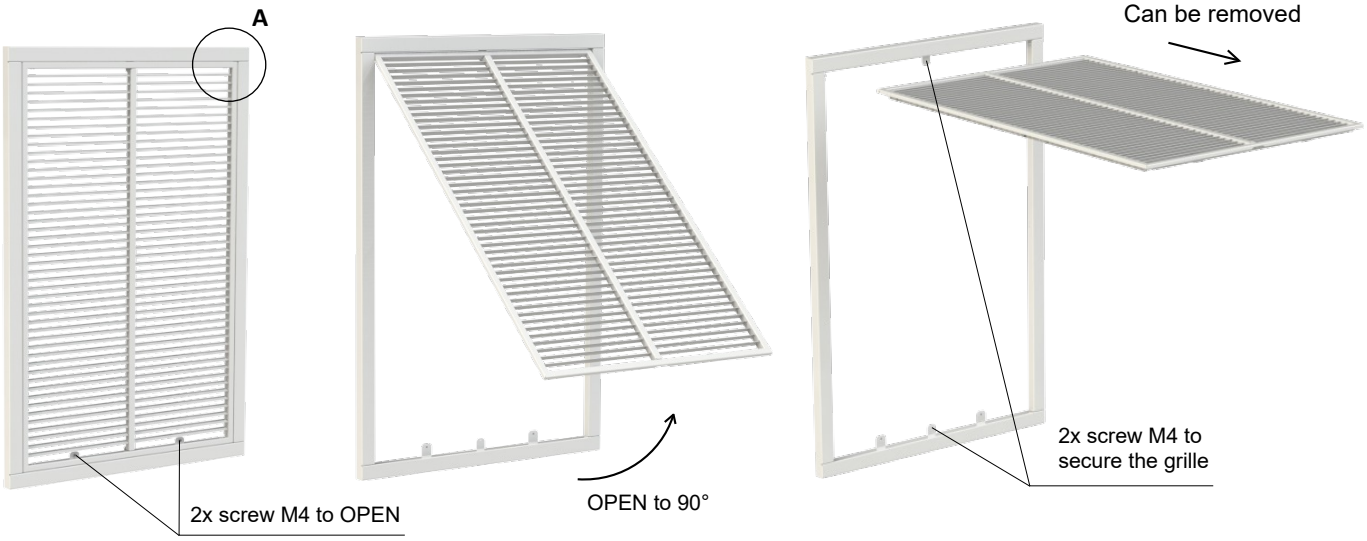
Grille G2

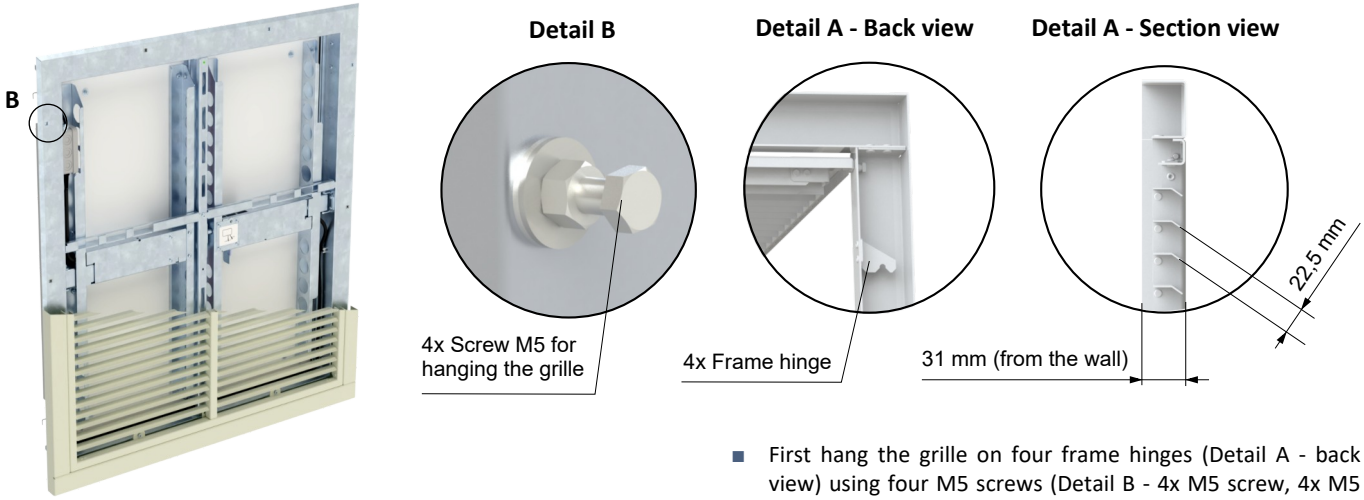
- Design grille with aerodynamic profile louvers made of Al alloy, 77% effective area.



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.

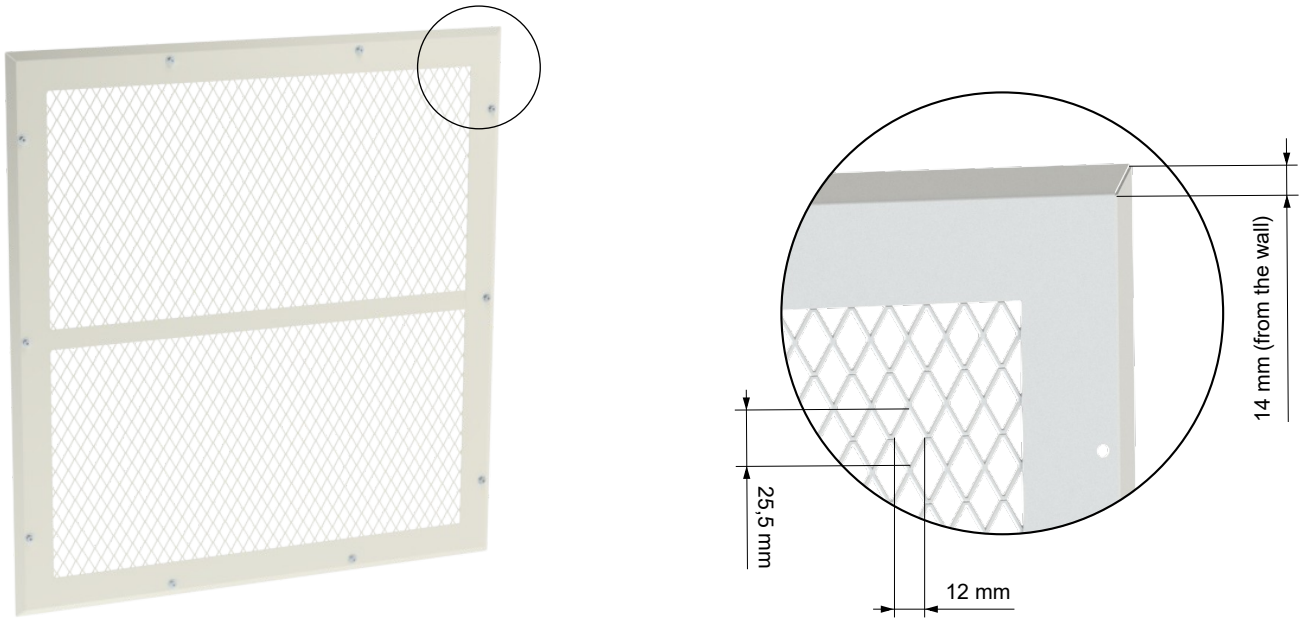




- First hang the grille on four frame hinges (Detail A - back view) using four M5 screws (Detail B - 4x M5 screw, 4x M5 nut and 8x washer), then secure the grille with two M4 screws.

Grille G4

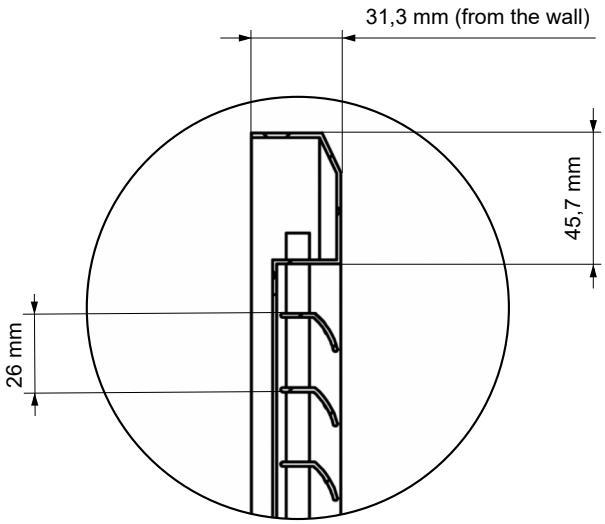
- Design grille made of steel (punched and drawn), 78% effective area.



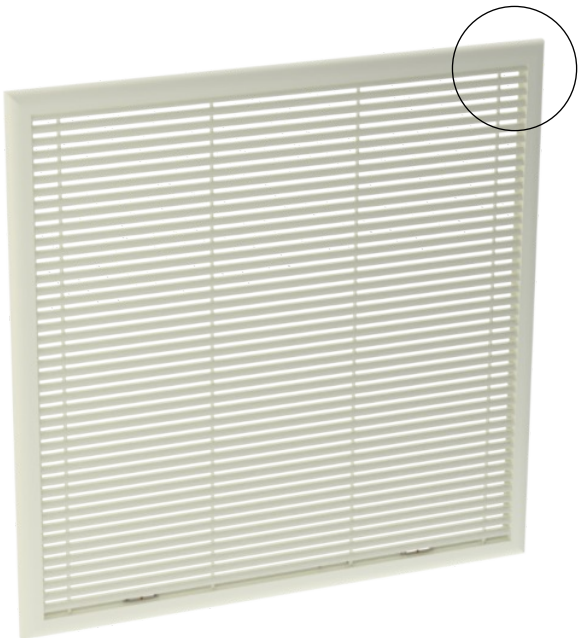
Grille G5, G6

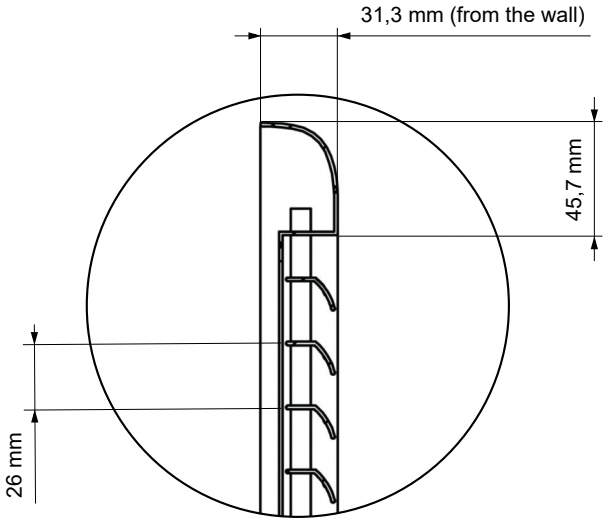
- Design grille with aerodynamic profile and with hidden bolts louvers made of Al alloy
- These grilles are supplied on request from an external supplier. Contact the Mandík sales department.

Grille G5



Grille G6



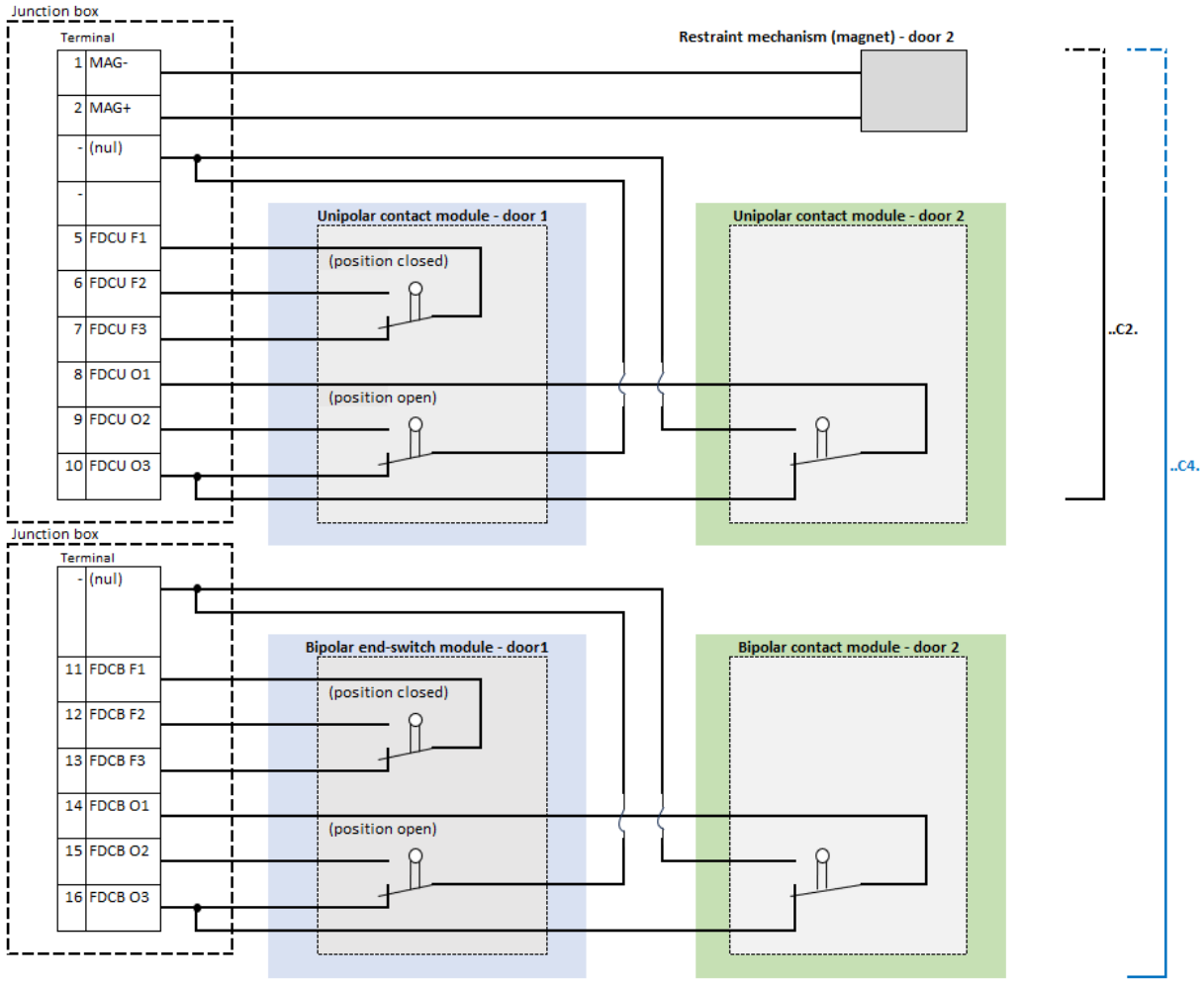


Electric parameters, wiring diagram

SEDM-2D damper assembly		
Degree of protection (electric part)	IP42	
Maximum connecting wire cross-section (terminal block size)	2.5 mm^2	
Temperature range	-25 … 50 °C	
Restraint mechanism (magnet)		
Design variant	24	48
Activation signal	voltage pulse [émission du curent]	
Nominal voltage Voltage range	24 V DC 20.4 ... 28.8 V	48 V DC 40.8 ... 57.6 V
Input power Resistance Inductance	3.5 W 173 Ohm ± 5% 0.19 H ± 5%	3.5 W 695 Ohm ± 5% 0.71 H ± 5%
Length of activation pulse	≥ 1 s	
Temperature validation test Continuous operation test at 20°C	70 °C for 1 hour > 5 hours	
Compliance	NF 61.937-1, NF 61.937-10	
End-switches		
Type; configuration	G905; (C-NO-NC)	
Voltage	≤ 60 V DC	
Switchable DC current Contact resistance Insulation voltage open contact Cut-off power (DC) Longevity – cycles	> 0.5 A < 0.1 Ohm > 500 V > 10 W > 1000	
Microswitch AC rating Microswitch degree of protection	230 V AC / 5 A IP67	
Compliance	NF 61.937-1, NF 61.937-10	

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.

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).

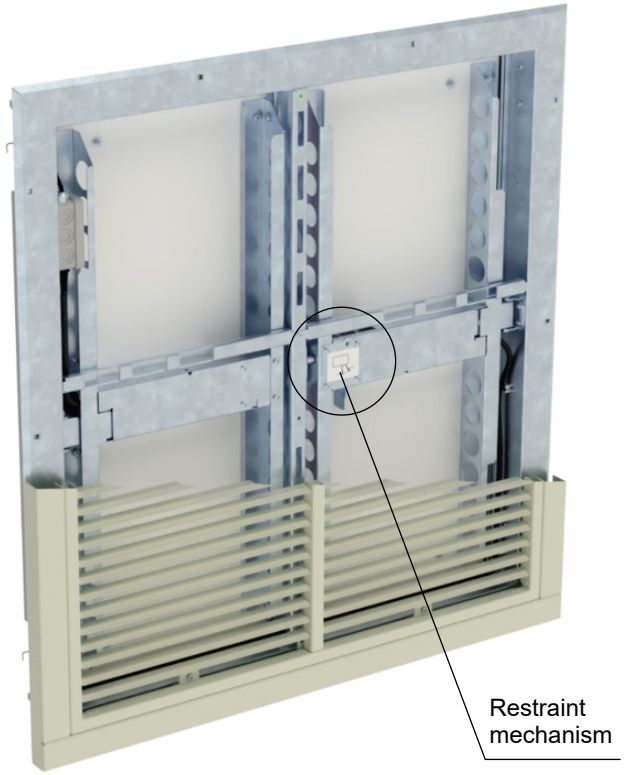
Activation

- In accordance with the harmonized Standard, the damper has no self-activation function [non-autocomandé]. The damper is remotely activated [télecomande] 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.
- 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.

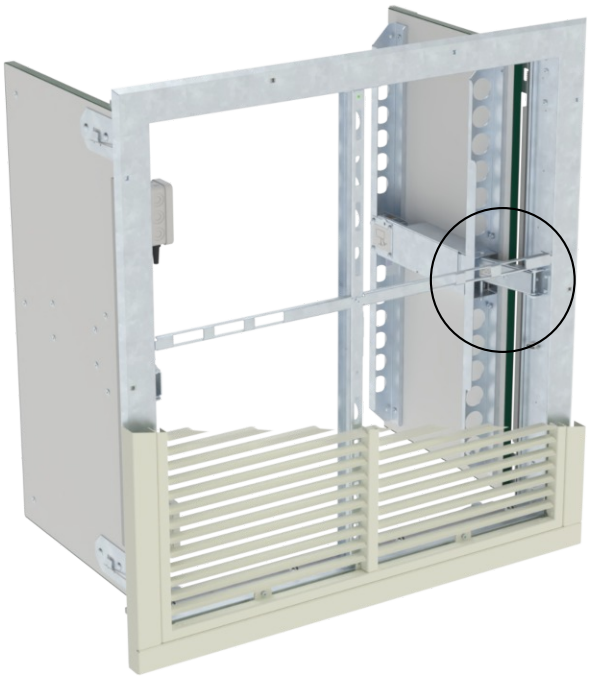
Rearming

- 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.

Stand-by mode (damper is closed)



Security position (damper is open)



Rearming - hand-operated design

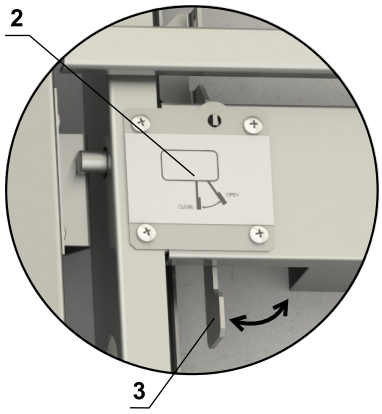
- **The process consists of 6 steps:**

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

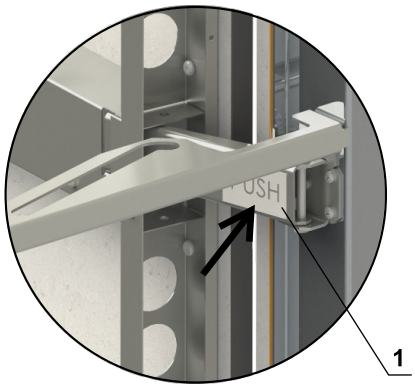
- **For larger dampers, it may be necessary to use both hands to rearm the damper and proceed in 7 steps:**

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)

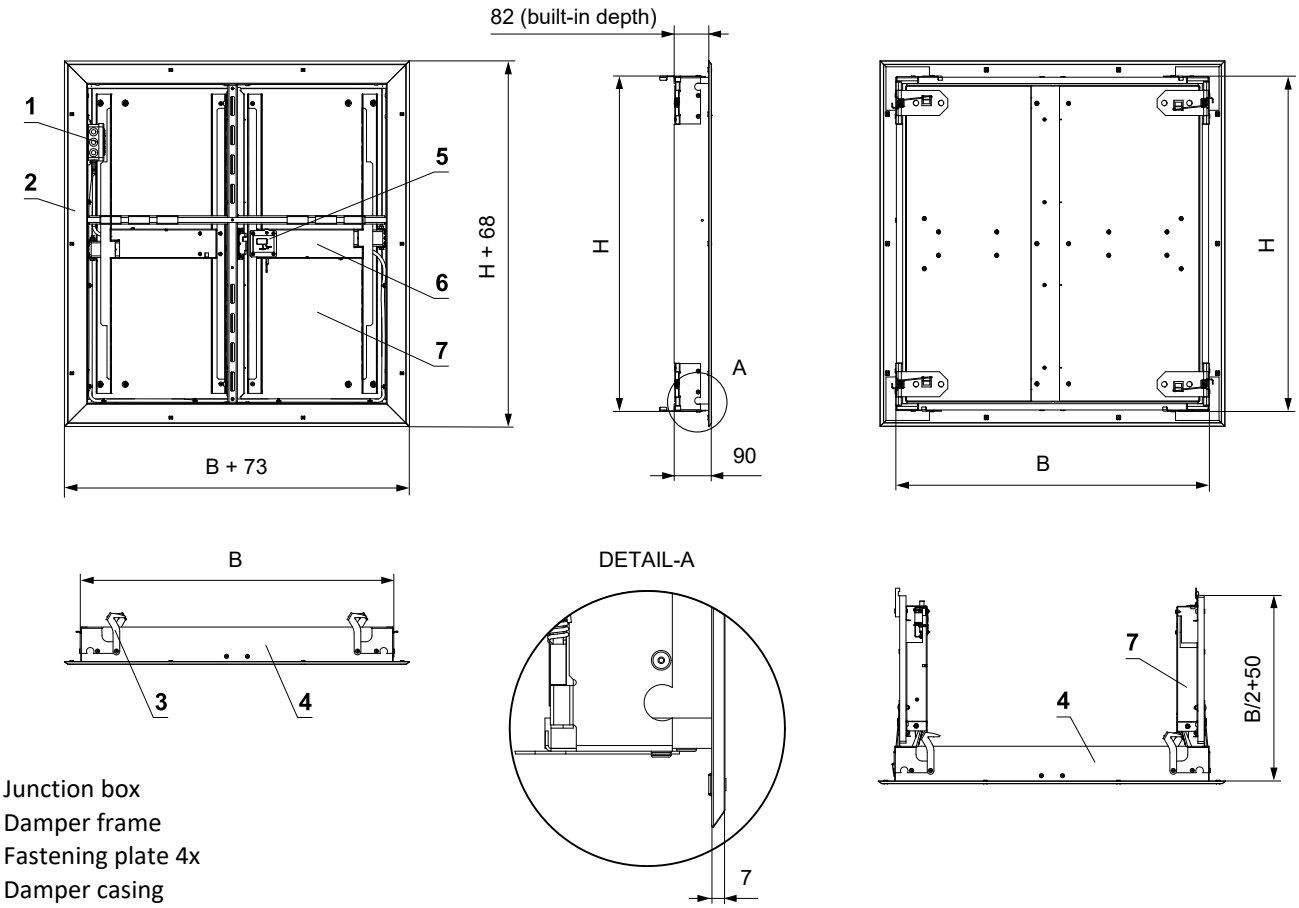


Security position (damper is open)



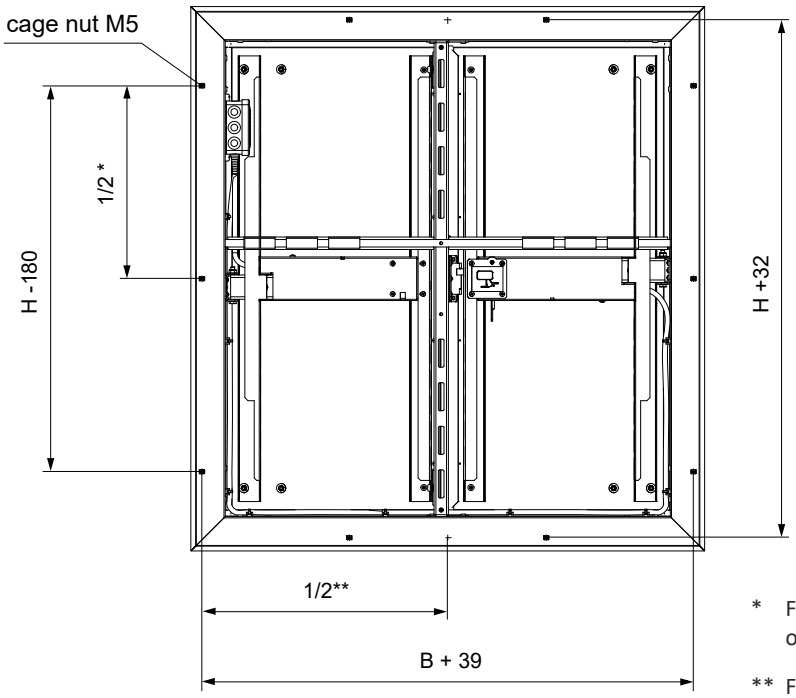
IV. DIMENSIONS

(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 ≤ 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]		Effective area Sef [m²]	Weight [kg]						B x H [mm]		Effective area Sef [m²]	Weight [kg]					
			Damper *	G1 grille	G2 grille	G3 grille	G4 grille	Install. frame				Damper *	G1 grille	G2 grille	G3 grille	G4 grille	Install. frame
	300	0,0626	9,2	0,6	0,9	1,7	1,3	1,3		300	0,0992	11	0,8	1,2	1,9	1,6	1,5
	350	0,0762	10,1	0,7	1	1,8	1,4	1,4		350	0,1203	12,1	0,8	1,3	2	1,7	1,6
	400	0,0897	10,9	0,7	1,2	1,9	1,5	1,4		400	0,1413	13,2	0,9	1,5	2,2	1,9	1,6
	450	0,1033	11,8	0,8	1,3	2	1,6	1,5		450	0,1624	14,2	0,9	1,6	2,3	2	1,7
	500	0,1168	12,6	0,8	1,4	2,2	1,7	1,6		500	0,1834	15,3	1	1,8	2,5	2,1	1,8
	550	0,1304	13,5	0,9	1,6	2,3	1,9	1,6		550	0,2045	16,4	1,1	2	2,6	2,3	1,8
	600	0,1380	14,7	0,9	1,7	2,5	2	1,7		600	0,2166	17,9	1,1	2,2	2,9	2,4	1,9
	650	0,1516	15,5	1	1,8	2,6	2,1	1,8		650	0,2377	18,9	1,2	2,3	3	2,5	2
350 x	700	0,1651	16,4	1	1,9	2,8	2,2	1,8	500 x	700	0,2587	20	1,3	2,5	3,1	2,7	2,1
	750	0,1787	17,3	1,1	2	2,9	2,3	1,9		750	0,2798	21,2	1,3	2,6	3,3	2,8	2,1
	800	0,1922	18,2	1,2	2,2	3	2,4	2		800	0,3008	22,3	1,4	2,8	3,4	3	2,3
	850	0,2058	19,1	1,2	2,3	3,1	2,6	2,1		850	0,3219	23,4	1,5	2,9	3,5	3,1	2,4
	900	0,2193	20	1,3	2,4	3,2	2,7	2,2		900	0,3429	24,5	1,5	3,1	3,6	3,2	2,4
	950	0,2329	20,9	1,3	2,5	3,3	2,8	2,3		950	0,3640	25,6	1,6	3,2	3,8	3,4	2,5
	1000	0,2464	21,7	1,4	2,6	3,4	2,9	2,3		1000	0,3850	26,7	1,7	3,4	3,9	3,7	2,6
	1050	0,2600	22,6	1,4	2,8	3,5	3	2,4		1050	0,4061	27,8	1,7	3,5	4	3,8	2,7
	1105	0,2749	23,6	1,5	2,9	3,6	3,2	2,5		1105	0,4292	29	1,8	3,7	4,1	3,9	2,8
	300	0,0748	9,8	0,6	1	1,8	1,4	1,4		300	0,1114	11,6	0,8	1,5	2	1,7	1,6
	350	0,0909	10,8	0,7	1,1	1,9	1,5	1,4		350	0,1350	12,8	0,9	1,6	2,1	1,9	1,6
	400	0,1069	11,7	0,8	1,3	2	1,6	1,5		400	0,1585	13,9	0,9	1,8	2,3	2	1,7
	450	0,1230	12,6	0,8	1,4	2,1	1,8	1,6		450	0,1821	15,1	1	2	2,4	2,1	1,8
	500	0,1390	13,5	0,9	1,5	2,3	1,9	1,6		500	0,2056	16,2	1,1	2,2	2,6	2,3	1,8
	550	0,1551	14,5	0,9	1,7	2,4	2	1,7		550	0,2292	17,4	1,1	2,4	2,7	2,4	1,9
	600	0,1642	15,7	1	1,9	2,6	2,1	1,8		600	0,2428	18,9	1,2	2,5	3	2,6	2
	650	0,1803	16,7	1,1	2	2,8	2,2	1,8		650	0,2664	20,1	1,3	2,7	3,1	2,7	2,1
400 x	700	0,1963	17,6	1,1	2,1	2,9	2,4	1,9	550 x	700	0,2899	21,3	1,4	2,9	3,3	2,9	2,1
	750	0,2124	18,6	1,2	2,2	3	2,5	2		750	0,3135	22,5	1,4	3	3,4	3	2,2
	800	0,2284	19,6	1,2	2,4	3,1	2,6	2,1		800	0,3370	23,7	1,5	3,2	3,5	3,1	2,4
	850	0,2445	20,5	1,3	2,5	3,2	2,7	2,2		850	0,3606	24,8	1,6	3,3	3,7	3,3	2,5
	900	0,2605	21,5	1,4	2,6	3,3	2,8	2,3		900	0,3841	26	1,6	3,5	3,8	3,6	2,5
	950	0,2766	22,5	1,4	2,8	3,5	3	2,4		950	0,4077	27,2	1,7	3,7	3,9	3,7	2,6
	1000	0,2926	23,4	1,5	2,9	3,6	3,1	2,4		1000	0,4312	28,4	1,8	3,9	4	3,9	2,7
	1050	0,3087	24,4	1,5	3	3,7	3,2	2,5		1050	0,4548	29,6	1,8	4	4,2	4	2,7
	1105	0,3263	25,4	1,6	3,2	3,8	3,4	2,6		1105	0,4807	30,8	1,9	4,2	4,3	4,2	2,8
	300	0,0870	8,5	0,7	1,1	1,8	1,5	1,4		300	0,1236	12,2	0,9	1,6	2,1	1,8	1,6
	350	0,1056	11,4	0,8	1,2	1,9	1,6	1,5		350	0,1497	13,2	0,9	1,7	2,2	2	1,7
	400	0,1241	12,4	0,8	1,4	2,1	1,8	1,6		400	0,1757	14,2	1	1,9	2,3	2,1	1,8
	450	0,1427	13,4	0,9	1,5	2,2	1,9	1,6		450	0,2018	15,2	1,1	2,1	2,5	2,3	1,8
	500	0,1612	14,4	0,9	1,7	2,4	2	1,7		500	0,2278	16,2	1,1	2,3	2,7	2,4	1,9
	550	0,1798	15,4	1	1,9	2,5	2,1	1,8		550	0,2539	17,2	1,2	2,5	2,8	2,6	2
	600	0,1904	16,8	1,1	2	2,8	2,3	1,8		600	0,2690	18,7	1,3	2,7	3,1	2,7	2,2
	650	0,2090	17,8	1,1	2,1	2,9	2,4	1,9		650	0,2951	19,7	1,4	2,9	3,3	2,9	2,3
450 x	700	0,2275	18,8	1,2	2,3	3	2,5	2	600 x	700	0,3211	20,7	1,4	3,1	3,4	3	2,3
	750	0,2461	19,9	1,3	2,4	3,1	2,6	2,1		750	0,3472	21,8	1,5	3,2	3,5	3,2	2,4
	800	0,2646	20,9	1,3	2,6	3,2	2,8	2,2		800	0,3732	22,8	1,6	3,4	3,7	3,3	2,6
	850	0,2832	22	1,4	2,7	3,4	2,9	2,3		850	0,3993	23,8	1,7	3,6	3,8	3,7	2,7
	900	0,3017	23	1,4	2,9	3,5	3,1	2,4		900	0,4253	24,9	1,7	3,8	4	3,8	2,7
	950	0,3203	24	1,5	3,0	3,6	3,2	2,4		950	0,4514	26	1,8	3,9	4,1	4	2,8
	1000	0,3388	25,1	1,6	3,2	3,7	3,3	2,5		1000	0,4774	27	1,9	4,1	4,2	4,1	2,9
	1050	0,3574	26,1	1,6	3,3	3,9	3,4	2,6		1050	0,5035	28	1,9	4,3	4,4	4,2	2,9
	1105	0,3778	27,2	1,7	3,4	4	3,7	2,7		1105	0,5321	29,1	2	4,5	4,5	4,4	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]		Effective area Sef [m²]	Weight [kg]						B x H [mm]		Effective area Sef [m²]	Weight [kg]					
			Damper *	G1 grille	G2 grille	G3 grille	G4 grille	Install. frame				Damper *	G1 grille	G2 grille	G3 grille	G4 grille	Install. frame
	300	0,1358	12,8	0,9	1,7	2,1	1,9	1,7		300	0,1724	14,4	1,1	2,1	2,9	2,2	2
	350	0,1644	13,8	1	1,8	2,3	2,1	1,8		350	0,2085	15,6	1,2	2,2	3	2,4	2
	400	0,1929	14,9	1,1	2	2,4	2,2	1,8		400	0,2445	16,8	1,2	2,4	3,1	2,6	2,1
	450	0,2215	15,9	1,1	2,2	2,6	2,4	1,9		450	0,2806	18	1,3	2,6	3,2	2,8	2,2
	500	0,2500	17,0	1,2	2,4	2,8	2,5	2		500	0,3166	19,2	1,4	2,8	3,4	3	2,3
	550	0,2786	18,0	1,3	2,6	2,9	2,7	2,1		550	0,3527	20,4	1,5	3,2	3,5	3,1	2,4
	600	0,2952	19,5	1,4	2,9	3,2	2,9	2,3		600	0,3738	22,1	1,6	3,4	3,7	3,3	2,6
	650	0,3238	20,6	1,4	3	3,4	3	2,3		650	0,4099	23,3	1,7	3,6	3,8	3,7	2,7
650 x	700	0,3523	21,6	1,5	3,2	3,5	3,2	2,4	800 x	700	0,4459	24,5	1,7	3,8	3,9	3,9	2,8
	750	0,3809	22,8	1,6	3,4	3,7	3,3	2,5		750	0,4820	25,8	1,8	4	4,1	4,1	2,9
	800	0,4094	23,9	1,7	3,6	3,8	3,7	2,7		800	0,5180	27	1,9	4,3	4,2	4,3	3
	850	0,4380	24,9	1,7	3,8	4	3,9	2,7		850	0,5541	28,2	2	4,4	4,4	4,4	3,1
	900	0,4665	26,0	1,8	4	4,1	4	2,8		900	0,5901	29,4	2,1	4,7	4,6	4,6	3,2
	950	0,4951	27,1	1,9	4,1	4,2	4,2	2,9		950	0,6262	30,7	2,2	4,9	4,7	4,8	3,3
	1000	0,5236	28,2	2	4,4	4,4	4,3	3		1000	0,6622	31,9	2,3	5,1	4,9	4,9	3,4
	1050	0,5522	29,3	2	4,5	4,6	4,5	3		1050	0,6983	33,1	2,3	5,3	5,1	5,1	3,5
	1105	0,5807	30,4	2,1	4,7	4,7	4,6	3,1		1105	0,7379	34,4	2,4	5,6	5,3	5,3	3,6
	300	0,1480	13,3	1	1,8	2,2	2,1	1,8		300	0,1846	15	1,1	2,2	3	2,4	2,1
	350	0,1791	14,4	1	1,9	2,4	2,2	1,8		350	0,2232	16,2	1,2	2,3	3,1	2,6	2,1
	400	0,2101	15,5	1,1	2,2	2,5	2,4	1,9		400	0,2617	17,5	1,3	2,5	3,2	2,7	2,2
	450	0,2412	16,6	1,2	2,3	2,7	2,5	2		450	0,3003	18,7	1,4	2,7	3,4	2,9	2,3
	500	0,2722	17,7	1,3	2,6	2,9	2,7	2,1		500	0,3388	20	1,5	2,9	3,5	3,1	2,4
	550	0,3033	18,8	1,4	2,8	3	2,9	2,1		550	0,3774	21,2	1,6	3,3	3,7	3,3	2,5
	600	0,3214	20,4	1,4	3	3,4	3	2,3		600	0,4000	22,9	1,7	3,6	3,8	3,7	2,7
	650	0,3525	21,5	1,5	3,2	3,5	3,2	2,4		650	0,4386	24,2	1,7	3,8	4	3,9	2,7
700 x	700	0,3835	22,6	1,6	3,4	3,7	3,6	2,5	850 x	700	0,4771	25,4	1,8	4	4,1	4	2,8
	750	0,4146	23,8	1,7	3,6	3,8	3,7	2,5		750	0,5157	26,8	1,9	4,1	4,2	4,3	2,9
	800	0,4456	24,9	1,7	3,8	3,9	3,9	2,7		800	0,5542	28	2	4,4	4,4	4,4	3
	850	0,4767	26,0	1,8	4	4,1	4	2,8		850	0,5928	29,3	2,1	4,6	4,6	4,6	3,1
	900	0,5077	27,1	1,9	4,2	4,3	4,2	2,9		900	0,6313	30,5	2,2	4,9	4,7	4,8	3,2
	950	0,5388	28,3	2	4,4	4,4	4,4	3		950	0,6699	31,9	2,3	5,1	4,9	5	3,3
	1000	0,5698	29,4	2,1	4,6	4,6	4,5	3		1000	0,7084	33,1	2,4	5,4	5,1	5,2	3,4
	1050	0,6009	30,5	2,1	4,8	4,7	4,7	3,1		1050	0,7470	34,4	2,5	5,6	5,3	5,3	3,5
	1105	0,6350	31,7	2,2	5	4,9	4,8	3,2		1105	0,7894	35,7	2,5	5,8	5,4	5,5	3,6
	300	0,1602	13,9	1	1,9	2,8	2,1	1,8		300	0,1968	15,3	1,2	2,3	3,1	2,5	2,1
	350	0,1938	15,0	1,1	2	2,9	2,3	1,9		350	0,2379	16,6	1,3	2,4	3,2	2,7	2,2
	400	0,2273	16,2	1,2	2,2	3	2,5	2		400	0,2789	17,9	1,4	2,6	3,3	2,8	2,3
	450	0,2609	17,3	1,2	2,4	3,1	2,6	2,1		450	0,3200	19,2	1,4	2,9	3,5	3,1	2,4
	500	0,2944	18,5	1,3	2,6	3,3	2,8	2,1		500	0,3610	20,5	1,5	3,1	3,6	3,2	2,4
	550	0,3280	19,6	1,4	3	3,4	3	2,2		550	0,4021	21,7	1,6	3,5	3,8	3,6	2,5
	600	0,3476	21,2	1,5	3,2	3,5	3,2	2,4		600	0,4262	23,5	1,7	3,8	4	3,8	2,7
	650	0,3812	22,4	1,6	3,4	3,7	3,3	2,5		650	0,4673	24,8	1,8	4	4,1	4	2,8
750 x	700	0,4147	23,6	1,7	3,6	3,8	3,7	2,5	900 x	700	0,5083	26,1	1,9	4,2	4,3	4,2	2,9
	750	0,4483	24,8	1,8	3,8	3,9	3,9	2,6		750	0,5494	27,5	2	4,6	4,4	4,5	3
	800	0,4818	26,0	1,8	4	4,1	4,1	2,8		800	0,5904	28,8	2,1	4,9	4,5	4,6	3,1
	850	0,5154	27,1	1,9	4,2	4,3	4,2	2,9		850	0,6315	30,1	2,2	5,1	4,7	4,8	3,2
	900	0,5489	28,3	2	4,4	4,4	4,4	3		900	0,6725	31,4	2,3	5,4	4,9	5	3,3
	950	0,5825	29,5	2,1	4,6	4,6	4,6	3,1		950	0,7136	32,8	2,4	5,6	5,1	5,2	3,4
	1000	0,6160	30,7	2,2	4,9	4,7	4,7	3,2		1000	0,7546	34,1	2,5	5,9	5,2	5,4	3,5
	1050	0,6496	31,8	2,2	5	4,9	4,9	3,3		1050	0,7957	35,4	2,6	6,1	5,5	5,5	3,6
	1105	0,6865	33,1	2,3	5,3	5,1	5,1	3,4		1105	0,8408	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]		Effective area Sef [m²]	Weight [kg]						B x H [mm]		Effective area Sef [m²]	Weight [kg]					
			Damper *	G1 grille	G2 grille	G3 grille	G4 grille	Install. frame				Damper *	G1 grille	G2 grille	G3 grille	G4 grille	Install. frame
	300	0,2090	15,9	1,2	2,3	3,2	2,7	2,2		300	0,2334	16,9	1,3	2,6	3,4	2,8	2,3
	350	0,2526	17,2	1,3	2,5	3,3	2,8	2,3		350	0,2820	18,4	1,4	2,8	3,5	3	2,4
	400	0,2961	18,5	1,4	2,8	3,5	3	2,4		400	0,3305	19,8	1,5	3	3,7	3,2	2,5
	450	0,3397	19,9	1,5	3	3,6	3,2	2,4		450	0,3791	21,2	1,6	3,3	3,9	3,4	2,6
	500	0,3832	21,2	1,6	3,2	3,8	3,4	2,5		500	0,4276	22,6	1,7	3,5	4	3,8	2,7
	550	0,4268	22,5	1,7	3,7	3,9	3,7	2,6		550	0,4762	24	1,8	4	4,2	4	2,7
	600	0,4524	24,4	1,8	3,9	4,1	4	2,8		600	0,5048	26,1	1,9	4,3	4,4	4,2	2,9
	650	0,4960	25,7	1,9	4,1	4,2	4,2	2,9		650	0,5534	27,5	2	4,5	4,6	4,5	3
950 x	700	0,5395	27,1	2	4,4	4,4	4,4	3	1050 x	700	0,6019	28,9	2,1	4,8	4,7	4,7	3,1
	750	0,5831	28,5	2,1	4,8	4,6	4,6	3,1		750	0,6505	30,5	2,2	5,2	4,9	5	3,2
	800	0,6266	29,9	2,2	5,1	4,8	4,8	3,2		800	0,6990	31,9	2,3	5,6	5,1	5,2	3,3
	850	0,6702	31,2	2,3	5,3	5	5	3,3		850	0,7476	33,3	2,5	5,8	5,4	5,4	3,4
	900	0,7137	32,5	2,4	5,6	5,2	5,2	3,4		900	0,7961	34,8	2,6	6,1	5,5	5,6	3,5
	950	0,7573	34	2,5	5,8	5,4	5,4	3,5		950	0,8447	36,3	2,7	6,4	5,7	5,8	3,6
	1000	0,8008	35,3	2,6	6,1	5,6	5,6	3,6		1000	0,8932	37,7	2,8	6,7	5,9	6	3,7
	1050	0,8444	36,7	2,7	6,3	5,8	5,8	3,7		1050	0,9418	39,2	2,9	6,9	6,2	6,2	3,8
	1105	0,8923	38,1	2,8	6,6	6	5,9	3,8		1105	0,9952	40,7	3	7,2	6,4	6,4	3,9
	300	0,2212	16,4	1,3	2,5	3,3	2,7	2,3		300	0,2259	17,5	1,4	2,7	3,4	3	2,4
	350	0,2673	17,8	1,4	2,6	3,4	2,9	2,3		350	0,2772	19	1,5	2,9	3,6	3,2	2,5
	400	0,3133	19,1	1,5	2,9	3,6	3,1	2,4		400	0,3285	20,4	1,6	3,2	3,8	3,4	2,6
	450	0,3594	20,5	1,6	3,2	3,7	3,3	2,5		450	0,3798	21,9	1,7	3,4	4	3,7	2,7
	500	0,4054	21,9	1,7	3,4	3,9	3,7	2,6		500	0,4311	23,4	1,8	3,7	4,1	3,9	2,8
	550	0,4515	23,3	1,8	3,9	4	3,9	2,7		550	0,4824	24,8	1,9	4,2	4,3	4,2	2,8
	600	0,4786	25,2	1,9	4,1	4,2	4,1	2,9		600	0,5337	26,9	2	4,5	4,5	4,4	3
	650	0,5247	26,6	2	4,4	4,4	4,3	3		650	0,5850	28,4	2,1	4,7	4,7	4,6	3,1
1000 x	700	0,5707	28	2,1	4,6	4,6	4,5	3	1105 x	700	0,6363	29,9	2,2	5	4,9	4,8	3,2
	750	0,6168	29,5	2,2	5	4,8	4,8	3,1		750	0,6876	31,4	2,3	5,4	5	5,2	3,3
	800	0,6628	30,8	2,3	5,3	5	5	3,2		800	0,7389	32,9	2,4	5,7	5,2	5,4	3,4
	850	0,7089	32,2	2,4	5,5	5,2	5,2	3,3		850	0,7902	34,4	2,5	6	5,5	5,6	3,5
	900	0,7549	33,6	2,5	5,8	5,4	5,4	3,4		900	0,8415	35,9	2,6	6,3	5,7	5,8	3,6
	950	0,8010	35,1	2,6	6	5,6	5,6	3,5		950	0,8928	37,4	2,8	6,6	5,9	6	3,7
	1000	0,8470	36,5	2,7	6,3	5,8	5,8	3,6		1000	0,9441	38,9	2,9	6,9	6,1	6,2	3,8
	1050	0,8931	37,9	2,8	6,6	6	6	3,7		1050	0,9954	40,4	3	7,2	6,4	6,4	3,9
	1105	0,9437	39,4	2,9	6,9	6,2	6,2	3,8		1105	1,0518	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.*

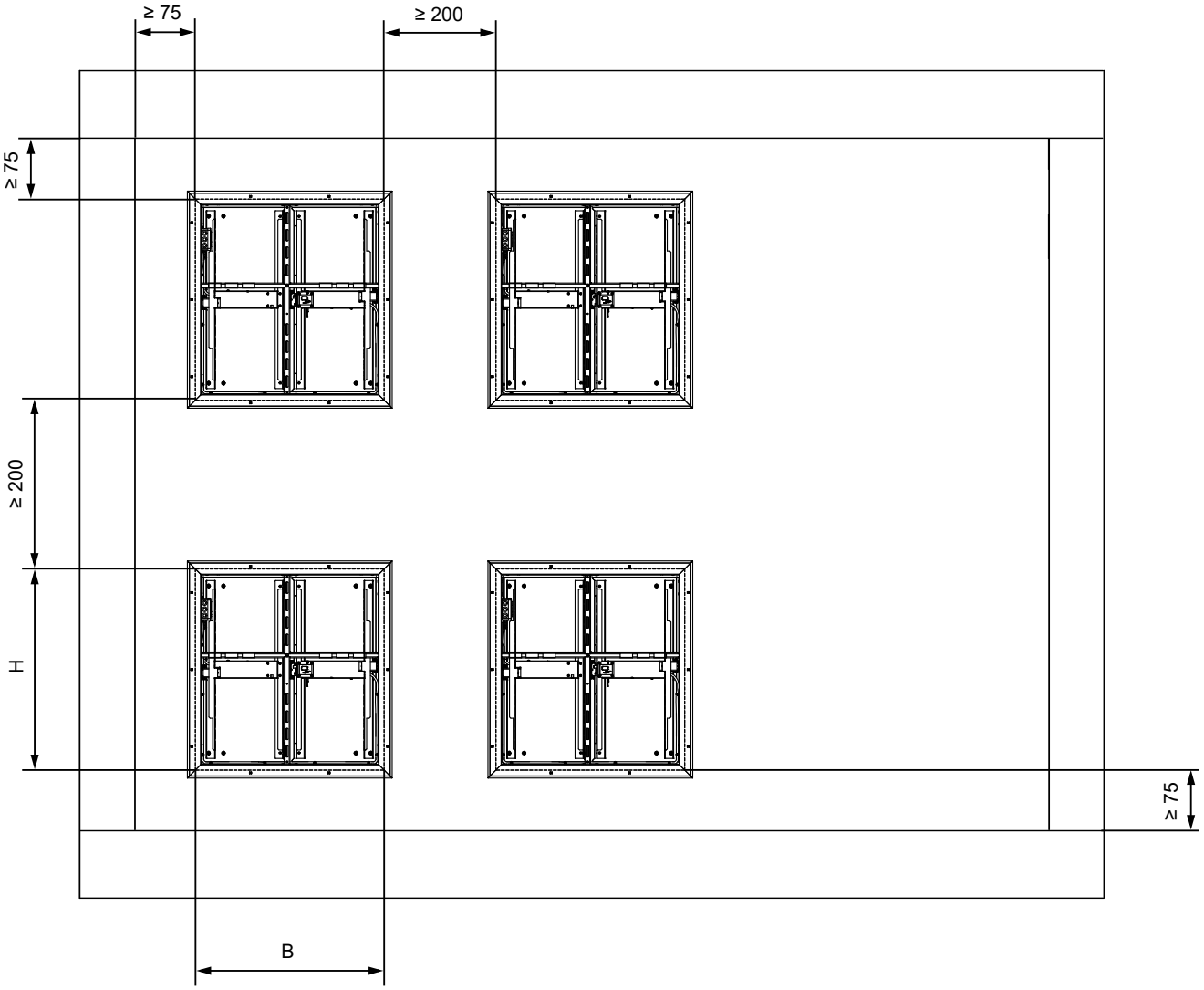
V. INSTALLATION

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_{ed}) S1500[V]C_{300}(N)AAmulti	25
		Installation frame - mastic		26
Shaft from fire-resistant panels – specific weight min 500 kg/m – 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.: • 50 mm PROMATECT L 500 • 45 mm THERMAX SL (Tecniver) • 45 mm GEOTEC S • 45 mm GEOFLAM F • 35 mm GEOFLAM F Light		Mastic	EI 120 (v_{ed}) S1500[V]C_{300}(N)AAmulti	27
		Installation frame - mastic		28
Shaft from fire-resistant panels – specific weight min 500 kg/m – 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.: • 40 mm PROMATECT L 500 • 45 mm THERMAX SL (Tecniver) • 45 mm GEOTEC S • 35 mm GEOFLAM F • 35 mm GEOFLAM F Light		Mastic	EI 90 (v_{ed}) S1500[V]C_{300}(N)AAmulti	27
		Installation frame - mastic		28
Shaft from fire-resistant panels – specific weight min 500 kg/m – 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.: • 30 mm PROMATECT L 500 • 45 mm THERMAX SL (Tecniver) • 30 mm GEOTEC S • 30 mm GEOFLAM F • 35 mm GEOFLAM F Light		Mastic	EI 60 (v_{ed}) S1500[V]C_{300}(N)AAmulti	27
		Installation frame - mastic		28
Shaft from fire-resistant panels – specific weight min 500 kg/m – 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.: • 35 mm THERMAX SL (Tecniver)		Mastic	EI 60 (v_{ed}) S500[V]C_{300}(N)AAmulti	27
		Installation frame - mastic		28

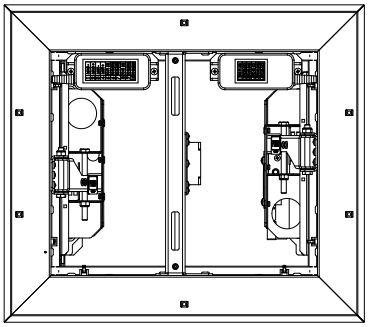
** Duct system must be tested and classified in accordance with EN 13501-4*

Installation procedure

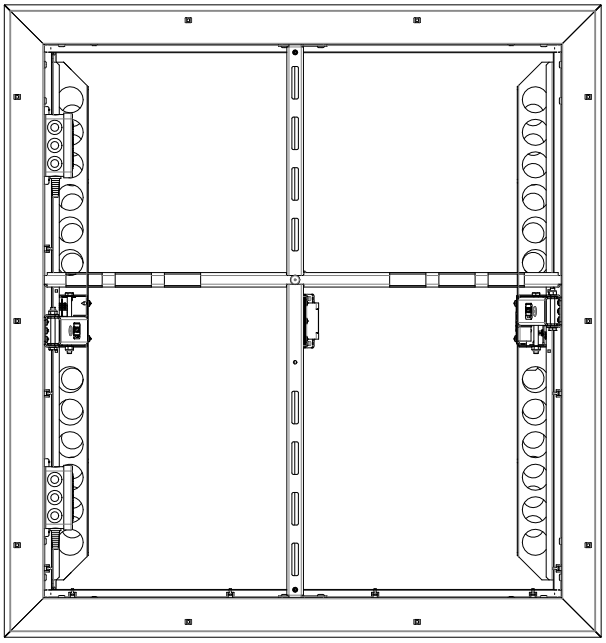
Approved damper installation positions

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

Correct installation position H < 570



Correct installation position H ≥ 570



Installation without installation frame

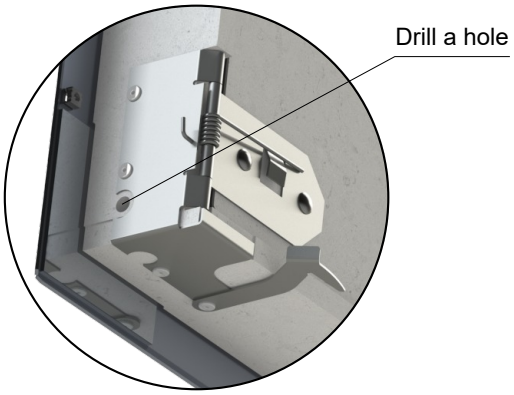
1) Drill a hole in the corner of the damper for a connecting cable, prepare a cable passage in the shaft wall.
2) Check that all cage nuts or other elements necessary for the connection of the grille are on the damper.
3) Fill the inside of the damper frame with mastic.
4) Install SEDM-2D into the center 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

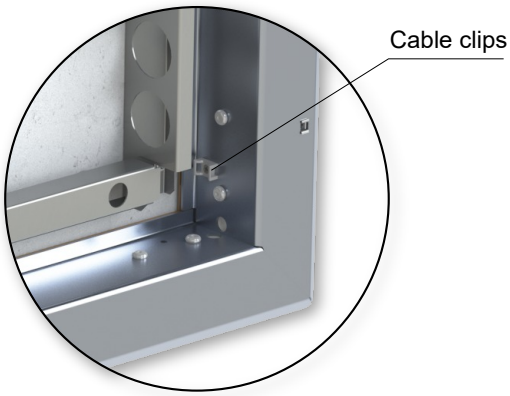
1) Install frame into the opening. For frame installation procedure → see page 23
2) Drill a hole in the corner of the damper for a connecting cable, prepare a cable passage in the shaft wall.
3) Check that all cage nuts or other elements necessary for the connection of the grille are on the damper.
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 trough 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.

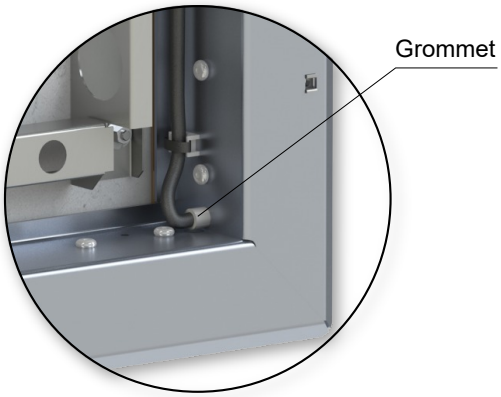


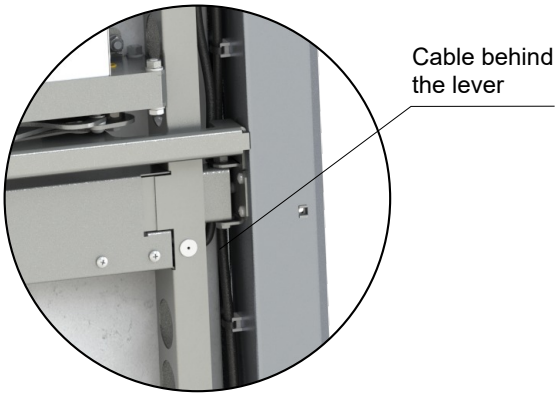
3) Electric connection to the junction box should be made **preferably with a cable coming from the bottom**. For bottom connection, those combinations of the elements are allowed:
   - Soft cable gland of IP 42 min (grommet 1251347 – Essentra), fixing the user cable by anti-traction on the junction 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.

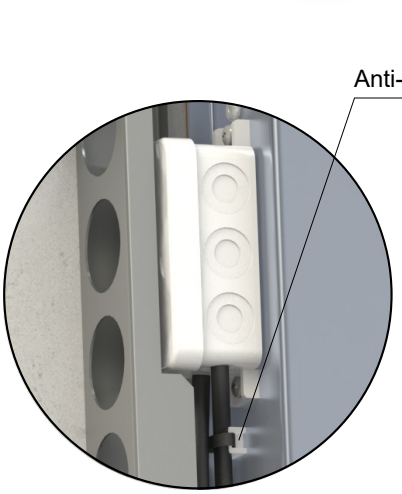
   Should the connection to the junction to be made with a cable coming from the top, only this combination of the elements is allowed:
   - Bolt-type cable gland(s) of size PG 7 max with hexagon 15 max key size (SKINTOP STR PG 7 LAPP Group) combined with a round user cable(s).

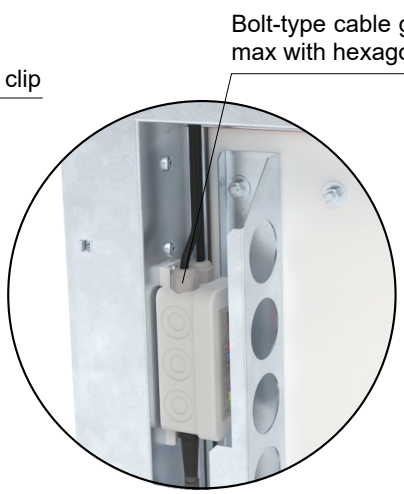
   For the connection from the top, it is forbidden to use any other type of passage through the wall of the junction box (as soft cable glands, bundle of individual wires, double line cable, passage of a round cable through the wall, etc.).
   In all cases, cable(s) should be secured against being pulled out of je junction box. Always test the effectiveness of the anti-traction measures after the installation.

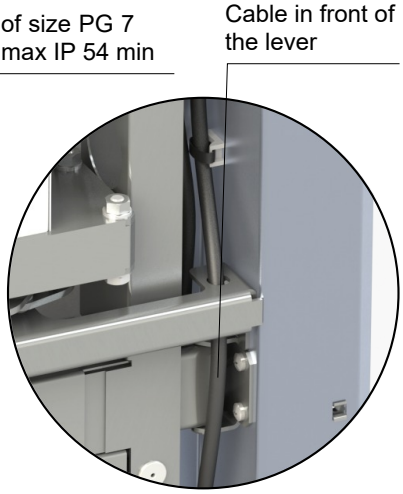
4) **Make sure that the cable does not obstruct opening and closing of the damper blade. Check that the cable is not pinched when opening or closing the damper blade!** The cable can be pulled behind the lever or through the hole in the centre reinforcement. Seal the cable passage through the shaft wall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





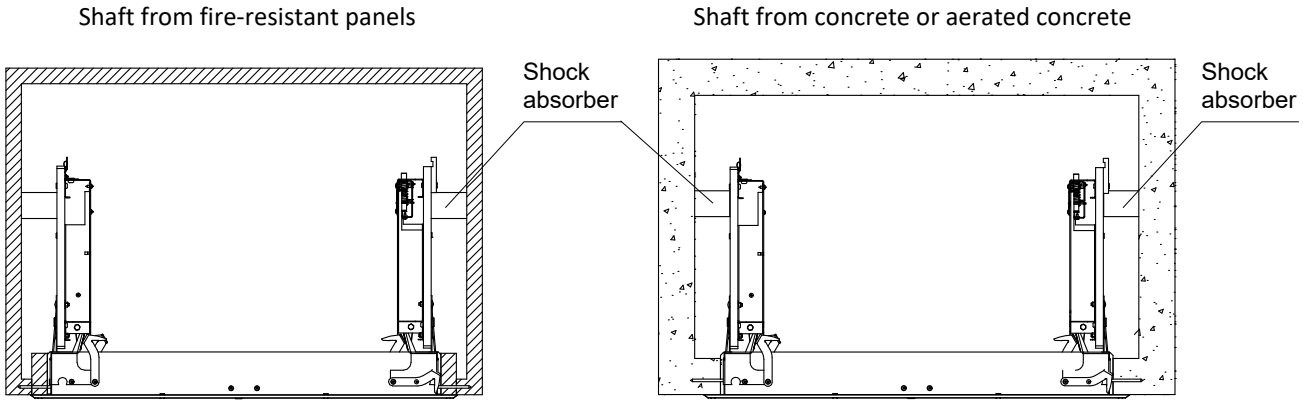






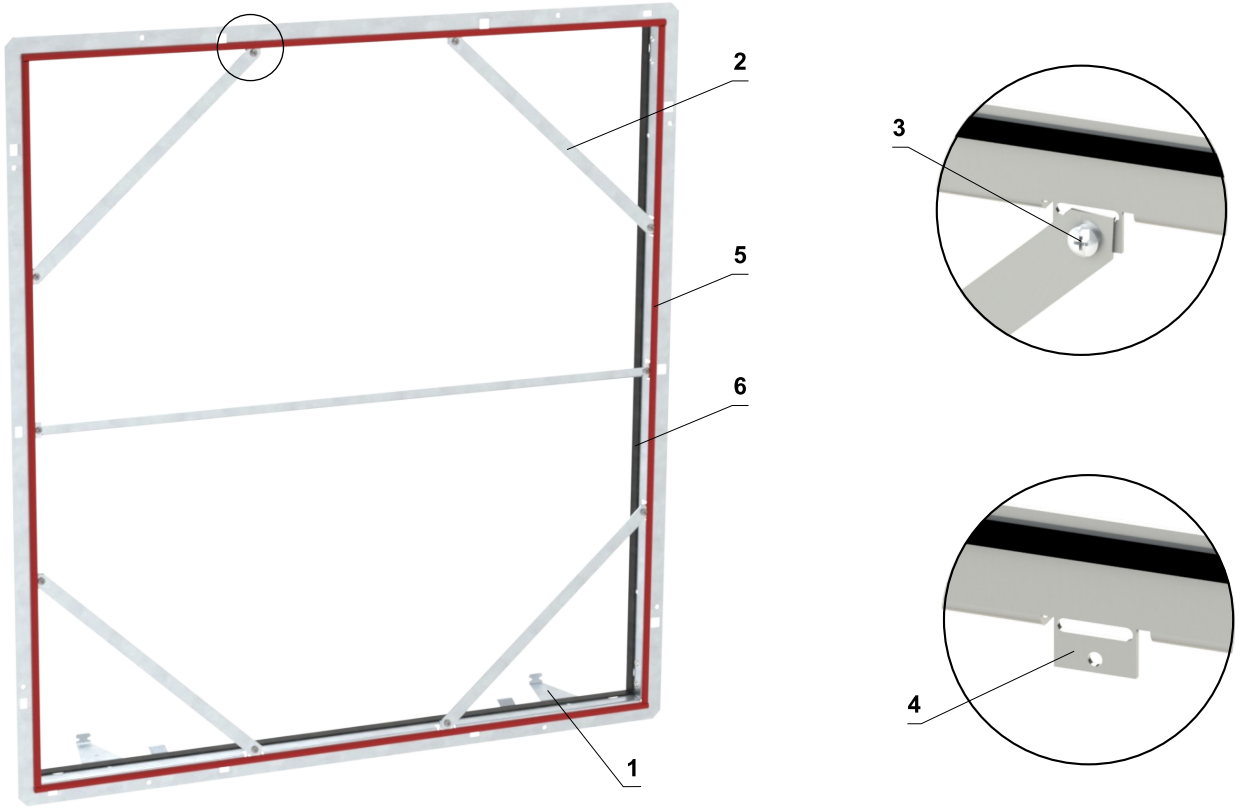
Shock absorber

- 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

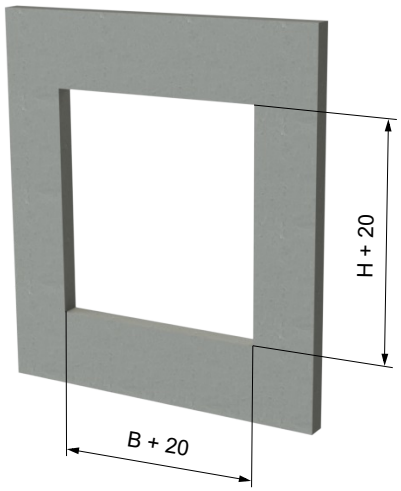
- Installation frame is delivered separately



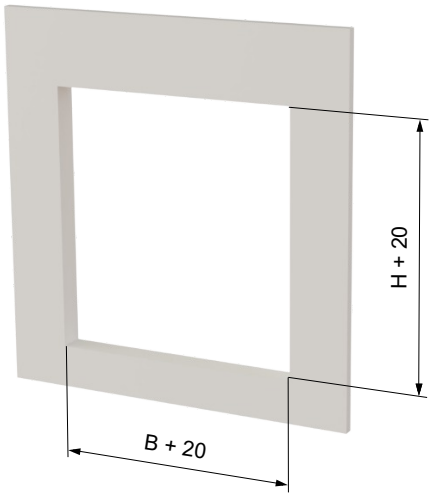
1 Fastening plate 4x
2 Reinforcement
3 Screw for reinforcement
4 Mounting plate for reinforcements
5 Rubber seal
6 Promaseal

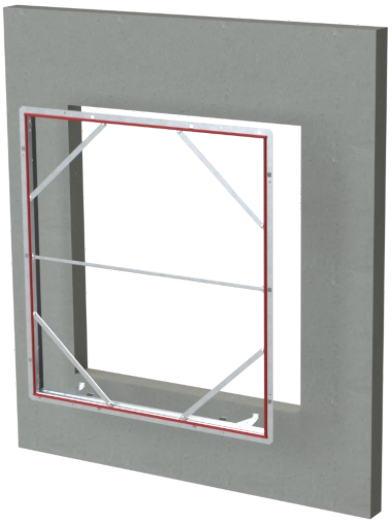
Installation procedure

1) Prepare an installation opening in dimension B+20 x H+20, for more info → see page 26 and 28

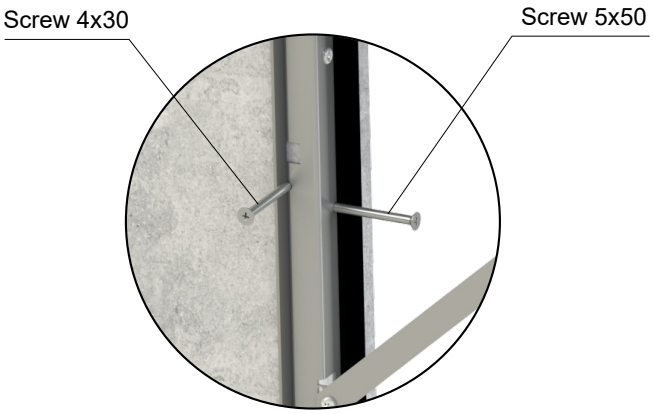


2) Prepare an installation frame and apply mastic around the frame at the corners.

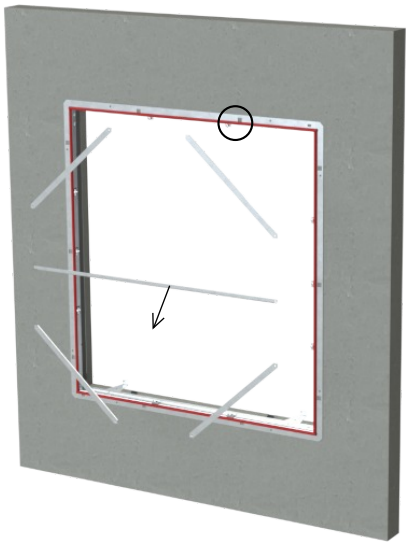


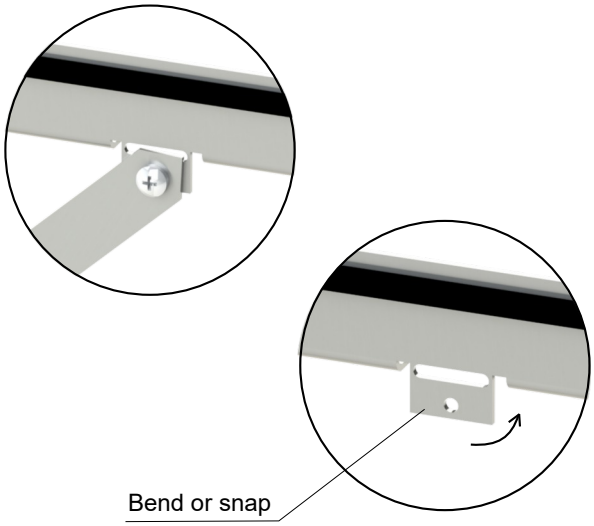


3) Install frame into the opening and fix it with screws. Screws 4x30 from the front side of the frame and screws 5x50 from the inner side. Fill the gap between the frame and shaft with mastic. Make sure that the gap is perfectly filled.
Let the mastic harden.

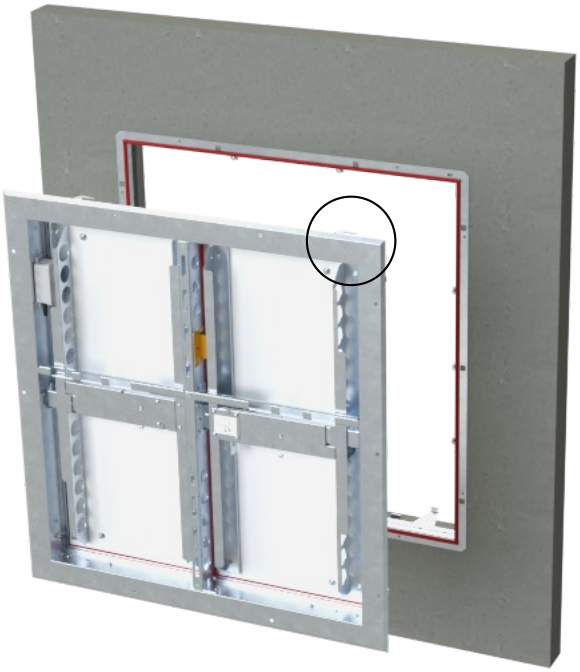


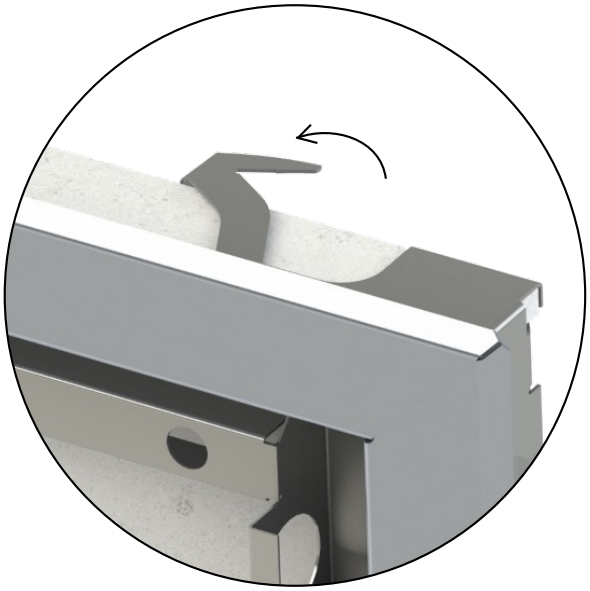
4) After hardening the mastic you can remove frame reinforcements by unscrewing the screws and after that, bend or snap mounting plates for frame reinforcements.



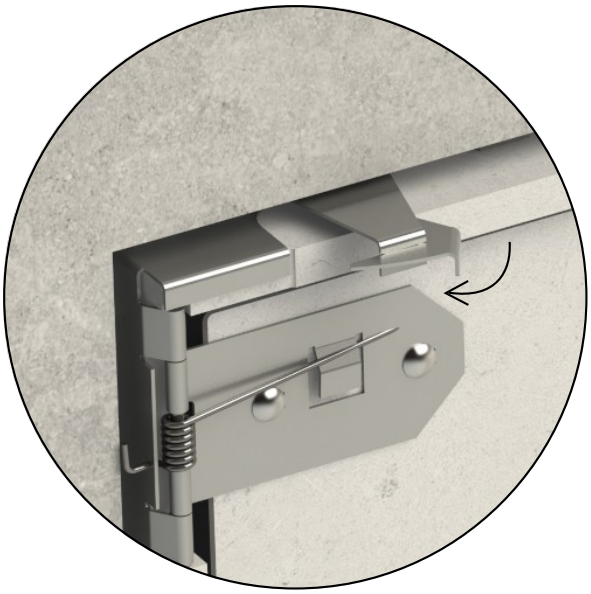


5) Prepare SEDM-2D and set four fastening plates to the "open" position.



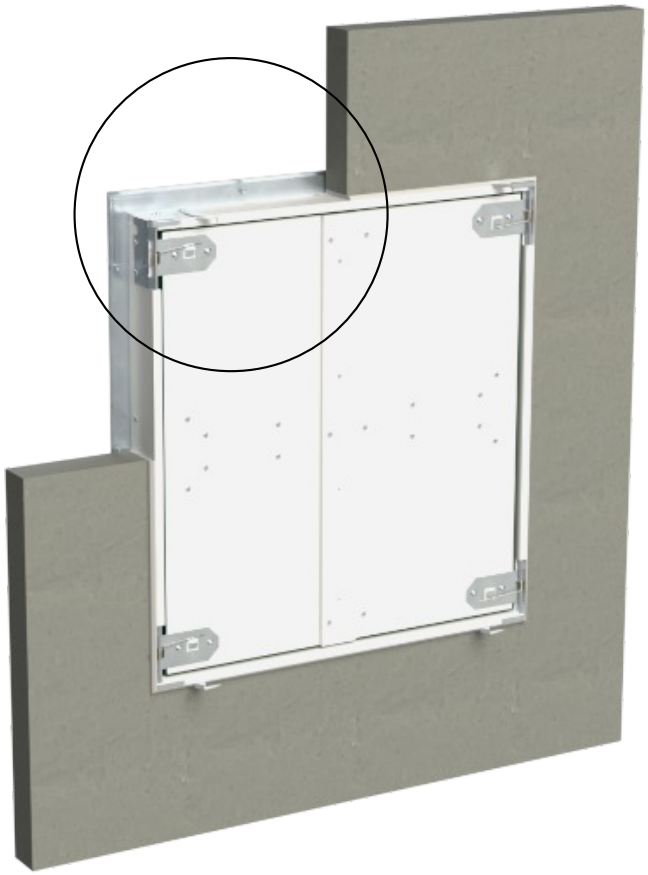


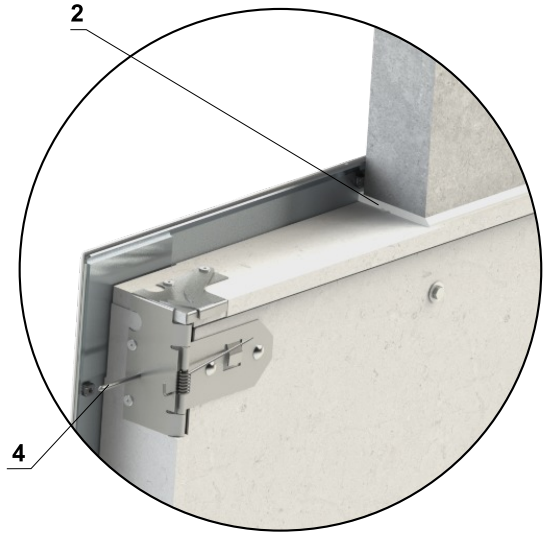
6) Install SEDM-2D on the frame and mount it on four fastening plates.



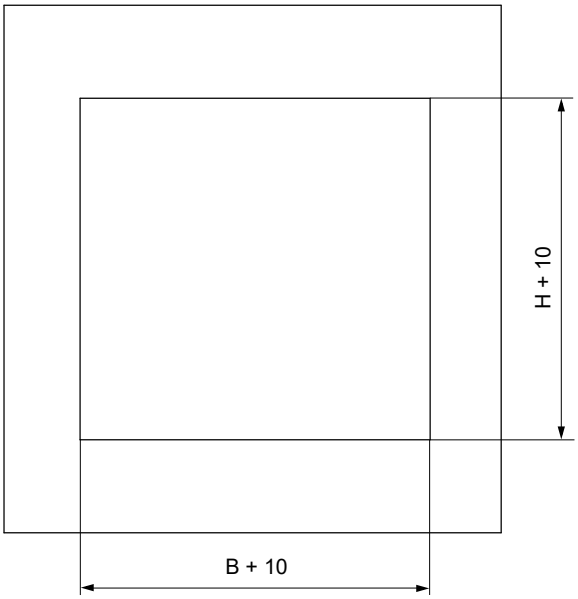
Installation - shaft from concrete or aerated concrete

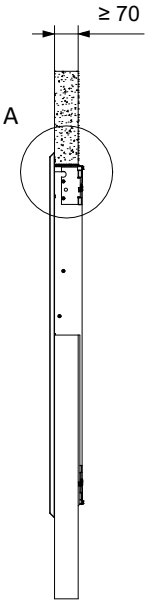
With mastic

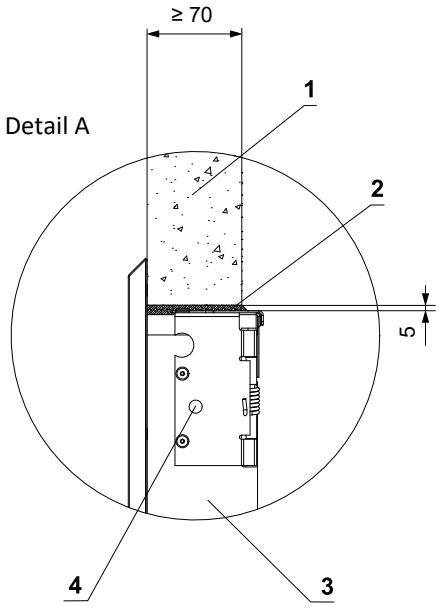




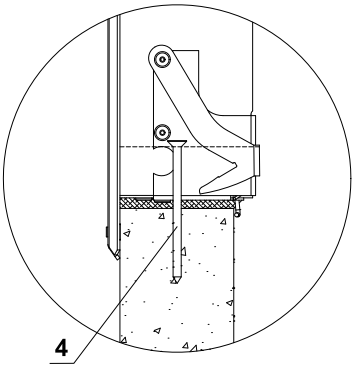
Installation opening







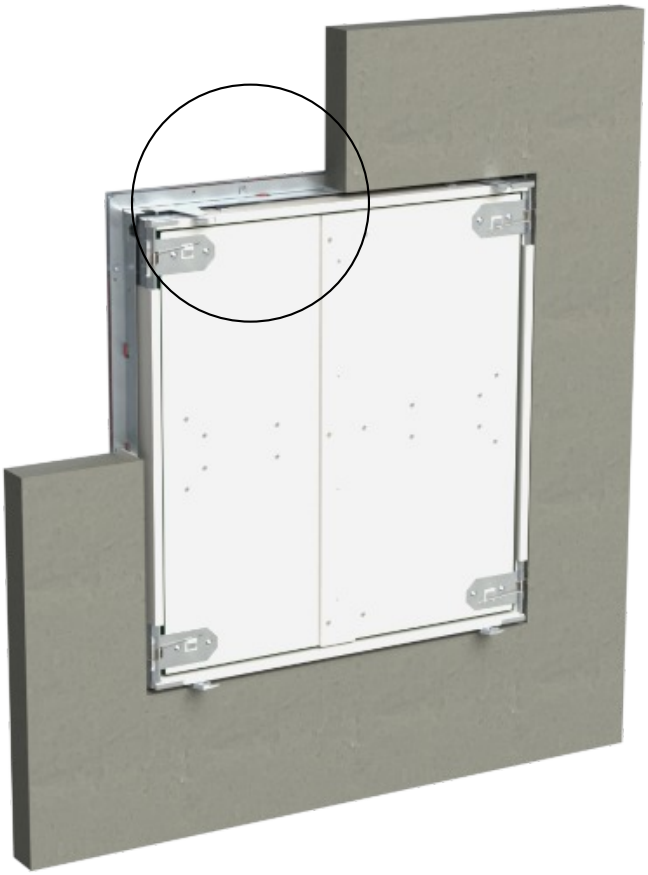
Detail of connection of the damper with shaft

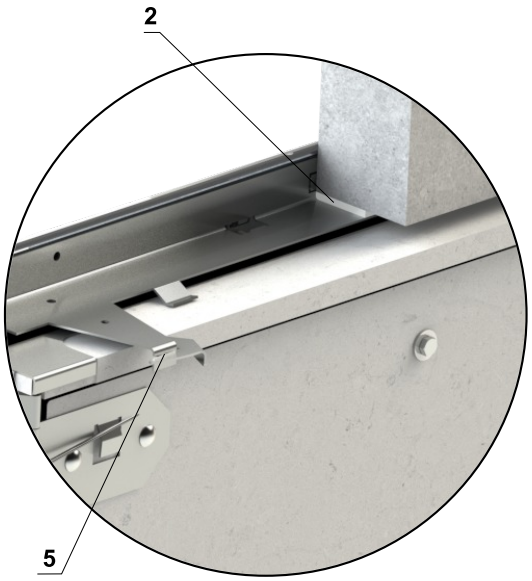


1 Concrete or aerated concrete
2 Fire-resistant mastic (e.g. HILTI Firestop Acrylic coating SFS-S ACR)
3 SEDM-2D
4 Screw 6x100 mm 4x (connection of the damper with shaft)

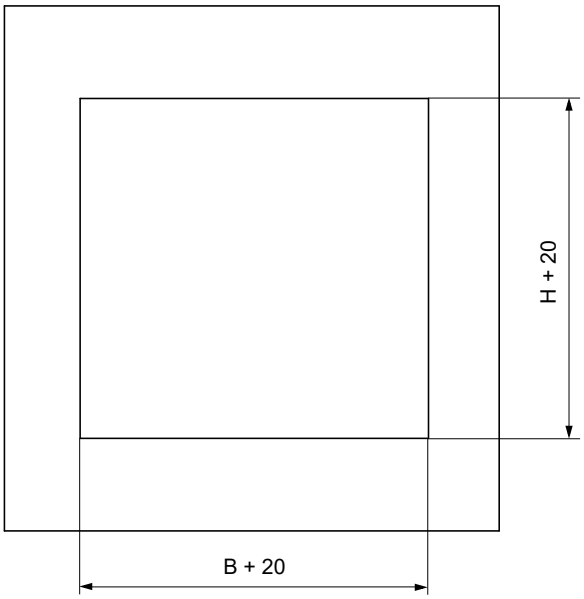
Installation - shaft from concrete or aerated concrete

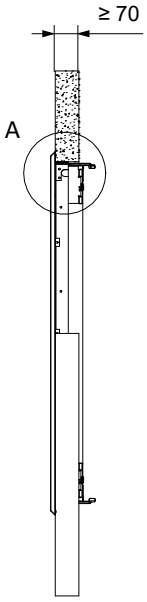
With installation frame

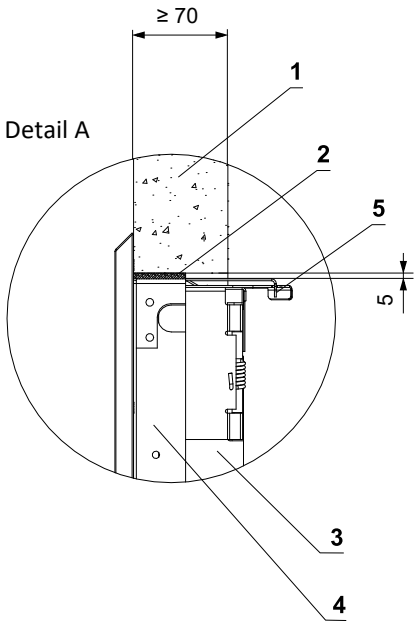




Installation opening



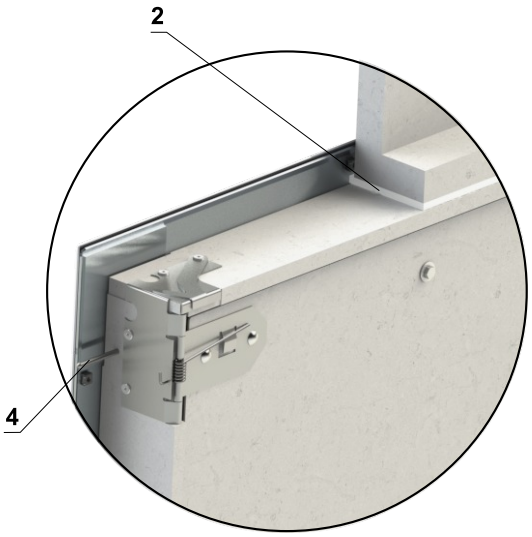


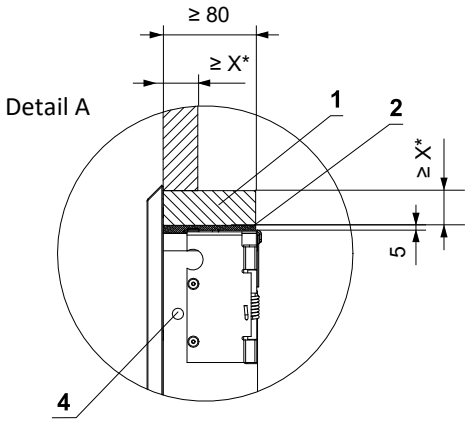


1 Concrete or aerated concrete
2 Fire-resistant mastic (e.g. HILTI Firestop Acrylic coating SFS-S ACR)
3 SEDM-2D
4 Installation frame - installation procedure → see page 23
5 Installation frame and damper fastening plate 4x

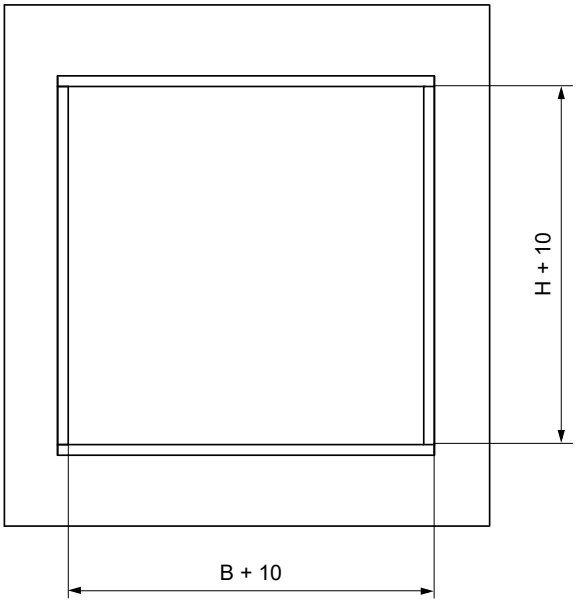
Installation - shaft from fire-resistant panels

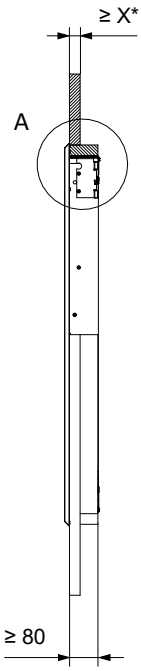
With mastic



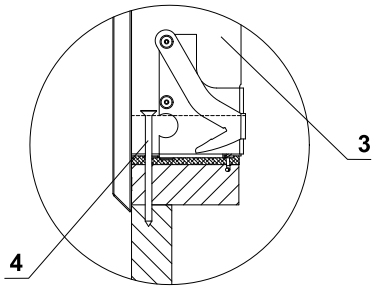


Installation opening

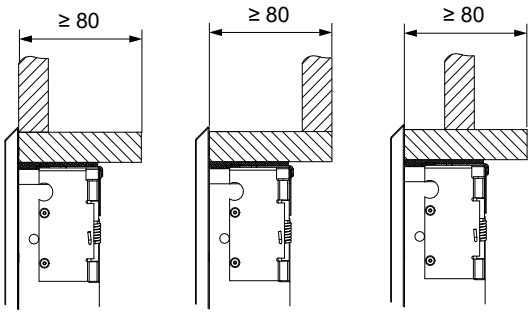




Detail of connection of the damper with shaft



Shaft examples

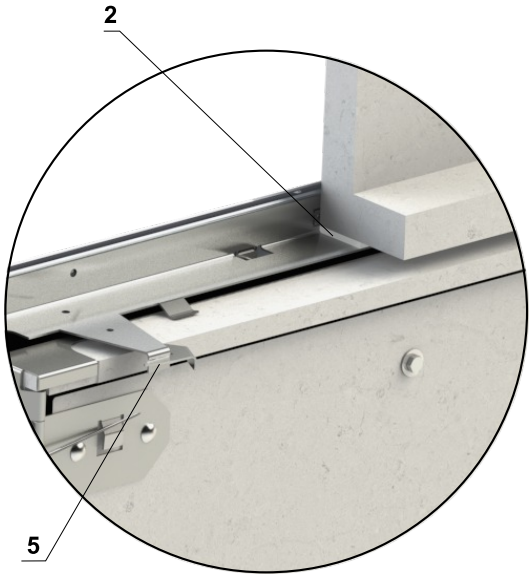


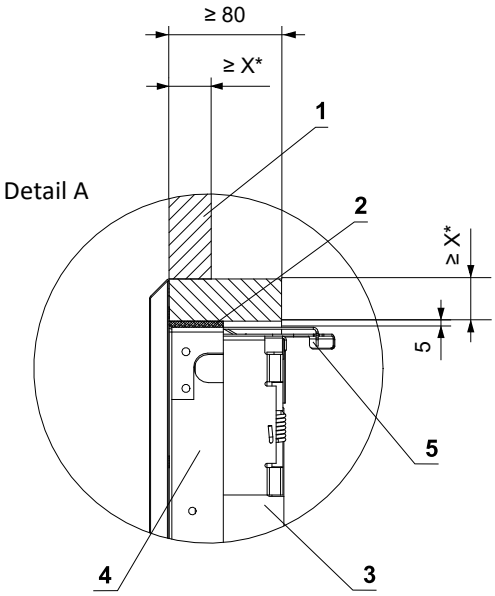
1 Fire-resistant panels
2 Fire-resistant mastic (e.g. HILTI Firestop Acrylic coating SFS-S ACR)
3 SEDM-2D
4 Screw 5x70 mm 4x (connection of the damper with shaft)

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

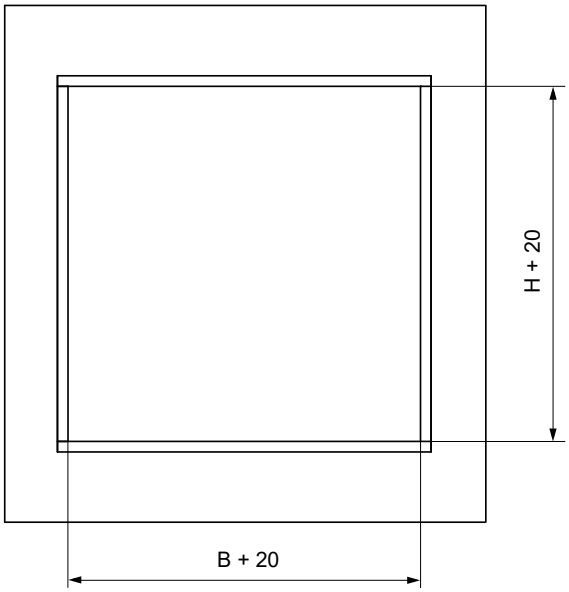
Installation - shaft from fire-resistant panels

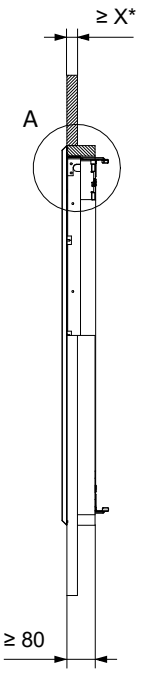
With installation frame



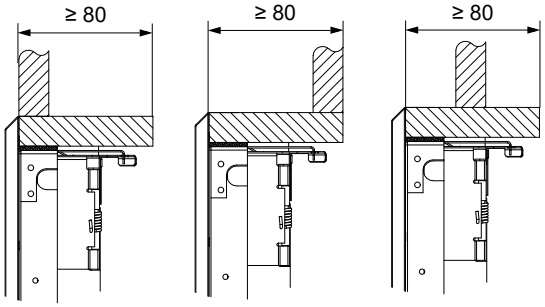


Installation opening





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

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

Δp	[Pa]	presure loss
w	[m/s]	air flow speed in nominal damper section
ρ	[kg/m³]	air density
ξ	[-]	coefficient of local pressure loss for the nominal damper section

Coefficient of local pressure loss

	B															
H	**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 dismounted.
- 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 dismounted).
- 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.

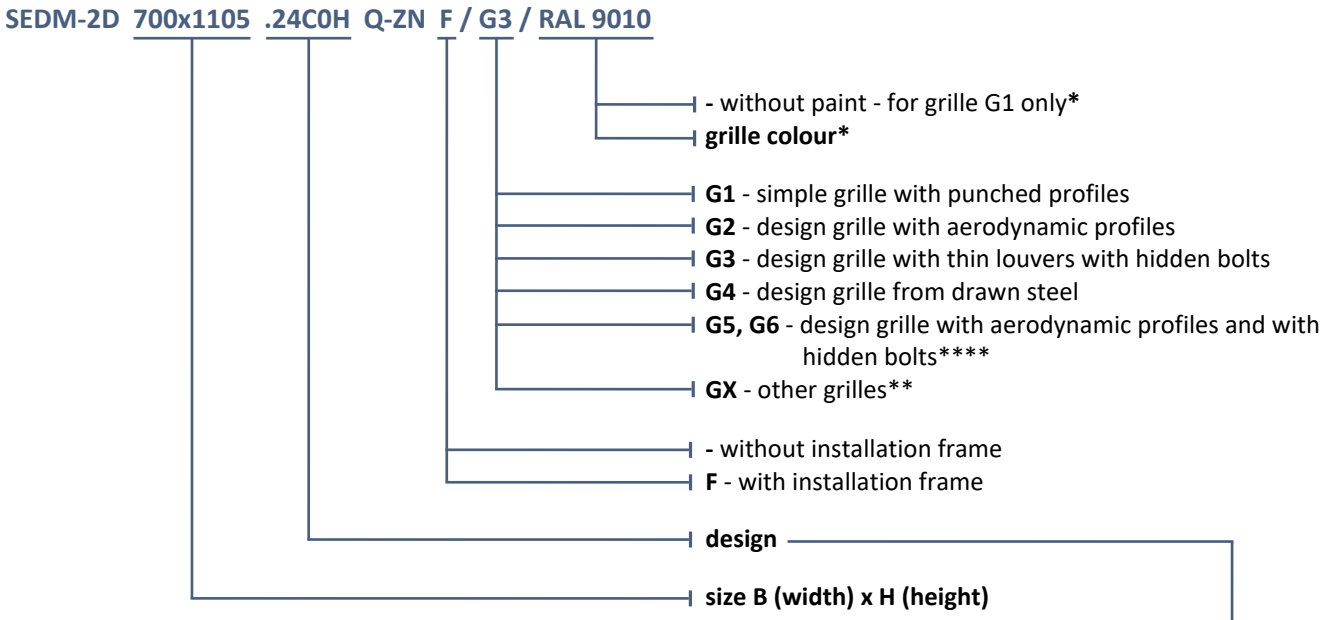
X. ORDERING INFORMATION

Data label

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

Ordering key

Multi compartment smoke control damper SEDM-2D



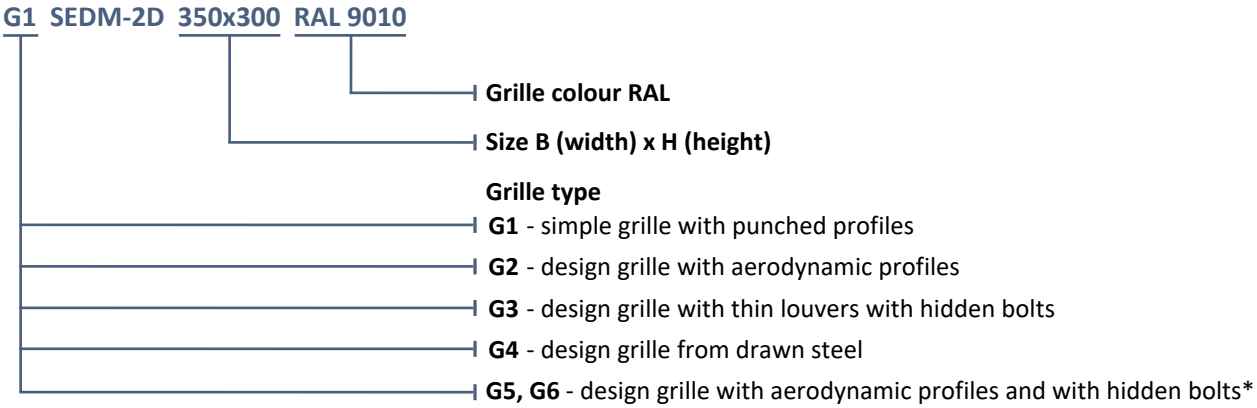
EXAMPLE:
SEDM-2D 700x1105 .24C0H Q-ZN F/G3/RAL9010 - 700x1105-damper size, .24C0H-damper design, Q-ZN-damper body make of galvanized steel, F-with installation frame, G3-grille G3, RAL9010-grille colour

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

* *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.*
** *Additional third-party review and approval is required. The review process is based on documentation exchange only.*
*** *This design is not in accordance with NF 61.937-1, and not in accordance with NF 61.937-10*
**** *These grilles are supplied on request from an external supplier. Contact the Mandík sales department.*

Accessories

Grille



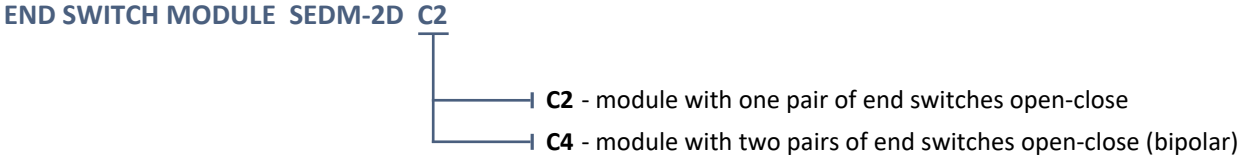
** These grilles are supplied on request from an external supplier. Contact the Mandík sales department.*

Installation frame

Spare parts

Restraint mechanism

End switch module



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