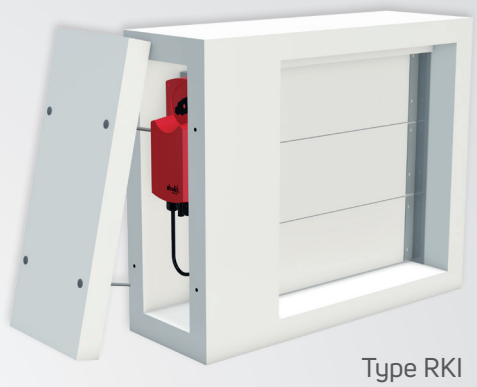
Product Information

Smoke Control Damper Type RKI

Content

Smoke control damper type RKI

- Classification according to DIN EN 13501-4
  EI 90 (v_{edw} h_{odw} i↔o) S 1000 C_{10000}
  HOT400/30 MA multi,
  EI 120 (v_{ew} i↔o) S 1000 C_{10000} HOT400/30
  MA multi
- Low installation depth of just 250 mm
- Declaration of performance
  DoP/RKI/005



Type RKI

Product key advantages

Smoke control damper are intended for smoke exhaust systems and for inflow of necessary supply air within the smoke exhaust system.

Smoke control dampers are equipped with electric actuators with a 24V AC/DC or 230V AC supply voltage. The actuator is located in a heat-insulated housing in order to ensure that the smoke control damper opens und closes properly under fire conditions.

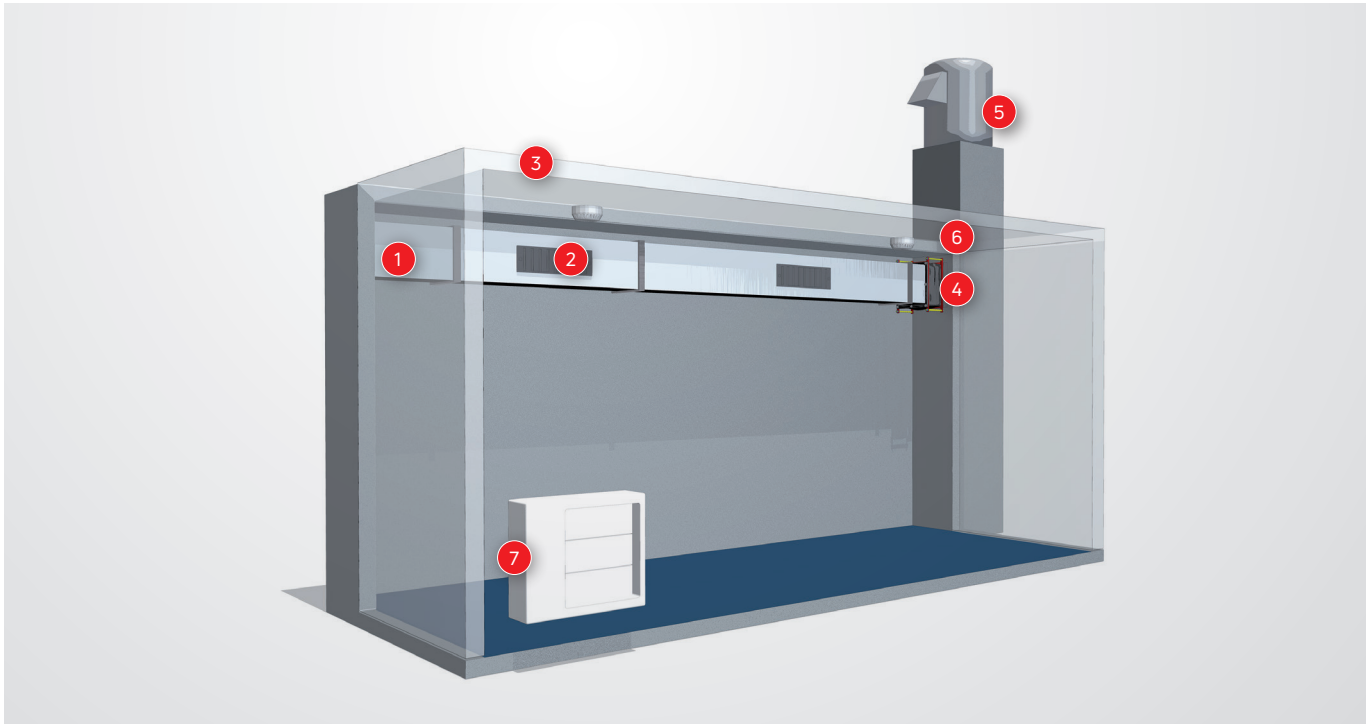
Strulik smoke control dampers can be optionally equipped with SEL 1.90 SLC actuators. Using the appropriated Strulik communication devices

General characteristics

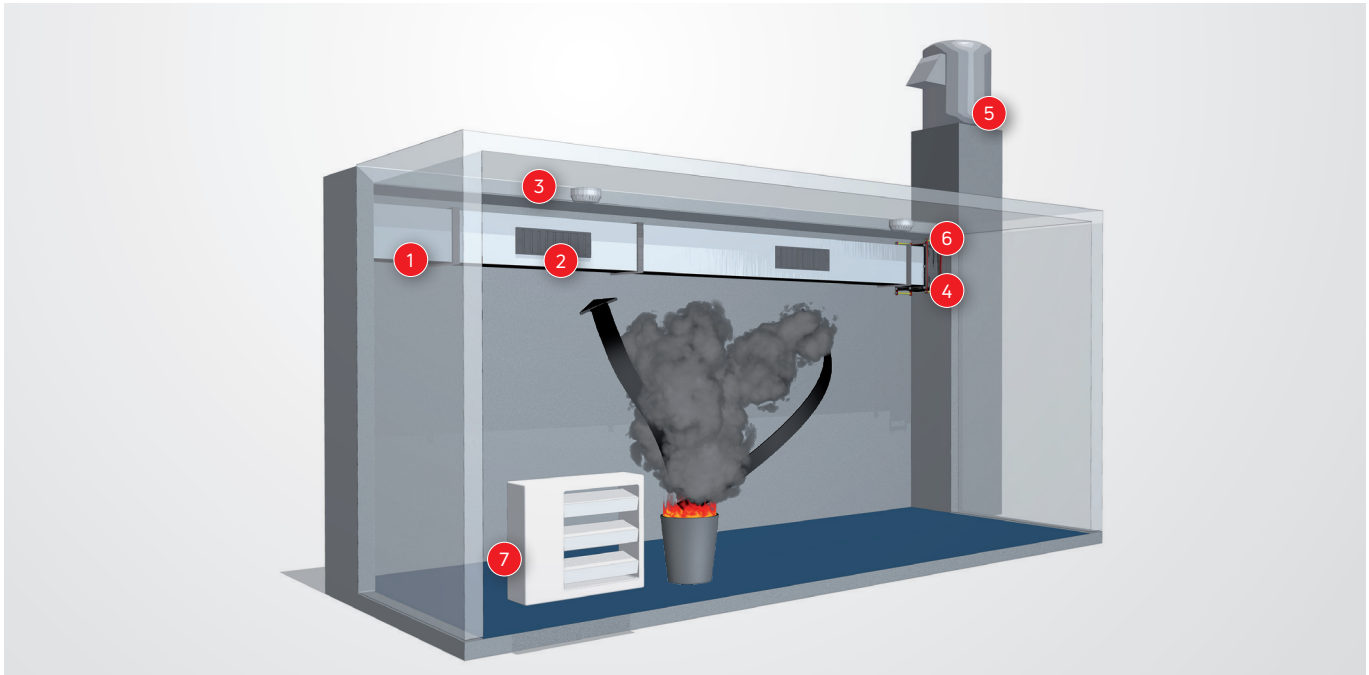
Safety rating

- Tested according to EN 1366-10 and EN 1366-2 with CE marking according to EN 12101-8
- For installation in concrete walls and light partition walls for smoke exhaust and supply air inflow in connection with smoke control ducts according to EN 12101-7, tested according to EN 1366-8 or according to EN 1366-9.

Smoke exhaust systems
Standard case



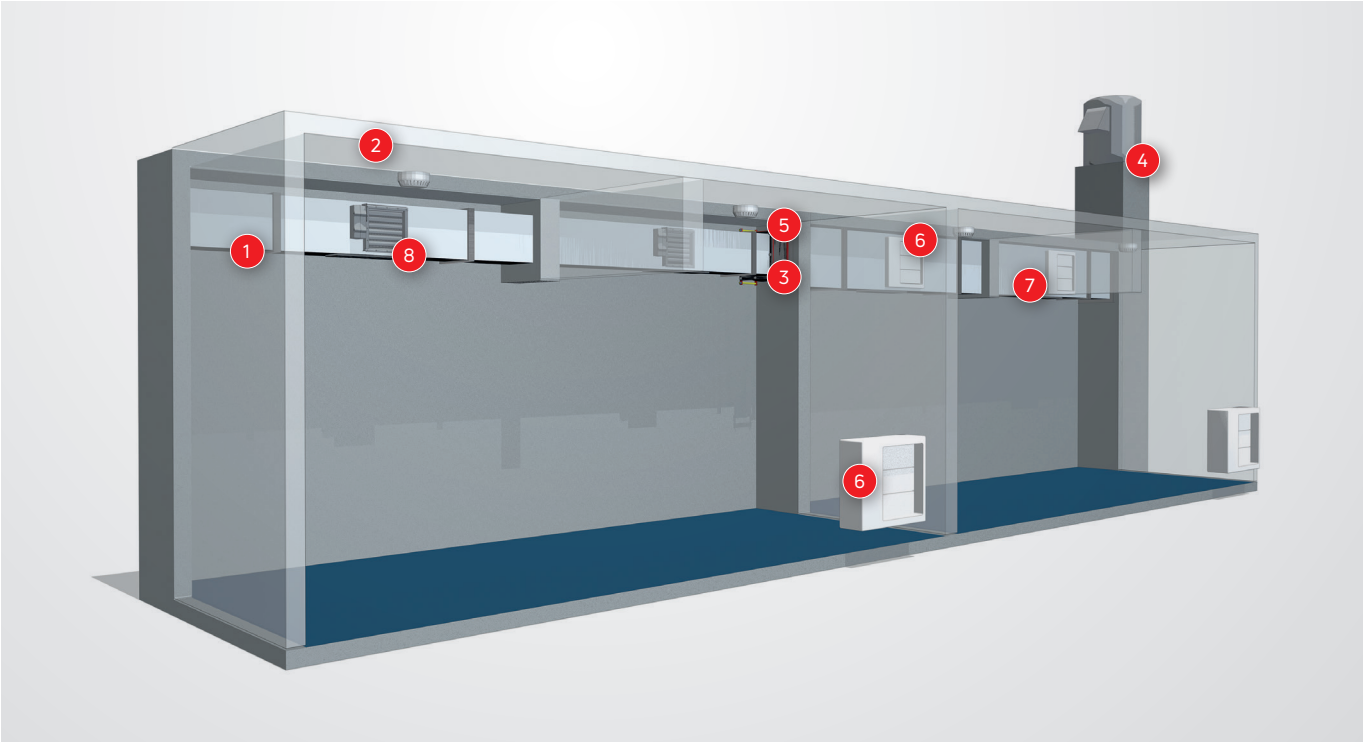
Fire case



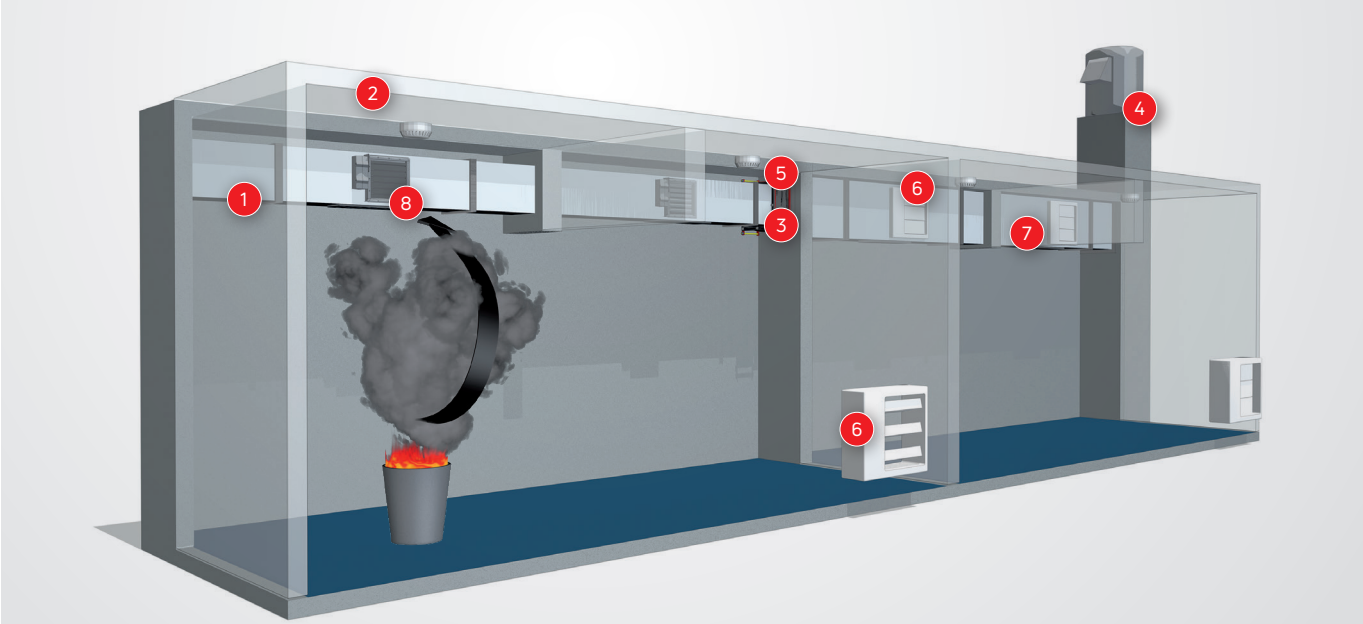
Legend

1 | Smoke control duct made from sheet steel according to EN 12101-7, tested according to EN 1366-9
2 | Ventilation grille made from sheet steel
3 | Smoke detector
4 | Compensator
5 | Smoke exhaust fan
6 | Smoke control damper RKU
7 | Smoke control damper RKI

Standard case



Fire case



Legend

1 | Smoke control duct made from sheet steel according to EN 12101-7, tested according to EN 1366-9

2 | Smoke detector

3 | Compensator

4 | Smoke exhaust fan

5 | Smoke control damper RKU

6 | Smoke control damper RKI

7 | Smoke control duct made from calcium silicate boards according to EN 12101-7, tested according to EN 1366-8

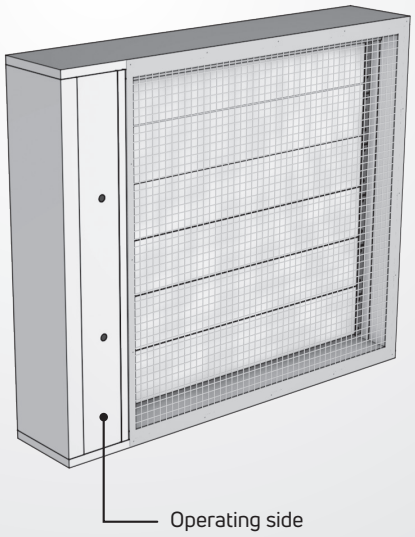
8 | Smoke control damper RKE-2

Mounting situations

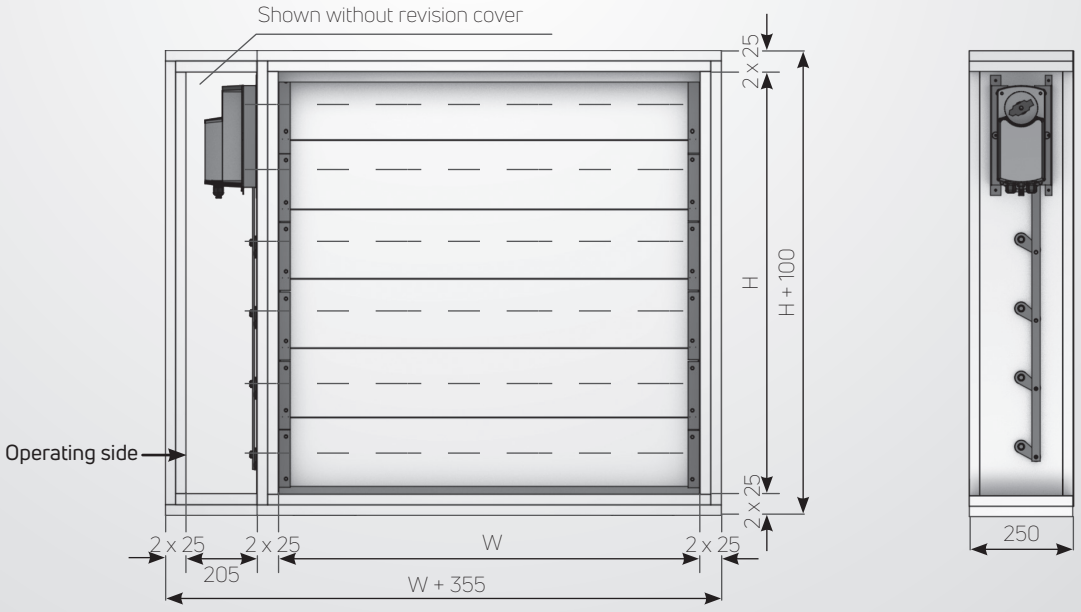
Multi-blade smoke control damper with front revision (RKI-V)

Scope: Installation in and on concrete walls and in light partition walls. Connection to smoke control ducts depending on the mounting situation.

RKI-V



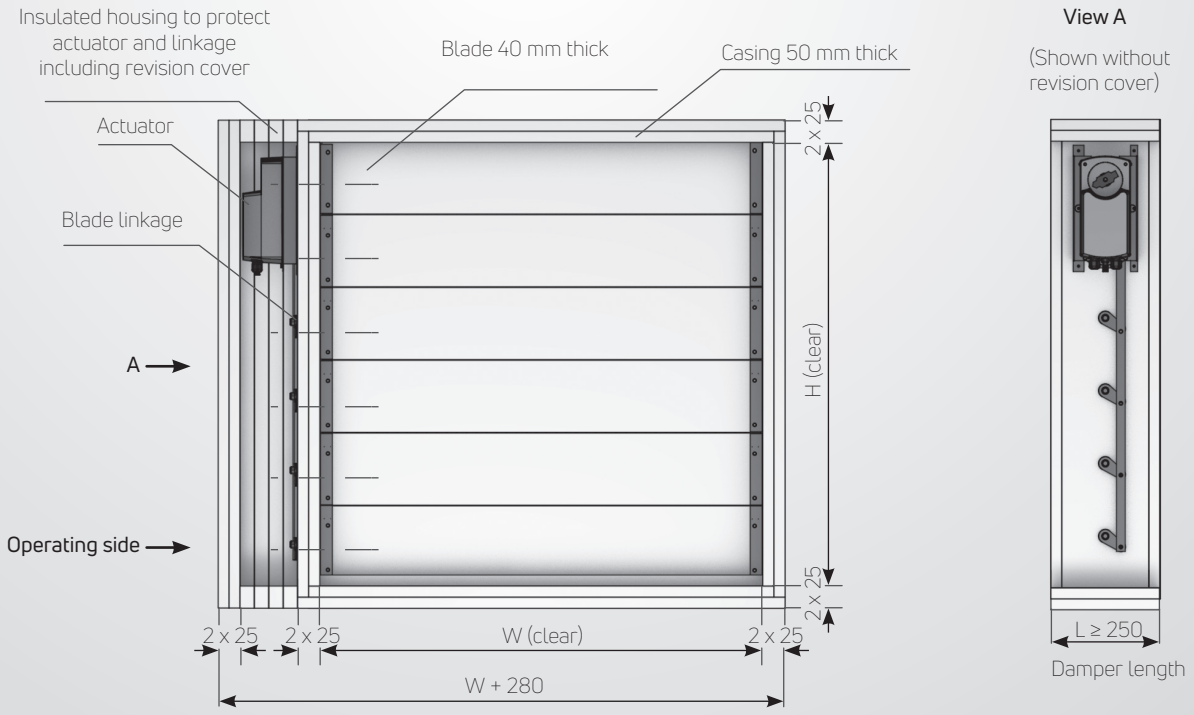
RKI-V



Multi-blade smoke control damper with side revision (RKI)

Scope: Installation in, on and front side of vertical and horizontal smoke control ducts made from calcium silcate boards (according to EN 12101-7, tested according to EN 1366-8).

RKI



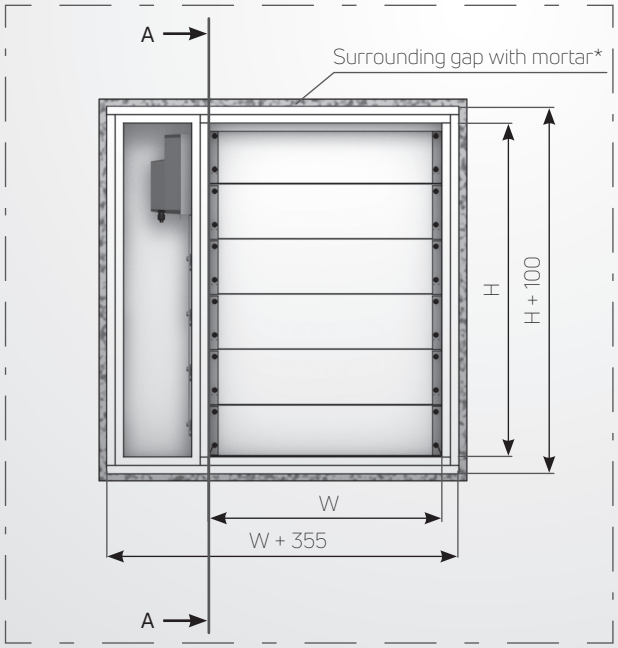
Dimensions

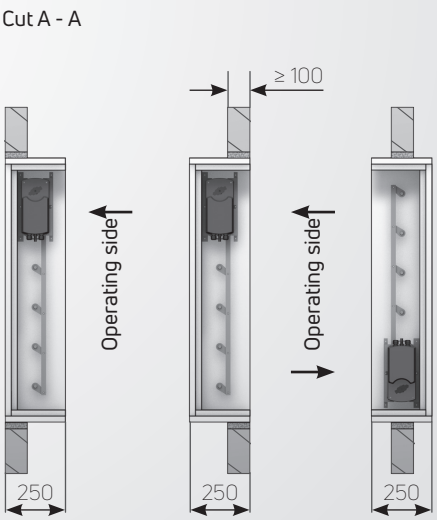
W [mm] ≥ 200 bis ≤ 1000

H [mm] clear height	Number of blades
340	2
505	3
670	4
835	5
1000	6

L ≥ 250 mm

RKI-V installation in concrete walls with minimum distance

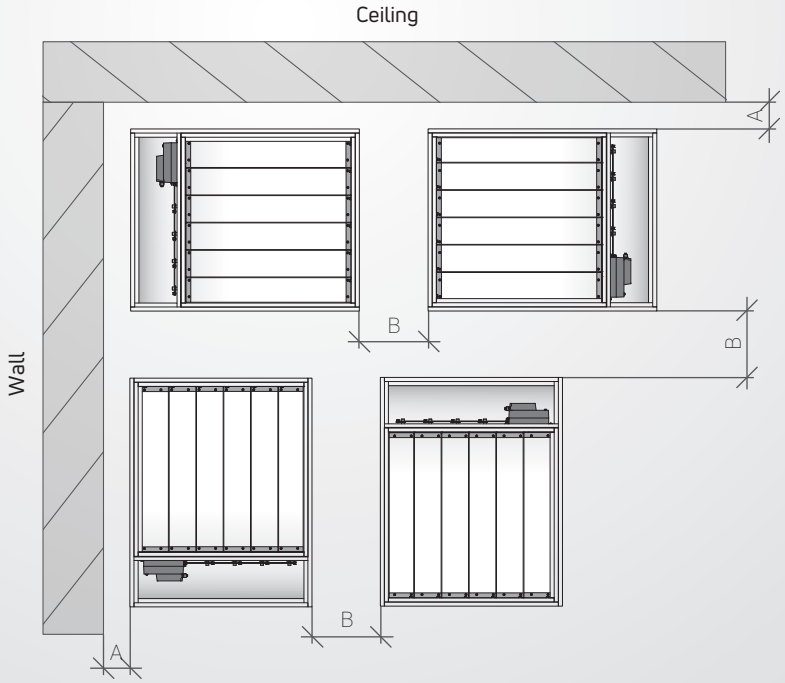




L = 250 mm (Custom length on request)

* **Please note:** Surrounding gap from ≥ 10 bis ≤ 50 mm must be filled with mortar of category M10 according to DIN EN 998-2 or with mortar of group II or III according to DIN 1053. Mechanical filling, with mortar dof category M10 nach DIN EN 998-2, is permitted.

Minimum distances / mounting positions*



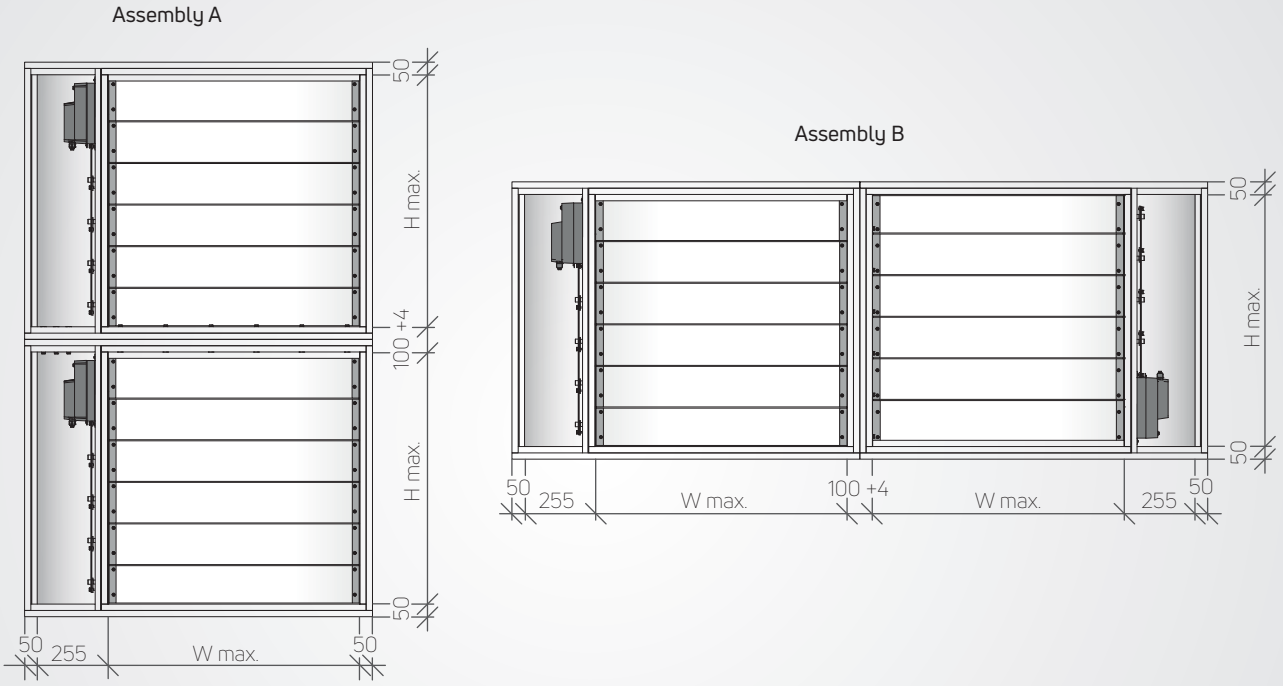
* You will find additional solutions differing from this standard on the following pages..

Distance A = min. 75 mm
Distance B = min. 200 mm

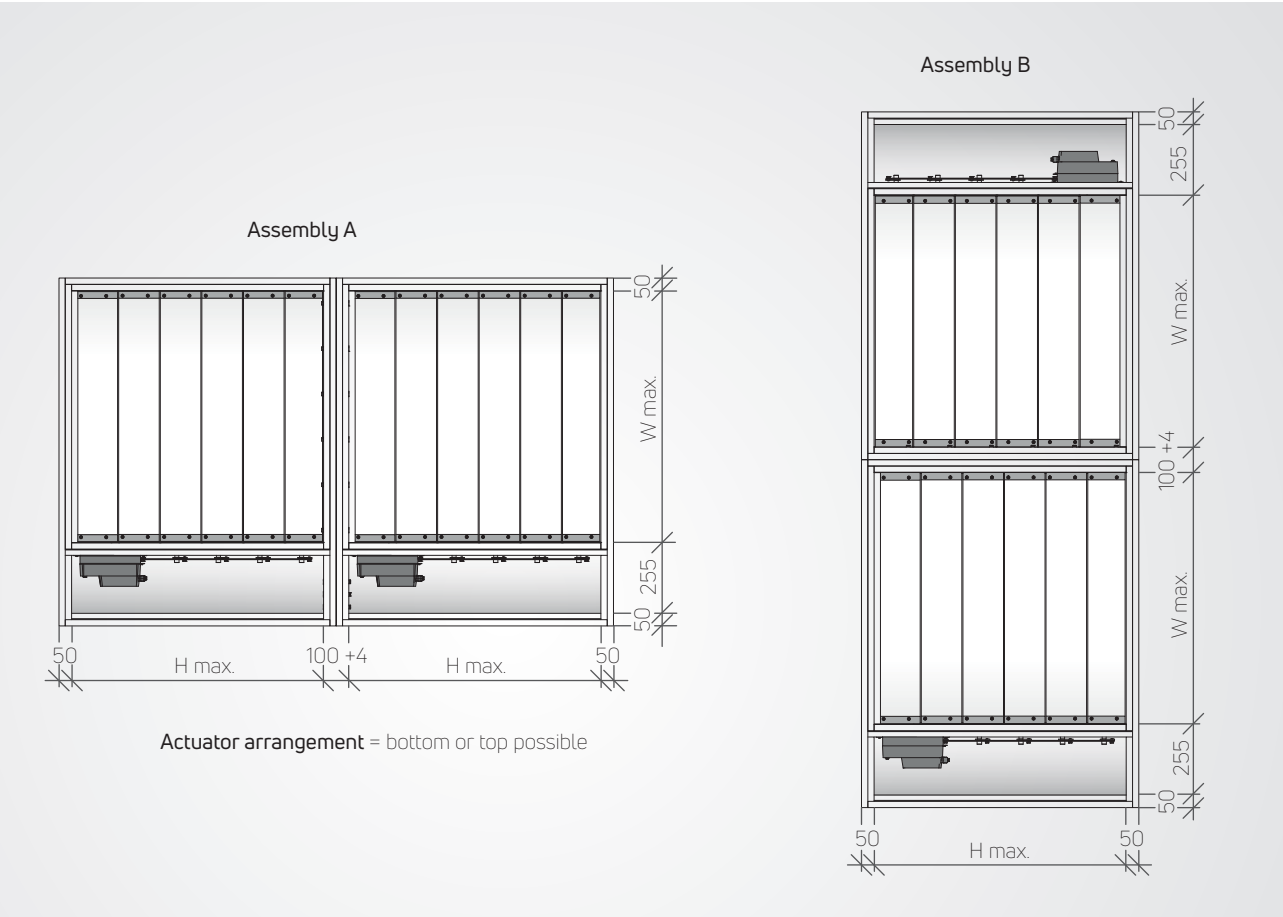
Smoke control dampers can be installed with verftical or horizontal axis. The operating side can be positioned on the left, right, top or bottom of the smoke control damper.

RKI-V installation without minimum distances in concrete walls

Arrangement with horizontal axis



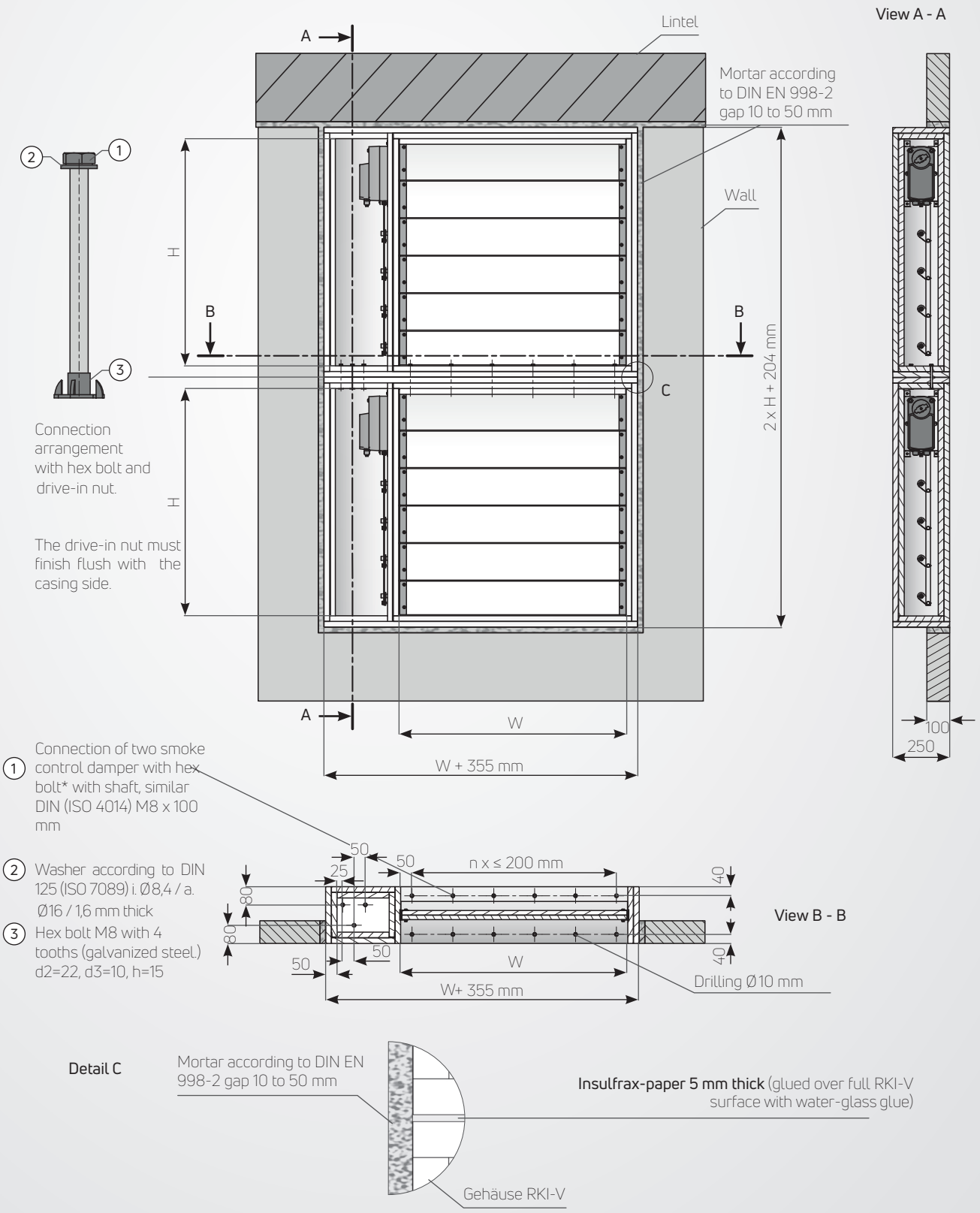
Arrangement with vertical axis



Actuator arrangement = bottom or top possible

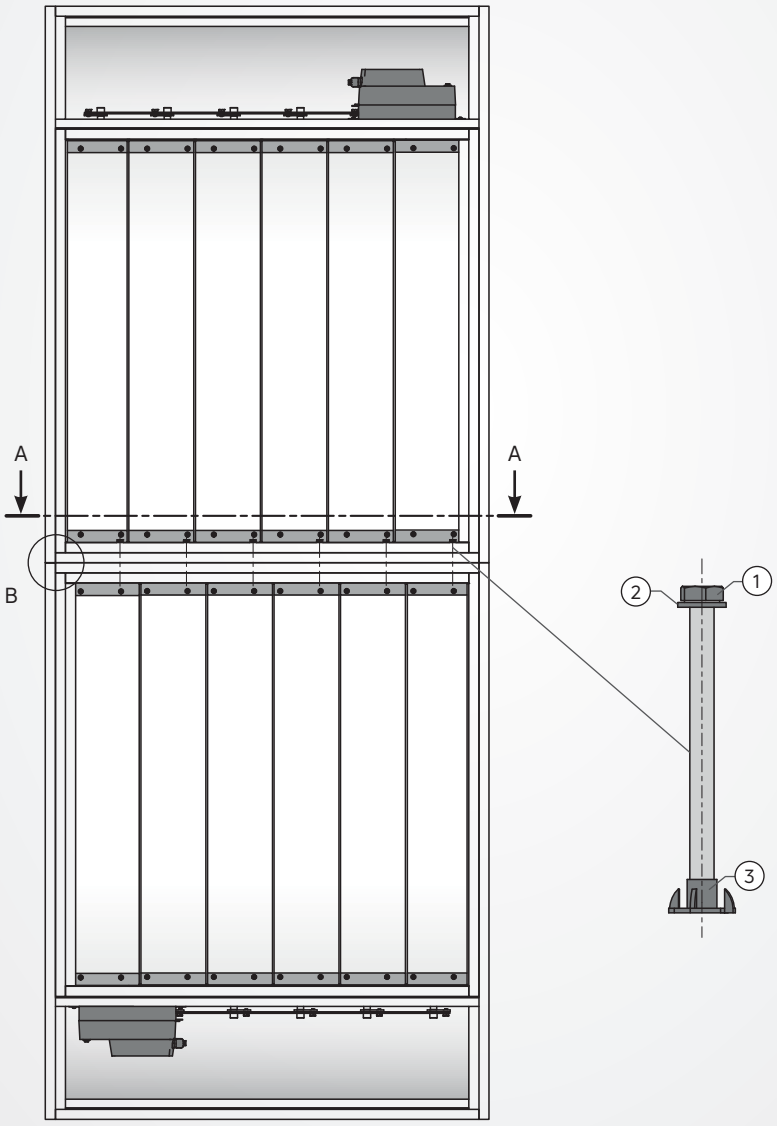
RKI-V assembly when installing without minimum distances in concrete walls

Assembly A – View operating side from the front (shown without revision cover)

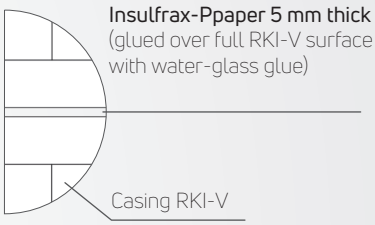


Please note: *Countersinking of the screw heads is not neccessary when complying with the here specified assembly dimensions.

Assembly B – View operating side from the front (shown without revision cover)



Detail B



Connection arrangement with hex bolt and drive-in nut.

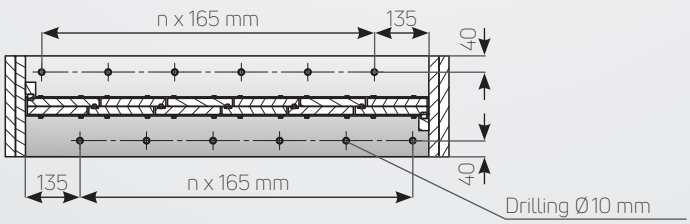
The drive-in nut must finish flush with the casing side.

① Connection of two smoke control damper with hex bolt* with shaft, similar DIN (ISO 4014) M8 x 100 mm

② Washer according to DIN 125 (ISO 7089) i. Ø 8,4 / a. Ø 16 / 1,6 mm thick

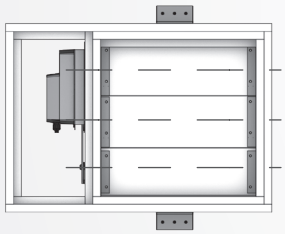
③ Hex bolt M8 with 4 tooths (galavized steel.) d2=22, d3=10, h=15

Schnitt A - A

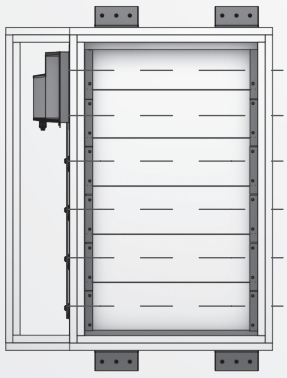


Please note: *Countersinking of the screw heads is not neccessary when complying with the here specified assembly dimensions.

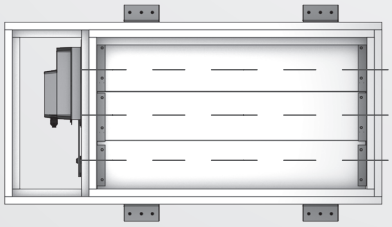
Installtion on and in smoke control ducts made from concrete and smoke control ducts according to DIN EN 12101-7, tested according to DIN EN 1366-8



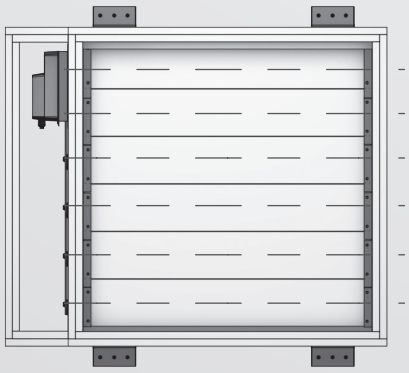
H ≥ 340 bis ≤ 670
W≥ 200 bis ≤ 600



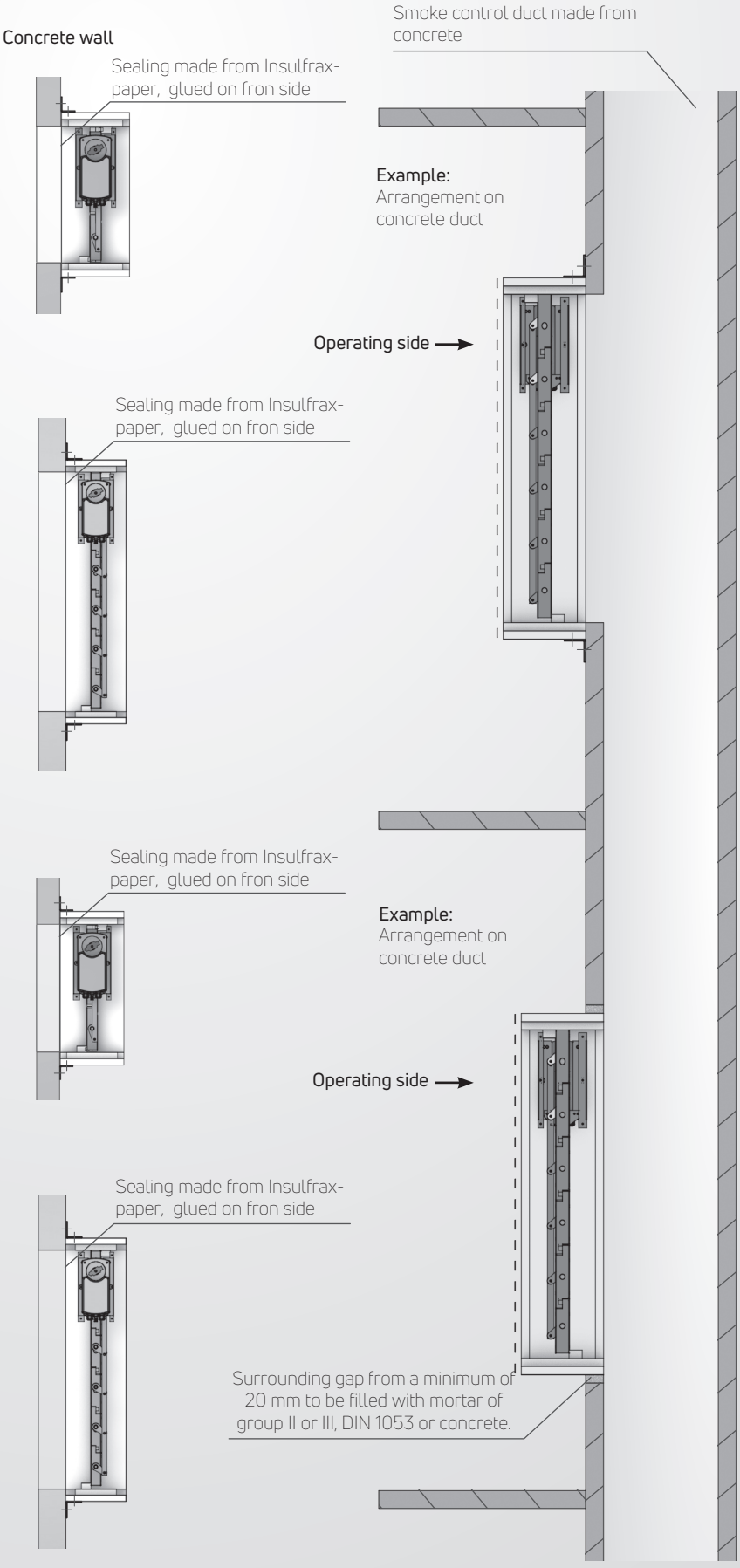
H ≥ 835 bis ≤ 1000
W ≥ 200 bis ≤ 600



H ≥ 340 bis ≤ 505
W≥ 700 bis ≤ 1000

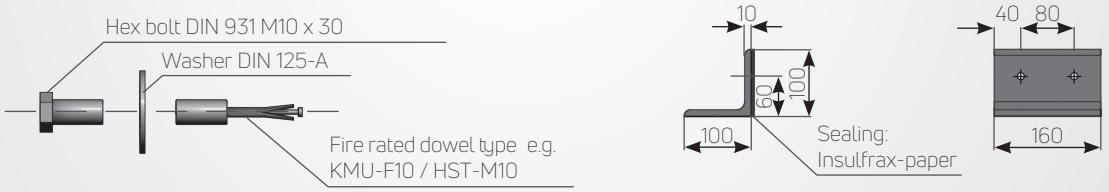


H ≥ 670 bis ≤ 1000
W≥ 700 bis ≤ 1000



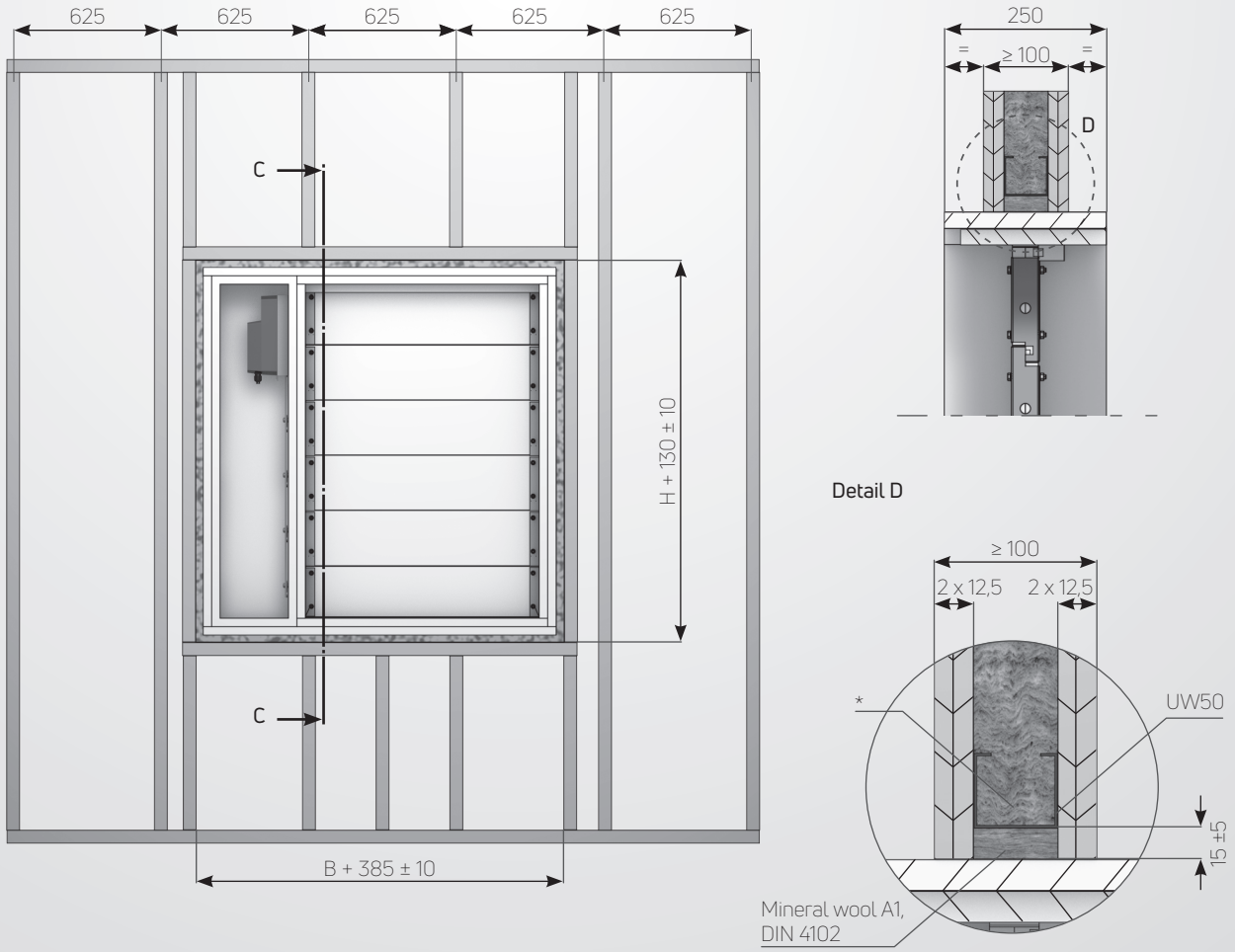
Alle Maße in mm.

Detail
Mounting brackets WE



Please note: RKI installtion must take place with the required number of WE mounting brackets, as shown in the drawing within this product information (page 13). With WE mounting brackets 2 fire rated dowels must be used type e.g. KMU-F10 / HST-M10. WE mounting brackets must be positioned on top/ bottom of the damper as shown in the drawing.

Installtion in light partition walls

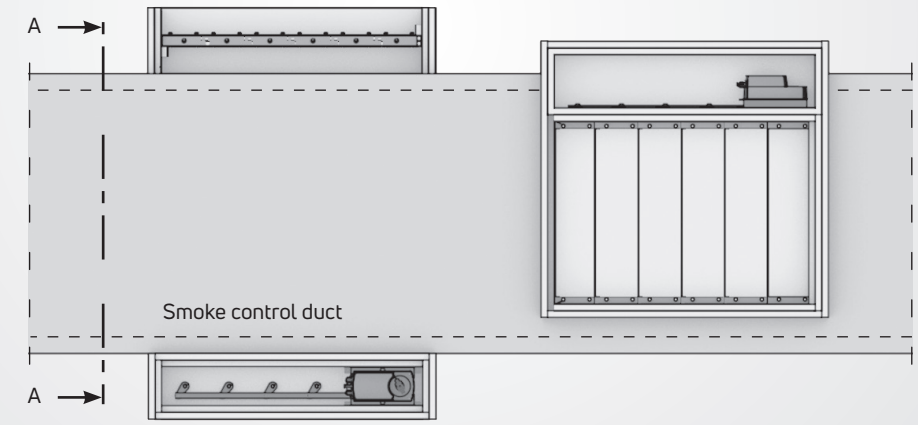


* Surrounding fixation of RKI-V with spax-screws 4 x 50 mm in distances ≤ 250 mm on the supporting construction (CW- and UW-profiles).

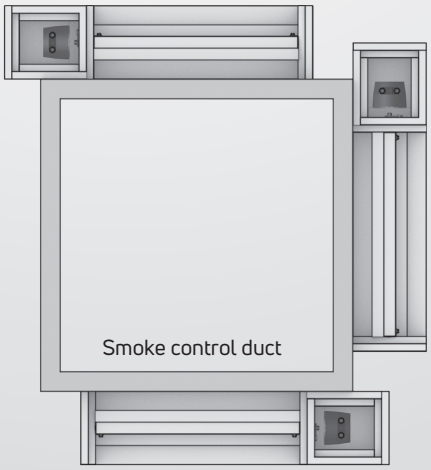
Please note: The minimum distance of two RKI dampers is 200 mm.

Installation options in and on horizontal smoke control ducts according to DIN EN 12101-7, tested according to DIN EN 1366-8

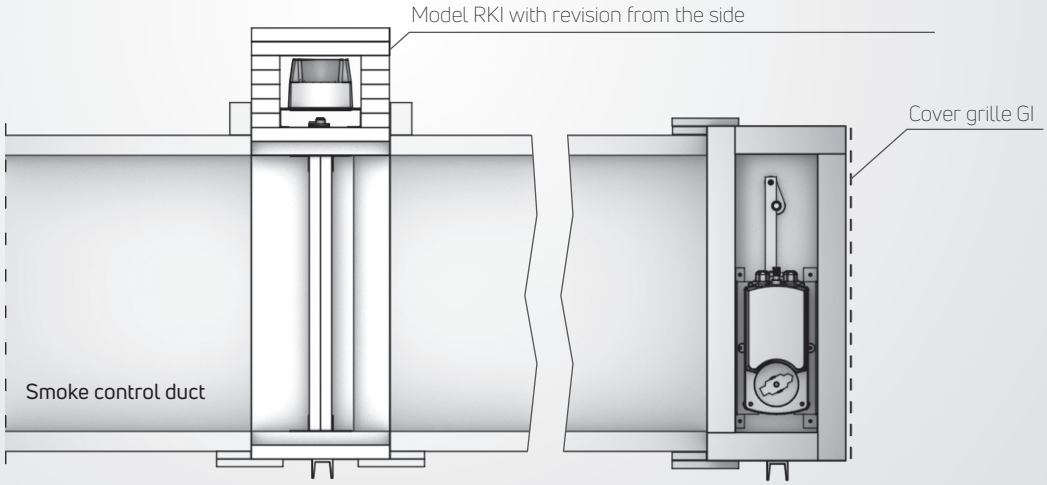
On the side of horizontal smoke control ducts



Cut A - A



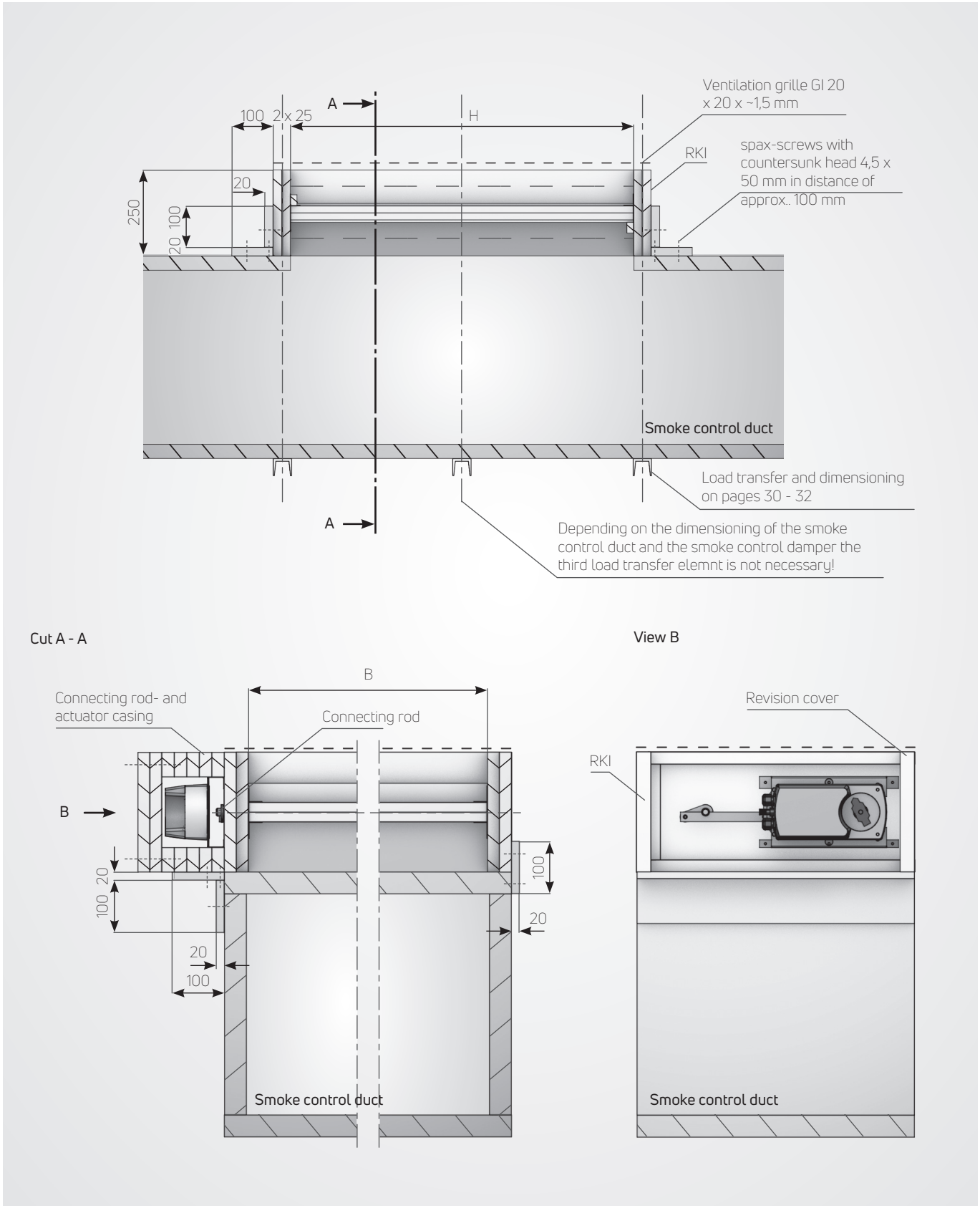
In and on the front side of horizontal smoke control ducts



Please note: The load transfer of the somke control dampern must be taking into account in addition to the load transfer of the smoke control duct. You will find mounting and load transfer details on pages 30 - 32.

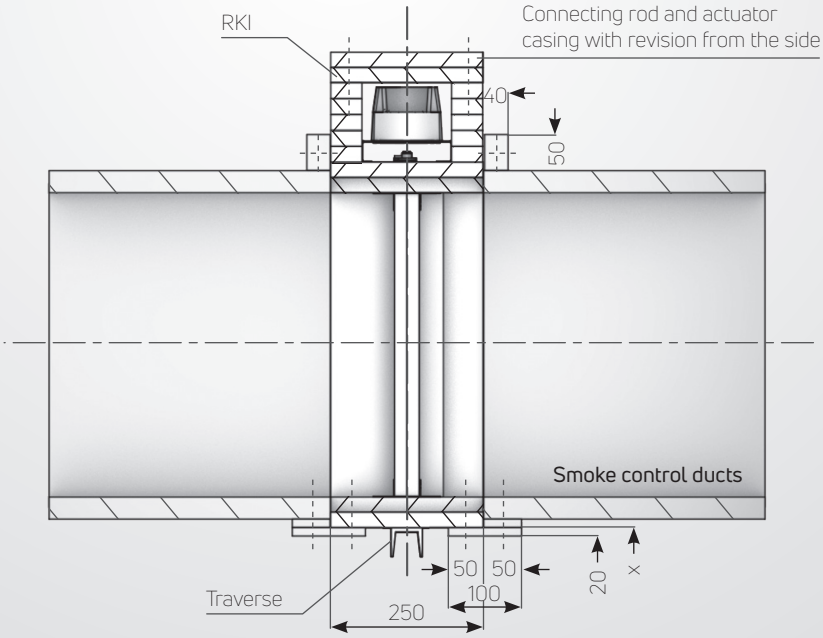
Installation on the side of horizontal smoke control ducts according to DIN EN 12101-7, tested according to DIN EN 1366-8

RKI mounting situation in fire rated smoke control ducts mit Feuerwiderstandsdauer with side planking or connection with the duct's own joining technique with calcium silcate boards. Please note that the planking must be fixed (with water-glass glue and brackets or spax-screws) without limiting the operating possibilities of the damper's der Motor- und Gestängeverkleidung möglich ist.

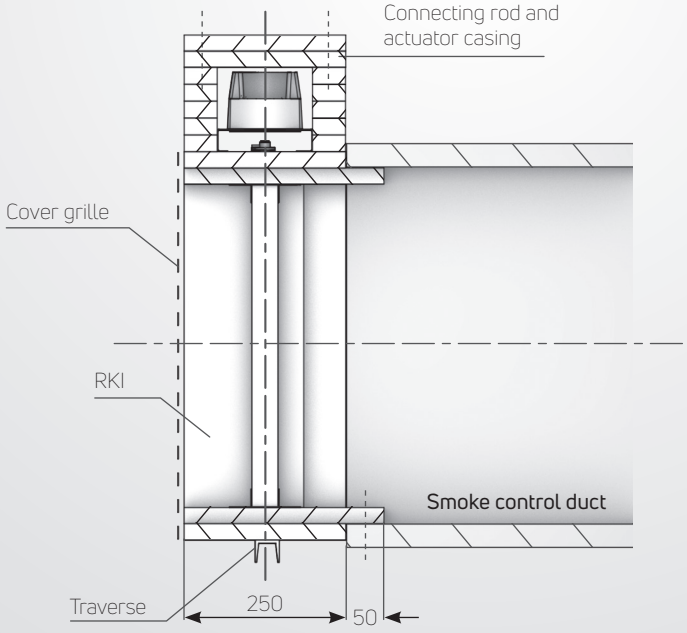


Installation in and on the front side of horizontal smoke control ducts according to DIN EN 12101-7, tested according to DIN EN 1366-8

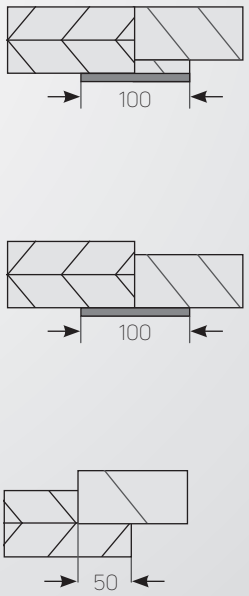
In or between horizontal smoke control ducts



On the front of horiziontal smoke control ducts



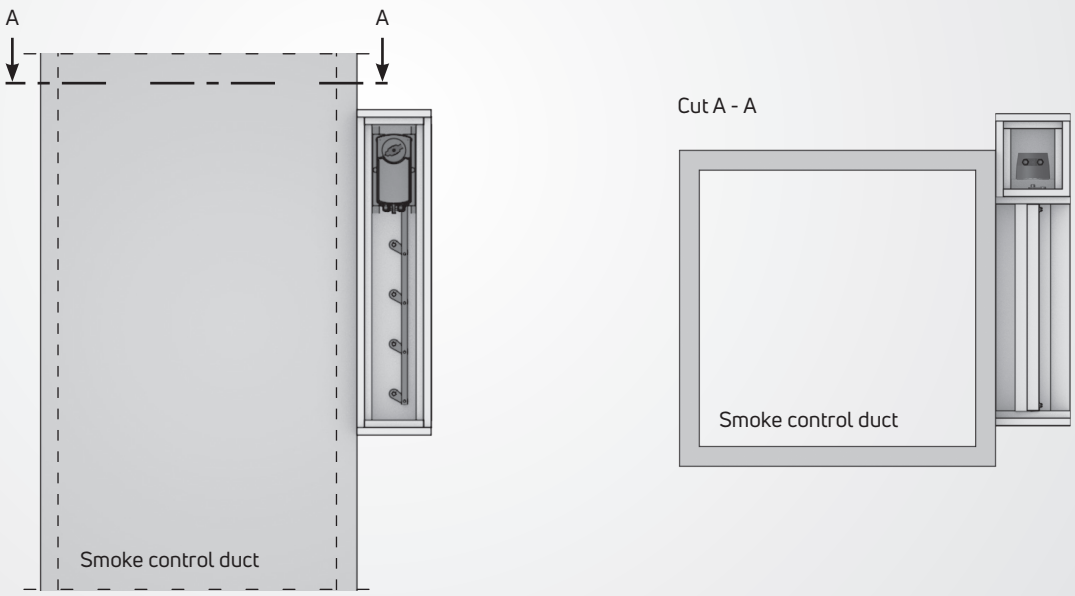
Connection options



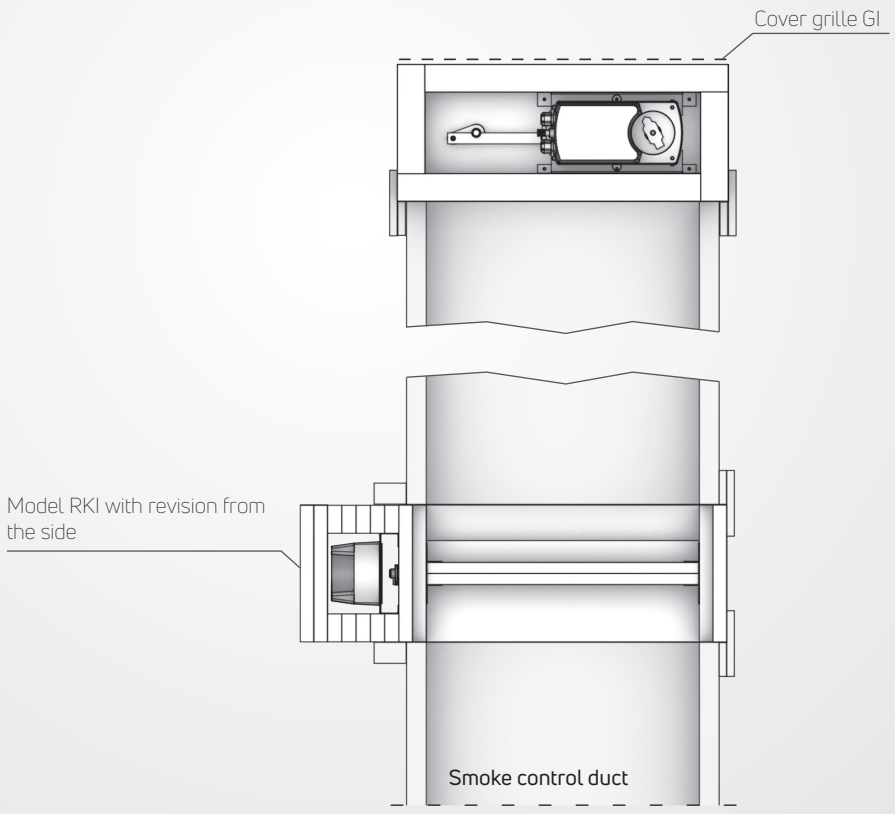
Please note: With RKI installation on the front of and in horizontal smoke control ducts with fire rating. make sure that the false edge is properly fixed (with water-glass glue and spax-screws or braquets).

Installtion options in vertical smoke control ducts according to DIN EN 12101-7, tested according to DIN EN 1366-8

On the side of vertical smoke control ducts

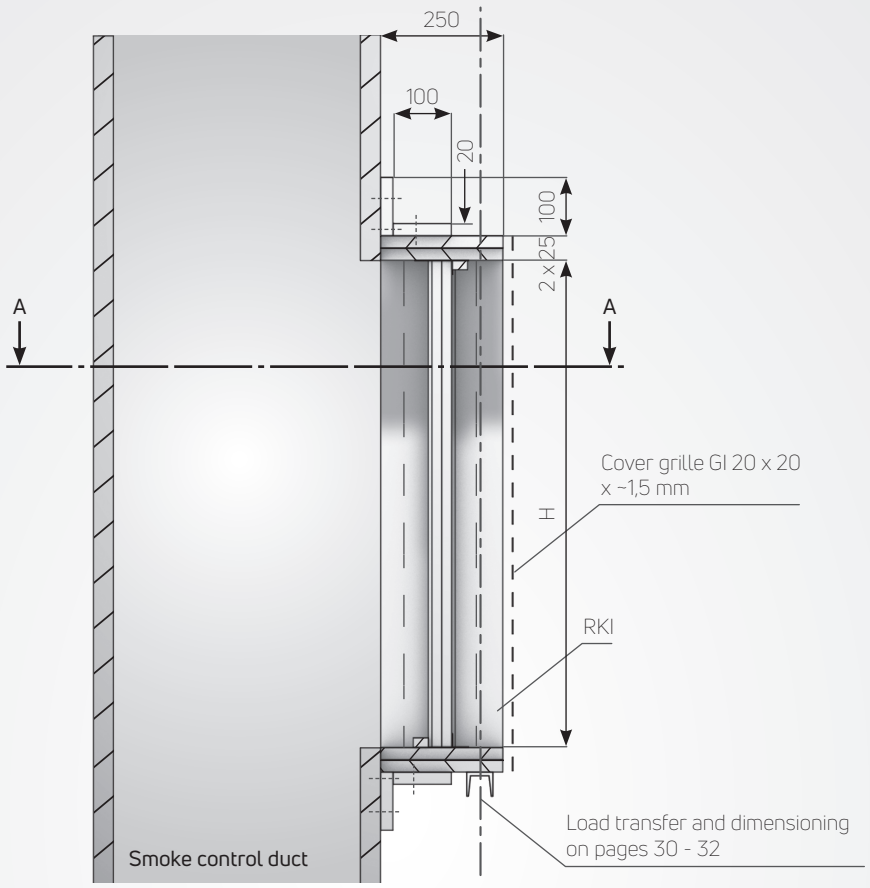


In and on front side of vertical smoke control ducts

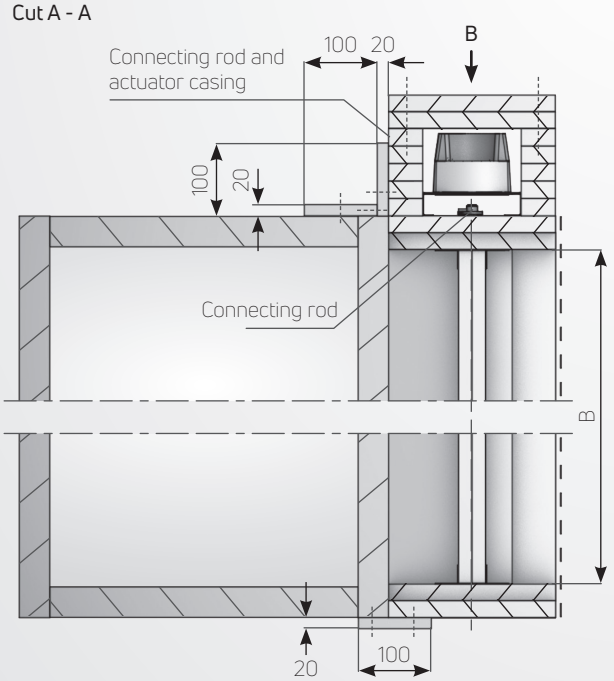


Please note: You will find mounting and load transfer details on pages 30 - 32.

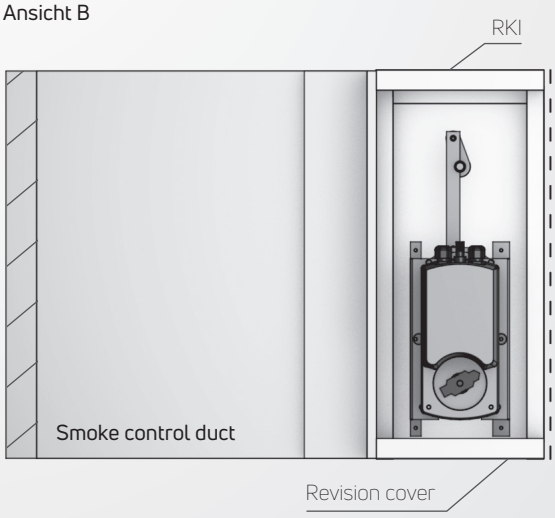
Installation on the side of vertical smoke control ducts according to DIN EN 12101-7, tested according to DIN EN 1366-8



Cut A - A

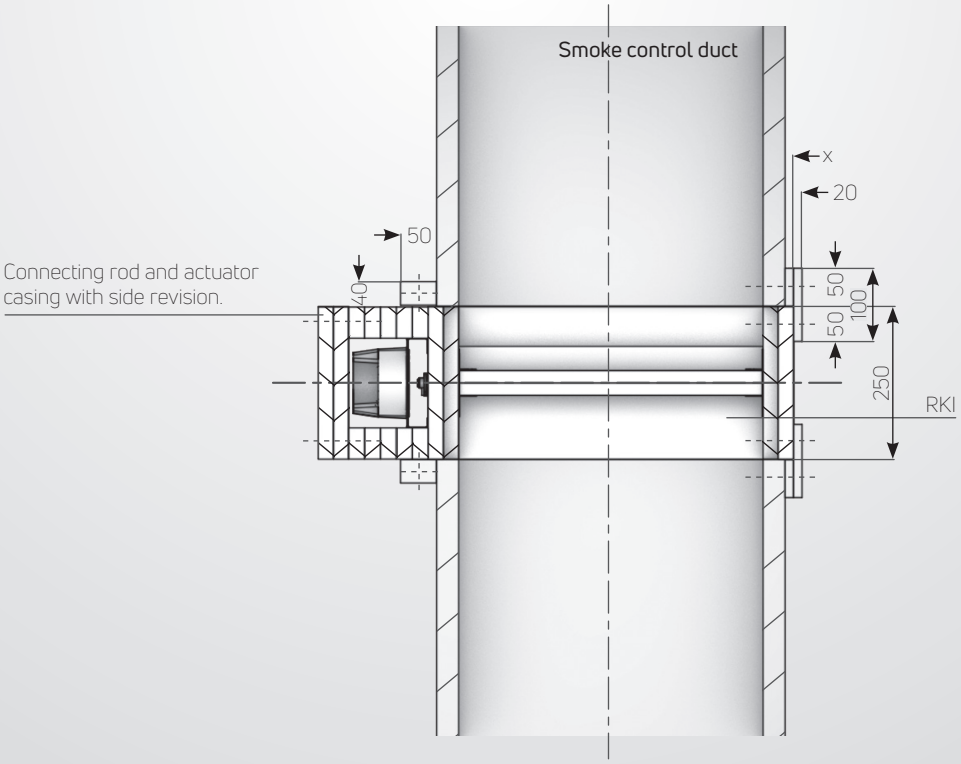


Ansicht B

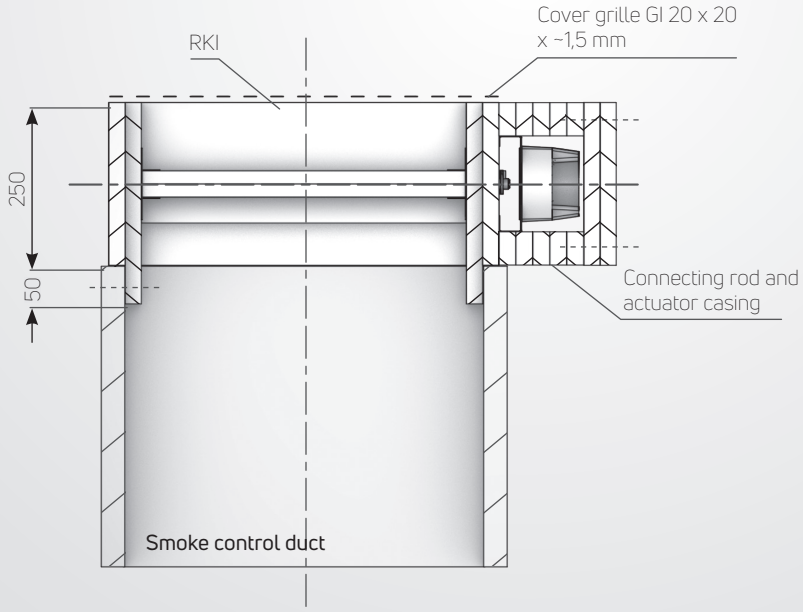


Installation in and on the front side of vertical smoke control ducts according to DIN EN 12101-7, tested according to DIN EN 1366-8

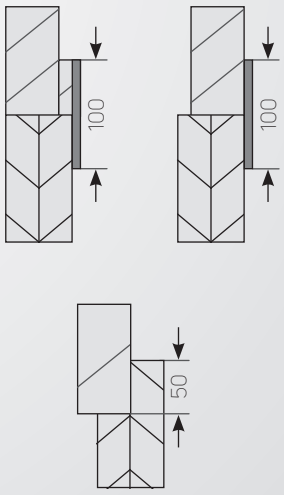
In or between vertical smoke control ducts



On the front side of vertical smoke control ducts

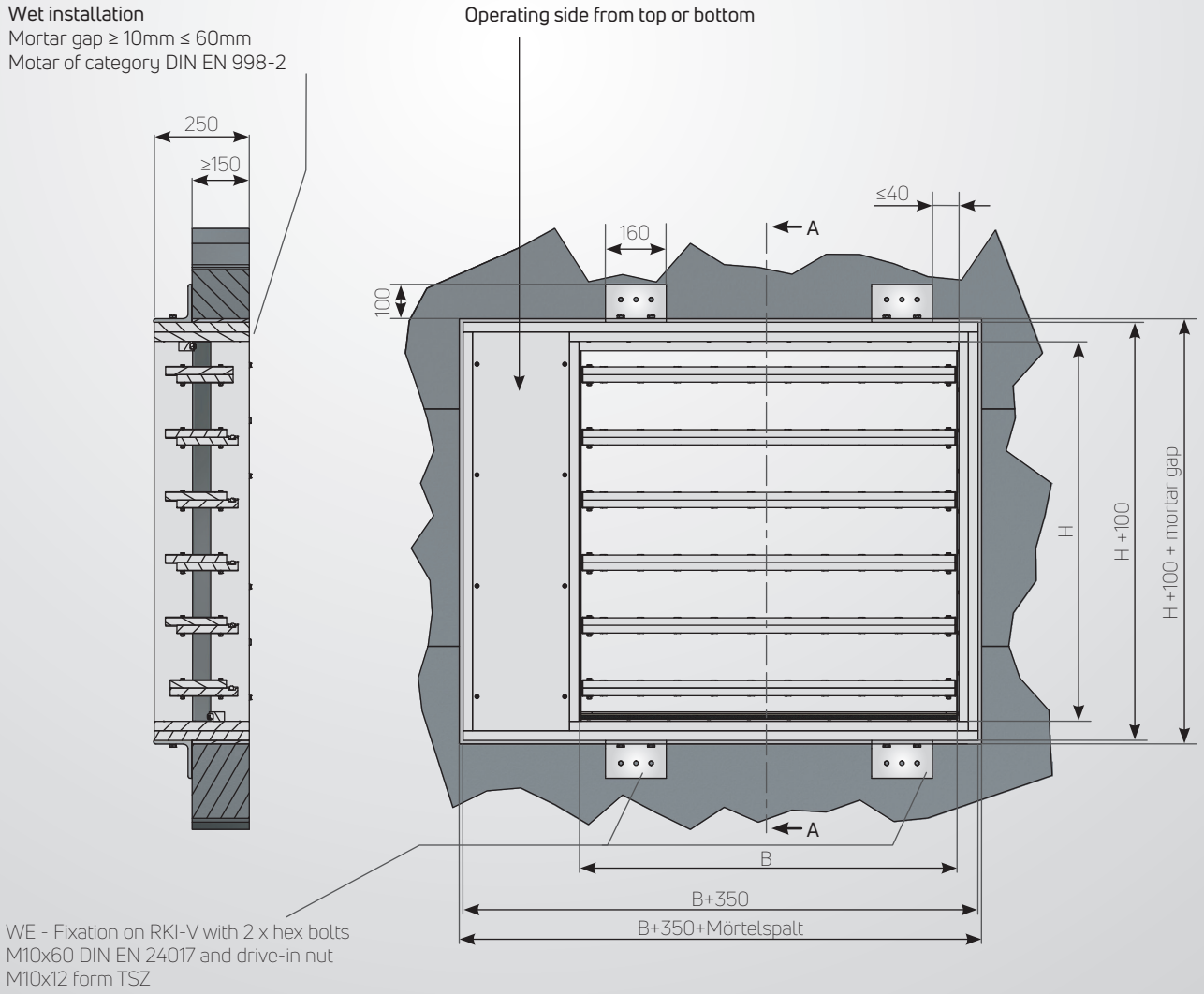


Connection options



Plese note: With RKI installation on the front of and in horizontal smoke control ducts with fire rating. make sure that the false edge is properly fixed (with water-glass glue and spax-screws or braquets).

Concrete ceiling installation RKI



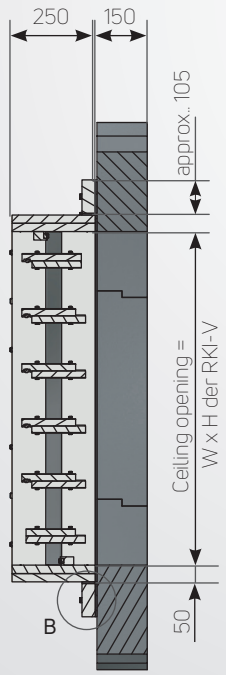
Please note: Depending on the mounting situation, you might need in ceilings ≥ 150mm, with or without connecting a smoke control duct. Please check when ordering.

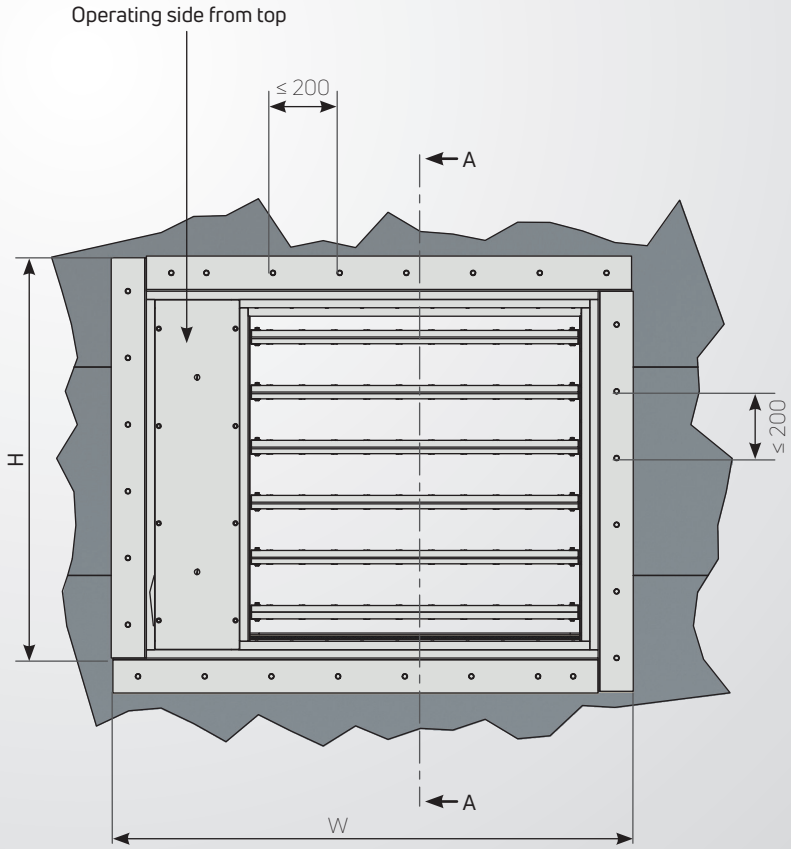
The table below lists the number auf WE mounting braquets required WE for each damper size (the WE mounting braquets just bear on the concrete ceiling).

Table mounting braquets WE

Hight H (mm)	Width W (mm)								
	200	300	400	500	600	700	800	900	1000
340	2	2	2	2	4	4	4	4	4
505	2	2	2	2	4	4	4	4	4
670	2	2	2	2	4	4	4	4	4
835	4	4	4	4	4	4	4	4	4
1000	4	4	4	4	4	4	4	4	4

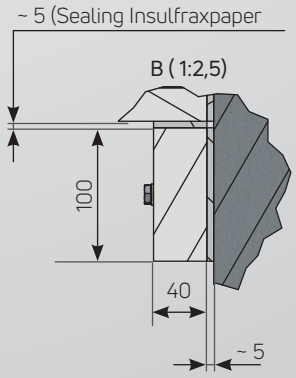
RKI-V installation on concrete ceilings





Ceiling frame on aerated **concrete ceiling:** Hex bolt M8 x 70 DIN933, washer M8 DIN125, dowel M8 FTP

Ceiling frame on **reinforced concrete ceiling:** Concrete screw 8 x 70 FBS fender washer galvanized steel i.Ø10,5/ a.Ø30/ 1,25mm thick



Design diagrams and conversation factors

Correction factors

The following diagrams can be used to get for a given air volume V in m^3/h (see pages 25 bis 27) pressure loss Δp in Pa and duct sound power level LWA in dB (A) for mounting situation »clear air supply«.

For all other mounting situations as e. g.

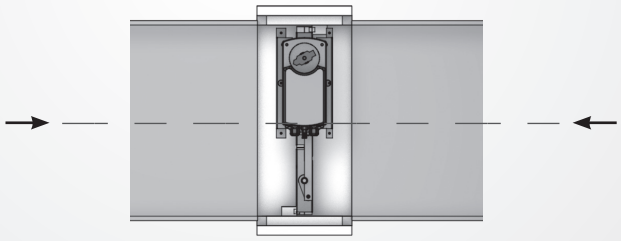
- duct connection on both sides
- clear air exhaust
- clear air exhaust and clear air supply
- clear air supply on the duct

the following correction factors have to be multiplied with the numbers for pressure loss Δp in Pa on pages 25 to 27 (when V = constant).

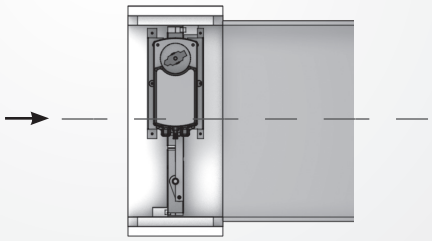
Sound power level LWA in dB (A) must be corretced for pressure loss Δp in Pa within the diagram.

Air density is 1,2 kg/m^3 at 20 °C.

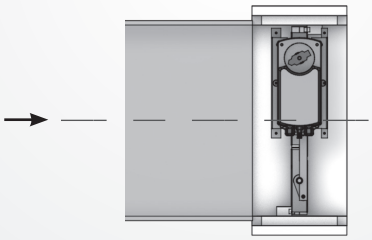
Duct connection on both sides
Correction factor: 0,68



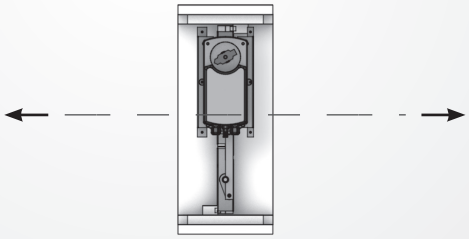
Clear air supply
(this arrangement can be taken directly from the diagram)



Clear air exhaust
Correction factor: 1,59



Clear air exhaust/Clear air supply
Correction factor: 2,91



Clear air supply on the duct
Correction factor: 1,59

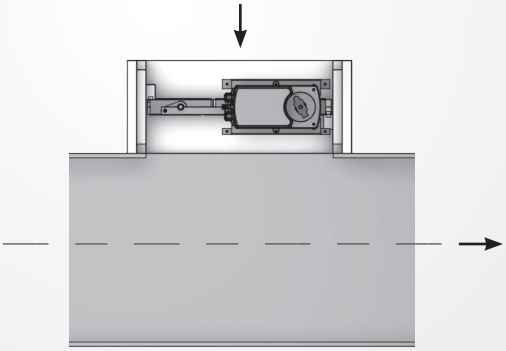


Table to determine free areas

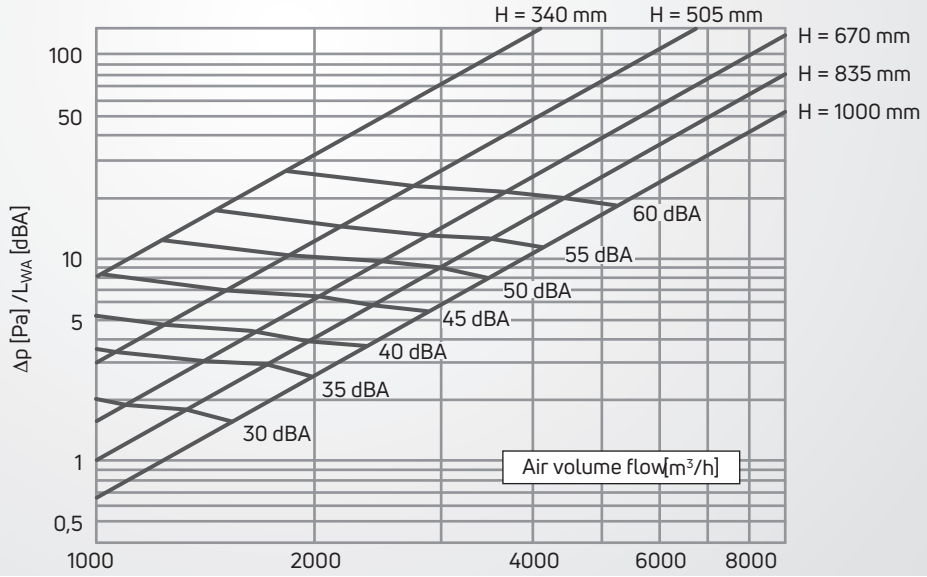
Free areas Aeff in m² (SE)

Hight H (mm)	Width W (mm)									
	200	300	400	500	600	700	800	900	1000	
340	0,042	0,063	0,084	0,105	0,126	0,147	0,168	0,189	0,21	SE
505	0,067	0,1005	0,134	0,1675	0,201	0,2345	0,268	0,3015	0,335	SE
670	0,091	0,1365	0,182	0,2275	0,273	0,3185	0,364	0,4095	0,455	SE
835	0,117	0,1755	0,234	0,2925	0,351	0,4095	0,468	0,5265	0,585	SE
1000	0,141	0,2115	0,282	0,3525	0,423	0,4935	0,564	0,6345	0,705	SE

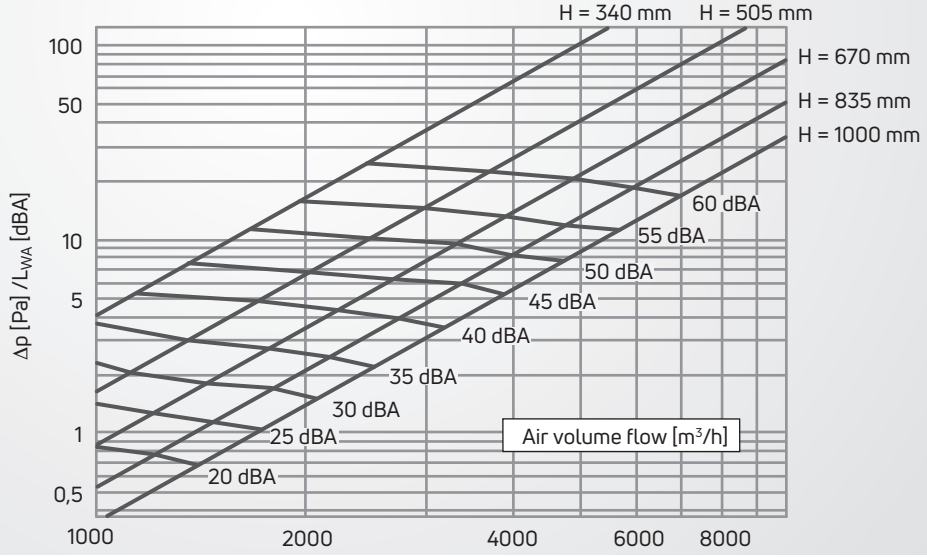
Design diagrams

Please note: All design diagrams only apply for the mounting situation»clear air supply«! For all other mounting situation take note of pages 23 - 24.

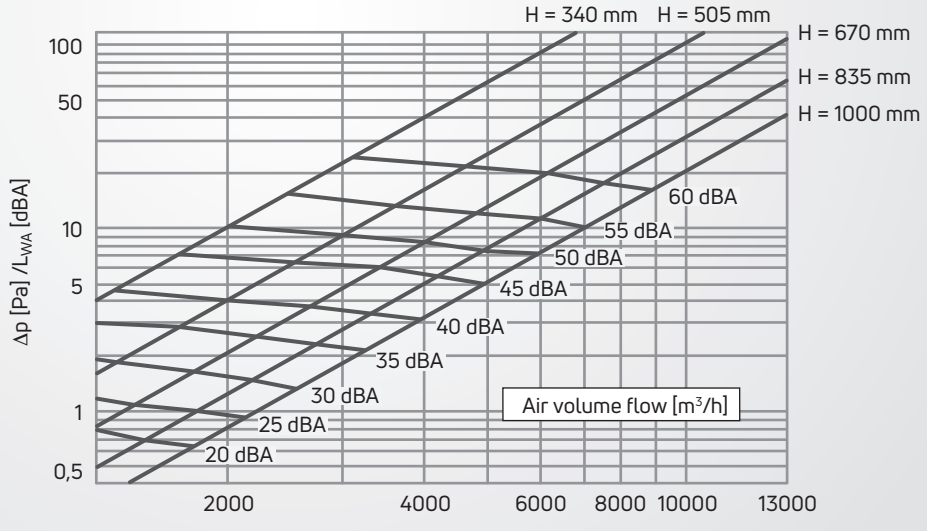
Width = 200 mm



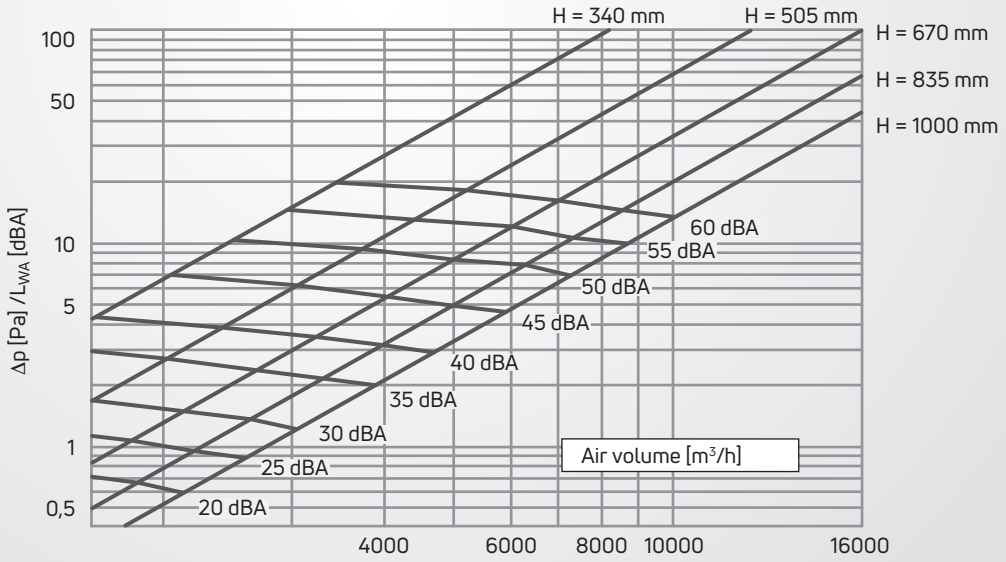
Width = 300 mm



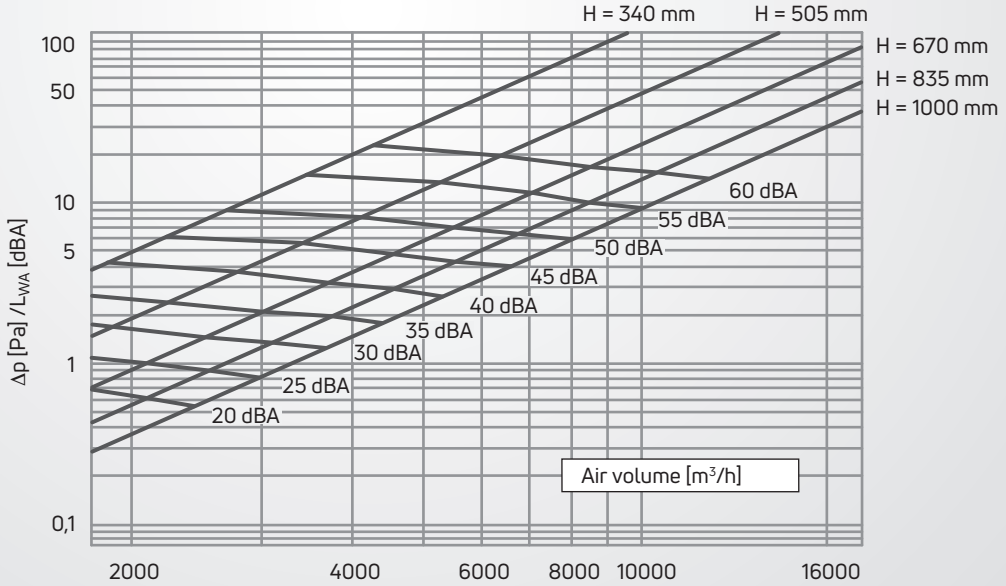
Width = 400 mm



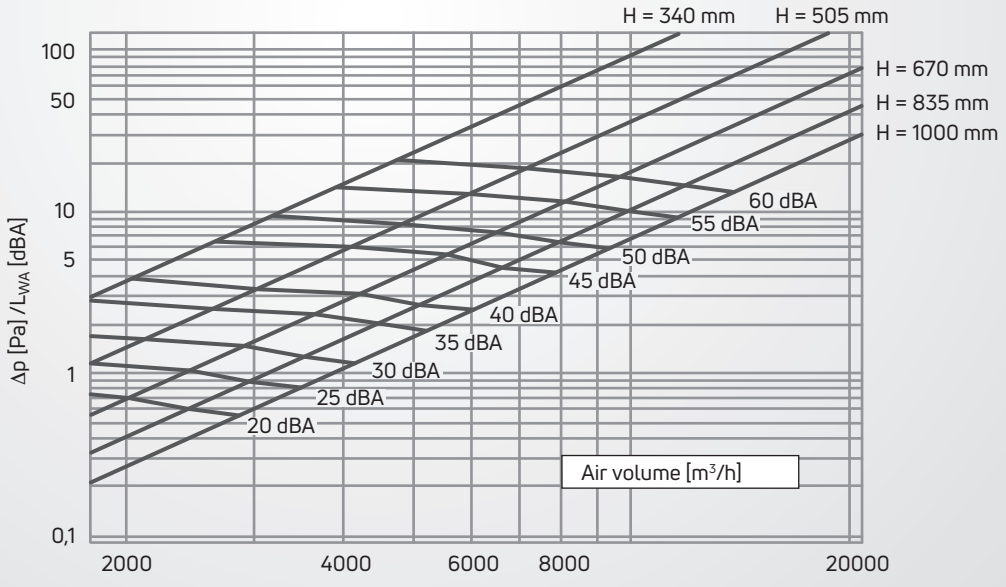
Width = 500 mm



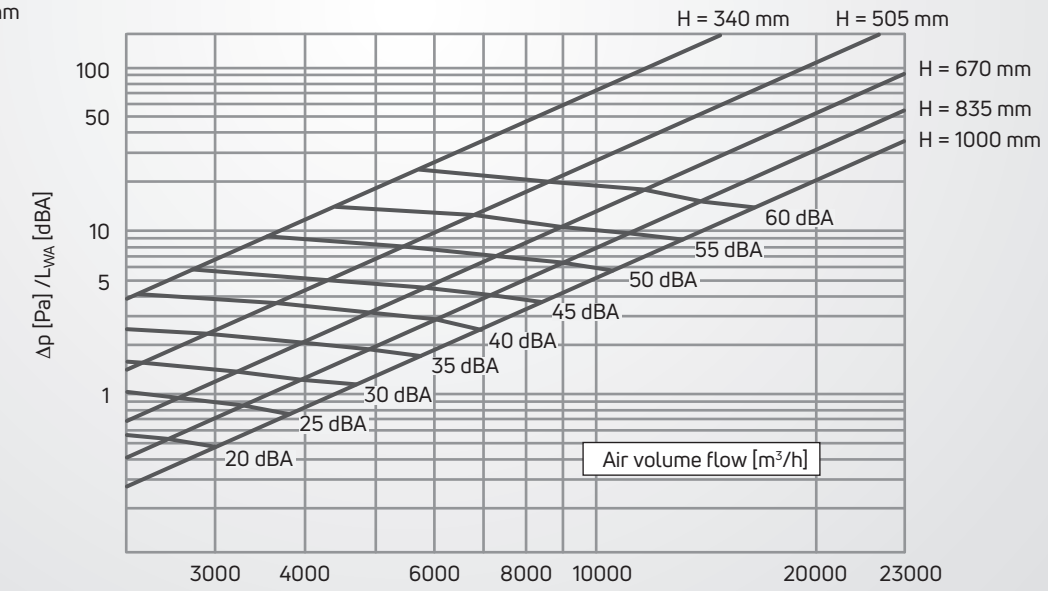
Width = 600 mm



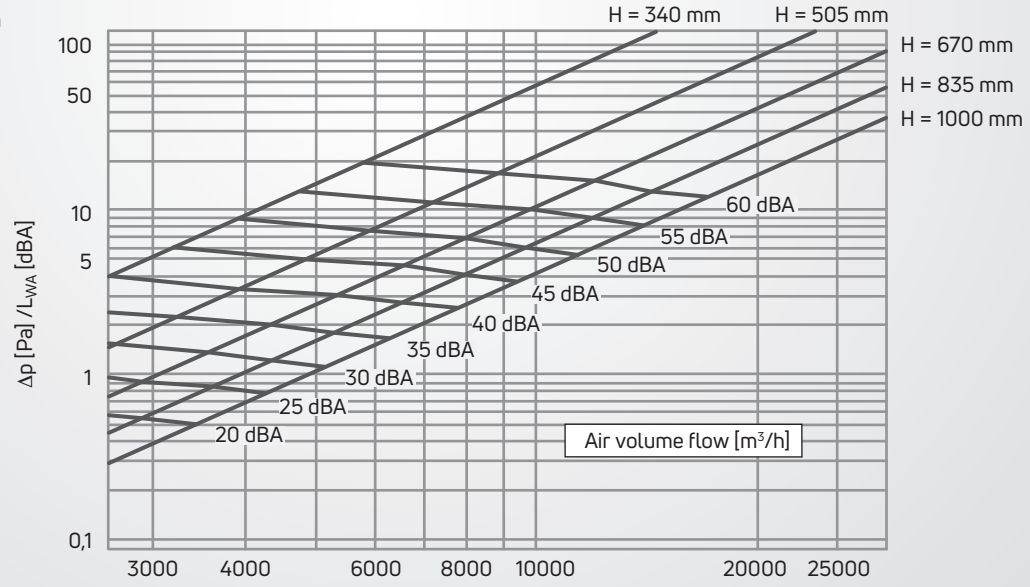
Width = 700 mm



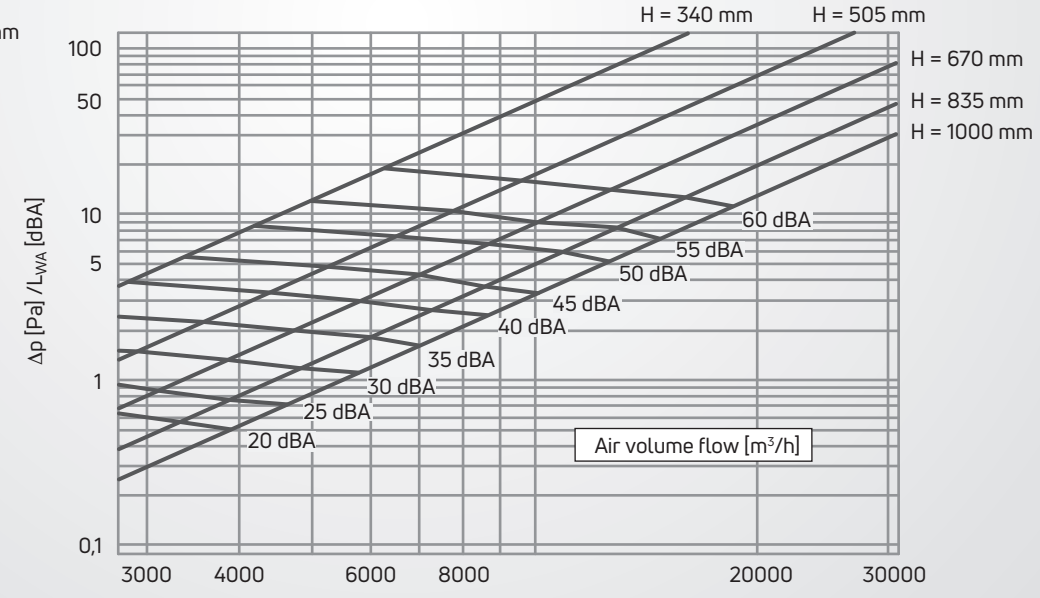
Width = 800 mm



Width = 900 mm



Width = 1000 mm



Technical data – actuator

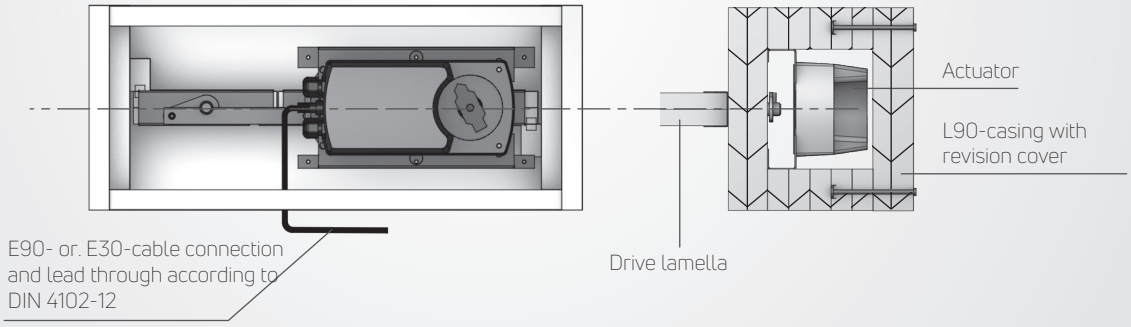
The actuators BE24/BE230/SEL2.90 and SEL1.90 are controlled via 2-point (see connection diagram). The actuator SEL1.90 SLC is connected using 2-wire-technique. When using the corresponding communication modules (SPMa-1SR or SPLM-4S OSD Mod), data as damper positioning, cycle times (< 60 s) and torque monitoring can be retrieved. Please order separately. Contrary to the connection diagram shown below, the connection to terminal 3 is omitted.

Please note: All electrical connections between the actuator and the power supply must be carried out in accordance with current VDE guidelines.

Technical data

	BE24	BE230	SEL 2.90	SEL 1.90	SEL 1.90 SLC
Nominal voltage	24 V ⎓	230 V ~		24 V ⎓	In Verbindung mit SPMa oder SPLM
Power consumption during operation	12 W	8 W	12 W	7 W	
in end positions	0,5 W		3,7 W	0,7 W	1,0 W
Dimensioning	18 VA	15 VA	13 VA		
Degree of protection	IP 54				
Protection rating	III	II			
Minimum torque	40 Nm				
Cycle time	< 60 s				
Sound power level	max. 62 dB (A)		ca. 50 dB (A)		
Angle of rotation	100°		93°		
Switching power auxiliary switch	2 x EPU, 6 (3) A, AC 250 V		3 (1,5) A, 230 V		entfällt bei SLC
Maintenance	wartungsfrei				
Weight	~ 2,7 kg		~ 2,9 kg	~ 2,7 kg	

Actuator arrangement and cable entry

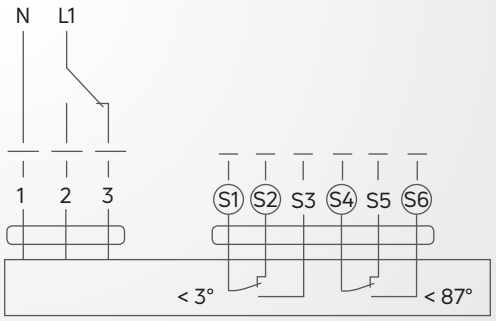


Please note: The lead through of E90- or. E30-cabels through the side of the L90-casing must take place with pricesely fitting drilling (drill hole = outer diameter E90- or. E30-cabel).

Connection diagram for actuator BE24 and BE230 (2-wire-control)

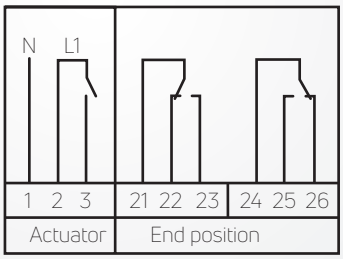
Display of end positions

S1 + S2 = CLOSED
S4 + S6 = OPEN



Connection diagram for actuator SEL 2.90 und SEL 1.90 2-point- or 1-wire-control (7-leads)

Diagram OPEN



24 VAC	±	20%	⊥	~
24 VDC	±	10%	-	+
230 VAC	±	10%	N	L1

Connection diagram for actuator SEL 1.90 SLC 2-wire-technique (2-leads)

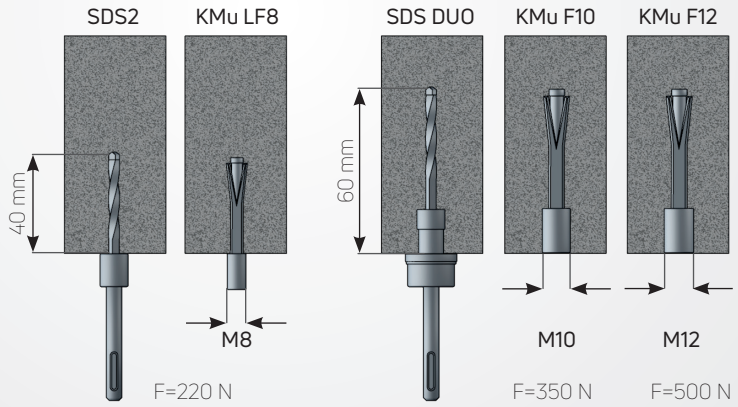
Using saftey communication modules Power-Line-System SLC, type SPMa-1SR or SPLM-4S OSD Mod.

Please contact us for more information on our communication modules SPMa-1SR or SPLM-4S OSD Mod.

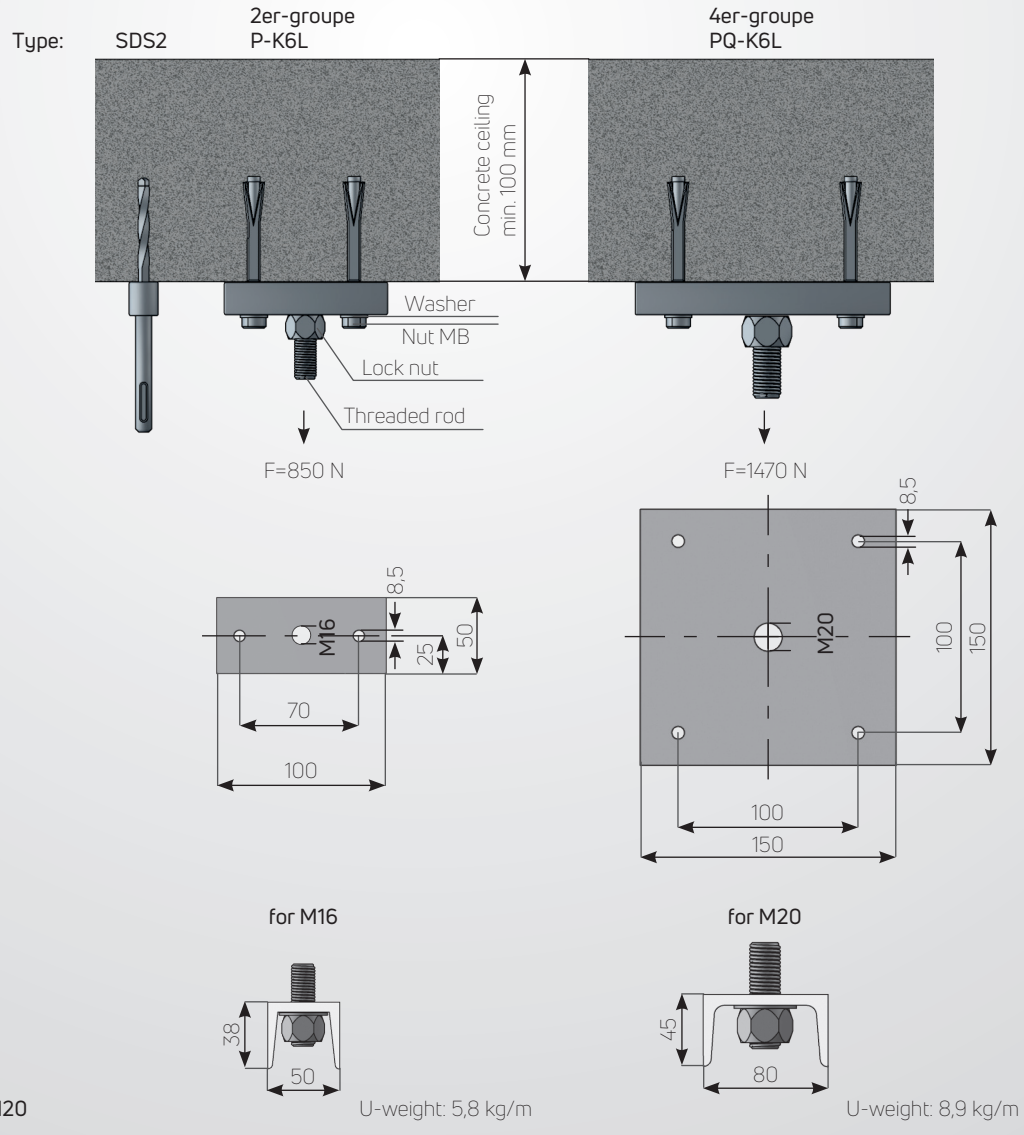
Load transfer and weights

Fire protection dowels for load transfer of smoke control dampers with european technical approval ETA-04/0026 for M8 to M12

Load transfer
from M8 to M12



Fire protection dowels for load transfer of smoke control dampers with european technical approval ETA-04/0026 for M16 to M20



Load transfer
from M16 to M20

U-weight: 5,8 kg/m

U-weight: 8,9 kg/m

Load transfer of RKI smoke control dampers taking into account the smoke control duct

Notes for steel dowels with general building approval

Please note: The hangers must be attached with steel expansion dowels ≥ M8. The dowels must correspond to the specifications of the valid genral building approval (DIBt) and must be installed twice as deep as required in the approval, unless the approval does not state otherwise. The calcualted tensile load per dowel must not exceed 500 N. Special dowels with a maximum tensile load of 700 N can also be used.

Nominal dimension	Bar weight in kg/m	* Stress area in mm2	Load at 6 N/mm2 per threaded rod	
			N	KP
M6	0,18	20,1	120,6	12,29
M8	0,32	36,6	219,6	22,38
M10	0,5	58,0	348,0	35,47
M12	0,73	84,3	505,8	51,55
M14	0,97	115,0	690,0	70,33
M16	1,35	157,0	942,0	96,02
M20	2,08	245,0	1470,0	149,84
M24	3,00	353,0	2118,0	215,90
M30	4,75	561,0	3366,0	343,11

* Stress area of threaded rods with metric ISO-thread according to DIN 13, part 28

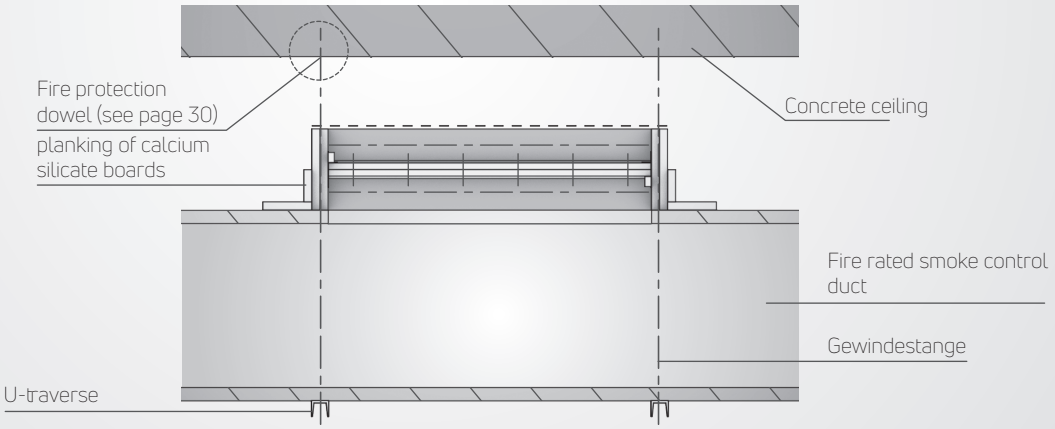
The design of the unclad threaded rods must be such that the calculated stress of 6 N/mm2 is not exceeded (refers to a maximum lenghth of 1,5 m). The hangers must be U-shaped around the duct (see DIN EN1366-1).

Weights in kg

H \ W	200	300	400	500	600	700	800	900	1000
340	43	45	48,5	52	55,5	59	62	65	69
505	52	57	60,5	65	68,5	73	76	80,5	85
670	61,5	67	71	75,5	80	85	89,5	95	99
835	69,5	75,5	80	86	91	96,5	102	107	112
1000	77	83	88,5	95,5	100,5	107	113	119	124

L = 250 mm

When dimensioning the load transfer with threaded rods the follwong weights must be added:
RKI + planking of calcium silicate boards + fire rated smoke control duct + threaded rods + U-traverse



Please note: For suspension heights of >1,5 m the threaded rods must be clad, zzgl. plus the weight of the suspension cladding must be added to the dimensioning of the threaded rods.*

*Details on cladded threaded rods can be found in the product information „Smoke control damper RKU" on pages 29 to 31.

Order example

RKI (1) / B300 x H505 (2) / SEL 1.90 (3) / WSK (4)

1. Serie
   RKI smoke control damper
2. Dimensions
   Width 200 - 1000 mm
   Height 340, 505, 670, 835 und 1000 mm
3. Release mechanism

SEL 1.90	Actuator 24 V AC / DC
SEL 2.90	Actuator 230 V AC
BE 24	Actuator 24 V AC / DC
BE 230	Actuator 230 V AC
SEL 1.90 SLC	Actuator 24 V AC / DC with SLC technique for controlling and monitoring of the smoke control damper

4. Accessory

WSK	Compensator according to EN 12101-7
SR	Inner impregnation to protect against aggressive media
KMU-L(F)	Fire protection dowel M8, 10 und 12
P-K 6 L	Suspension plate incl. dowel, F = 850N
PQ-K 6 L	Suspension plate incl. dowel, F = 1500N
SDS-2	Flange drill for dowel Ø 6 mm (for load transfer M8)
SDS-DUO	Flange drill set for dowel Ø 6 mm (for load transfer M10–M12)
SMU-H	Setting tool frrom size 8 to 12
SR 2000	Inner impregnation to protect against humidity
WE	Braquets for load transfer
Montageset	to connect RKI next to eacht other
KP	Duct connection profile

- Standard damper length, special dimensions upon request.
- Dimensions W x H in mm, H-side is always the operating side.
- SPMA and SPLM, SLC modules and EKS smoke control panels upon request.

Please note: evtl. Sonderwünsche zum Typ, wie z. B. einseitig (Bedienseite BS oder Mauerseite MS), beidseitig oder ganz ohne Kanalanschlussprofil, separat angeben.

Tender text

Pos.	Description	Unit	Price per unit EUR	Tota price EUR
	Smoke control damper RKI Multi-blade smoke control damper for multi section, rectangular design, for smoke exhaust wihtin smoke and Fire tested according to EN 1366-10 and EN 1366-2 with CE marking according to EN 12101-8 and declaration of performance according to Construction Product Regulation. The smoke control damper consists of a housing and multi damper blades, both made from fire rated calcium silicate boards. The damper axis is made from stainless steel, mounted in maintenance-free bronze bushings. Suited for installation in and on duct claddings of vertical and horizontal smoke control ducts according to EN 12101-7. To be used with horizontal or vertical axis position. Control via actuator OPEN/CLOSE 24 V AC/DC or 230 V AC for 2-point-control or SLC-technique (2-wire-control) with L90-insulated housing to protect actuator and linkage including revision cover . • Classification EI 90 (v_{edw} - h_{odw} i ↔ o) S1000 C_{10000} HOT400/30 MA multi according to EN 13501-4 • Classification EI 120 (v_{ew} i ↔ o) S1000 C_{10000} HOT400/30 MA multi according to EN 13501-4 • Housing and damper blades from calcium silicate boards • Dimensions: Hight 340 – 1000 mm, Width 200 – 1000 mm • Tested for manual release (MA) • Revision from the side Typ: **RKI** Fabrikat: **Strulik GmbH**			

Tender text

Pos.	Description	Unit	Price per unit EUR	Total price EUR
	Smoke control damper RKI-V Multi-blade smoke control damper for multi section, rectangular design, for smoke exhaust wihtin smoke and Fire tested according to EN 1366-10 and EN 1366-2 with CE marking according to EN 12101-8 and declaration of performance according to Construction Product Regulation. The smoke control damper consists of a housing and multi damper blades, both made from fire rated calcium silicate boards. The damper axis is made from stainless steel, mounted in maintenance-free bronze bushings. Suited for installation in concrete walls, in front of concrete walls, in light partition walls, in and on duct claddings of vertical and horizontal smoke control ducts according to EN 12101-7. To be used with horizontal or vertical axis position. Suitable for mounting ithout minimum distance in concrete walls directly next to each other or directly on top of each other. Control via actuator OPEN/CLOSE 24 V AC/DC or 230 V AC for 2-point-control or SLC-technique (2-wire-control) with L90-insulated housing to protect actuator and linkage including revision cover . • Classification EI 90 (v_{edw} - h_{odw} i ↔ o) S1000 C_{10000} HOT400/30 MA multi according to EN 13501-4 • Classification EI 120 (v_{ew} i ↔ o) S1000 C_{10000} HOT400/30 MA multi according to EN 13501-4 • Housing and damper blades from calcium silicate boards • Dimensions: Hight 340 – 1000 mm, Width 200 – 1000 mm • Tested for manual release (MA) • Revision from the front Typ: **RKI-V** Fabrikat: **Strulik GmbH**			

Notes

Notes

Notes

Notes

Notes

CE

CE-compliant according
to European regulations

Strulik GmbH
Neesbacher Straße 15
65597 Hünfelden-Dauborn

Telefon: +49(0)6438 / 839-0
E-Mail: contact@strulik.com
Internet: www.strulik.com

Stand 06.2024