



UVA FIRE DAMPERS

Installation manual

No. TC-FD01



EN

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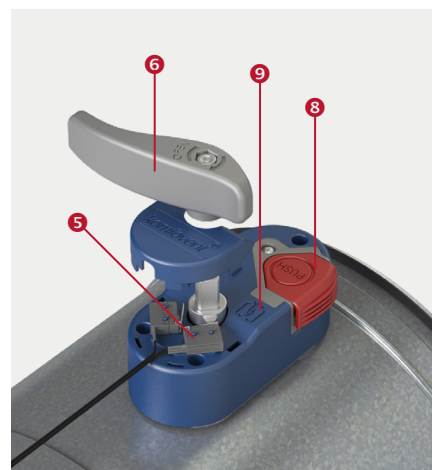
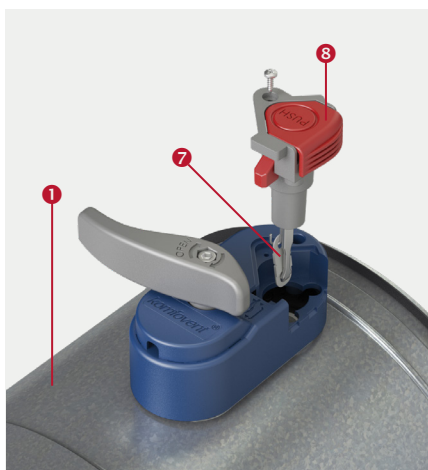
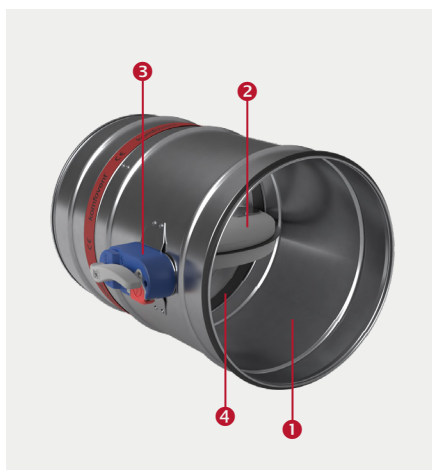


1. CIRCULAR FIRE DAMPERS UVA

Circular UVA fire dampers are available in 2 main configurations: dampers with fuse element (UVA-H) and dampers with an electric actuator with spring return mechanism (UVA-M).

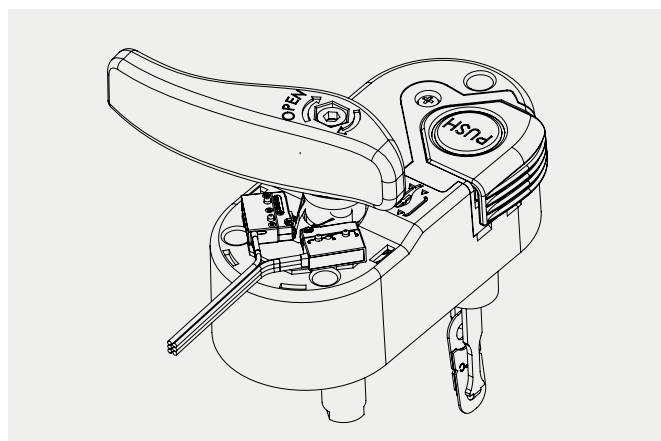
When it is necessary UVA-H dampers can additionally be equipped with end position switches, but UVA-M dampers – with electric power supply and communication unit.

1.1. CIRCULAR FIRE DAMPER WITH FUSE ELEMENT UVA-H



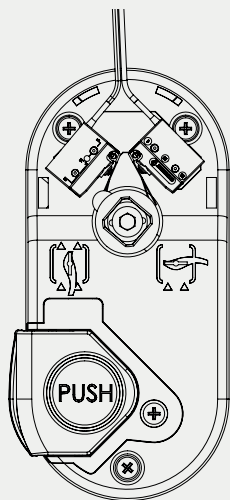
- ❶ Casing
- ❷ Blade
- ❸ Opening device with spring
- ❹ Intumescent gasket
- ❺ End position switches (optional)
- ❻ Opening handle
- ❼ Fuse element
- ❽ Test button
- ❾ Marking of blade position

Components of the UVA-H dampers

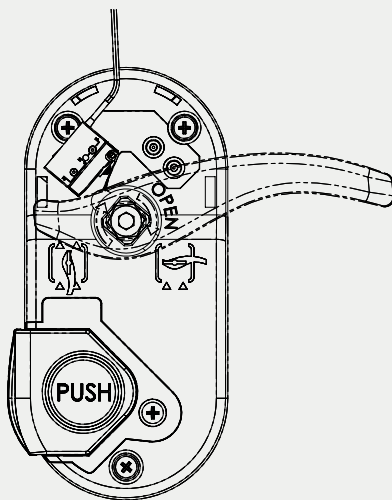


UVA-HEP fire damper with 2 end position switches

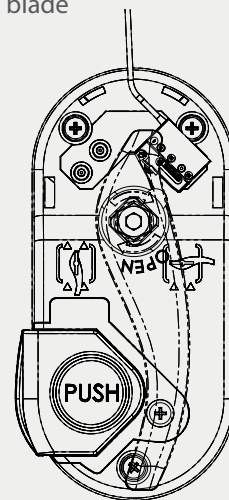
UVA-HEP with two end position switches for indicating both positions of the blade



UVA-HEC with one end position switch for indicating CLOSED position of the blade

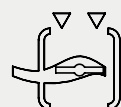


UVA-HEO with one end position switch for indicating OPEN position of the blade

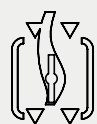


UVA-H modifications

After the fuse element is triggered, it is not possible to lock the blade of UVA-H damper in open state again. If false triggering – maintenance works are required in this case. Position of the blade can be indicated based on symbols on the plastic mechanism casing or based on the signals from the microswitches (for UVA-HEP, UVA-HEC, UVA-HEO versions).



— **Blade closed** – handle placed horizontally, no air transfer



— **Blade opened** – handle placed vertically, free air transfer ensured

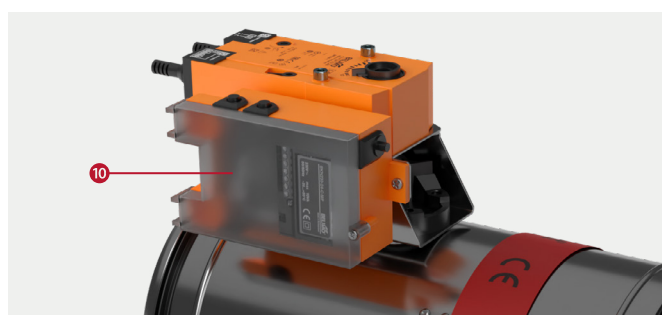
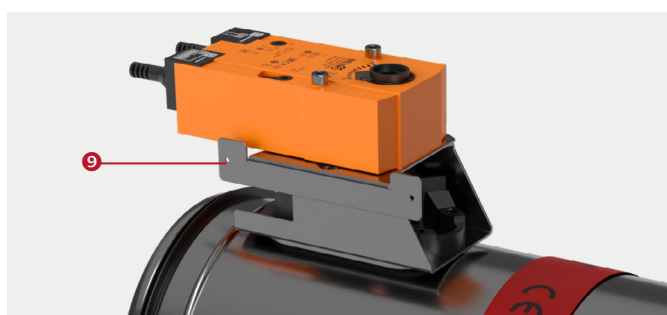
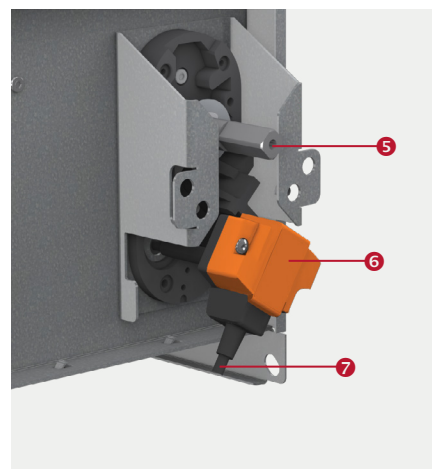
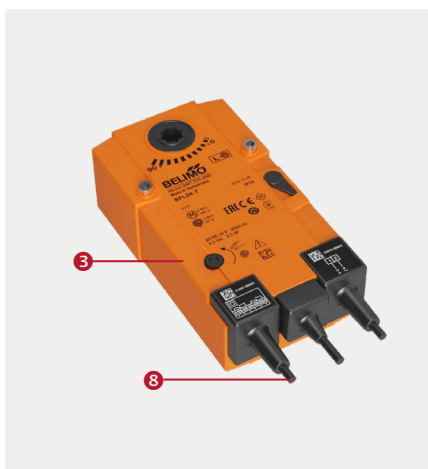
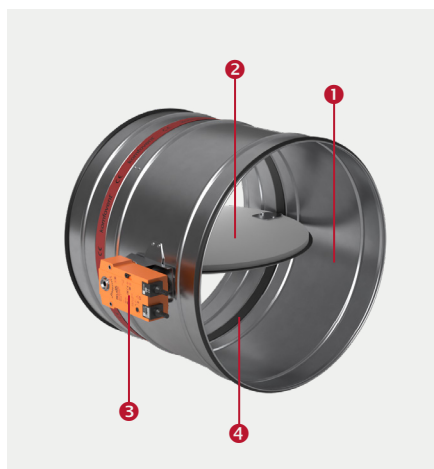
Indicating of the blade position for UVA-H damper

Spring mechanism casing contains red testing button with PUSH label. The button should be pressed to test if the spring mechanism is functional. PUSH button can be simply pulled out by unscrewing one screw for inspection and repair works. The opening in the mechanism casing can be used for internal inspection of the damper.



Replacing of the activated fuse element

1.2. CIRCULAR FIRE DAMPER WITH ELECTRIC ACTUATOR UVA-M



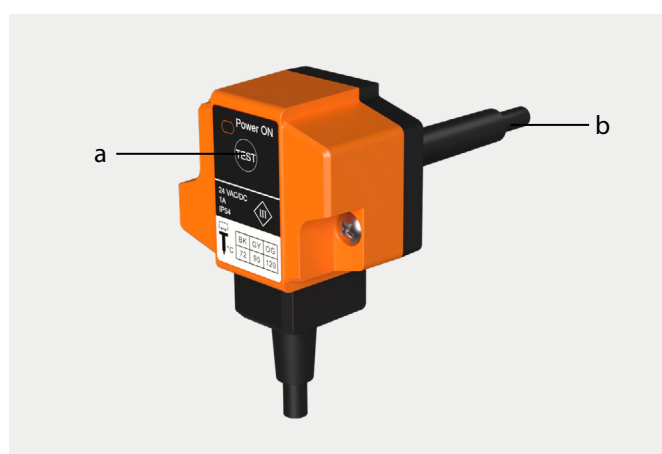
- | | |
|--------------------------------------|--|
| 1 Casing | 7 Connection cable |
| 2 Blade | 8 Actuator's connection cables |
| 3 Actuator BFL 24 / 230 / T / ST | 9 Bracket B for BK (BKD, BKP) communication unit |
| 4 Intumescent seal | 10 BK (BKD, BKP) communication unit |
| 5 Axle of the blade | |
| 6 Thermoelectric tripping device 72° | |

Components of the UVA-M dampers

Closing of the blade in UVA-M fire damper with electric actuator occurs as a result of the release of spring mechanism through the system of levers. Electric actuator is equipped with thermoelectric tripping device, containing two separate fuse elements placed inside and outside of the airduct for two-sided temperature measuring.

a – TEST button.

b – Inner fuse – placed inside the damper.



Fuse of thermoelectric tripping device

Electric actuator moves the blade of the damper to the CLOSED position when the power source is interrupted. This typically happens if:

- Temperature inside the airduct reaches 72°C and internal thermal fuse blows the power source (this fuse is a replacement part).
- Temperature outside the airduct reaches 72°C and outer thermal fuse blows the power source (this fuse can't be replaced).
- Test button is pressed on thermoelectric tripping device.
- Building Management System conducts an emergency or test power shutdown.
- Centralized or local system conducts an emergency or test power shutdown via communication units.

After the triggering of the actuator closing system, it is possible to return to the OPEN position only if both thermal fuses are undamaged, e.g., after conducting a test and it confirmed working ability. If an emergency shutdown inducted by Building Management System, centralized or local Fire Safety System, or any of fuse elements of thermoelectric tripping device are melted, the blade remains in a CLOSED state.

All fire dampers with electric actuator have an integrated end position switches by default.

Fire damper UVA-M24T	Circular damper with AC/DC 24V spring-return actuator, combined with thermoelectric tripping device BAT (72°C) and end position switches.
Fire damper UVA-M230T	Circular damper with AC 230V spring-return actuator, combined with thermoelectric tripping device BAT (72°C) and end position switches.
Fire damper UVA-M24TST	Circular damper with AC/DC 24V spring-return actuator, combined with thermoelectric tripping device BAT (72°C), end position switches, connection plugs for simple integration in control and monitoring systems or bus networks.
Fire damper UVA-M24TST-...-B	Circular damper with AC/DC 24V spring-return actuator, combined with thermoelectric tripping device BAT (72°C), end position switches, bracket for mounting the communication unit and connection plugs for simple integration in control and monitoring systems or bus networks.
Fire damper UVA-M24TST-...-BK	Circular damper with AC/DC 24V spring-return actuator, combined with thermoelectric tripping device BAT (72°C), end position switches, bracket for mounting the communication unit and connection plugs for simple integration in control and monitoring systems or bus networks and equipped with power supply and communicating unit BKN230-24.
Fire damper UVA-M24TST-...-BKD	Circular damper with AC/DC 24V spring-return actuator, combined with thermoelectric tripping device BAT (72°C), end position switches, bracket for mounting the communication unit and connection plugs for simple integration in control and monitoring systems or bus networks and equipped with power supply and communicating unit BKN230-24MOD via BACnet MS/TP and Modbus RTU communication.
Fire damper UVA-M24TST-...-BKP	Circular damper with AC/DC 24V spring-return actuator, combined with thermoelectric tripping device BAT (72°C), end position switches, bracket for mounting the communication unit and connection plugs for simple integration in control and monitoring systems or bus networks and equipped with power supply and communicating unit BKN230-24-C-MP via MP-BUS or SBS communication.

Actuators used in UVA-M fire dampers: BFL24-T, BFL230-T, BFL24-T-ST , BFN24-T, BFN230-T, BFN24-T-ST.

1.3. BFL24-T (ST) / BFL230-T (ST) ELECTRIC ACTUATOR SPECIFICATION



Spring-return actuator, combined with thermoelectric tripping device BAT (72°C), for fire and smoke dampers 90° in ventilation and air-conditioning systems.

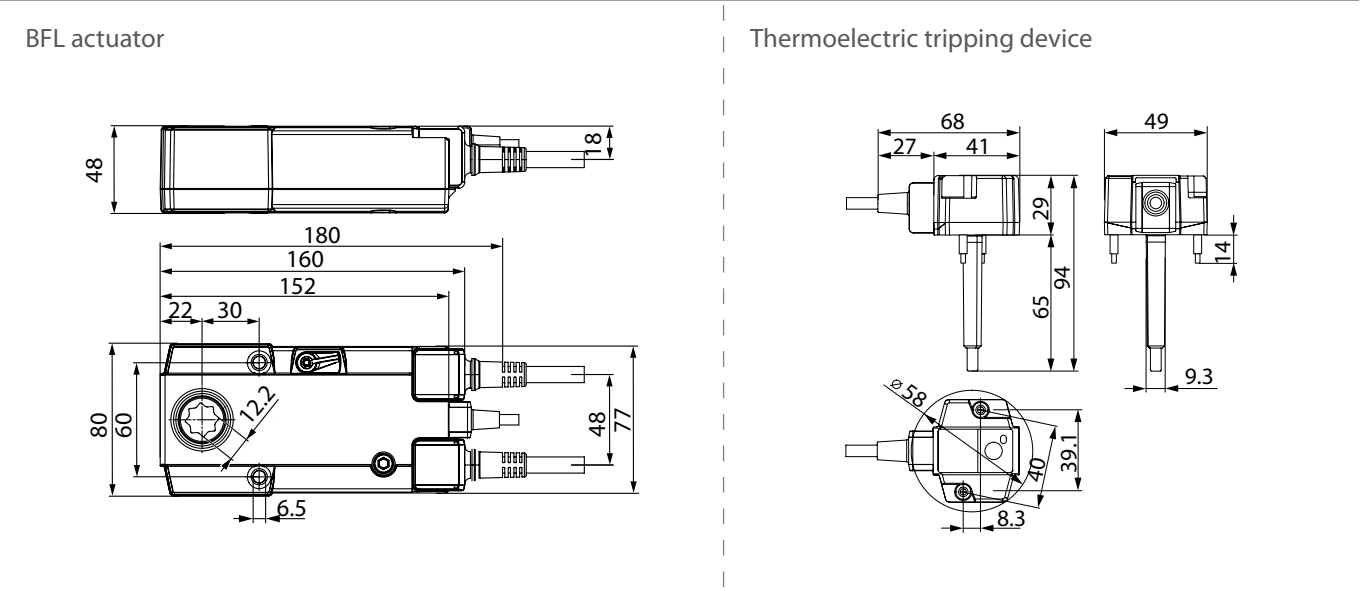
Torque	4 Nm / 3 Nm
Nominal voltage	AC 230V (BFL230-T) or AC/DC 24V (BFL24-T)
Control	Open/close
Mechanical interface	Form fit 12x12 mm, continuous hollow shaft

The actuator moves the damper to the operating position at the same time as tensioning the return spring. The damper is turned back to the safety position by spring energy when the supply voltage is interrupted. The Safety Position Lock™ reliably holds the fire damper in the safety position in case of fire therefore, ensuring maximum safety. Thermoelectric tripping device complies with the specific requirements of the standard ISO 10294-4.

The design of the actuator is based on the specific requirements from the European standards:

- EN 15650 Ventilation for buildings – Fire dampers.
- EN 1366-2 Fire resistance tests on service installations (Part 2: Fire dampers).
- EN 13501-3 Fire classification of construction products and building elements (Part 3: Classification using data from fire resistance tests on products and elements used in building service installations: fire resisting ducts and fire dampers).

DESIGN AND DIMENSIONS

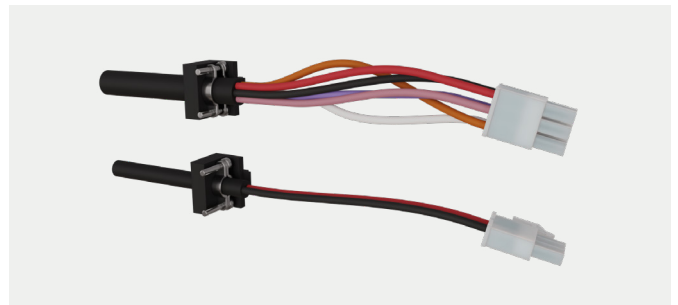


BFL actuator and TTD dimensions

Parameter	BFL24-T	BFL230-T
Electrical current	AC/DC 24V 50/60 Hz	AC 230V 50/60 Hz
Weight	1.1 kg	1.1 kg
Torque: Motor Return spring	min. 4 Nm min. 3 Nm	min. 4 Nm min. 3 Nm
Rotation angle	max. 95°	max. 95°
Normal operating temperature	-30...55 °C	-30...55 °C
Power consumption in operation	2.5 W	3.5 W
Servicing	Maintenance-free	Maintenance-free

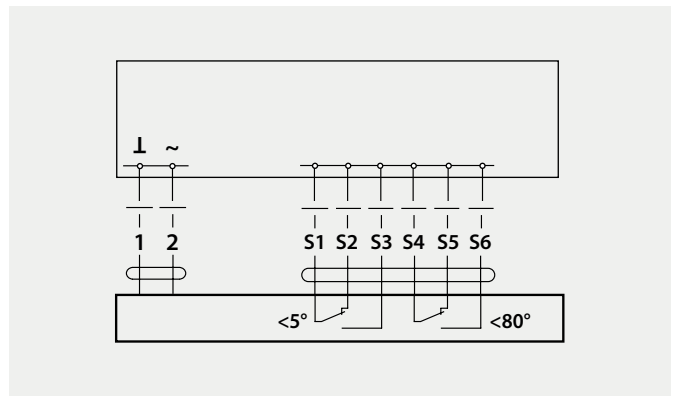
BFL24 -T-ST actuator version is equipped with connection plugs. Connection supply / control Cable is fitted with connector plug 1 m, 2 x 0.75 mm². Connection auxiliary switch Cable is fitted with connector plug 1 m, 6 x 0.75 mm².

This allows it to be integrated into control and monitoring systems (e.g., SBS-Control) or bus networks (e.g., MP-Bus solutions) via communication and power supply units.



Connection plugs

Connection plug Supply / control: 3-pole plug, suitable for communication and power supply units BKN. Auxiliary switch is 6-pole plug, suitable for communication and power supply units BKN.



Wiring diagram of the BFL24-T-ST actuator

1.4. BFN24-T (ST) / BFN230-T (ST) ELECTRIC ACTUATOR SPECIFICATION



Spring-return actuator, combined with thermoelectric tripping device BAT (72°C), for fire and smoke dampers 90° in ventilation and air-conditioning systems.

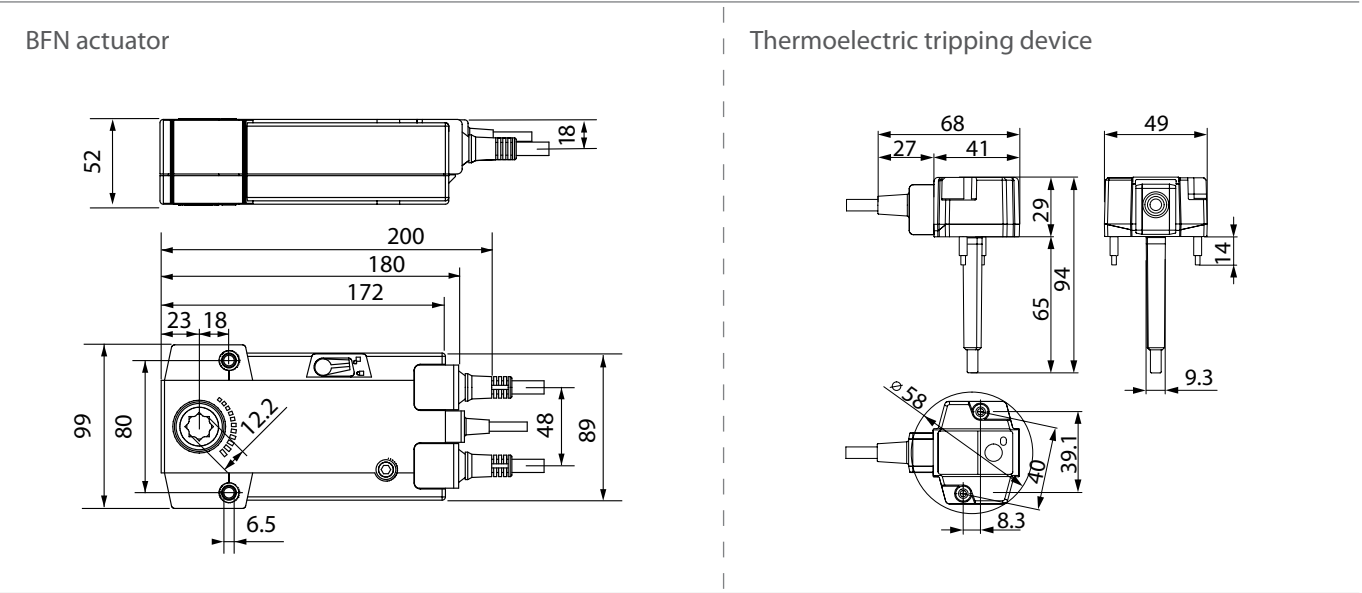
Torque	9 Nm / 7 Nm
Nominal voltage	AC 230V (BFN230-T) or AC/DC 24V (BFN24-T)
Control	Open/close
Mechanical interface	Form fit 12x12 mm, continuous hollow shaft

The actuator moves the damper to the operating position at the same time as tensioning the return spring. The damper is turned back to the safety position by spring energy when the supply voltage is interrupted. The Safety Position Lock™ reliably holds the fire damper in the safety position in case of fire therefore, ensuring maximum safety. Thermoelectric tripping device complies with the specific requirements of the standard ISO 10294-4.

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DESIGN AND DIMENSIONS



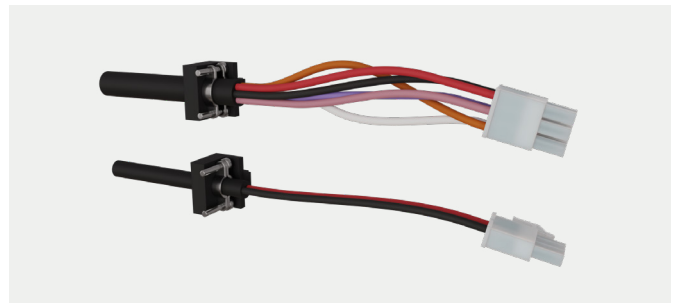
BFN actuator and TTD dimensions

Parameter	BFN24-T	BFN230-T
Electrical current	AC/DC 24V 50/60 Hz	AC 230V 50/60 Hz
Weight	1.4 kg	1.4 kg
Torque: Motor Return spring	min. 9 Nm min. 7 Nm	min. 9 Nm min. 7 Nm
Rotation angle	max. 95°	max. 95°
Normal operating temperature	-30...55 °C	-30...55 °C
Power consumption in operation	4 W	5 W
Servicing	Maintenance-free	Maintenance-free

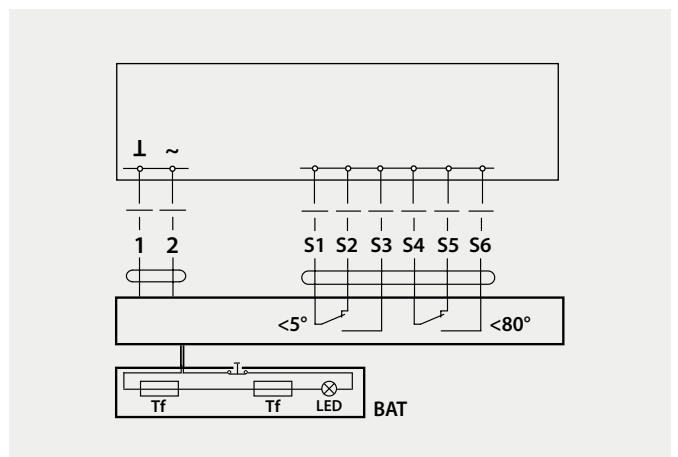
BFN24 -T-ST actuator version is equipped with connection plugs. Connection supply / control Cable is fitted with connector plug 1 m, 2 x 0.75 mm². Connection auxiliary switch Cable is fitted with connector plug 1 m, 6 x 0.75 mm².

This allows it to be integrated into control and monitoring systems (e.g., SBS-Control) or bus networks (e.g., MP-Bus solutions) via communication and power supply units.

Connection plug Supply / control: 3-pole plug, suitable for communication and power supply units BKN. Auxiliary switch is 6-pole plug, suitable for communication and power supply units BKN.



Connection plugs



Wiring diagram of the BFN24-T-ST actuator

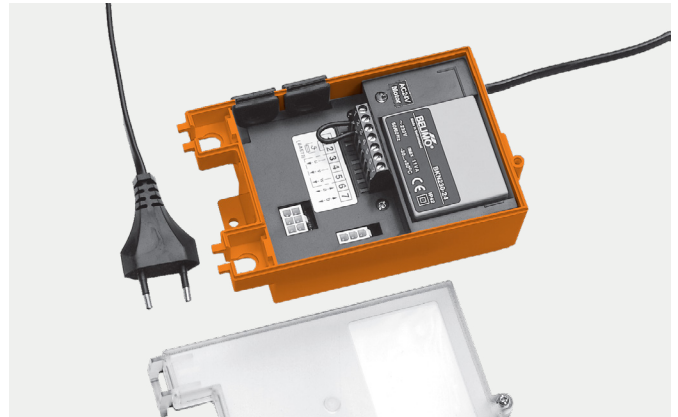
COMMUNICATION AND POWER SUPPLY UNIT

UVA-M dampers with BFL24-T-ST actuators could optionally be equipped with a Communication and power supply unit for fire damper actuators 24 V with connector **BKN230-24**, or a Communication and power supply unit for fire damper actuators 24 V with connector **BKN230-24-MOD** for communication via BACnet MS/TP and Modbus RTU, or **BKN230-24-C-MP** via MP-BUS / SBS communication.

BKN230-24 unit

The BKN230-24, also functions as a distributed power unit for supplying the BLF24(-T)-ST spring-return actuator that is connected to it. Another of its functions is to signal the NORMAL and SAFE positions of the damper (from the switches in the spring-return actuators) to the central control panel over a 2-wire conductor. The same conductor is used for transmitting the ON/OFF control command from the control panel to the damper actuator via the BKN230-24.

The ST spring-return actuator is fitted with connectors that plugged directly into the BKN230-24 unit. The 2-wire conductor is connected to terminals 6 and 7. Terminals 1 and 2 are for the direct connection of thermal trips or smoke detectors.



BKN230-24 unit

BKN230-24-MOD unit

BKN230-24-MOD unit is a decentralized power supply unit for 24V fire damper actuators with local power supply AC 230V. The unit has an integrated LED status indicator and plugging for a smoke detector contact and /or a thermoelectric tripping device.

The BKN230-24-MOD communication unit is installed with the motorized fire damper. This unit sets up the communication connection with higher-level systems while the built-in safety isolating transformer supplies DC 24 V voltage to the damper actuator.



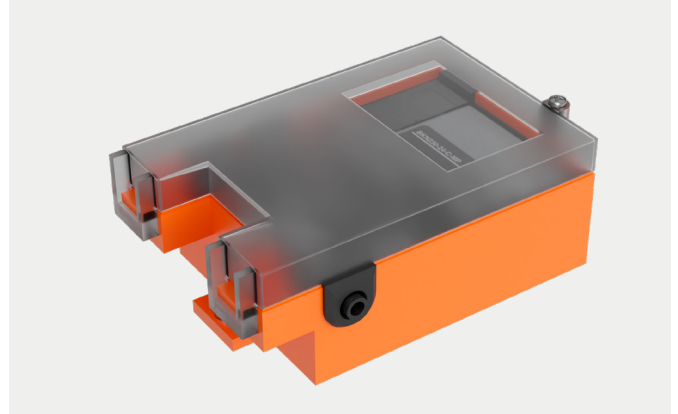
BKN230-24-MOD unit

- Communication via BACnet MS/TP and Modbus RTU (RS-485)
- AC 230 V supply via Euro plug
- Power is supplied to the actuators via a plug contact (galvanically isolated, DC 24 V)
- Simple integration of a smoke detector with no additional power supply is possible

BKN230-24-C-MP unit

Communication and power supply unit for motorized fire dampers. Power supply of the actuator via Plug contact (from safety transformer AC 24 V), supply and control are electrically isolated, simple integration of a smoke detector without additional power supply possible. Communicated optionally with analogue control modules BKS24..-1B, ..-9A (SBS Control) or digitally via Belimo MP bus.

- AC 230 V is supplied to the actuators via Euro plug contact (AC 24 V from safety isolation transformer). Nominal voltage: AC 230 V, 50/60 Hz
- Operation: approx. 3.5 W @ nominal torque
- Supply and control are electrically isolated, Safety Class: II
- Simple integration of a smoke detector with no additional power supply
- A range of suitable actuators is available: BF24..-ST, BLF24..-ST
- Connection: Terminals and AMP plug connections
- EMC: CE in accordance with 2014/30/EU
- Low-voltage directive: CE in accordance with 2014/35/EU
- Humidity testing: 95 % r.H., not condensing (EN 60730-1)



BKN230-24-C-MP unit

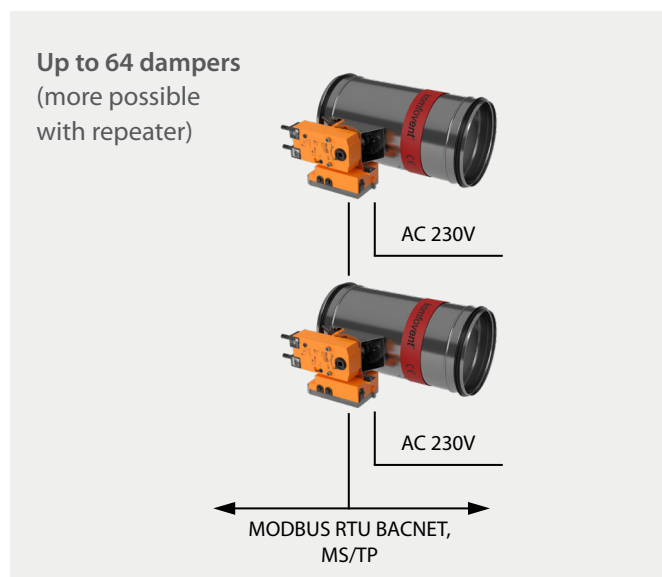
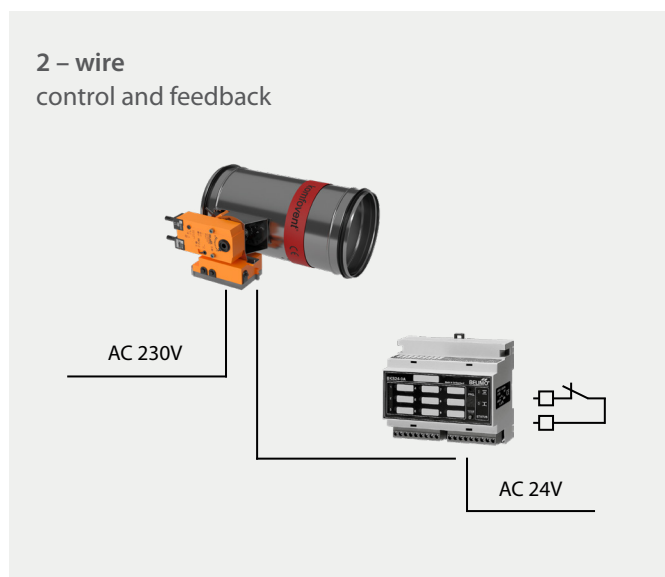
The communication unit is installed directly on the damper, using additional mounting bracket:



Installation of the communicating unit on the damper

- 1 Communication and power supply unit
- 2 Mounting bracket
- 3 Fastening screws

There is an option to connect the damper with a smoke detector and/or thermoelectric tripping device (up to 9 sets) to the automation station via the BKN230-24-MOD unit, or connection via BACnet MS/TP or Modbus RTU (up to 64 sets, more available using a repeaters):

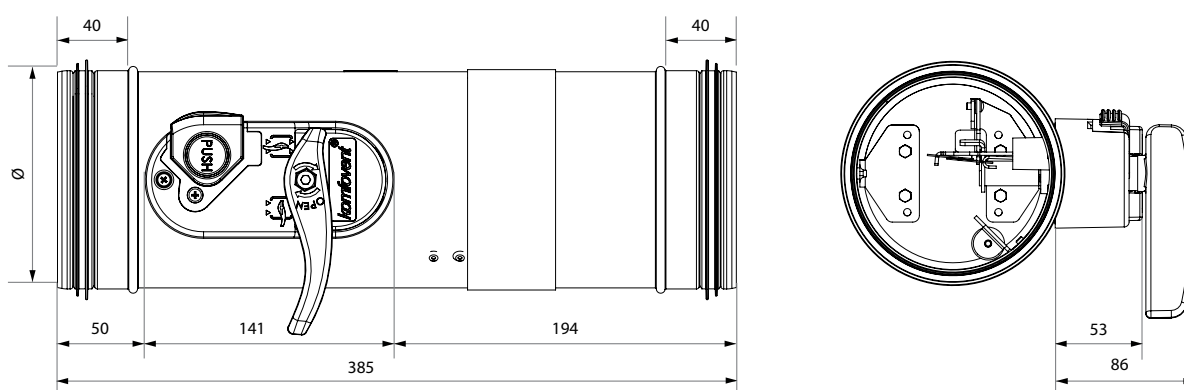


Connections and communication examples of BKN230-24-MOD unit

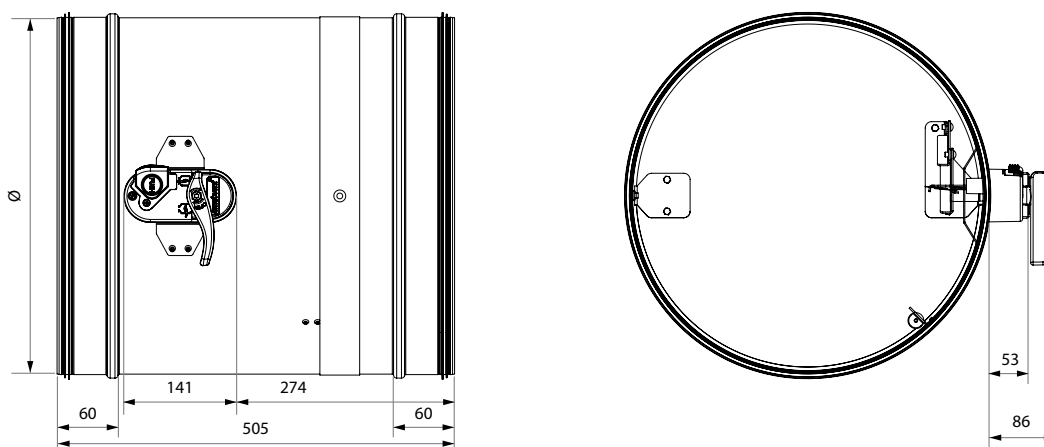
2. TECHNICAL DATA

2.1. DIMENSIONS

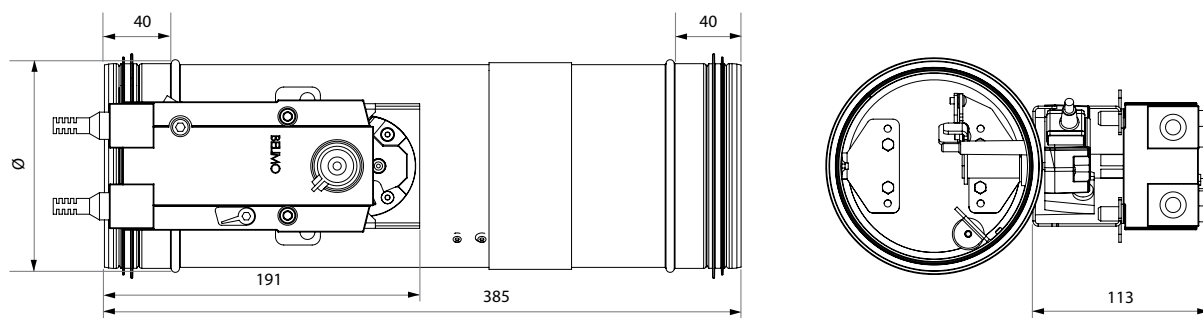
Circular UVA dampers are available in size range Ø100, Ø125, Ø160, Ø200, Ø315, Ø355, Ø400, Ø450, Ø500, Ø560 and Ø630 mm. Transitional sizes are available on request. Dimensions of the damper for size ranges Ø100÷315 mm and Ø355÷630 mm differ significantly - see figures below:



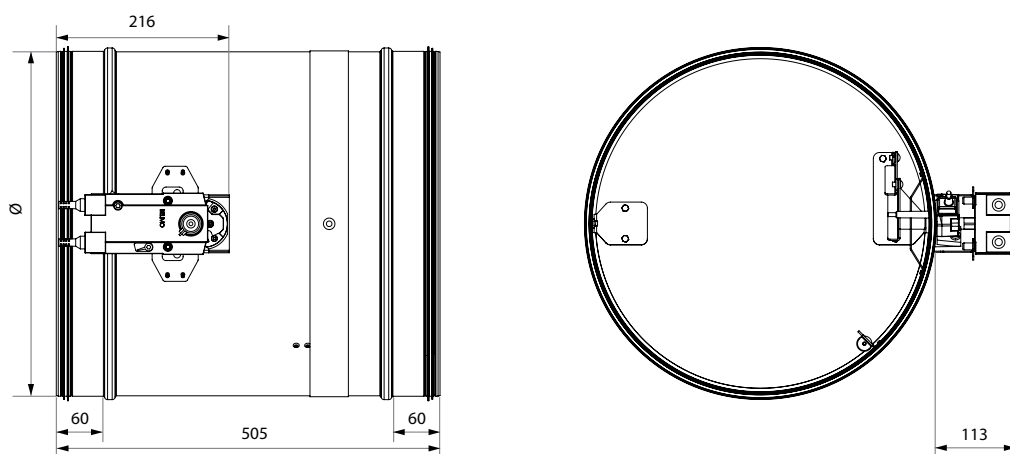
UVA-H dimensions for size range Ø100 ÷ 315 mm



UVA-H dimensions for size range Ø355 ÷ 630 mm

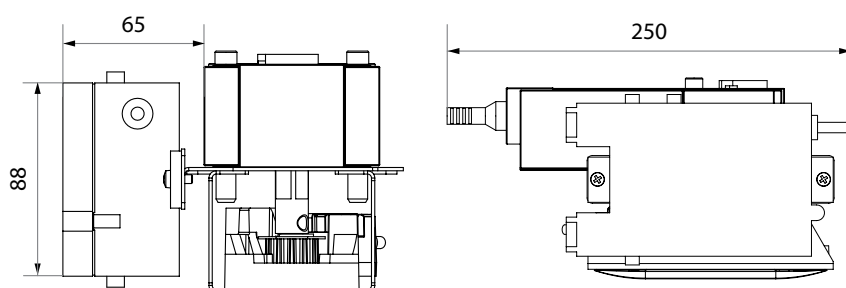


UVA-M dimensions for size range Ø100 ÷ 315 mm



UVA-M dimensions for size range Ø355 ÷ 630 mm

UVA-M ... BK fire dampers combined with communication extend beyond the casing:

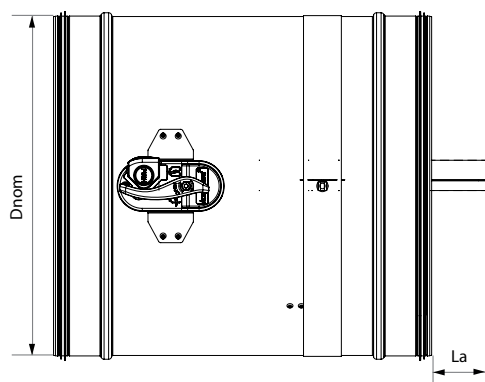


Installation of the communication unit on the damper

2.2. EXTEND BEYOND THE BLADE

UVA-H and UVA-M fire dampers starting with Ø315 mm have exposition of the blade into the duct within a certain distance:

Ø, mm	315	355	400	450	500	560	630
La, mm	28	34	56	81	106	136	171



Blade one-side overlaps

2.3. WEIGHT OF THE DAMPERS

Ø, mm	100	125	160	200	250	315	355	400	450	500	560	630
UVA-H, kg	1.7	2.1	2.5	2.9	3.7	4.7	9.6	11.3	13.3	15.4	18.2	21,7
UVA-M .. T, kg	2.4	2.8	3.2	3.7	4.4	5.5	10.4	12.0	14.0	16.1	18.9	22.4
UVA-M .. TST-BK, kg	2.6	3.4	3.8	4.3	5.0	6.1	11.0	12.6	14.6	16.7	19.5	23.0

2.4. FREE AREA OF THE DAMPER

Free area for completely open blade of UVA damper, m²:

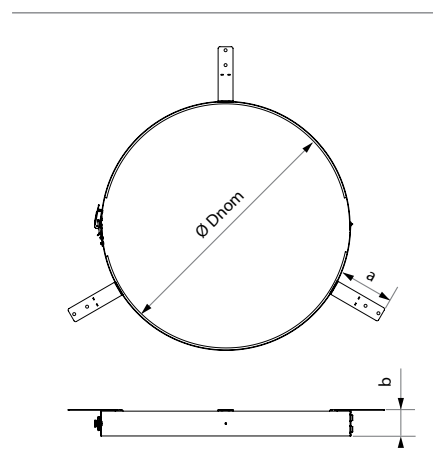
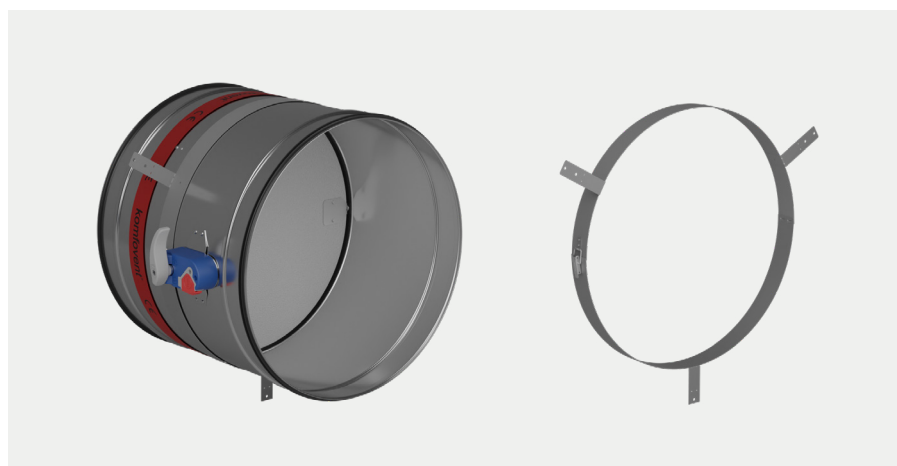
Ø, mm	100	125	160	200	250	315	355	400	450	500	560	630
Free area, m²	0,0059	0,0098	0,0169	0,0274	0,0441	0,0716	0,0847	0,1096	0,1410	0,1763	0,2238	0,2852

3. ACCESSORIES

3.1. US WALL MONTAGE TOOL

Simple collar-type montage tool with 3 plates (6 x Ø6 mm holes) – designed for wall installation, for the best alignment of the fire damper in cut-out opening.

For each fire damper diameter (100, 125, 160, 200, 250, 315, 355, 400, 450, 500, 560, 630 mm) relevant size of installation holder is required. The installation holder is re-usable, it is possible not to order the mounting accessories for each fire damper that should be installed on the site.



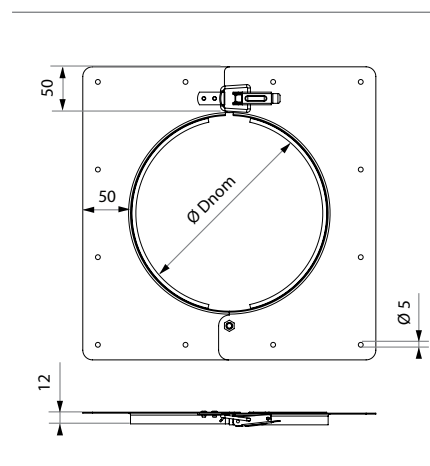
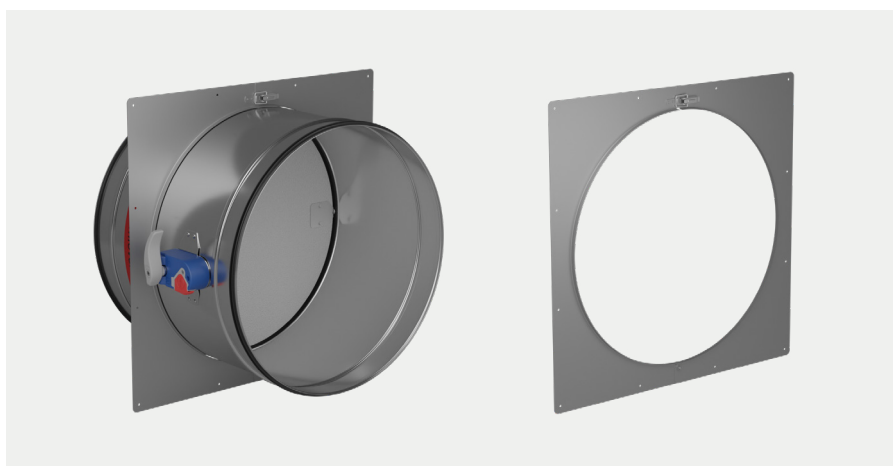
US mounting accessory dimensions

D _{nom} , mm	100	125	160	200	250	315	355	400	450	560	630
a, mm	78	78	78	78	78	78	109	109	109	109	109
b, mm	14.5	14.5	14.5	14.5	14.5	14.5	53	53	53	53	53
m, kg	0.09	0.11	0.11	0.12	0.17	0.56	0.62	0.69	0.75	0.83	0.92

3.2. UL CEILING MONTAGE TOOL

Simple overlay-type montage tool with montage plate (12 x Ø5 mm holes) – designed for ceiling installation, for the best alignment of the fire damper in cut-out opening.

For each fire damper diameter (100, 125, 160, 200, 250, 315, 355, 400, 450, 500, 560, 630 mm) relevant size of installation holder is required. The installation holder is re-usable, it is possible not to order the mounting accessories for each fire damper that should be installed on the site.



UL mounting accessory dimensions

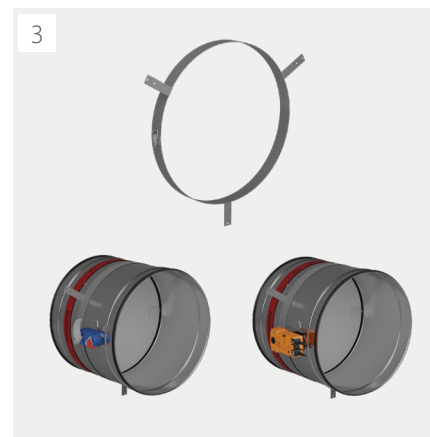
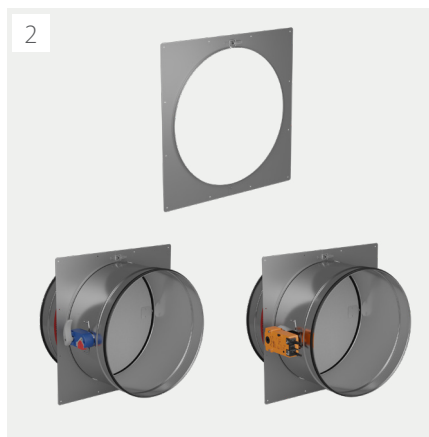
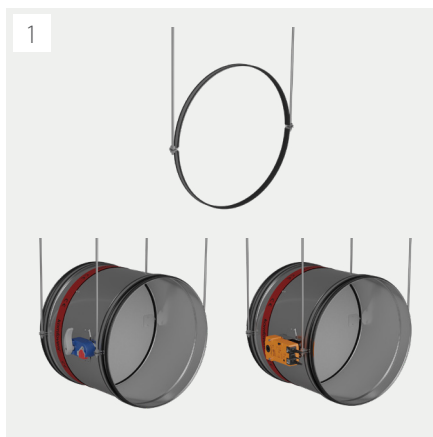
D _{nom} , mm	100	125	160	200	250	315	355	400	450	500	560	630
m, kg	0.28	0.34	0.38	0.42	0.52	0.64	0.82	0.94	1.08	1.24	1.40	1.56
Outer size □, mm	200x200	225x225	260x260	300x300	350x350	415x415	455x455	500x500	550x550	600x600	660x660	730x730

USAGE OF MOUNTING ACCESSORIES

Depending on the installation type suspension clamp [1] are used for tight holding of fire damper when wall mounting brackets cannot be used.

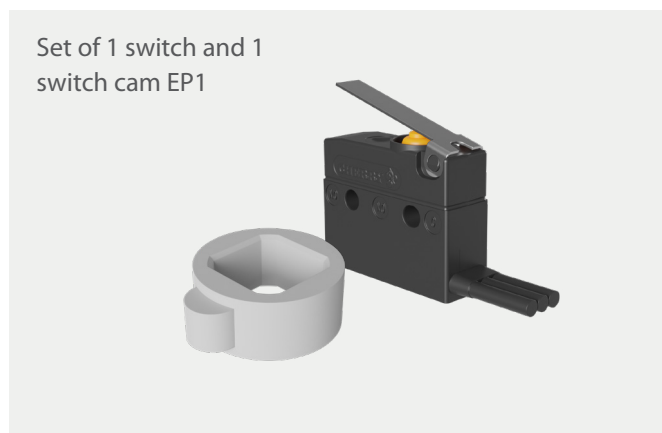
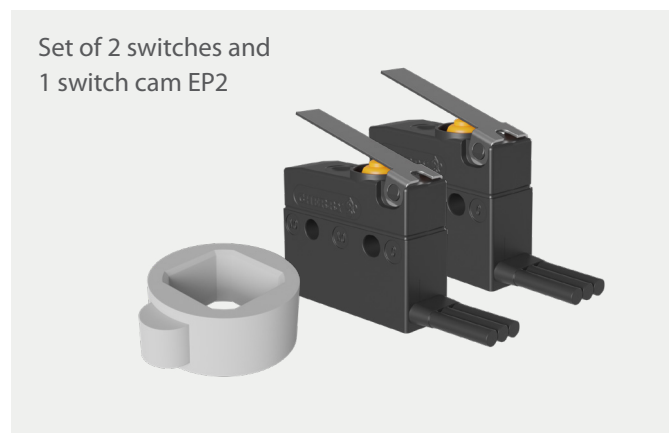
Steel overlay-type montage accessory UL [2] can be used for positioning the fire damper in the cut-out and holding fire resistant insulation on the ceiling.

Steel collar-type montage accessory US [3] can be used to align the fire damper in the cut-out by tightening it on the fire damper's casing and installing metal plates on a wall.



3.3. EP (END POSITION) SWITCHES

UVA-H fire damper can additionally be equipped with one or two end position switches and plastic switch cam for pressing the first or the second switch.

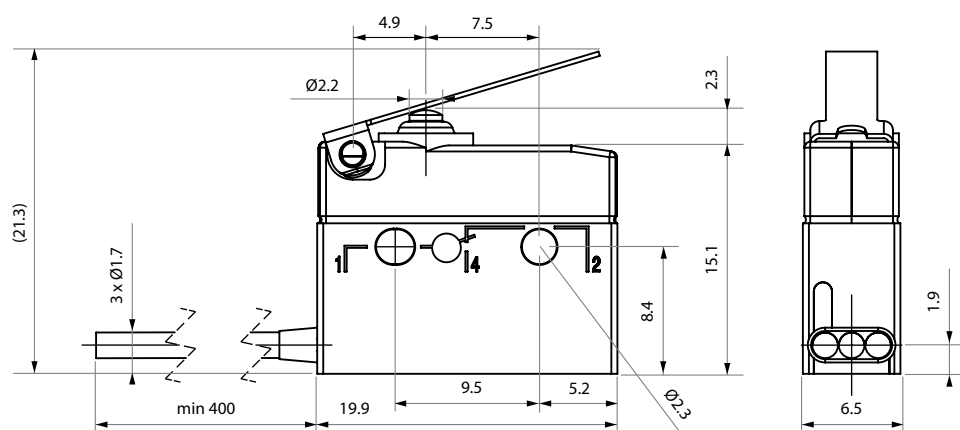


EP1 and EP2 microswitch sets

Microswitches are sealed with IP6K7 protection and suitable for nominal currents from 10 A at 250 VAC. Mechanical operating life min. 1,000,000 actuations.

SPECIFICATION

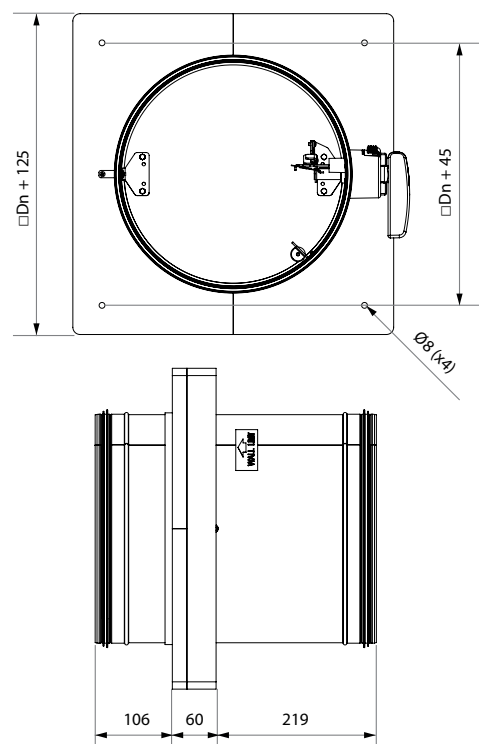
Contact configuration	S.P.D.T., S.P.S.T. - N.O., S.P.S.T. - N.C.
Contact gap	< 3 mm (μ)
Switching voltage	max. 250 V AC
Total travel	ca. 1,6 mm
Mechanical life	min. 1 x 10 ⁶ operations
Electrical life (max. load)	min 10 000 operations
Ambient temperature	-40 to +85°C/120°C
Housing	PET/PBT (UL 94V-0)
Actuator	POM (T85), PBT (T120)
Contacts DC1	AuNi
Terminals	CuZn (silver-plated)
Auxiliary actuator	Stainless steel or plastic
Sealing gasket	SI, silicon-free alternative available
Leads	Cu, PVC-sheathed
Degree of protection (switch interior)	IP6K7
Gross weight	15.8 g



Dimensions of the microswitch

3.4. SMR DRY MONTAGE KIT

Dry montage kit SMR is available for UVA dampers in dimensions Ø100, 125, 160, 200, 315 mm. The kit can be factory-preinstalled or be mounted separately on-site. Using of the kit significantly facilitates the installation procedure making it mortar-less and less labor-intensive.



SMR Dry montage kit installation and dimensions

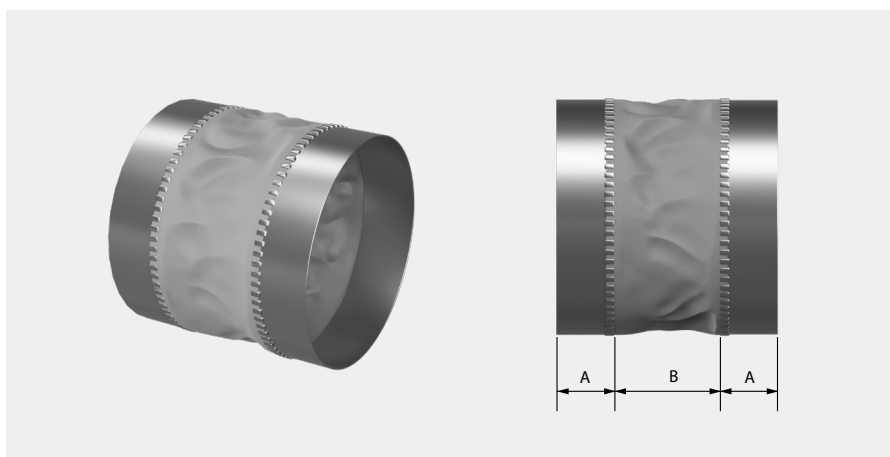
D_{nom}, mm	100	125	160	200	250	315
SMR weight, kg	2,48	2,92	3,55	4,31	5,32	6,72
Outer dimensions of the SMR □, mm	225 x 225	250 x 250	285 x 285	325 x 325	375 x 375	440 x 440
Distance between mounting holes □, mm	145 x 145	170 x 170	205 x 205	245 x 245	295 x 295	360 x 360

Dry montage kit consists of four parts, when installed they form integrated shield flange around the UVA damper. Shield flange is made of heat-resistant plates, that simulate section of the wall pre-mounted on the casing of the damper.

3.5. FLEXIBLE CONNECTION JLA

Connecting airducts have to be installed in such a way as to not transfer their own load on the fire damper and ensure the integrity of the airduct system if the supporting construction collapses. Flexible connection should be installed on both sides of the supporting construction to compensate all extensions or compressions. Flexible connections can be fixed with collars or another type of clamps (type of fastening should not damage the casing of a damper).

Flexible connection is made of galvanized steel and PVC coated fabric tape. The tape is welded into required diameter lengthwise. Width of the galvanized steel stripe A is 45 mm, width of the central PVC stripe B is 60 mm, total length of the flexible connection is 150 mm.



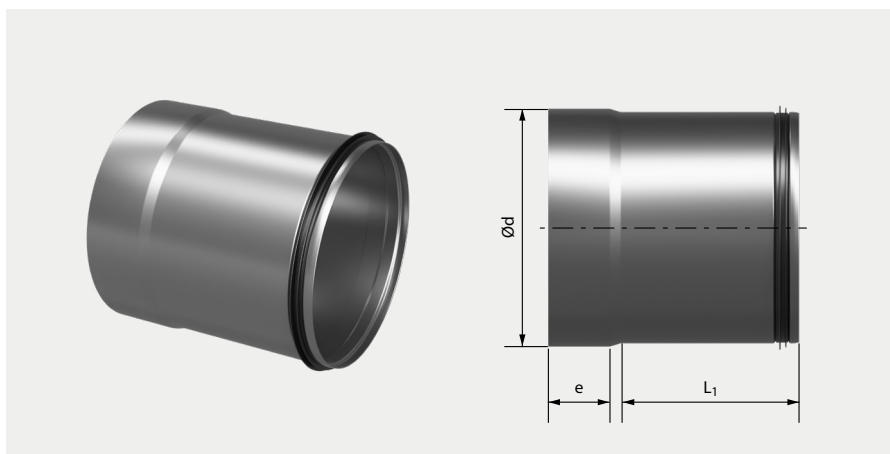
JLA flexible connection

Diameter, mm	100	125	160	200	250	315	355	400	450	500	560	630
JLA weight, kg	0.3	0.4	0.5	0.6	0.7	0.9	1.0	1.1	1.3	1.4	1.4	1.5

In conjunction with flexible connectors JLA, an extension connector MYTIF should be installed on the long side of the damper.

3.6. EXTENSION CONNECTION MYTIF

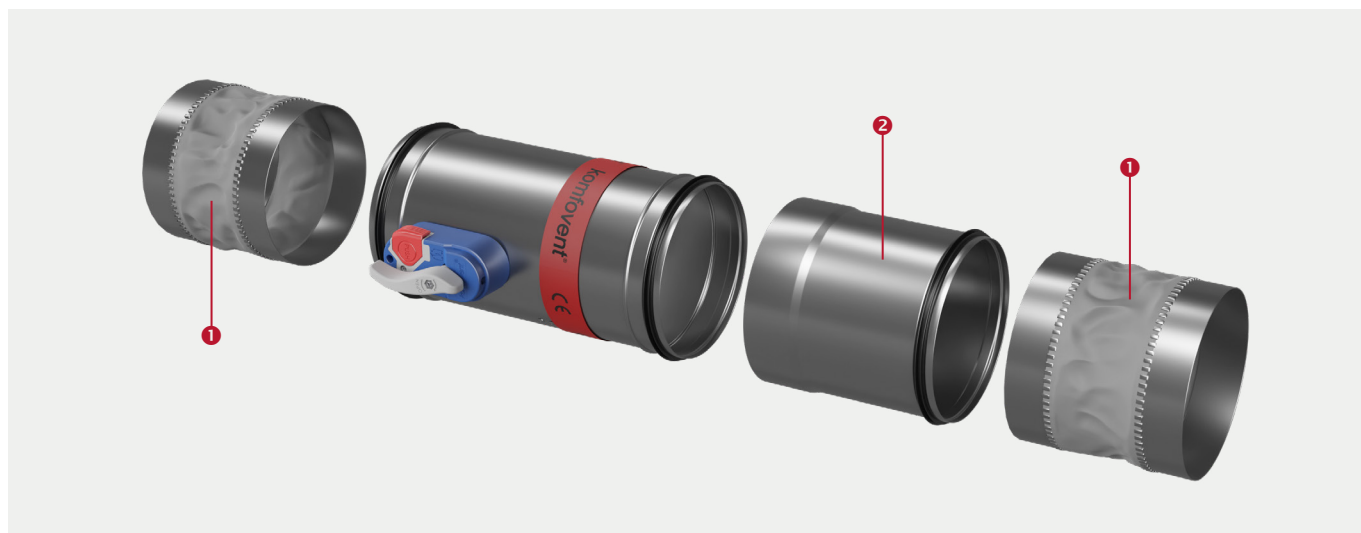
An extension connection MYTIF is installed on the maintenance side of the fire damper to have the possibility to check and clean the damper, or to build up the length of the damper for large wall or ceiling thicknesses. Length of the extension connection is 250 mm.



MYTIF extension connection

d, mm	100	125	160	200	250	315
MYTIF weight, kg	0.25	0.30	0.38	0.47	0.72	0.90
e, mm	30-36	30-36	30-36	30-36	30-36	30-36
mm L1, mm	127	127	127	127	192	182

In combination with flexible connector JLA usage of extension connection allows to freely remove the connection airduct part by shrinking the JLA connection:



- ❶ JLA connector
- ❷ MYTIF connector










JLA and MYTIF connection to the damper

4. INSTALLATION OF THE DAMPERS

4.1. INSTALLATION TYPES

There are 4 main certified installation types available for UVA fire damper – mortar-based installation, installation with fire-batt, dry montage-type installation and remote installation.

- **Mortar-based installation:** used mainly on solid walls and solid ceilings to provide the maximum degree of fire classification. Plaster or mortar can be used to seal the gap between the supporting construction and the fire damper (penetration seal).
- **Dry mortarless installation:** used for installation on solid wall only. Installation kit SMR should be used in dry mortarless installation from the one side of the damper.
- **Installation with fire-batt:** used for solid and flexible wall applications. Mineral wool slabs (batting) fire-resistant coating are used to seal the gap. For certain cases addition covering plasterboard pieces are in use.
- **Remote installation:** used for solid, flexible wall and ceiling applications. Mineral wool rolls are used for insulating the duct.

		Details of the supporting construction	Sealing details		Size of the damper	Installation details*	Class of performance
Supporting construction	<div>SOLID WALL</div> <div></div>	Solid homogeneous wall (aerated concrete blocks, masonry, concrete blocks with min. density 650 kg/m³), min. thickness 115 mm	Mortar filling		100÷560 mm	1, 3, 4, 5	EI120(ve i↔o)S 300 Pa
		Solid homogeneous wall (aerated concrete blocks, masonry, concrete blocks with min. density 650 kg/m³), min. thickness 100 mm	Mineral wool min. 165 kg/m³ with fire resistant coating		100÷315 mm	1, 4, 5, 6	EI90(ve i↔o)S 300 Pa
		Solid homogeneous wall (aerated concrete blocks, masonry, concrete blocks with min. density 650 kg/m³), min. thickness 100 mm	Mortar filling		100÷315 mm	1, 4, 5, 6	EI120(ve i↔o)S 300 Pa
		Solid homogeneous wall (aerated concrete blocks, masonry, concrete blocks with min. density 650 kg/m³), min. thickness 100 mm	Mortar filling		100÷315 mm	1, 5, 6, 7	EI60(ve i↔o)S 300 Pa
		Solid homogeneous wall (aerated concrete blocks, masonry, concrete blocks with min. density 650 kg/m³), min. thickness 100 mm	Mortar filling		630 mm	1, 3, 4, 5	EI90(ve i↔o)S 300 Pa
		Solid homogeneous wall (aerated concrete blocks, masonry, concrete blocks with min. density 650 kg/m³), min. thickness 125 mm	Mineral wool min. 165 kg/m³ with fire resistant coating and additional plasterboard pads		355÷560 mm	1, 3, 4, 5	EI60(ve i↔o)S 300 Pa
		Solid homogeneous wall (aerated concrete blocks, masonry, concrete blocks with min. density 650 kg/m³), min. thickness 115 mm	Calcium silicate “Dry montage” kit SRM		100÷315 mm	1, 4, 5, 6	EI60(ve i↔o)S 300 Pa
		Solid homogeneous wall (aerated concrete blocks, masonry, concrete blocks with min. density 650 kg/m³), min. thickness 100 mm	Remote installation with min. 80 kg/m³ mineral wool insulation		100÷315 mm	1, 4, 5, 6	EI60(ve i↔o)S 300 Pa

Supporting construction	FLEXIBLE WALL 	Metal stud gypsum plasterboard F (EN 520) ≥ 100 mm	Mineral wool min. 165 kg/m ³ with fire resistant coating		100÷315 mm	1, 4, 5, 6	EI90(ve i↔o)S 300 Pa
		Metal stud gypsum plasterboard F (EN 520) ≥ 100 mm	Mortar filling		100÷315 mm	1, 4, 5, 6	EI90(ve i↔o)S 300 Pa
		Metal stud gypsum plasterboard F (EN 520) ≥ 100 mm	Mortar filling		100÷315 mm	1, 4, 5, 6	EI120(ve i↔o)S 300 Pa
		Metal stud gypsum plasterboard F (EN 520) ≥ 100 mm	Mortar filling		100÷315 mm	1, 5, 6, 7	EI60(ve i↔o)S 300 Pa
		Metal stud gypsum plasterboard F (EN 520) ≥ 100 mm	Mortar filling		630 mm	1, 3, 4, 5	EI90(ve i↔o)S 300 Pa
		Metal stud gypsum plasterboard F (EN 520) ≥ 125 mm	Mineral wool min. 165 kg/m ³ with fire resistant coating and additional plasterboard pads		355÷560 mm	1, 3, 4, 5	EI60(ve i↔o)S 300 Pa
		Metal stud gypsum plasterboard F (EN 520) ≥ 100 mm	Remote installation with min. 80 kg/m ³ mineral wool insulation		100÷315 mm	1, 4, 5, 6	EI60(ve i↔o)S 300 Pa
	CEILING SLAB 	Monolithic or hollow core slab ≥ 150 mm	Mortar filling		100÷560 mm	2, 4, 5	EI120(ho i↔o)S 300 Pa
		Monolithic or hollow core slab ≥ 150 mm	Mortar filling		630 mm	2, 4, 5	EI90(ho i↔o)S 300 Pa
		Monolithic or hollow core slab ≥ 150 mm	Remote installation with min. 80 kg/m ³ mineral wool insulation		100÷315 mm	2, 4, 5	EI60(ho i↔o)S 300 Pa

- * 1 – Positioning of the damper: installed in vertical building construction.
 2 – Positioning of the damper: installed in horizontal building construction.
 3 – Axis position: horizontal.
 4 – Min. distance between casings: 200 mm.
 5 – Min. distance to load-bearing structural elements: 75 mm.
 6 – axis position: any angle.
 7 – min. distance between casing: 40 mm.

4.2. SUPPORTING CONSTRUCTIONS

- **Solid wall** – load-bearing / non-load-bearing concrete wall, aerated concrete wall, retaining wall, masonry wall, engineering brick wall, stone wall in the specified thickness.
- **Flexible wall** – a lightweight plasterboard faced steel stud partition, constructed in accordance with conditions given below:

Fire resistance	Nominal steel depth, mm		Number of gypsum boards type F* on each side	Gypsum board thickness, mm	Mineral wool thickness, mm	Mineral wool density, kg/m ³
EI 90	44-55	56-75	2	12.5	40-50	85 - 115

* Gypsum plasterboard Type F - gypsum plasterboard with improved core adhesion at high temperature.

Solid ceiling – standard density ($650 \pm 200\text{kg/m}^3$) concrete construction in minimal thickness 150 mm and fire resistance EI 120.

An installation conditions for a fire damper mounted in the standard supporting construction is applicable to a supporting construction of the same type with a fire resistance equal to or greater than that of the standard supporting construction as described (thicker, denser, more layers of board, as appropriate). The installation conditions can also apply to cellular or hollow masonry blocks or slabs that have a fire resistance time equal or greater than the fire resistance required for the fire damper installation.

The sealants used shall have at least the same fireproof parameters as described. Any fasteners used shall be fire rated

to suit the supporting construction that is used. Installation conditions obtained with dampers installed in insulated flexible vertical supporting constructions may be applied to applications where the same flexible vertical supporting construction is uninsulated.

Aperture framing shall be used using the same materials as shown above the partition construction, using the same number of boards. Installation conditions for dampers installed in flexible vertical supporting constructions made with steel studs are not applicable to flexible vertical supporting constructions made using timber studs.

4.3. MAINTENANCE

The functional reliability of the installed fire dampers must be tested at least every six months (or more often under local requirements) - it is a mandatory requirement of EN 15650 standard. All inspection and maintenance works has to be arranged by the owner of the building ventilation system: the damper should be available for carrying out of the inspection.

Fire dampers also must be included in the regular cleaning schedule for the ventilation system. For details on functional

reliability tests, maintenance and inspection procedures refer to the installation instructions.

In accordance with EN 12097 duct mounted components that cannot be cleaned barrier-free (e.g., fire dampers), access (inspection hatch) shall be provided from both sides, or it shall be possible to remove the component for maintenance. If re-setting of equipment, e.g., fire damper or controller, inside a duct is required, the access panel shall be located to allow the necessary work and inspection.

CLEANING PROCEDURE AND ITS PRIOR PROVISION

Main methods of approach to fire damper cleaning procedure correspond to EN 15780 "Ventilation for buildings — Ductwork — Cleanliness of ventilation systems" standard. The cleaning method may vary depending on the category of the air distribution system. This category influences the number of access covers, the method for cleaning and the cleaning intervals (at least once every six months, but dampers operated under high exposure to dust or dirt may need to be serviced at shorter intervals). All equipment or components inside the ductwork that inhibits cleaning shall be avoided. Stiffeners, or other equipment inside the ducts shall be smooth. It is accepted that screws or preferably rivets used during installation intrude into the ductwork, provided that they do not obstruct cleaning and maintenance. Maximum length of used screws is 13 mm. Sharp pointed screws

shall not be used nearby openings where they can cause injury to persons.

If it is not possible to complete cleaning without connected airduct dismantling, access shall be provided from both sides, or it shall be possible to remove the damper for maintenance.

During the operation process fire dampers tend to accumulate dirt which can affect their operation and require full cleaning and restoration of surface. Cleaning the damper blades and any other necessary parts consists of visual inspection and cleaning of internal surfaces from dust accumulation. For this purpose, damper's detailed video inspection and diagnostics can be used.

Fire damper cleaning is performed when the power of damper's electric actuator and end position switches are off.

Dry cleaning methods (see table below) preferably are used if there are no microbiological contamination or heavy grease deposits. For such cases the solid dust particles should be collected using an air movement and cleaning machine. This will generally require appropriate filtration and should assist in the containment of pollutants.

Method	Type	Description
Air Whip	Low volume compressed air	A rubber hose or plastic ball the under pressure agitates the internal surfaces
Air lance	Low volume compressed air	An air gun with a trigger that is able to direct compressed air locally
Air nozzle	High volume compressed air	A plastic ball placed on the end of a flexible hose. Compressed air leaving small opening in the ball propels the hose forward including the nozzle to closely traverse the surface
Hand wipe	Manual	Wiping of the surface using a medium appropriate for the purpose
Hand scrape	Manual	Removing heavy solid deposits by hand scraping
Hand brushing	Manual	Brushing a surface using soft brush
Hand vacuum	Manual / electric tool	Suction
Mechanical brushing	Compressed air	Brushing the surface using mechanical action
Mechanical brush and air technology combined	Compressed air	Brushing the surface using mechanical action and compressed air

Dry cleaning methods

Wet cleaning methods (the introduction of cleaning chemicals or biocides) should be only considered where a risk assessment has been carried out, the details recorded and any adverse effects of the applied chemicals have been assessed and determined with relevant safe procedures. Steam cleaning and highpressure water wash are not recommended as far as blade material is relatively hygroscopic and permanent damage may result. Selective hand wash can be used for internal metal surface cleaning.

Biocidal treatment should be carried out in conjunction with removal of the source of contamination e.g., dirt and moisture. Biocidal treatment must not be used as a substitute for physical cleaning and removal of any deposits.

Below is Komfovent recommended maintenance inspection checklist.

Year of inspection	Year 1		Year 2		Year 3		Year 4		Year 5	
Date of inspection	01.01.22									
Inspected by										

Installation date:

Checked by / date:

Accepted by / date:

RECORDS OF THE FIRE DAMPER PERIODICAL INSPECTIONS

Fire damper ref. No.		FD 25		
Location		Server room 121		
Damper type and size		UVA-H-200		
Mounted in wall (w) or slab (s) thickness		W100		
Access to the damper compliant		Yes		
Installation in acc. to manufacturer's instructions		Yes		
Correct operation of the fire damper		Yes		
Damper cleanness (accumulated dust, grease)		Yes		
Lubricate all moving Parts (done/not done)		Yes		
Damper condition (corrosion, rust)		No		
Fusible link or thermoelectric tripping device was replaced		No		
Damages or modifications		No		
Blade and sealing material is undamaged		Yes		
Wiring of the end switches are undamaged and connected		Yes		
Wiring of the actuator is undamaged and connected		NA		
Pass/fail blade drop test		Pass		
End switches indicate blade closing		Yes		
Fire damper left in OPEN position		Yes		
Year of inspection	1	x		
	2			
	3			
	4			
	5			
Comments				

4.4. INTENDED USE

Fire dampers are “Devices for use in heating, ventilation and air conditioning (HVAC) systems at fire boundaries to maintain compartmentation and protect means of escape in case of fire” according to the 3.1 paragraph of EN 15650.

Operation of the fire dampers is allowed only in compliance with installation instructions to maintain the declared performances and, in particular, the fire classes. Komfovent fire dampers are intended for use in internal supporting constructions only – internal walls (solid and flexible) and ceilings. Modification of the fire damper is not permitted.

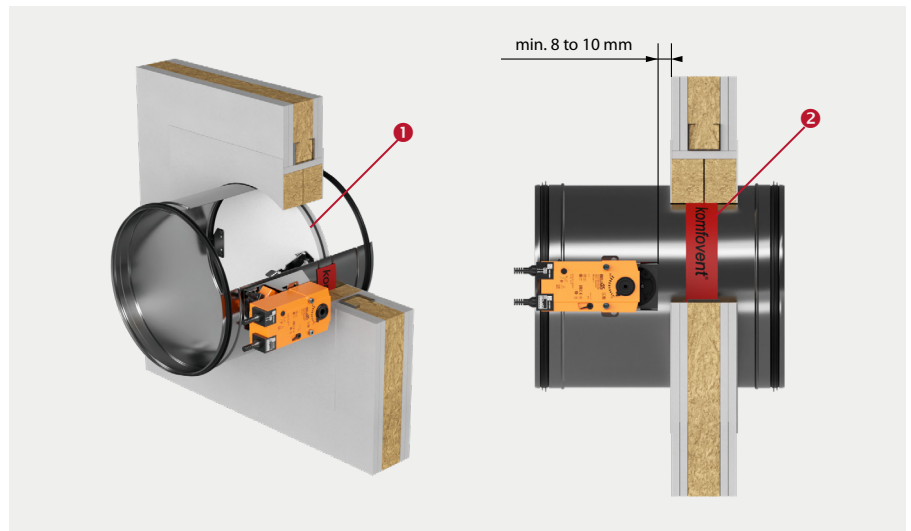
NOT ALLOWED USES:

- use with installations different to those described in the installation manual;
- use as smoke control damper;
- use as shut-off damper;
- use in explosive environments;
- use on board of ships;
- use in kitchen extraction hoods and industrial kitchens;
- use in pneumatic conveying systems of dust;
- use in ventilation systems within locations subject to chemical contamination;
- use in non-inspectable environments;
- use in ventilation ducts where condensation can occur
- use in outdoor installation without sufficient protection against the effects of weather.

4.5. POSITION OF THE BLADE OF THE DAMPER

To maintain the fire compartmentation, it is important that the blade of the damper is located inside the supporting construction (except the remote installation types), providing the integrity of the supporting construction as if there is no penetration for the airducts.

- 1 Blade of the damper
- 2 The red tape is used as an indicator for fire damper positioning into the construction: it must be located inside the construction and no visible on both sides



Positioning of the blade in the supporting construction

4.6. AIRDUCT LOAD DISTRIBUTION

Air duct system must be installed in such a way that it does not transfer any significant loads on the fire damper under normal conditions or especially in the event of a fire. The relevant national guidelines and regulations should be taken into consideration.

The consistent air duct parts must be suspended or supported so that all load transfer from the attached section of ductwork to the damper casing is eliminated. The gap between the casing of the damper and the supporting structure must be appropriately filled with specified materials as described in the installation instructions.

As ducts may deform or even collapse in the event of a fire, it is possible to use flexible connectors for installation in light-weight partition / compartment walls, and for all wall types with fire batt installation.

To provide the necessary space for access to the actuating device of a damper, it is recommended to provide minimum of at least 350 to 400 mm free space all-round the control parts of the damper. It is recommended to provide at least 8 to 10 mm between the supporting construction and actuating device of the damper.

4.7. DAMPER PROTECTING DURING INSTALLATION

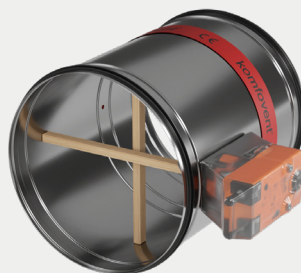
During the installation and incorporation process of the opening, the actuating mechanism must be protected (covered) with plastic film or another material to protect it against clogging with construction dust and materials.

The casing of the damper should not be deformed during installation – it is recommended to use spacers or wedges to prevent deformation of the casing starting with damper diameter 355 mm.

Deformed casing without using supporting elements



Using of struts or wooden blocks



Using of spacers around of the perimeter of the blade



Damper protection during installation

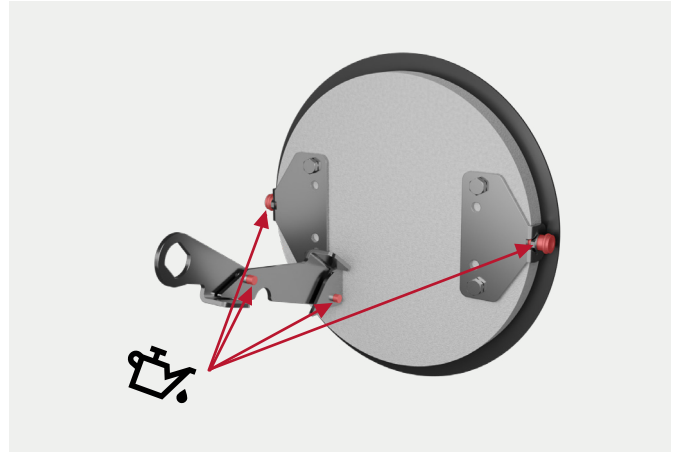
5. INSTALLATIONS

5.1. CHECK OF THE DAMPER BEFORE INSTALLATION

Before starting installation process any fire damper shall be inspected for damages by responsible person!

Check if the blade is closing and opening without additional resistance by pressing "Push" button several times. If sticking occurs, lubricate rotation points as shown below using a suitable amount of lubricating agent.

Close the blade of a fire damper. **If a fire damper has been installed with an open blade, this may cause incomplete closing of the blade or even damage!** Blade position can be determined also after installation by referring to labelling located on the casing of locking mechanism.



Lubrication points of the damper

FOR UVA-H DAMPER

- The fuse element is singleuse only and should be replaced after activation.
- The fuse element can be easily accessible by screwing out PUSH button screw and pulling out the thermal release mechanism.
- In case the fuse element is melted it can be simply replaced with a new one.



Positioning of the blade indication and fuse element accessing

FOR UVA-M DAMPER

Blade position can be controlled by referring to marks located on the actuator's casing: 0° is equivalent to Closed position, 90° is equivalent to Open position.

a – Without power supply, the actuating mechanism can be operated manually by compressing the spring using included hand crank and fixing it in required position. It can be unlocked manually or automatically by applying the supply voltage.

b – Lever to lock the position of the blade.



5.2. FUNCTIONAL TEST OF THE UVA-H FIRE DAMPER

Do not keep hands inside the casing of the damper during functional test. Danger of injury when the damper blade is closing.

HOW TO ACT

The damper usually is delivered with damper blade closed. To open the damper, rotate the handle clockwise by 90 degrees until it locks in the position.

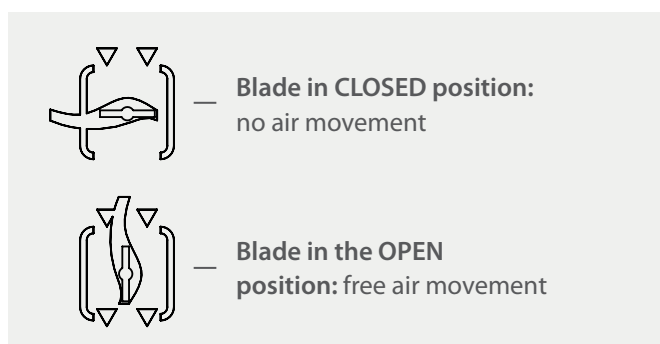
If the mechanism is operating correctly, the handle and the blade of the damper are locked in Open position. Press the red PUSH button to release the spring mechanism – the blade of the damper should close. Do not keep hands on the left side of the casing of the mechanism – the handle returns to its original position immediately.

It is not permitted to rotate the handle counterclockwise to close the blade, it will cause permanent damage of the mechanism.



Correct testing of the damper functioning

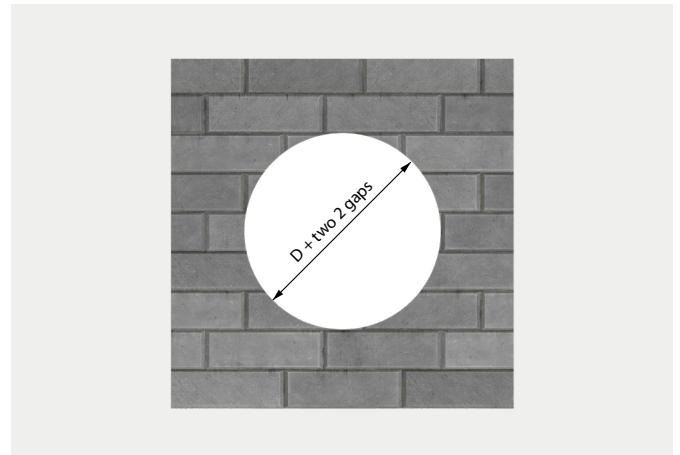
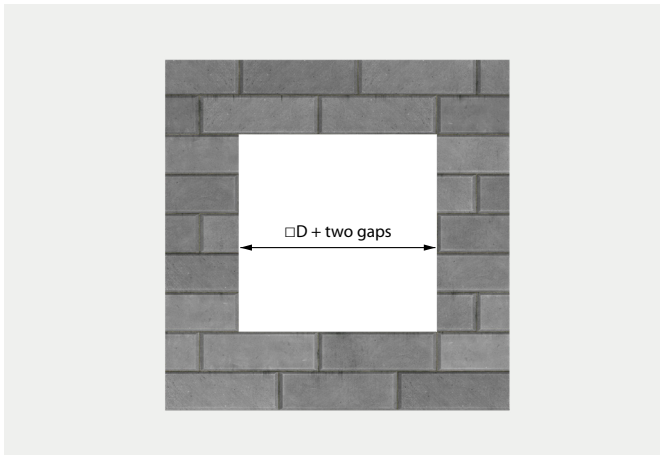
The position of the blade can be determined using indication marks on the mechanism casing:



Indication of the blade positions

5.3. PREPARATION OF THE INSTALLATION OPENING

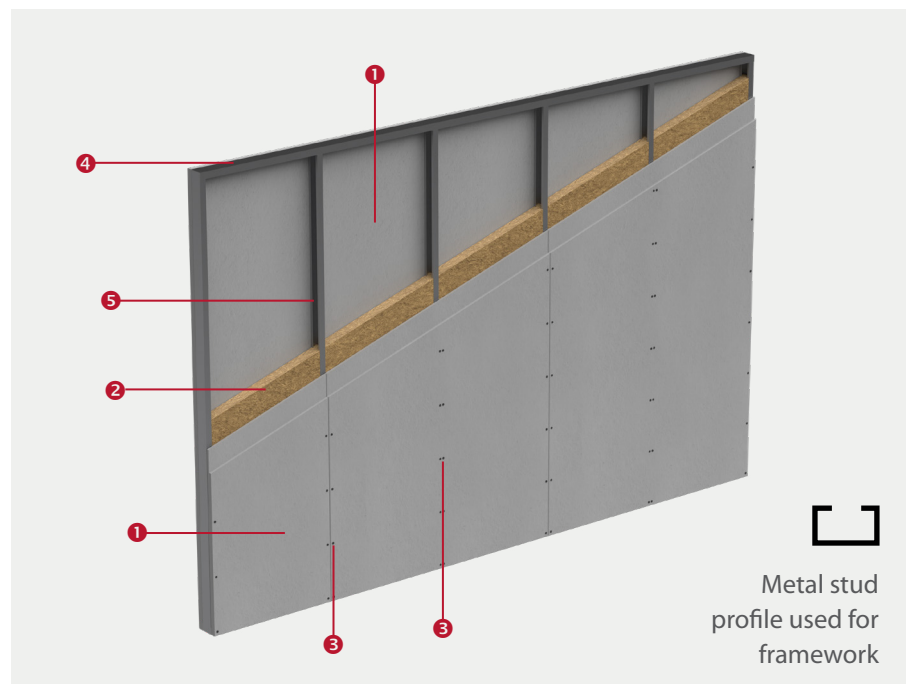
The installation opening in solid wall is rectangular for fire-batt type of installations and circular for dry montage, remote and mortar-base installations. The dimensions of the opening should be as shown in installation instructions. Additional reinforcement of the installation opening is not required.



Openings in the solid wall

The installation opening in flexible wall is rectangular for fire-batt type of installations and circular for dry montage, remote and mortar-base installations. Required minimal thickness of the flexible wall is defined for each installation type. The wall design (standard metal stud plasterboard EN 520 wall) is shown below:

- ❶ Gypsum board min. 12.5 mm (double-layer) used for both sides
- ❷ Mineral wool, min. 85 kg/m³
- ❸ Drywall screws
- ❹ Steel track
- ❺ Steel studs (thickness varies depending on installation type)



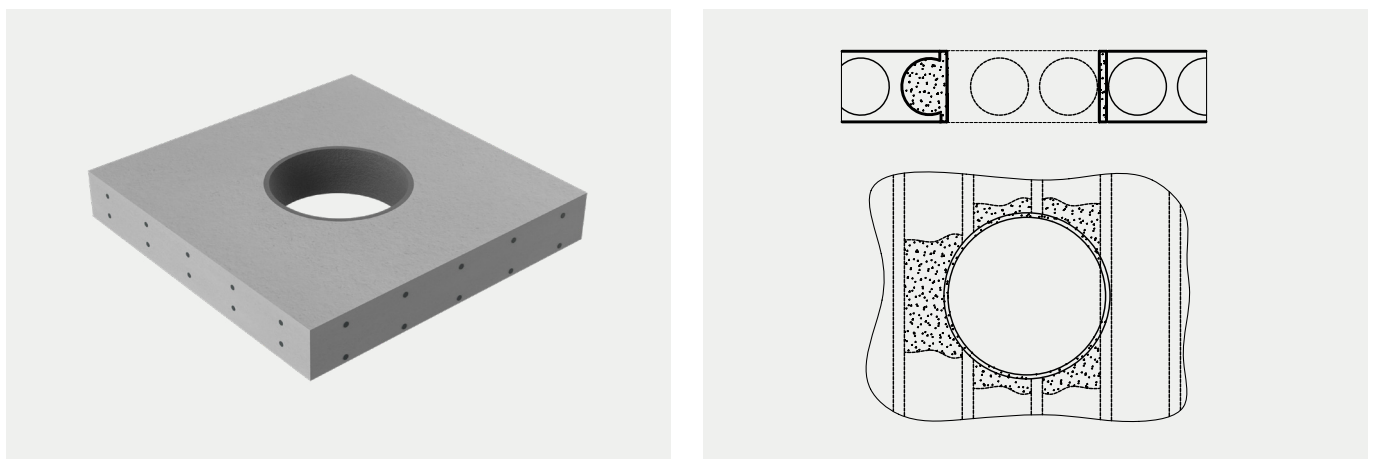
Construction of the flexible stud drywall

Additional reinforcement of the installation opening is required: for the purpose the same stud profile is used to build the supporting frame around the damper. The specific internal size of the frame is indicated for every flexible wall installation. If additional reinforcement is installed at a later stage (when the flexible wall is already built), it should be built between two regular studs.



Installation opening reinforcement in the flexible wall

The installation opening in monolithic reinforced or hollowed reinforced ceilings is circular. For hollowed types of ceilings hollowness is to be closed up with the same type of mortar:



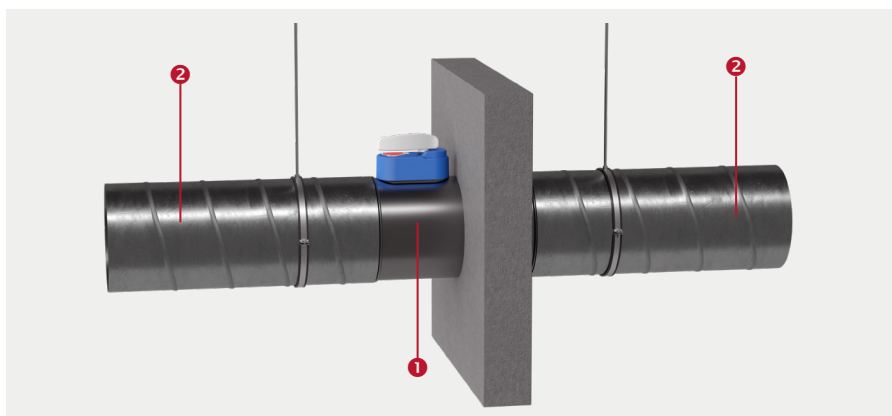
Installation opening in the solid ceiling panel

Small gap size deviations are allowed depending on the gap filling material: increase in a filled gap up to 50 % is permitted, but limited to a maximum of 30 mm. Decrease permitted where there is sufficient room for installation of the seal. The mortar filled gap can be increased by a factor of 4 but is limited to a maximum of 150 mm. Mortar gap decrease is not allowed.

5.4. CONNECTION TO THE AIRDUCTS

The method of connection to the airducts must follow the minimum requirements for connection of ductwork in accordance with national regulations. Also, the elements can be suspended from the top, or supported from bottom, or fastened from the side.

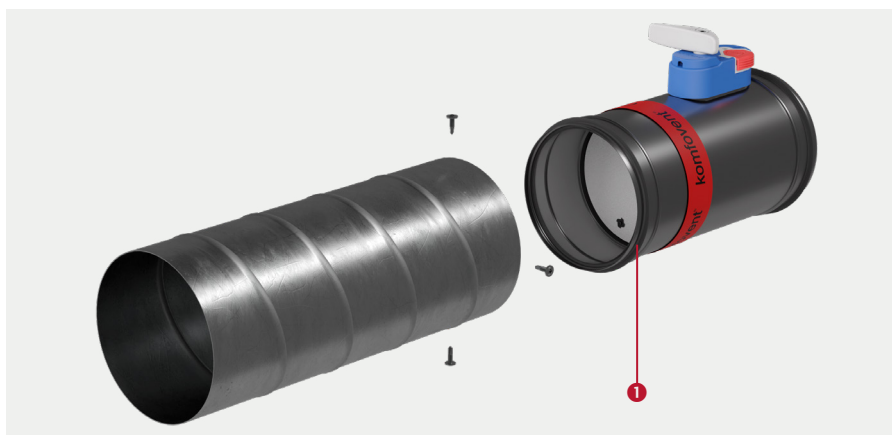
The airducts are assembled via nipple connection, the connecting airduct must comply with EN 1506 duct specified tolerances.



- ❶ Fire damper
- ❷ Airduct

Example of the fire damper connection

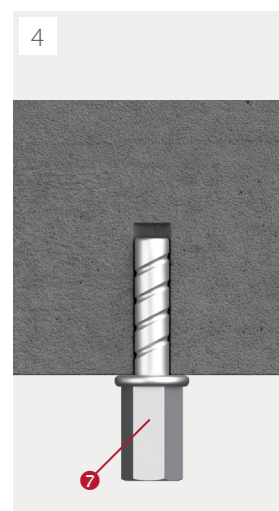
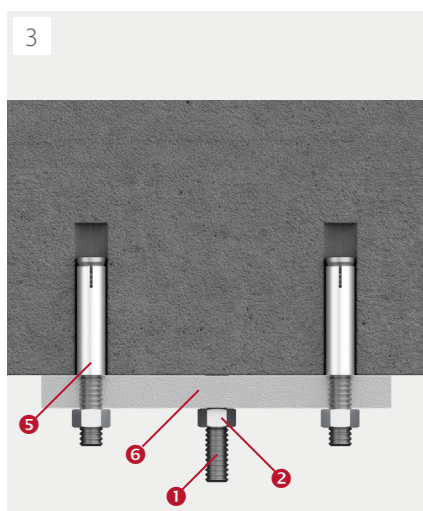
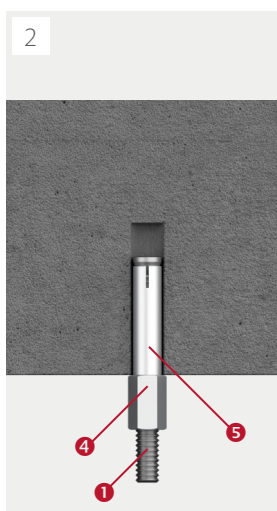
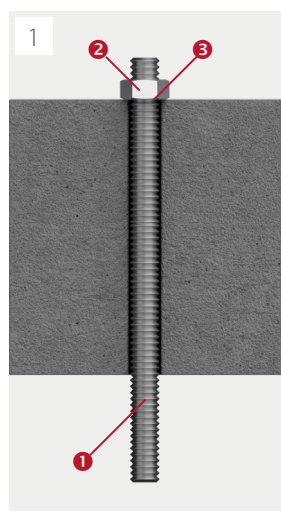
Junction can be additionally hermitized with silicone or sealing tape. If required, self-tapping screw can be used to make a stronger connection, but they should not interrupt the rotation of the blade:



- ❶ Inner insulation – if required

Sealing of the connecting airduct

Anchoring is possible according to national standards: options without anchor [1], with anchor [2], with installation plate and anchoring system [3], anchoring screw [4] – the suitable system should be selected by the responsible person.



- ❶ Threaded rod
- ❷ Nut
- ❸ Washer
- ❹ Coupling nut
- ❺ Anchor
- ❻ Hinge plate

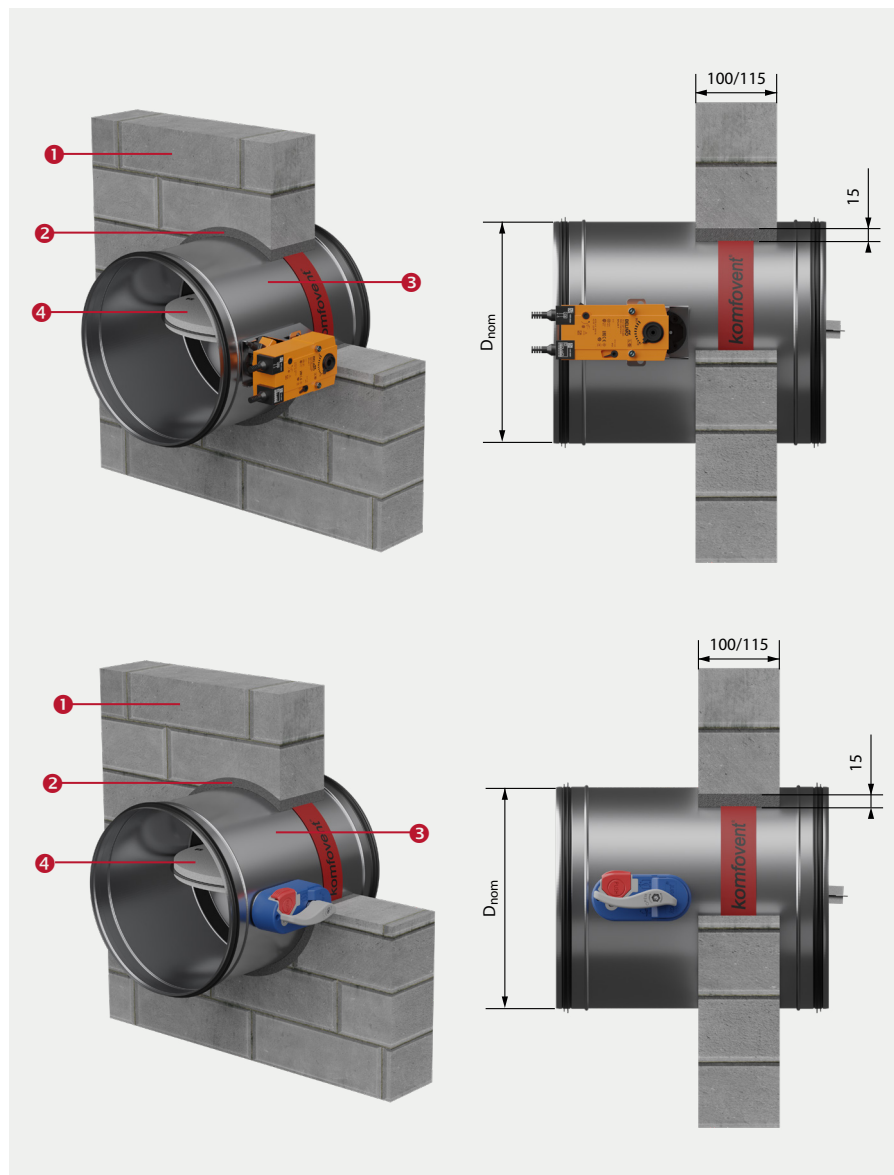
- ❼ Tension screw for concrete

Anchoring options: 1 - Threaded rod M8 ÷ M20, 2-Nut, 3-Washer, 4-Coupling Nut

5.5. INSTALLATION METHODS IN SOLID WALLS

MORTAR – BASED INSTALLATION IN A SOLID WALL

EIS 120 (for size range Ø100 ÷ 560 mm) | EIS 90 (any angle location for size range Ø100 ÷ 315 mm) | EIS 90 (for size Ø 100 ÷ 630 mm)

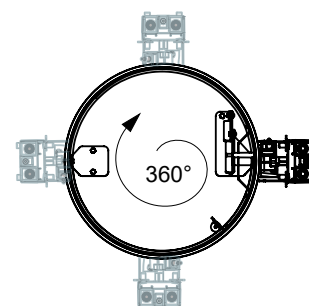


- ❶ Solid wall in min. thickness of 100 mm or 115 mm:

Wall thickness, mm	Damper dimensions, mm	EIS
100	100 ÷ 630	90
100	100 ÷ 315 Any angle location	90
115	100 ÷ 560	120

- ❷ Plaster or mortar filling (*Knauf MP75L or analogue plaster can be applied; mortar in acc. with EN998-2 up to M20 can be applied*)
 ❸ Fire damper UVA-H / UVA-M
 ❹ The blade of the damper

Any axis position (mechanism placed at any angle) is allowed for size range d100 to d315:



UVA-H/UVA-M Ø100 ÷ 630 mm installation in the solid wall with mortar filling

INSTALLATION PROCESS:

1. Prepare round installation opening $D_{nom} + 30$ mm.
2. When necessary, use a mounting accessory UL to secure the damper in the installation opening.
3. Fill the gap between wall and casing of the damper with plaster or mortar.
4. Let the plaster or mortar dry completely and remove the mounting accessory.

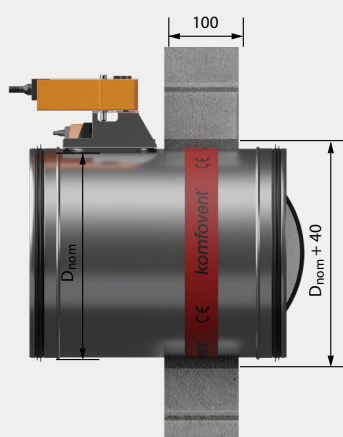
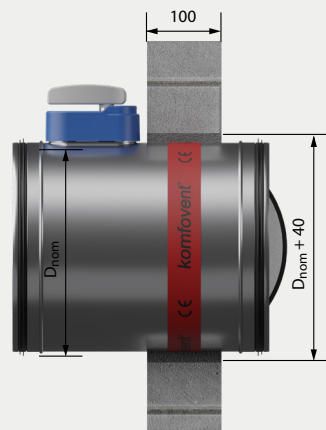
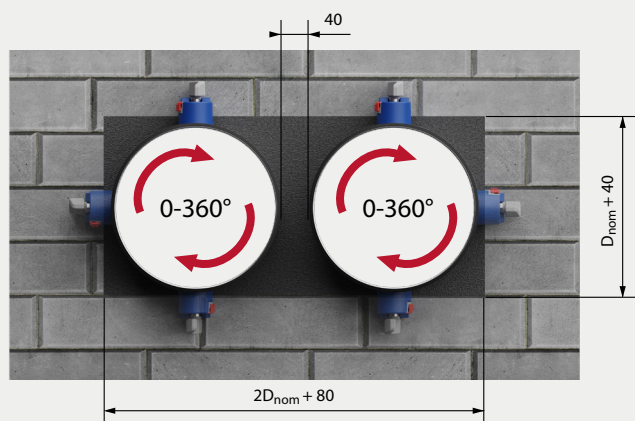
MORTAR – BASED INSTALLATION IN A SOLID WALL

Close distance installation at 40 mm distance

EIS 60 (for size range Ø100 ÷ 315 mm)

Any angle location 0-360° (applies for d100 ÷ 315 mm dampers).

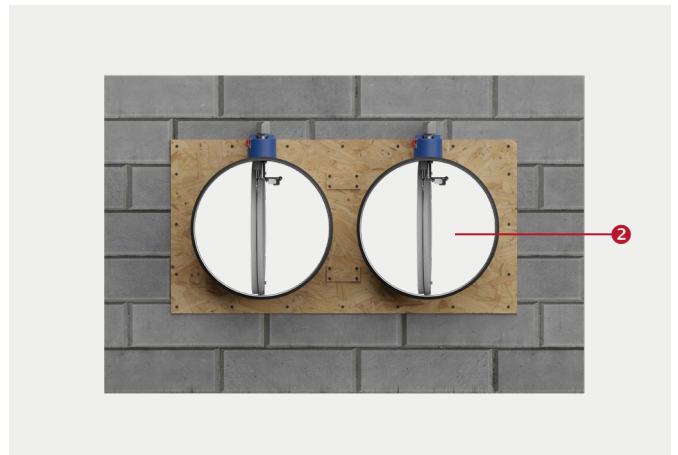
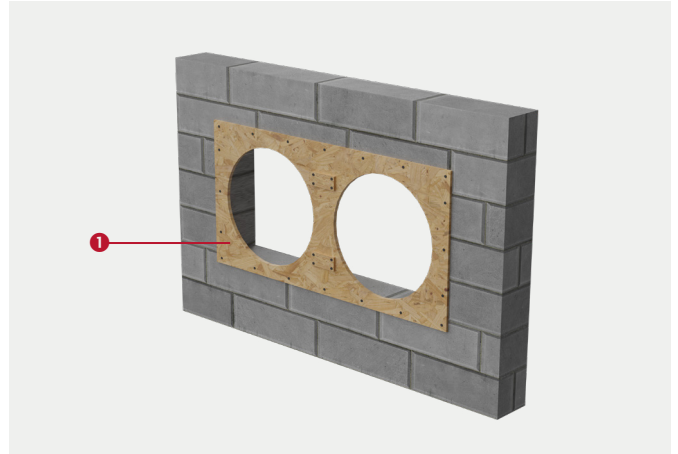
- ❶ Fire damper UVA-M / UVA-H (Ø100÷315)
- ❷ Solid wall (aerated concrete blocks, concrete, masonry in min. thickness 100 mm)
- ❸ Mortar filling (Kreisel Tynk 561L or analogue)



UVA-H/UVA-M Ø100 ÷ 315 mm installation in the solid wall with mortar / close distance

INSTALLATION PROCESS:

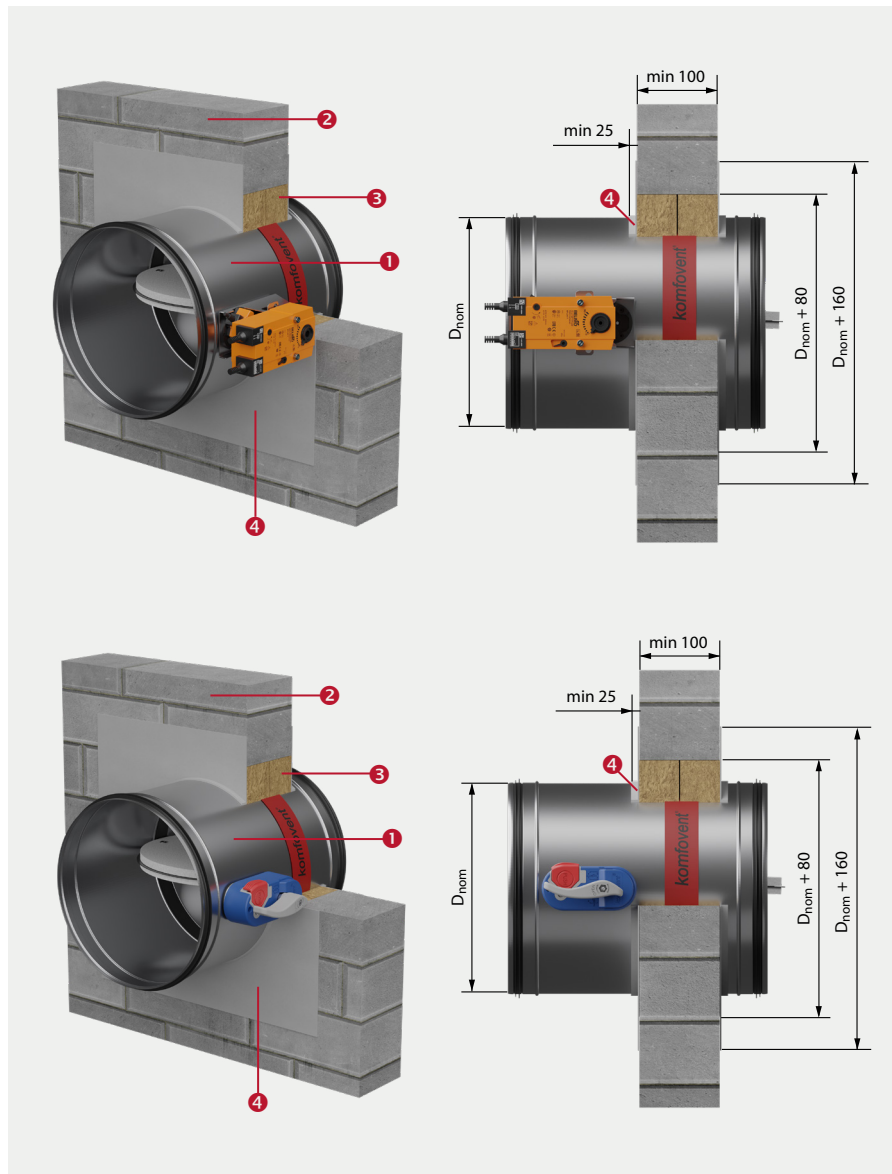
1. Prepare rectangular installation opening in the solid wall by the width of $2D_{nom} + 80 \text{ mm}$ and height of $D_{nom} + 40 \text{ mm}$. The width of the opening can be greater if the distance between dampers is $> 40 \text{ mm}$.
2. It is recommended to use a framework to make the filling process easier: pre-install the framework on the installation opening and center it before fastening. Pre-install the damper at a desired axle position angle and fasten them.
3. Fill the gap between wall and casing of the dampers with mortar from the back side (A1 fire resistance class, CS II range of compressive strength in acc. to EN 998-1).
4. Remove the framework after complete hardening of the mortar (follow the instructions of the mortar manufacturer).



- ① Framework
- ② Fire dampers

FIRE-BATT – BASED INSTALLATION IN A SOLID WALL

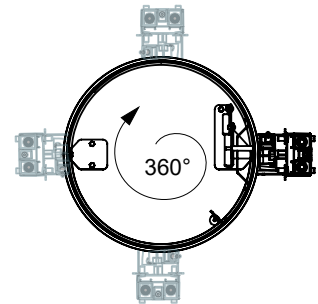
EIS 90 (for size range Ø100 ÷ 315 mm)



- ❶ Fire damper UVA-H / UVA-M (Ø100÷315)
- ❷ Solid wall (aerated concrete, bricks, concrete), minimum 100 mm thick
- ❸ Mineral wool, total thickness of min. 100 mm, min. density 165 kg/m³ (ROCKWOOL Frontrock S)*
- ❹ Fire stopping coating in min. thickness of 2 mm (PROMAT Promastop-E paste)*

* Insulation materials can be replaced by equivalent fire sealants.

Any axis position (mechanism placed at any angle) is allowed for size range d100 to d315:



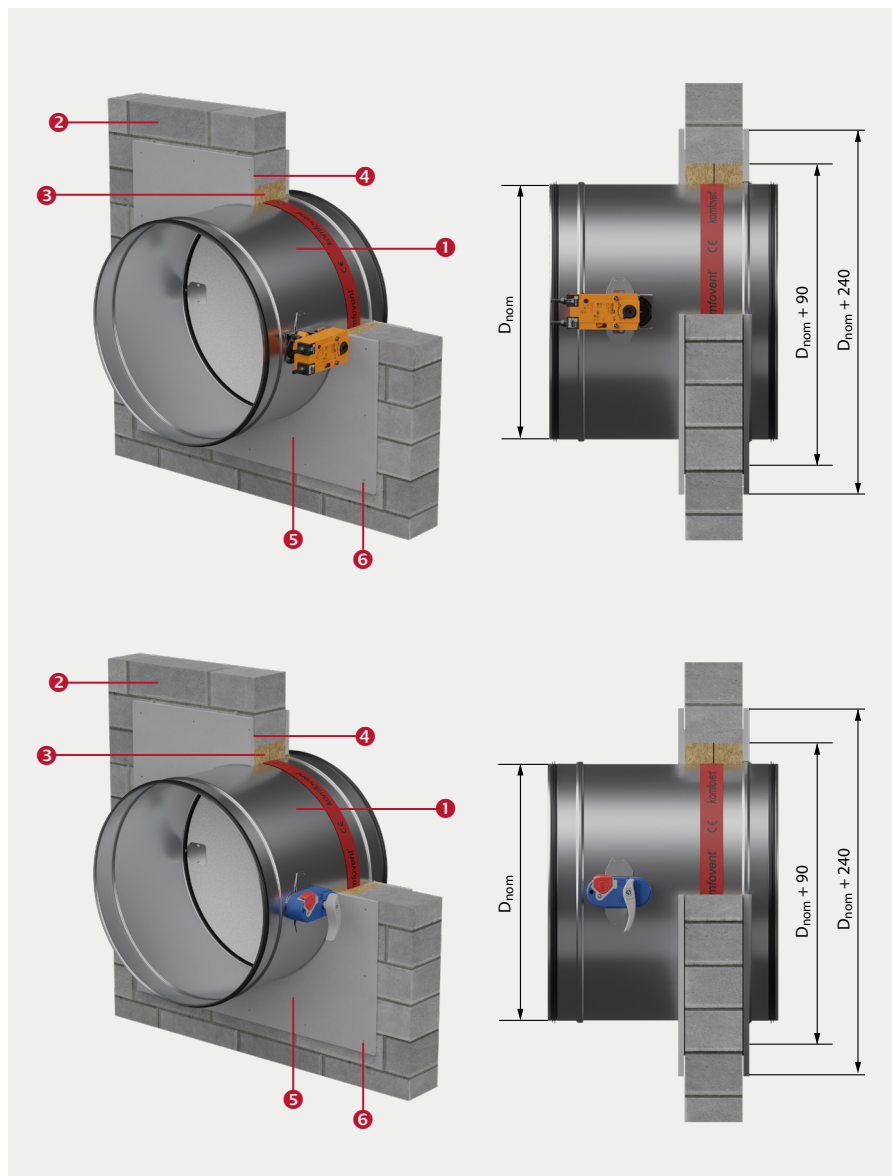
UVA-H/UVA-M Ø100 ÷ 315 mm
installation in the solid wall with fire batt

INSTALLATION PROCESS:

1. Prepare square installation opening $D_{nom} + 80$ mm.
2. Cover the internal face of the opening with 2 mm fire stopping coating.
3. When necessary, use a mounting accessory to preliminary secure the damper in the installation opening.
4. Fill the gap between wall and casing of the damper with mineral wool.
5. Cover the mineral wool (overlapped the wall for 40 mm) and casing of the fire damper within ≈ 25 mm with stopping mastic on both sides of the wall.

FIRE-BATT – BASED INSTALLATION IN A SOLID WALL

EIS 60 (for size range Ø355 ÷ 560 mm)



- ❶ Fire damper UVA-M / UVA-H (Ø355÷560)
- ❷ Solid wall (aerated concrete, bricks, concrete), minimum 125 mm thick)
- ❸ Mineral wool, total thickness of min. 120 mm, min. density 165 kg/m³ (ROCKWOOL Frontrock S)*
- ❹ Fire stopping coating in min. thickness of 2 mm (PROMAT Promastop-E paste)*
- ❺ Additional two gypsum 12.5 mm thick boards (one board for each side of wall)
- ❻ Rigid wall screws 3.5x50 (interval <200 mm)

* Insulation materials can be replaced by equivalent fire sealants.

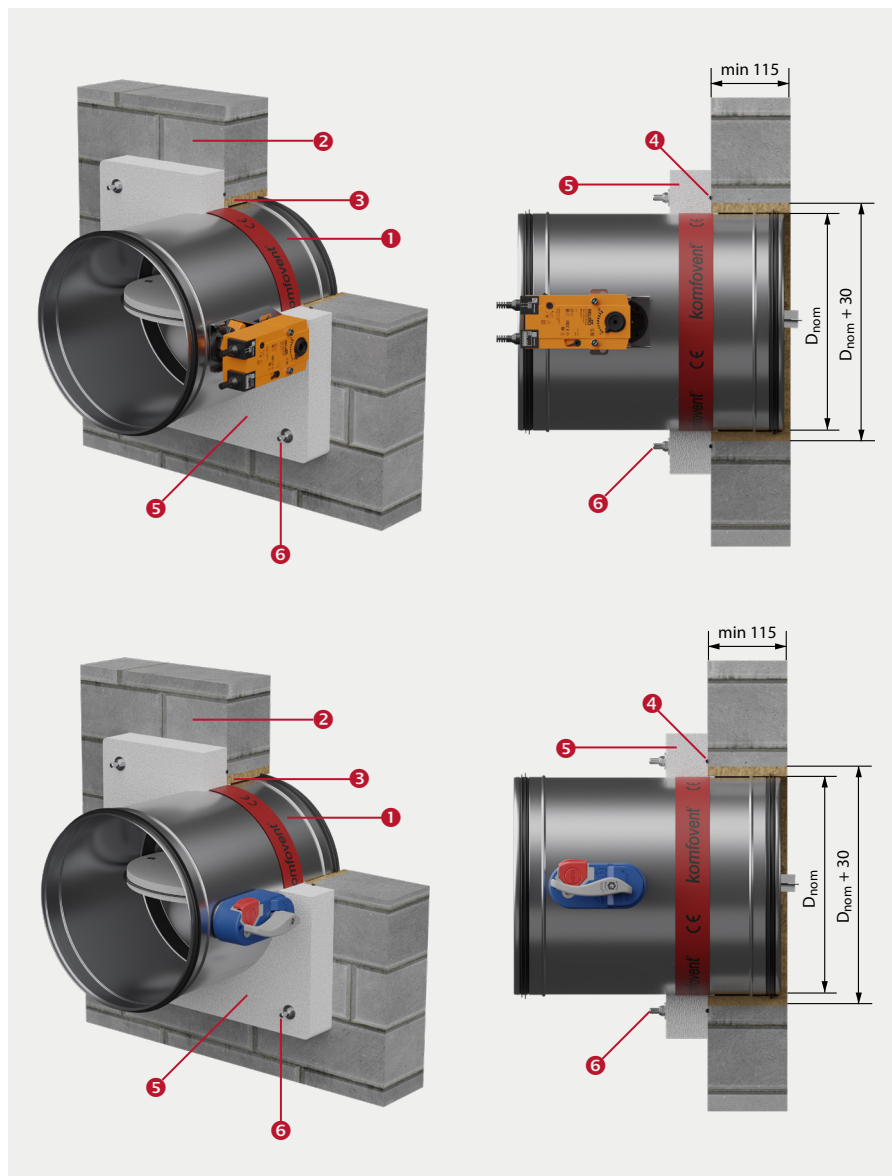
UVA-H/UVA-M Ø355 ÷ 560 mm
installation in the solid wall with fire batt

INSTALLATION PROCESS:

1. Prepare square installation opening $D_{nom} + 90$ mm.
2. Cover the internal face of the opening with 2 mm fire stopping coating.
3. When necessary, use a mounting accessory to preliminary secure the damper in the installation opening.
4. Fill the gap between the damper casing and the wall with mineral wool.
5. Apply a fire stopping coating overlapped at wall for 40 mm.
6. Install additional 12.5 mm thick gypsum boards, which size is $D_{nom} + 240$ mm, on both sides of the wall.

“DRY MONTAGE” INSTALLATION KIT – BASED INSTALLATION IN A SOLID WALL

EIS 60 (for size range Ø100 ÷ 315 mm)

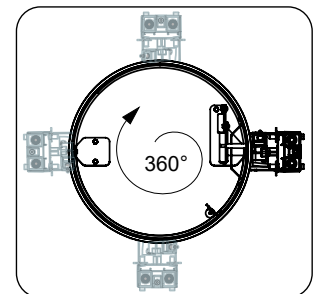


- ❶ Fire damper UVA-M / UVA-H (Ø100 ÷ 315)
- ❷ Solid wall (aerated concrete blocks, concrete, masonry in min. thickness 115 mm)
- ❸ Mineral wool gap sealing, min. density 12 kg/m³ (ISOVER Standard Roll 40)*
- ❹ Fire stopping sealing mastic (FIREX Fire Stopping mastic FM)*
- ❺ Dry montage kit**
- ❻ Mounting anchors (should be selected accordingly to solid wall type)

* Insulation materials can be replaced by equivalent fire sealants.

** Dry montage kit can be delivered pre-mounted on the damper casing or ordered separately.

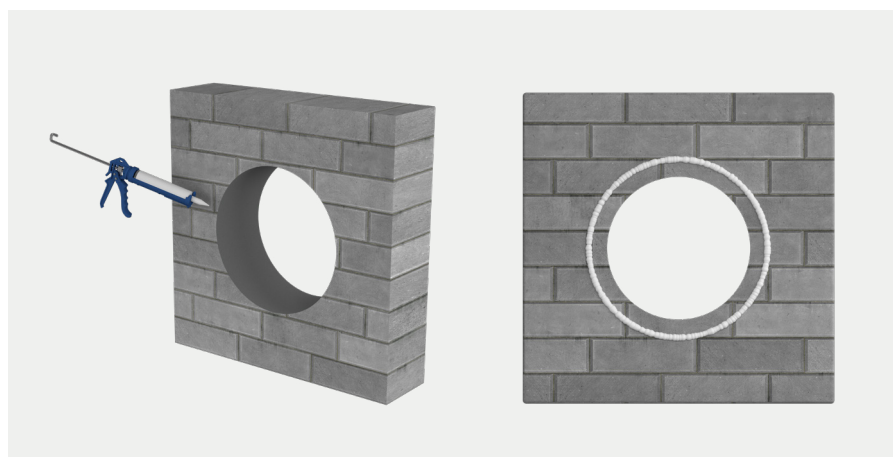
Any axis position (mechanism placed at any angle) is allowed for size range d100 to d315:



UVA-H/UVA-M Ø100 ÷ 315 mm installation in the solid wall Dry montage kit

INSTALLATION PROCESS:

1. Prepare round installation opening $D_{nom} + 30$ mm.
2. Apply fire stopping coating around the opening on the outer side of the wall surface (see picture below). Fire stopping mastic should be applied directly to the wall around the installation opening within $\approx 5-10$ mm from it right before the fire damper mounting.
3. When necessary, use a mounting accessory to preliminary secure the damper in the installation opening.
4. Fill the gap between the damper casing and the wall with mineral wool.



Application of the Fire stopping mastic around the installation opening.

Preparation of the installation opening

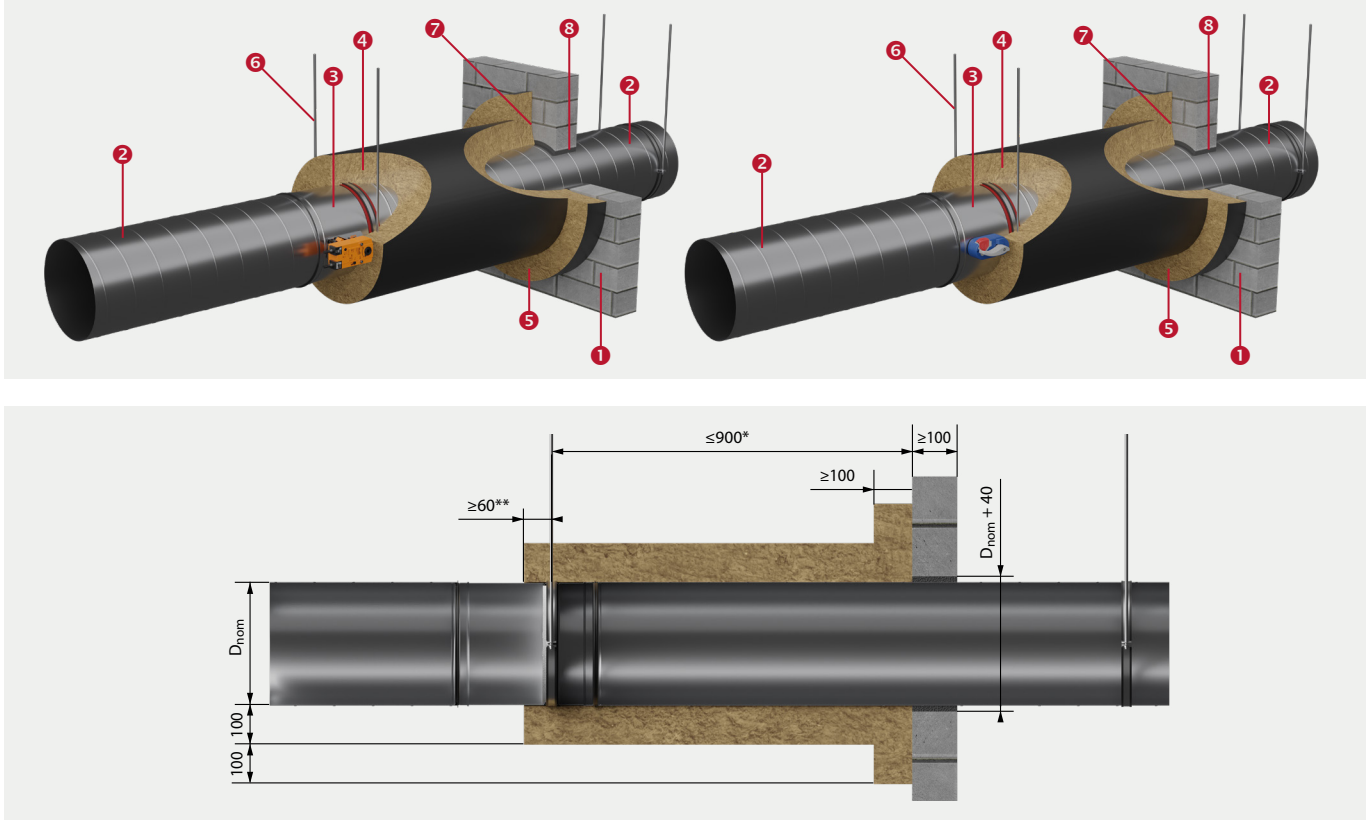
Dry montage kit SMR can be in-factory preinstalled or mounted directly on the damper at the site (refer to page 56 for installation procedure).

DRY MONTAGE KIT CONSISTS OF:

1	Two C-shape parts		1 set	Shield flanges made of 40 mm thick Promatect-MT fire-resistant material
2	Two C-shape parts		1 set	Shield flanges made of 20 mm thick Promatect-MT fire-resistant material
3	Metal corner		2 pcs.	Metal corner for joining shield flanges to the casing of the damper
4	Promaseal – GT intumescent tape		Strip cut in size	Promaseal – GT intumescent tape for filling the gap between shield flange and casing
5	DIN 967 M4x8 screw		2 pcs.	DIN 967 M5x12 screw to install metal corners on the casing
6	ISO 7049 3.5x13 screw		2 pcs.	ISO 7049 3.5x13 screw to attach shield flange to the metal corner
7	Construction screw 4.0x30		4 pcs.	Construction screw 4.0x30 for joining together shield flange parts

REMOTE INSTALLATION WITH MINERAL WOOL INSULATION IN A SOLID WALL – DAMPER MOUNTED AT ANY DISTANCE FROM THE WALL

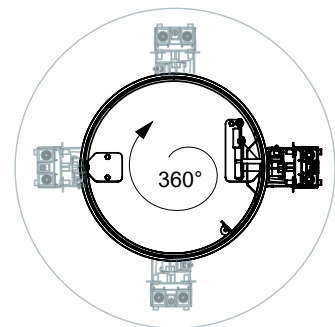
EIS 60 (for size range Ø100 ÷ 315 mm)



UVA-H/UVA-M Ø100 ÷ 315 mm remote installation in the solid wall

- 1 Solid wall (aerated concrete blocks, concrete, masonry in min. thickness 100 mm)
- 2 Air ducts
- 3 Fire damper UVA-H / UVA-M (Ø100 ÷ 315)
- 4 Fire resistant mineral wool with wired net, total thickness of min. 100 mm, min. density 80 kg/m³ (PAROC Hvac Fire Mat BlackCoat LT)***
- 5 Additional fire-resistant mineral wool with wired net collar, min. 100 mm thick, min. density 80 kg/m³ (PAROC Hvac Fire Mat BlackCoat LT)***
- 6 Threaded rods min. M8
- 7 Fire-resistant glue 2 mm layer (PROMAT Glue K84)***
- 8 Plaster or mortar filling (Knauf MP75L or analogue plaster can be applied; mortar in acc. with EN998-2 up to M20 can be applied)

Any axis position (mechanism placed at any angle) is allowed for size range d100 to d315:



* Maximal distance from the wall to the first suspension.

** Minimal insulation width over the blade.

*** Insulation materials can be replaced by equivalent fire sealants.

The main mechanism of the damper should be directed opposite the wall.

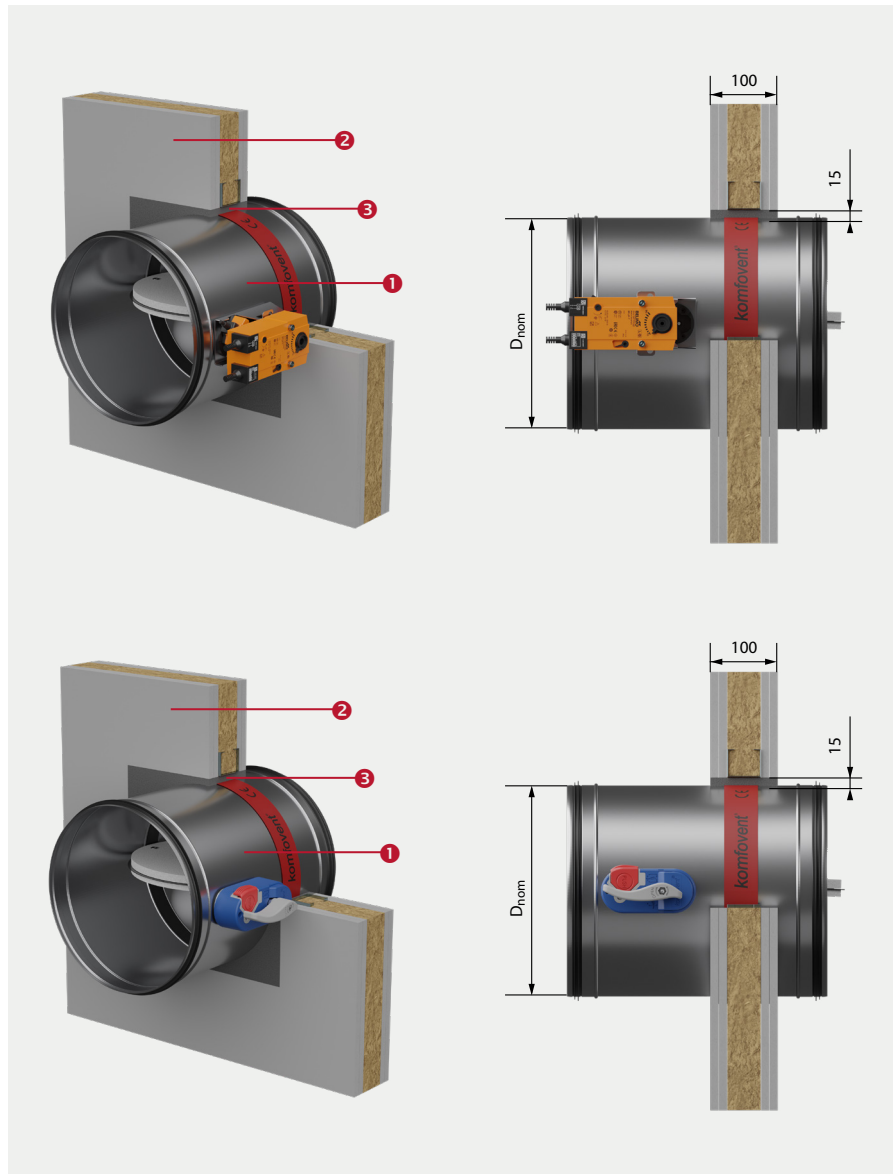
INSTALLATION PROCEDURE:

1. Prepare round installation opening $D_{nom} + 40$ mm
2. Install the air duct (any length allowed) and fill the gap with plaster or mortar
3. Connect the fire damper and suspend the entire ductwork
4. Insulate whole airduct from the wall up to main mechanism of the fire damper with 100 mm thick mineral wool mat and additional mineral wool collar. Glue the mineral wool to the wall at the abutment surface with 2 mm thick fire-resistant glue layer.

5.6. INSTALLATION METHODS IN FLEXIBLE WALLS

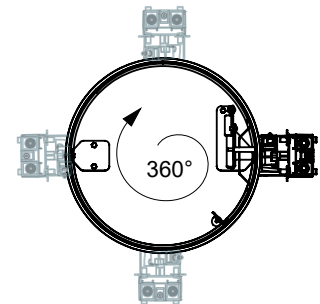
MORTAR – BASED INSTALLATION IN A FLEXIBLE WALL (METAL STUD DRYWALL)

EIS 90 (any angle location for size range Ø100 ÷ 315 mm) | EIS 90 (for size Ø100 ÷ 630 mm)



- ❶ Fire damper UVA-M / UVA-H (Ø100÷630)
- ❷ Flexible wall (standard metal stud drywall, min. 100 mm thick)
- ❸ Mortar filling (Knauf MP75L or analogue)

Any axis position (mechanism placed at any angle) is allowed for size range d100 to d315:



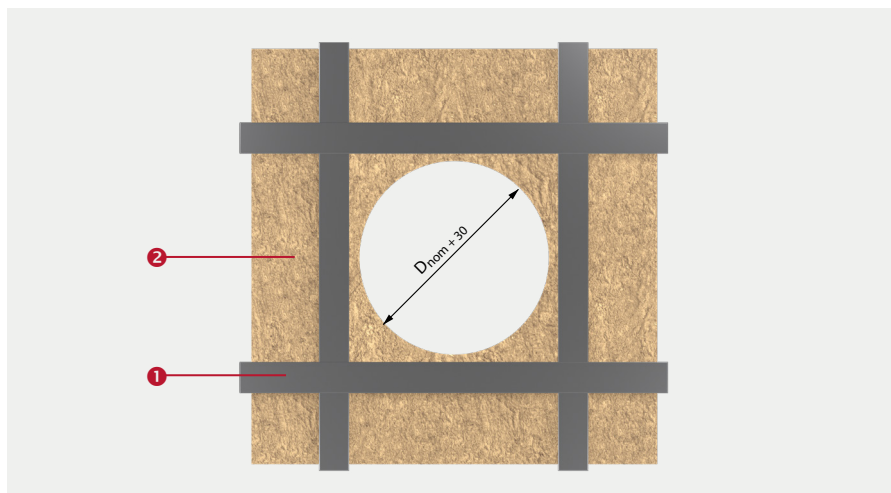
UVA-H/UVA-M Ø100 ÷ 630 mm installation in the flexible wall with mortar

INSTALLATION PROCESS:

1. Prepare square installation opening $D_{nom} + 30$ mm reinforced with additional stud frame (see below).
2. When necessary, use a mounting accessory UL to secure the damper in the installation opening.
3. Fill the gap between wall and casing of the damper with plaster or mortar.
4. Let the plaster or mortar dry completely and remove the mounting accessory.

ADDITIONAL INSTALLATION FRAME:

Around the $D_{nom} + 40$ mm installation opening additional steel frame reinforcement should be mounted to consolidate the damper in the wall.



- ❶ Steel stud frame
- ❷ Mineral wool

Installation frame for the opening in flexible wall

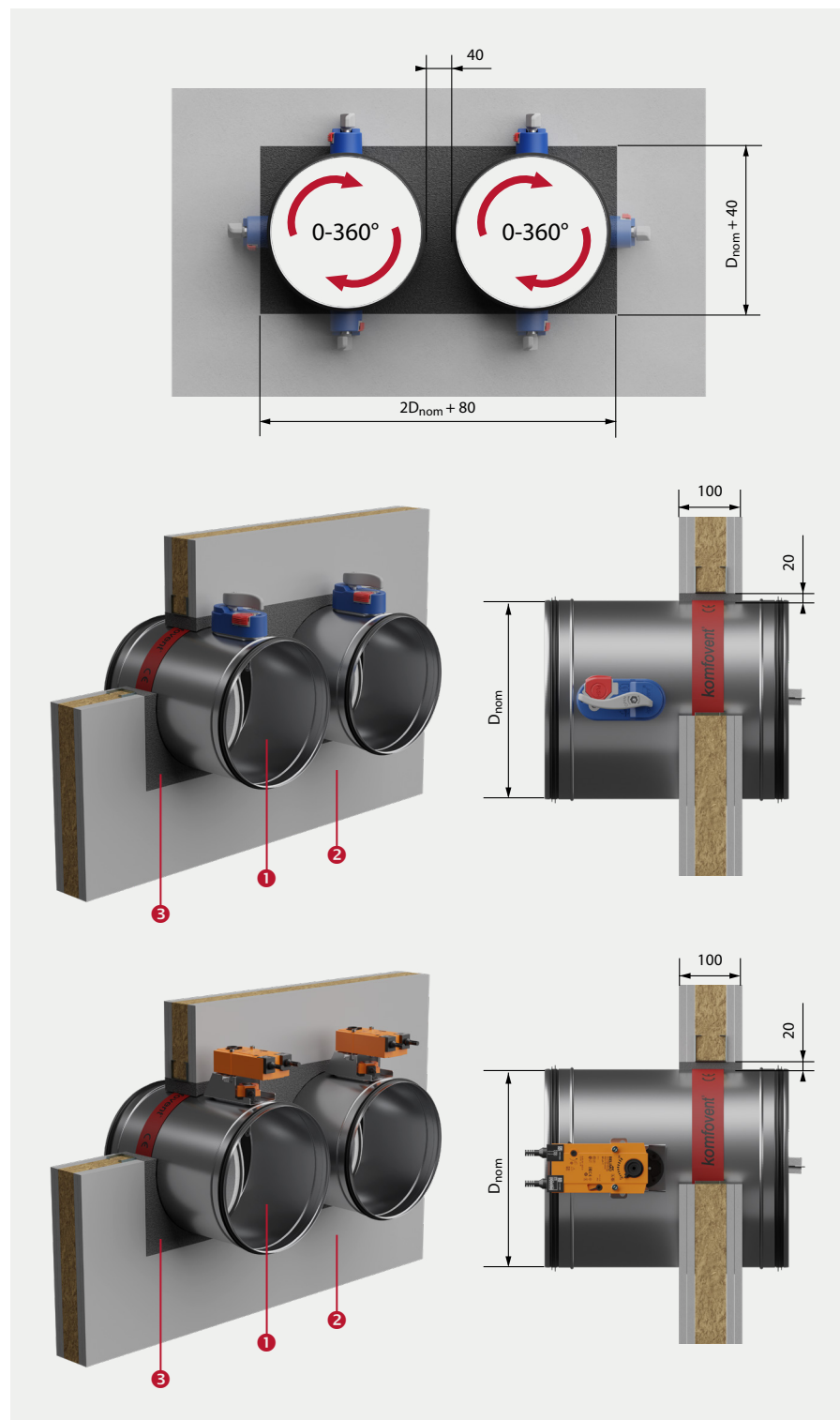
MORTAR – BASED INSTALLATION IN A FLEXIBLE WALL (METAL STUD DRYWALL)

Close distance installation at 40 mm distance

EIS 60 (for size range $\varnothing 100 \div 315$ mm)

Actuating mechanism can be placed at any angle 0-360°.

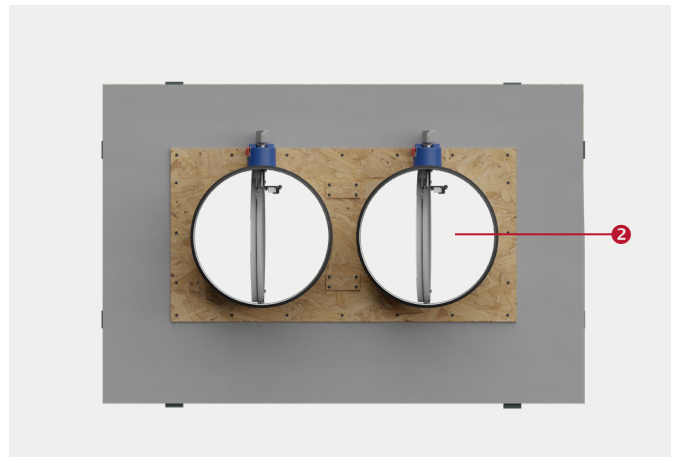
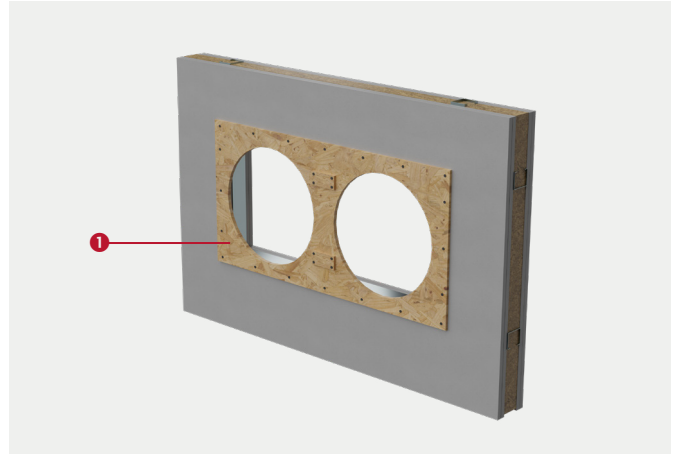
- ❶ Fire damper UVA-M / UVA-H ($\varnothing 100 \div 315$)
- ❷ Flexible wall (standard metal stud drywall, min. 100 mm thick)
- ❸ Mortar filling (Kreisel Tynk 561L or analogue)



*UVA-H/UVA-M $\varnothing 100 \div 315$ mm
installation in the flexible wall with mortar /
close distance*

INSTALLATION PROCESS:

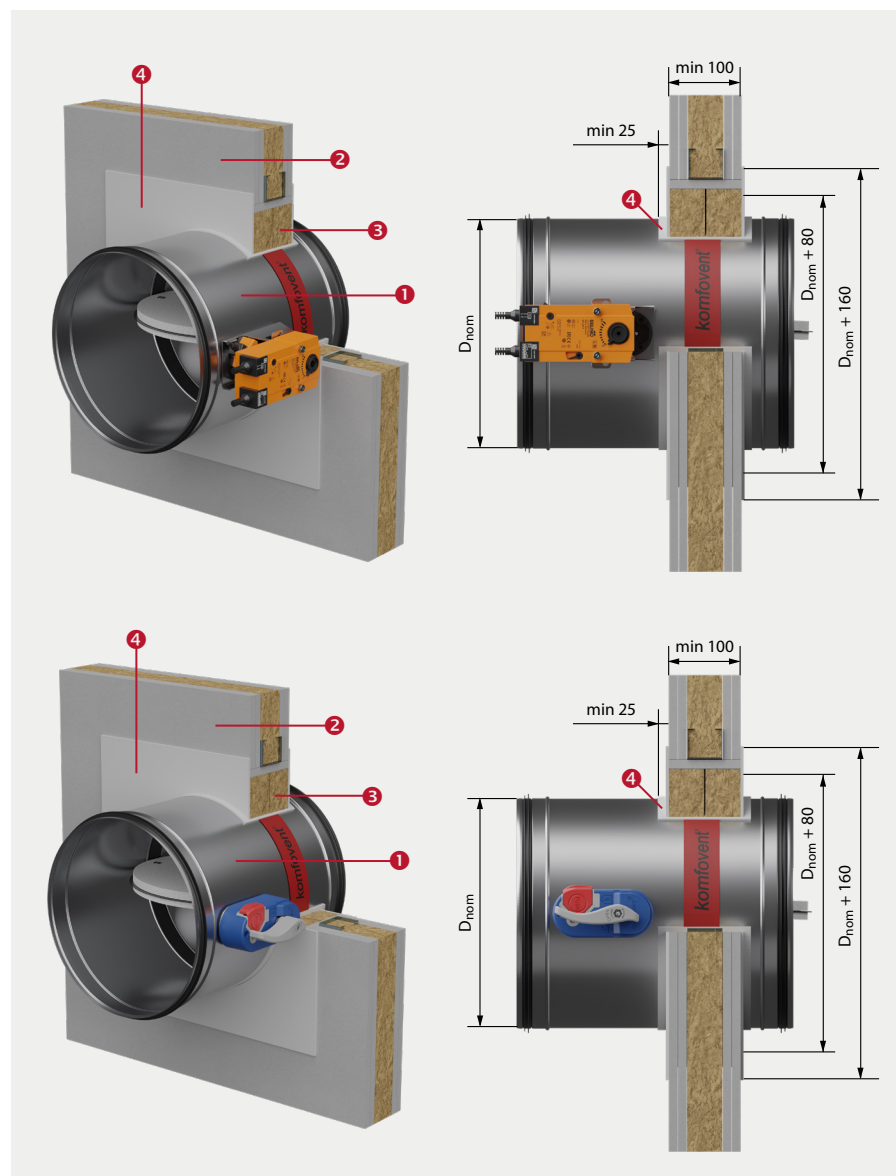
1. Prepare rectangular installation opening in the flexible wall by the width of $2D_{nom} + 80 \text{ mm}$ and height of $D_{nom} + 40 \text{ mm}$. The width of the opening can be greater if the distance between dampers is $> 40 \text{ mm}$.
2. It is recommended to use a framework to make the filling process easier: pre-install the framework on the installation opening and center it before fastening. Pre-install the damper at a desired axle position angle and fasten them.
3. Fill the gap between wall and casing of the dampers with mortar from the back side (A1 fire resistance class, CS II range of compressive strength in acc. to EN 998-1).
4. Remove the framework after complete hardening of the mortar (follow the instructions of the mortar manufacturer).



- ① Framework
- ② Fire dampers

INSTALLATION IN A FLEXIBLE WALL (METAL STUD DRYWALL) WITH FIRE BATT

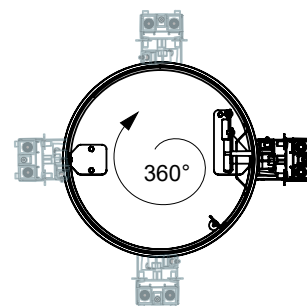
EIS 90 (for size range Ø100 ÷ 315 mm)



- ❶ Fire damper UVA-H / UVA-M (Ø100 ÷ 315)
- ❷ Flexible wall (metal stud drywall, min. 100 mm thick)
- ❸ Mineral wool, total thickness of min. 100 mm, min. density 165 kg/m³ (ROCKWOOL Frontrock S)*
- ❹ Fire stopping coating in min. thickness of 2 mm (PROMAT Promastop-E paste)*

* Insulation materials can be replaced by equivalent fire sealants.

Any axis position (mechanism placed at any angle) is allowed for size range d100 to d315:



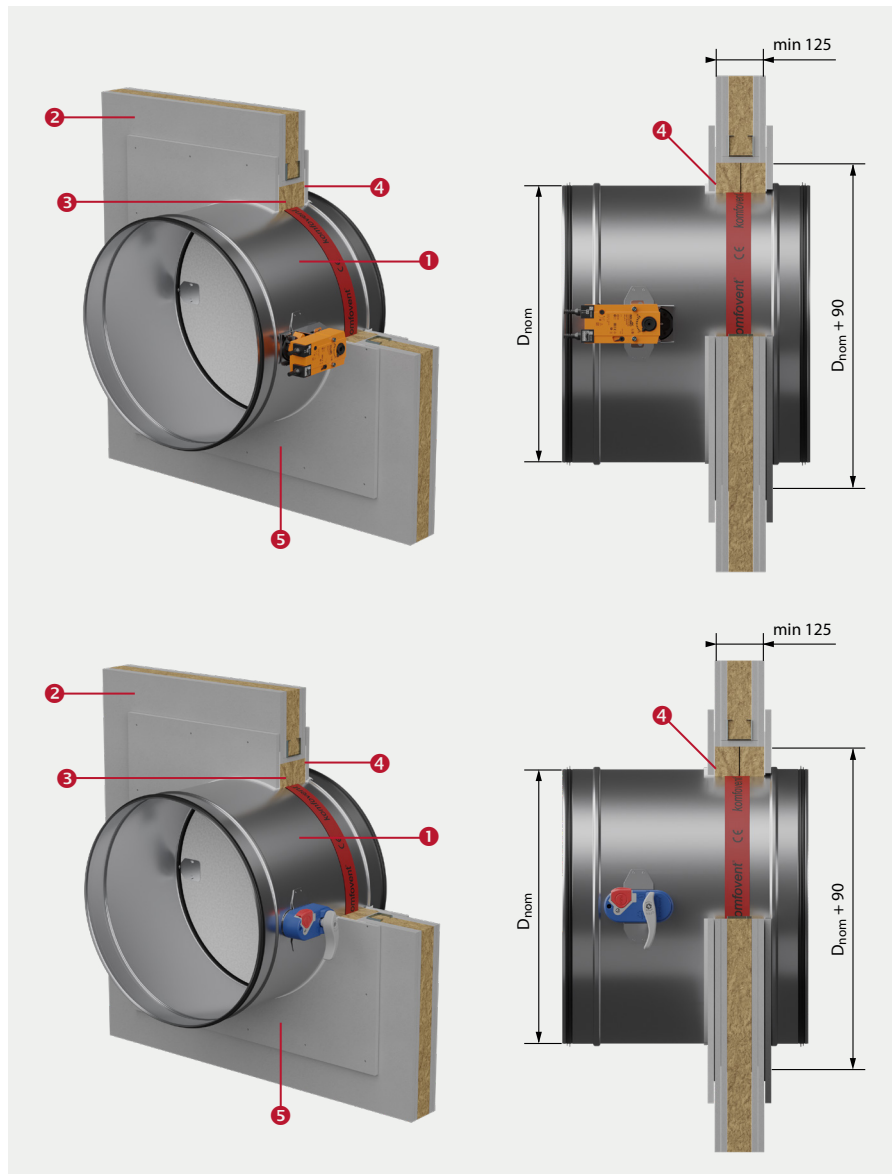
UVA-H/UVA-M Ø100 ÷ 315 mm installation in the flexible wall with fire batt

INSTALLATION PROCEDURE:

1. Prepare square installation opening $D_{nom} + 80$ mm and cover the internal perimeter with two min. 12.5 mm thick gypsum boards and 2 mm thick fire-resistant coating in min. fire resistant EI 120.
2. When necessary, use a mounting accessory to preliminary secure the damper in the installation opening.
3. Fill the gap between wall and casing of the damper with mineral wool and remove the mounting accessory.
4. Cover the mineral wool (overlapped the wall for 40 mm) and casing of the fire damper within ≈ 25 mm with stopping mastic on both sides of the wall.

INSTALLATION IN A FLEXIBLE WALL (METAL STUD DRYWALL) WITH FIRE BATT

EIS 60 (for size range Ø355 ÷ 560 mm)



- ❶ Fire damper UVA-H / UVA-M (Ø355 ÷ 560)
- ❷ Flexible metal stud drywall, min. 125 mm thick
- ❸ Mineral wool slabs total thickness of min. 120 mm, min. density 165 kg/m³ (ROCKWOOL Frontrock S)*
- ❹ Fire stopping coating in min. thickness of 2 mm (PROMAT Promastop-E paste)*
- ❺ Additional gypsum 12.5 mm thick board on each side of the wall

* Insulation materials can be replaced by equivalent fire sealants.

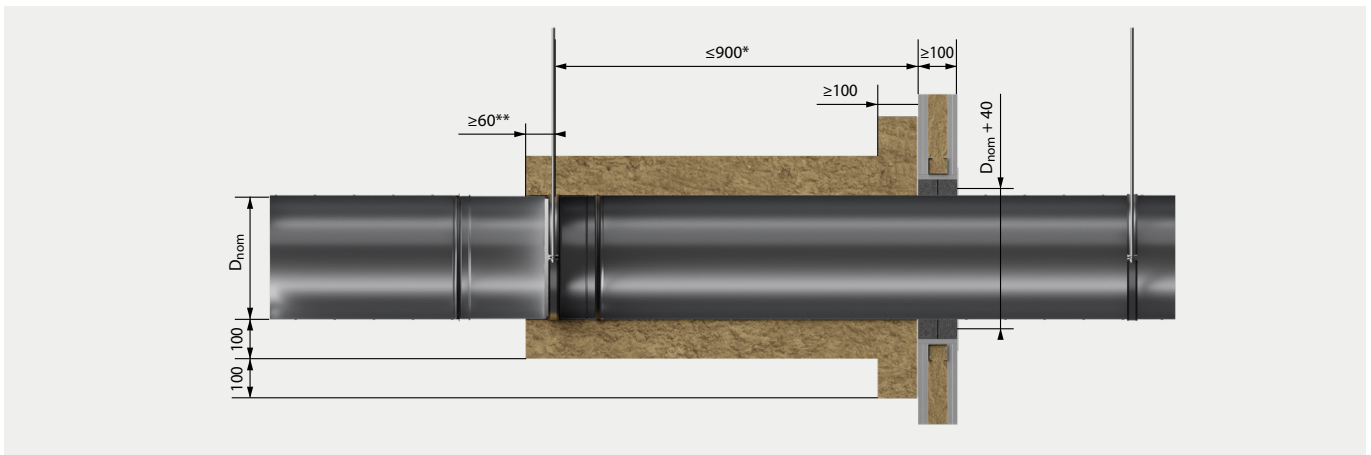
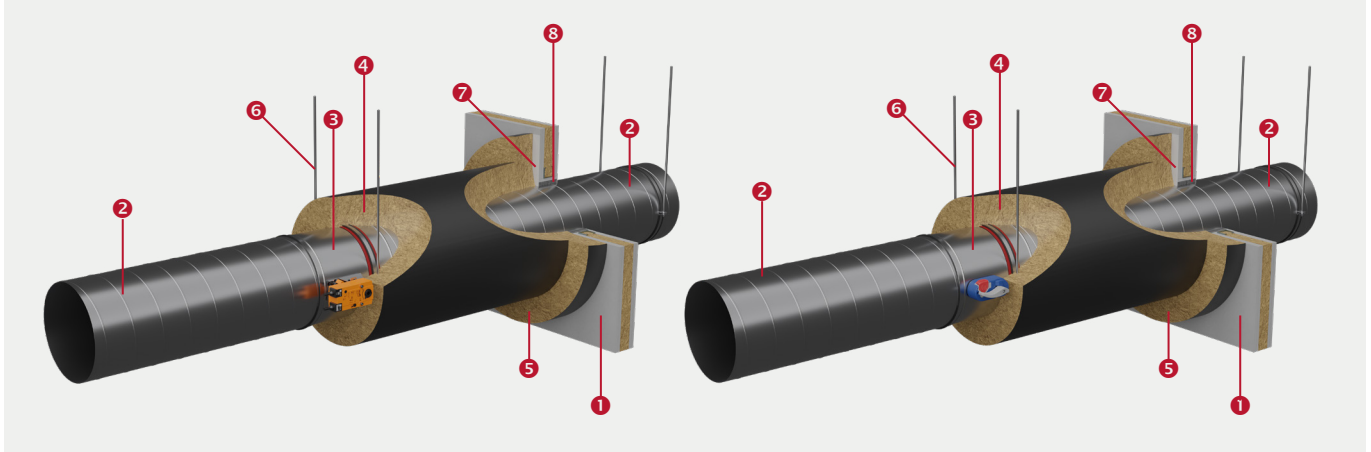
UVA-H/UVA-M Ø355 ÷ 560 mm installation in the flexible wall with fire batt

INSTALLATION PROCEDURE:

1. Prepare square installation opening $D_{nom} + 90$ mm and cover the internal perimeter with two min. 12.5mm thick gypsum boards and 2 mm thick fire-resistant coating in min. fire resistant EI 120.
2. When necessary, use a mounting accessory to preliminary secure the damper in the installation opening.
3. Fill the gap between wall and casing of the damper with mineral wool and remove the mounting accessory.
4. Cover the mineral wool (overlapped the wall) with fire stopping mastic. The mastic should also be applied to the casing of the damper to fill the gap under gypsum boards.
5. Install additional 12.5 mm thick gypsum boards, which size is $D_{nom} + 240$ mm, on both sides of the wall.

REMOTE INSTALLATION IN A FLEXIBLE WALL WITH MINERAL WOOL INSULATION – DAMPER MOUNTED AT ANY DISTANCE FROM THE WALL

EIS 60 (for size range Ø100 ÷ 315 mm)



- 1 Flexible metal stud drywall, min. thickness 100 mm
- 2 Air ducts
- 3 Fire damper UVA-H / UVA-M (Ø100 ÷ 315)
- 4 Fire resistant mineral wool with wired net, total thickness of min. 100 mm, min. density 80 kg/m³ (PAROC Hvac Fire Mat BlackCoat LT)***
- 5 Additional fire-resistant mineral wool with wired net collar, min. 100 mm thick, min. density 80 kg/m³ (PAROC Hvac Fire Mat BlackCoat LT)***
- 6 Threated rods min. M8
- 7 Fire-resistant glue 2 mm layer (PROMAT Glue K84)***
- 8 Plaster or mortar filling (Knauf MP75L or analogue plaster can be applied; mortar in acc. with EN998-2 up to M20 can be applied)

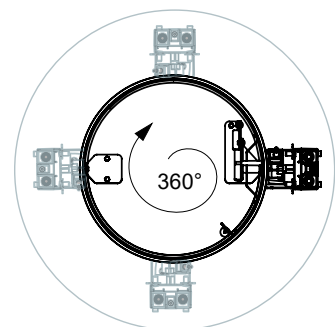
* Maximal distance from the wall to the first suspension.

** Minimal insulation width over the blade.

*** Insulation materials can be replaced by equivalent fire sealants.

UVA-H/UVA-M Ø100 ÷ 315 mm
remote installation in the flexible wall

Any axis position (mechanism placed at any angle) is allowed for size range d100 to d315:



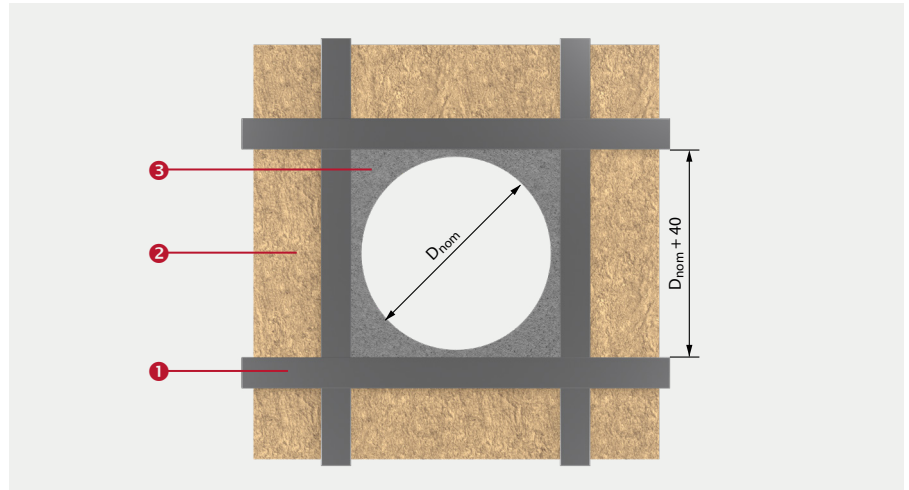
The main mechanism of the damper should be directed opposite the wall.

INSTALLATION PROCEDURE:

1. Prepare round installation opening $D_{nom} + 40$ mm reinforced with additional stud frame (see below).
2. Install the air duct (any length allowed) and fill the gap with plaster or mortar.
3. Connect the fire damper and suspend the entire ductwork considering the maximum distances between suspension elements.
4. Insulate whole airduct from the wall up to main mechanism of the fire damper with 100 mm thick mineral wool mat and then add a secondary wall-mounted mineral wool collar. Glue the mineral wool to the wall at the abutment surface with 2 mm thick fire-resistant glue layer.

ADDITIONAL INSTALLATION FRAME:

Around the $D_{nom} + 40$ mm installation opening additional steel frame reinforcement should be mounted to consolidate the air duct.



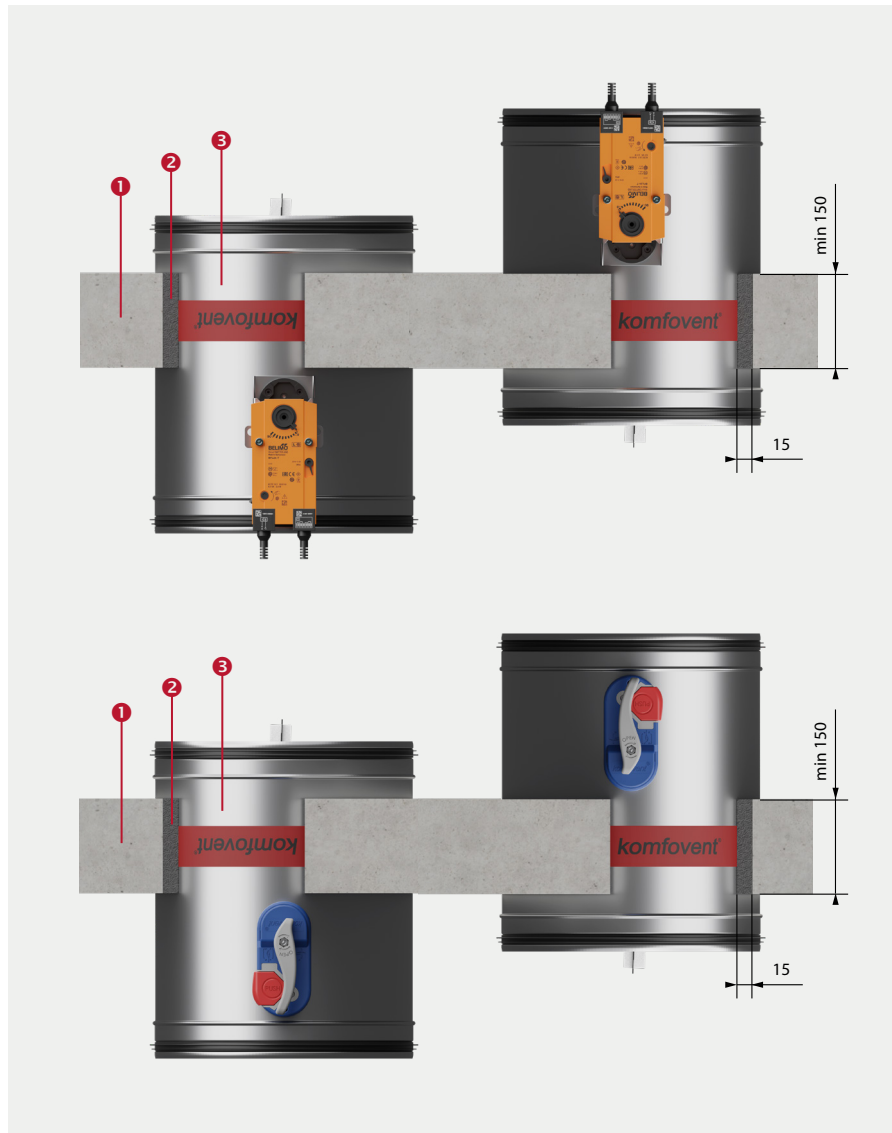
- 1 Steel stud frame
- 2 Mineral wool
- 3 Plaster or mortar

*Installation frame for the opening
in flexible wall*

5.7. INSTALLATION METHODS IN SOLID CEILING

MORTAR – BASED INSTALLATION IN A SOLID CEILING

EIS 120 (for size range Ø100 ÷ 560 mm) | EIS 90 (for size Ø630 mm)



- ❶ Solid ceiling (monolith or hollow concrete, reinforced concrete min. 150 mm thick panels, min. density 2200 kg/m³)
- ❷ Plaster or mortar filling (*Knauf MP75L or analogue plaster can be applied; mortar in acc. with EN998-2 up to M20 can be applied*)
- ❸ Fire damper UVA-H / UVA-M (Ø100 ÷ 630 mm)

Installations with actuating mechanism located above or below the ceiling panel are acceptable.

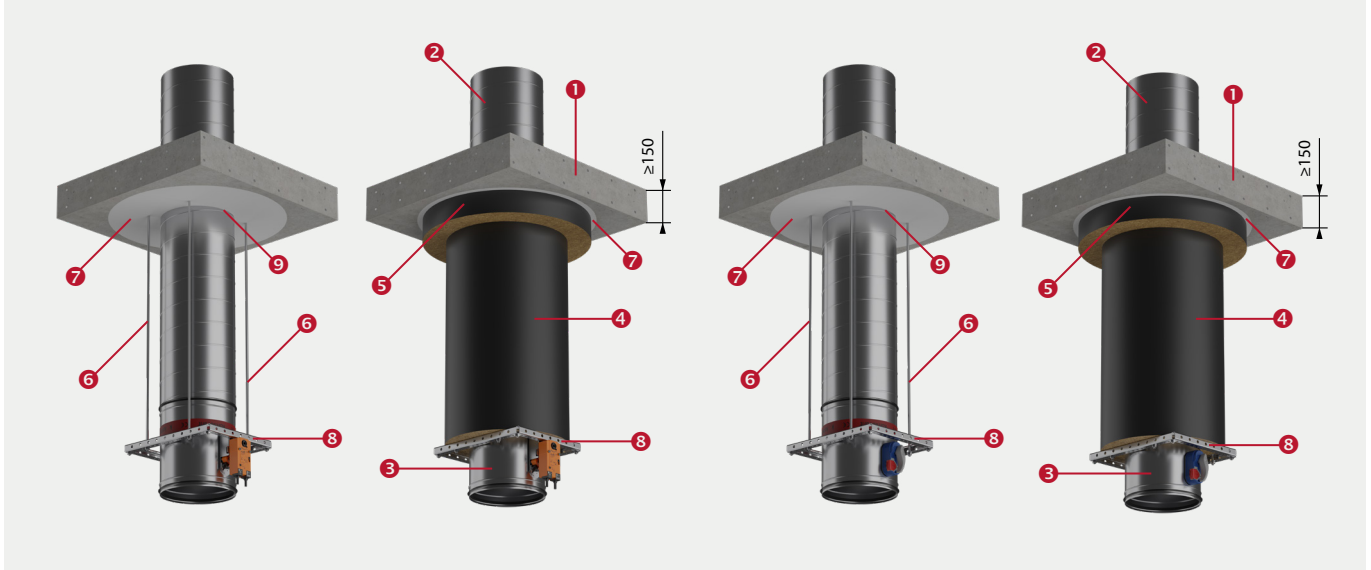
UVA-H / UVA-M
Ø100 ÷ 630 mm installation in the ceiling panel
with mortar

INSTALLATION PROCEDURE:

1. Prepare round installation opening $D_{nom} + 30$ mm.
2. When necessary, use a mounting accessory to preliminary secure the damper in the installation opening.
3. Fill the gap between wall and casing of the damper with plaster or mortar.
4. Let the plaster or mortar dry completely and remove the mounting accessory.

REMOTE INSTALLATION IN A SOLID CEILING WITH MINERAL WOOL – DAMPER MOUNTED AT ANY DISTANCE FROM THE CEILING SLAB

EIS 60 (for size range Ø100 ÷ 315 mm)



- ❶ Solid reinforced ceiling panel (hollowed or non-hollowed), min. thickness 150 mm
- ❷ Air duct
- ❸ Fire damper UVA-H / UVA-M (Ø100 ÷ 315)
- ❹ Fire resistant mineral wool with wired net, total thickness of min. 100 mm, min. density 80 kg/m³ (PAROC Hvac Fire Mat BlackCoat LT)***
- ❺ Additional fire-resistant mineral wool with wired net collar, min. 100 mm thick, min. density 80 kg/m³ (PAROC Hvac Fire Mat BlackCoat LT)***
- ❻ Threated rods min. M10, 4 pcs.
- ❼ Fire-resistant glue 2 mm layer (PROMAT Glue K84)***
- ❽ Supporting C-profile frame
- ❾ Plaster or mortar filling (Knauf MP75L or analogue plaster can be applied; mortar in acc. with EN998-2 up to M20 can be applied)

UVA-H / UVA-M Ø100 ÷ 315 mm
remote installation in the ceiling
panel

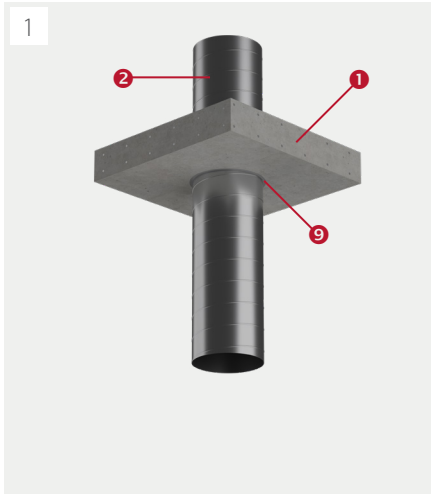
*** Insulation materials can be replaced by equivalent fire sealants.

Above-the-ceiling installations are also acceptable – supporting C-profile frame is not required in that case.

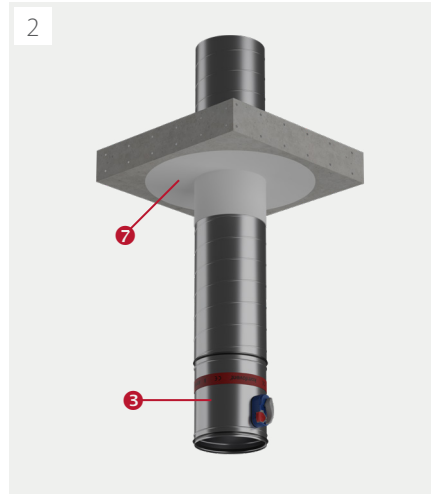
The main mechanism of the damper should be directed opposite the ceiling



INSTALLATION SEQUENCE:



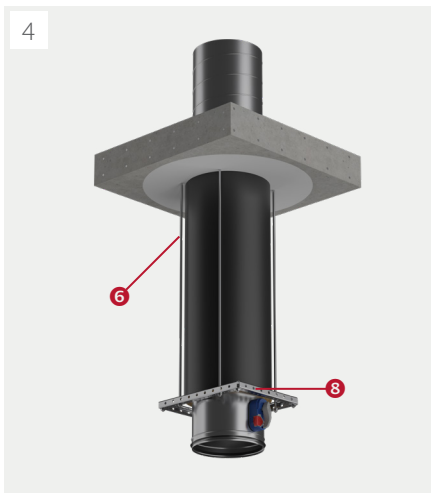
Prepare circular installation opening $D_{nom} + 30$ mm in the ceiling panel [1], install the air duct [2] (any length allowed), and fill the gap with plaster or mortar [9].



Connect the fire damper [3] and apply the 2 mm layer of fire-proof glue [7] (A1 Fire Reaction Class) in min. diameter of $D_{nom} + 400$ mm and covering ~25 % of mm of the airduct length.



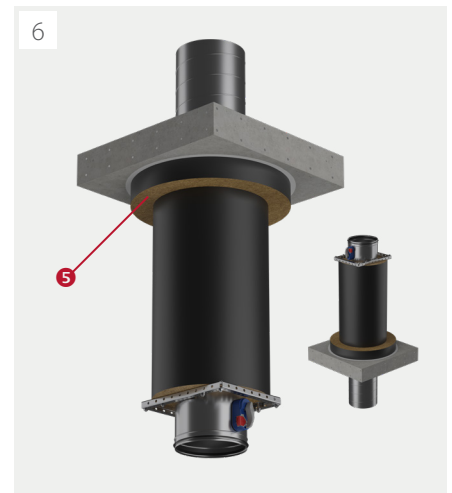
Apply the first layer of min. 50 mm thick mineral wool [4], make sure the tape on the damper casing is covered properly.



Install min. 4 M10 dowels into the ceiling panel around the first layer of mineral wool, screw-in threaded rods [6] of sufficient length, and suspend the entire ductwork with a Cshape metal profile frame [8].



Apply the second layer of min. 50 mm. thick mineral wool [4], covering the threaded rods.



Apply an additional mineral wool collar [5] over the fireproof glue layer under the ceiling panel.

Both installations with the fire damper below or above the ceiling panel are allowed.

- | | |
|-----------------------|------------------------------|
| ① Ceiling panel | ⑥ Threaded rods |
| ② Air duct | ⑦ Fire-resistant glue |
| ③ Fire damper | ⑧ Supporting C-profile frame |
| ④ Mineral wool | ⑨ Plaster or mortar |
| ⑤ Mineral wool collar | |

UVA-H / UVA-M remote installation sequence

5.8. APPLICATION OF THE INSTALLATION ACCESSORIES

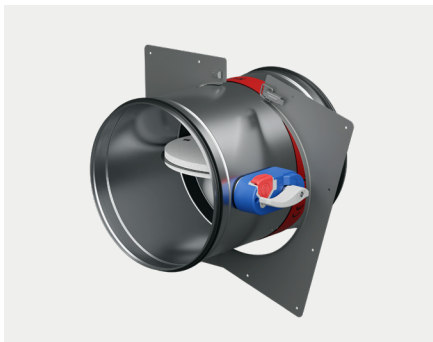
Installation accessories are designed to facilitate the installation process of the fire damper by securing it in the installation opening during the mounting process.

US-type mounting accessories are used for UVA damper wall installation, but UL-type – for ceiling installation.



US and UL installation accessories

For each fire damper diameter (Ø100, Ø125, Ø160, Ø200, Ø250, Ø315, Ø355, Ø400, Ø450, Ø500, Ø560, Ø630) relevant size of installation accessories (US or UL depending on installation in the wall or in the ceiling) is required. Still the installation accessories are re-usable, it is possible not to order the installation accessory for each fire damper that should be installed on the site individually.

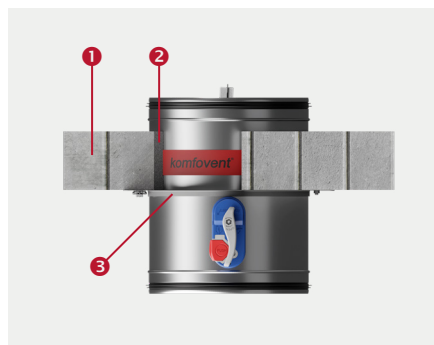


1. The equipped installation accessory should be installed on the damper casing before starting the installation.



2. For the damper diameter range Ø100÷315 the installation collar is installed right behind the main mechanism or the actuator, for size range Ø355÷630 the distance between the red tape and the collar should be around 50 mm. **The specified position is appropriate – the major installation requirement the red tape is supposed to be located in the supporting construction.**

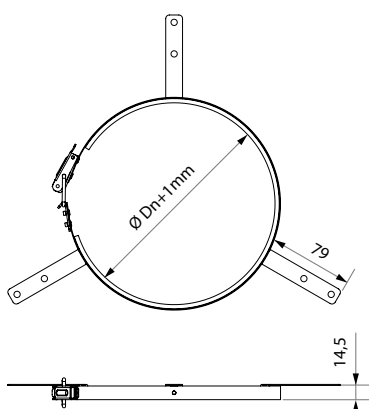
- 1 The mounting collar is mounted right up the main mechanism



- ❶ Supporting construction
- ❷ Filling material
- ❸ Mounting collar

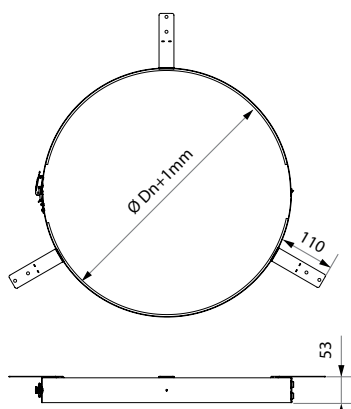
3. The appropriate fastenings should be used to install the damper onto the supporting construction. For reference in the hole sizes and location please use drawing of the relevant type of the installation collar. For ceiling installation please be sure the collar is placed under the ceiling panel to ensure that filling the gap with mortar is possible.
4. When the damper is fixed to the supporting construction, finish the installation process in acc. with the installation instructions.
5. After finishing the installation process the installation collar can be removed and re-used for the next fire damper installation.

Application of the installation collar types depending on the fire damper diameter and supporting construction (wall, ceiling):



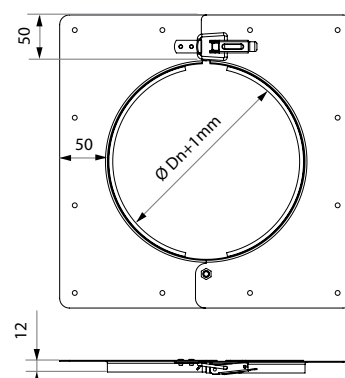
MONTAGE COLLAR US FOR DN = [100 ÷ 315] mm

- 6 x Ø6 mm installation holes
- For vertical fire damper installation in the wall



MONTAGE COLLAR US FOR DN = [355 ÷ 630] mm

- 6 x Ø6 mm installation holes
- For vertical fire damper installation in the wall

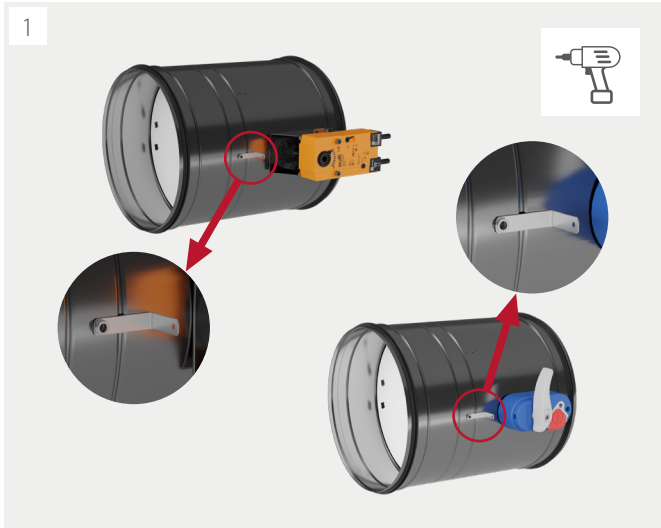


MONTAGE COLLAR UL FOR DN = [100 ÷ 630] mm

- 12 x Ø5 mm installation holes
- For horizontal fire damper installation in the ceiling

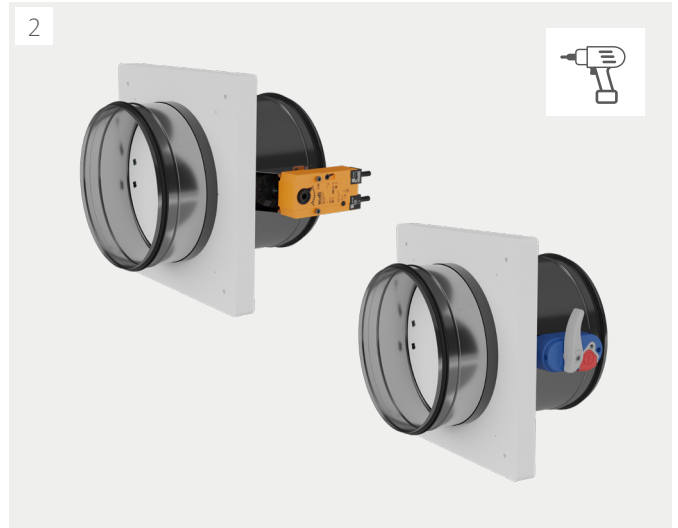
5.9. SMR DRY MONTAGE KIT ASSEMBLING PROCEDURE AT THE SITE

It is easier to preinstall Dry montage kit on the damper casing first and then install the damper into the opening:

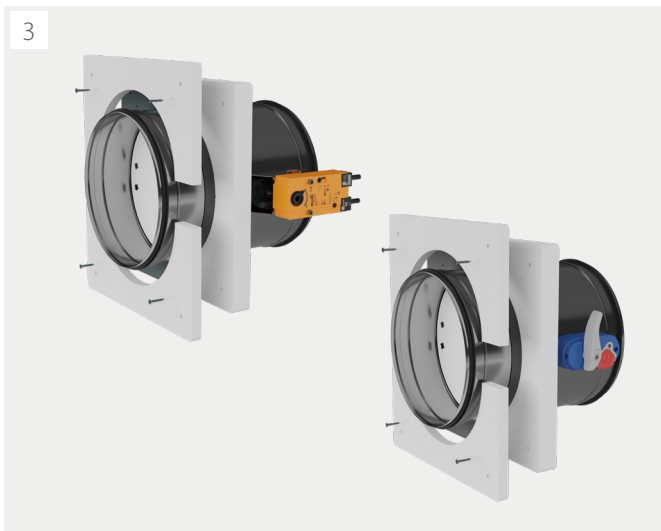


Remove the red tape from the casing of the damper to get access to threaded rivets. Take two metal corners [3] and attach them to the casing by using two DIN 967 screws [5] and existing threaded holes from the rivets.

Glue Promaseal-GT tape [4] to the casing on the damper using previously attached metal corners as a guide point (refer to page 41 for component numbers):



Using two ISO 7049 screws [6], join shield flanges [2] to the previously installed metal corners [3].



Using four ISO 7049 screws [7], join shield flanges [2] to the previously installed shield flanges [1]. The junctions of the two flanges should not overlap, but are 90° angled.

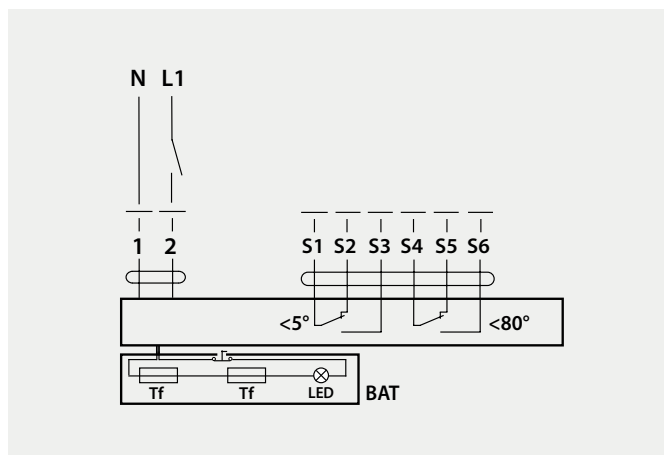


Pre – installed Dry montage kit on the damper casing.

6. ELECTRICAL SCHEMES

6.1. BFL/BFN-230T ACTUATOR

AC 230 V, open/close



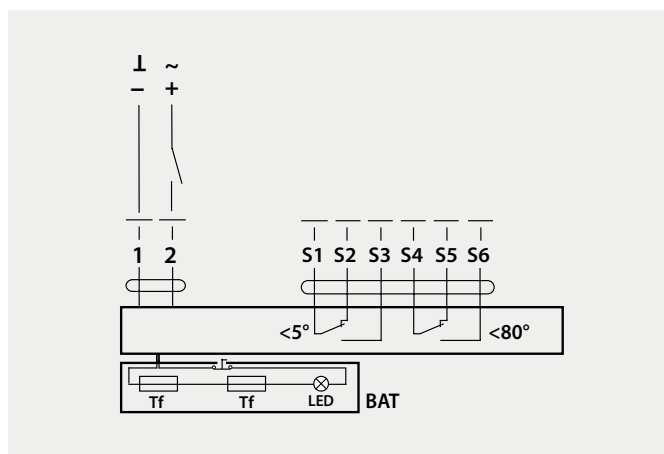
Cable colors:

1 = blue
2 = brown
S1 = violet
S2 = red
S3 = white
S4 = orange
S5 = pink
S6 = grey
Tf: Thermal fuse

Electrical scheme of BFL/BFN-230T actuators

6.2. BFL/BFN-24T ACTUATOR

AC/DC 24 V, open/close

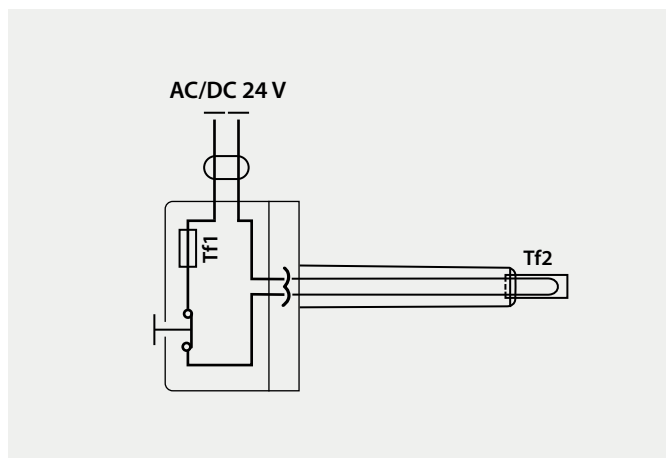


Cable colors:

1 = black
2 = red
S1 = violet
S2 = red
S3 = white
S4 = orange
S5 = pink
S6 = grey
Tf: Thermal fuse

Electrical scheme of BFL/BFN-24T actuators

6.3. BAT72 THERMOELECTRIC TRIPPING DEVICE



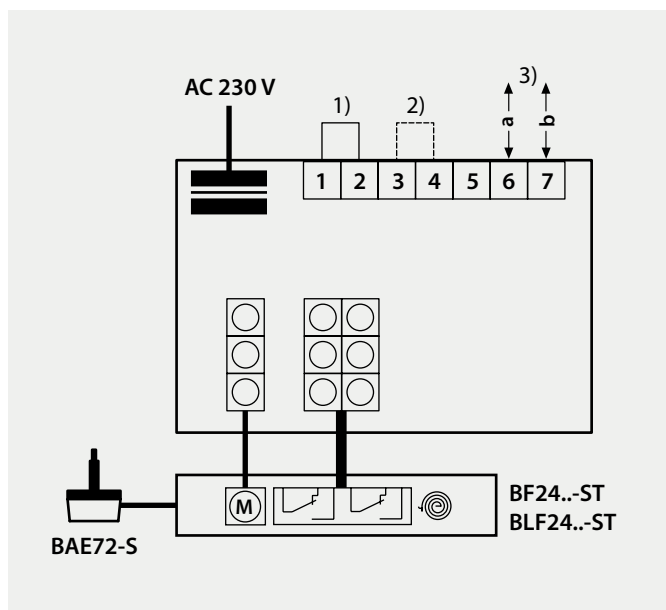
Electrical scheme of BAT72 thermoelectric tripping device

Temperature fuses:

Tf1 = Duct outside temperature fuse

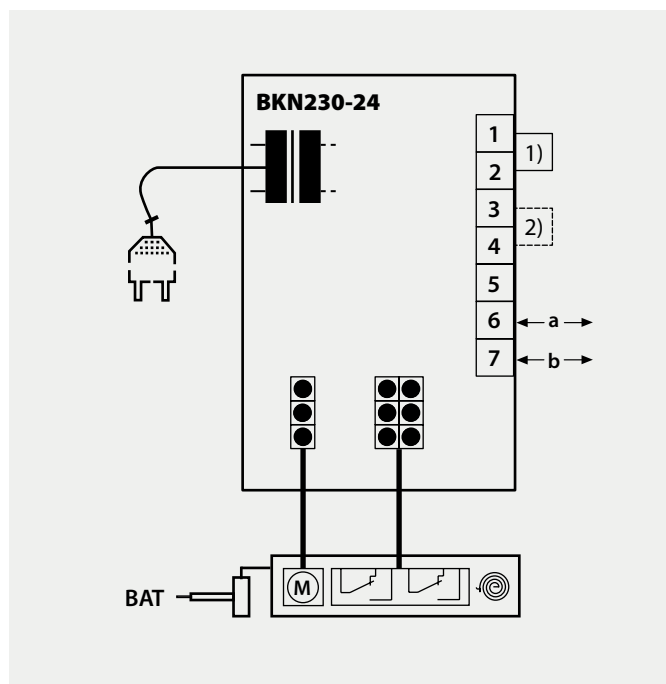
Tf2 = Duct inside temperature fuse (replaceable)

6.4. COMMUNICATION AND POWER SUPPLY UNIT BKN230-24



Electrical scheme of BKN230-24 communication and power supply unit

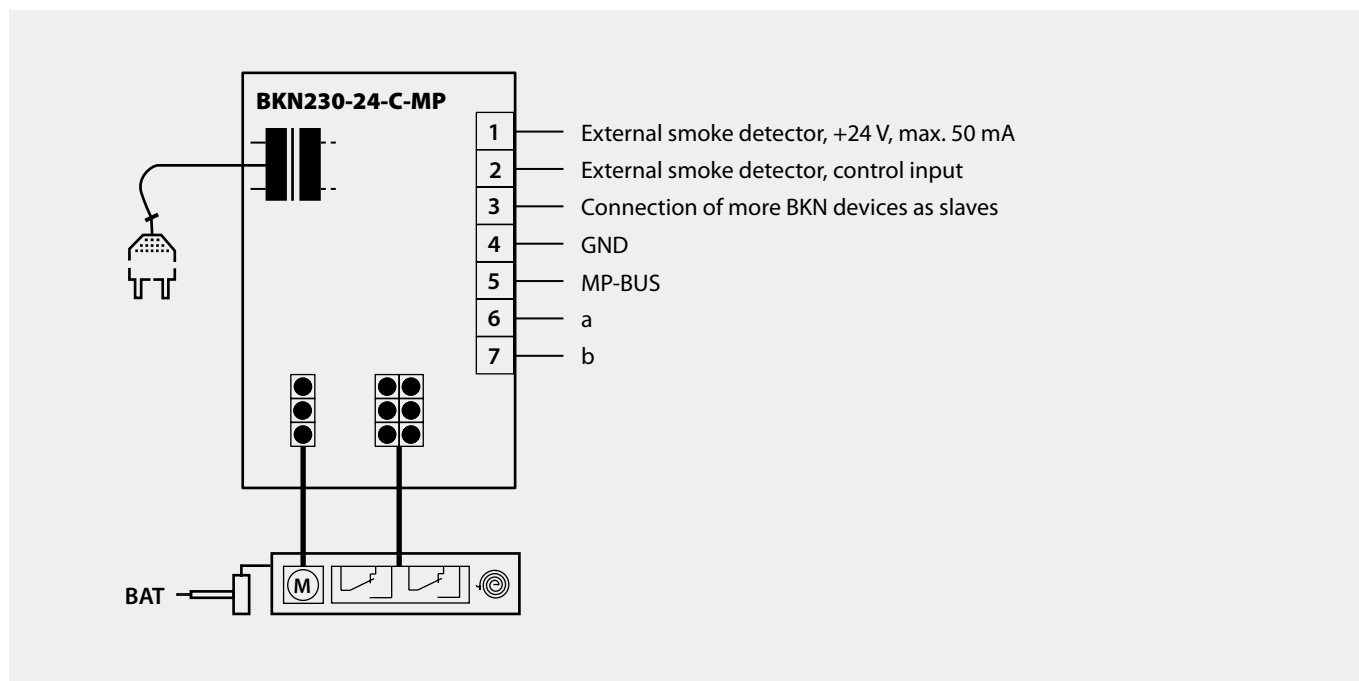
1. Jumper factory-fitted. Can be removed if necessary to be replaced by a thermoelectric trip (the safety function will be triggered if terminals 1 and 2 are not linked).
2. Jumper only used for commissioning purposes and without BKS24-.. !
3. 2-wire conductor to BKS24-..



Example of the BKN230-24 connecting scheme with BFL-T-ST /
BFN-T-ST 24V actuators

1. Bridge has been installed by the manufacturer. If needed, it can be removed and replaced with a thermo-electric starting mechanism. If terminals 1 and 2 are not interconnected, safety function is triggered.
2. Bridge can be used only for starting and without BKS24... ! Two conductor wiring to BKS24.

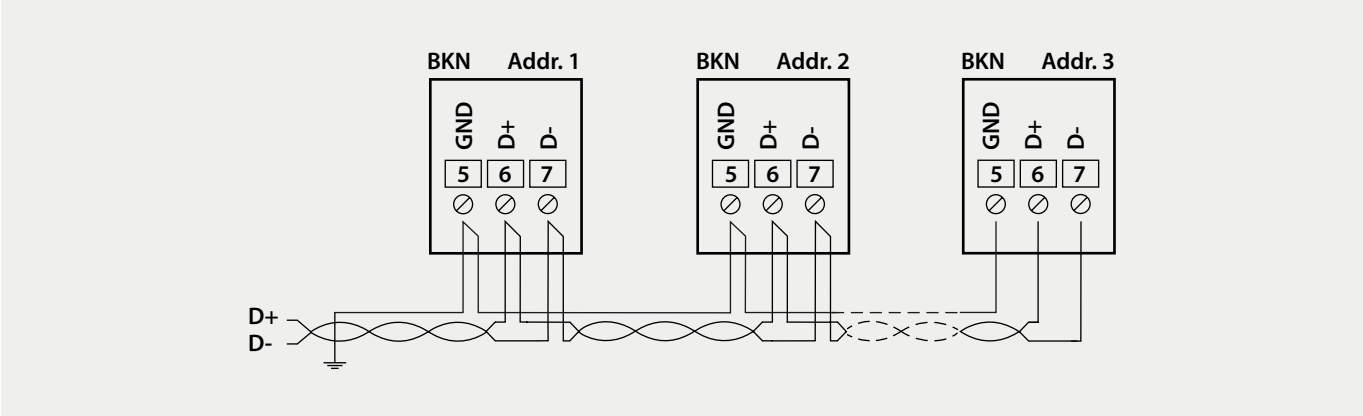
6.5. COMMUNICATION AND POWER SUPPLY UNIT BKN230-24-C-MP



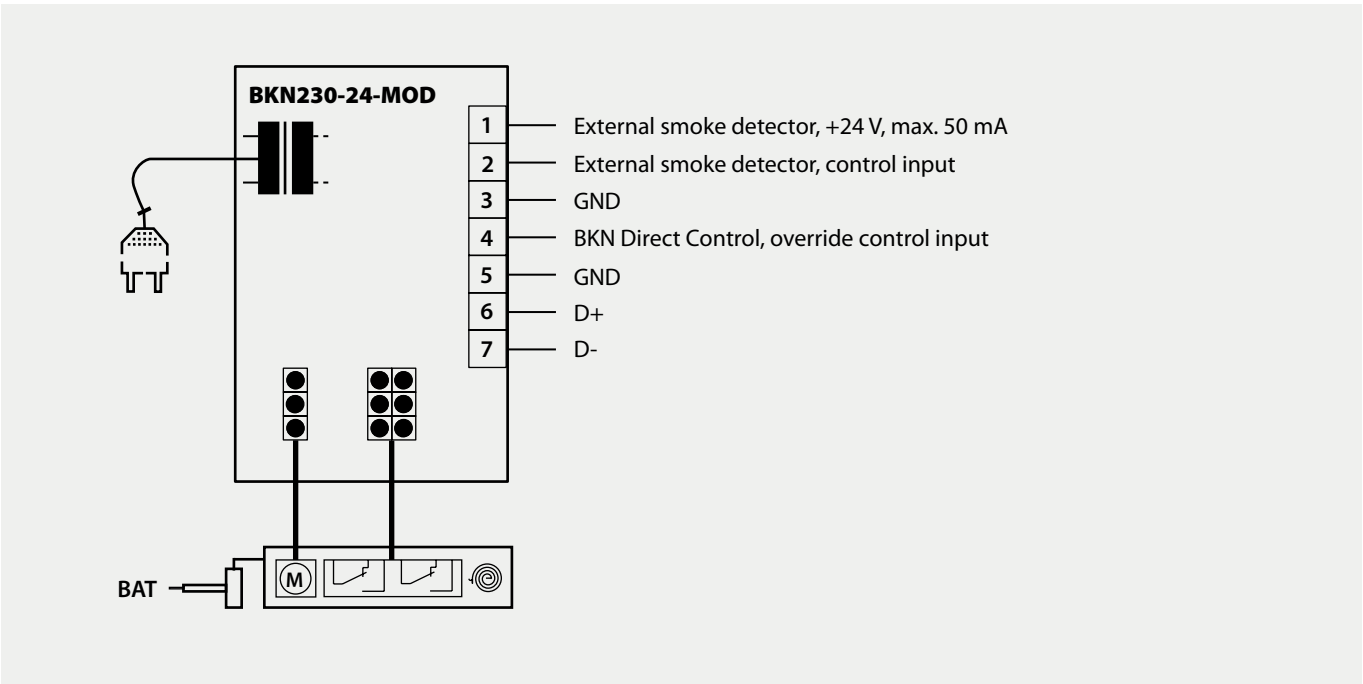
Example of the BKN230-24 connecting scheme with smoke detectors

6.6. COMMUNICATION AND POWER SUPPLY UNIT BKN230-24-MOD

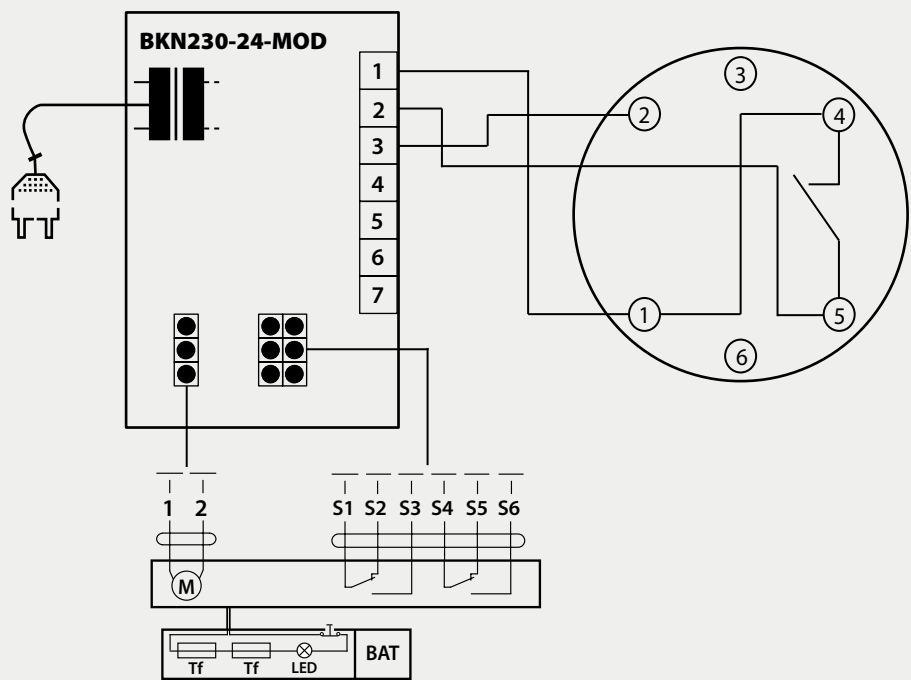
BACnet / Modbus-GND Implementation of the bus wiring in 3-wire format is mandatory. The GND must be connected to the protective earth of the control panel.



Example of the BACnet / Modbus wiring



Example of the BKN230-24-MOD connecting scheme with BFL-T-ST/BN-T-ST 24V actuators



Example of the BKN230-24-MOD connecting scheme with smoke detectors

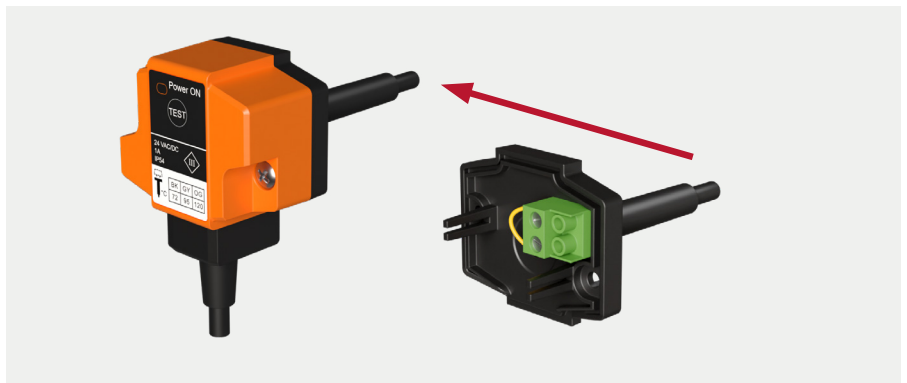
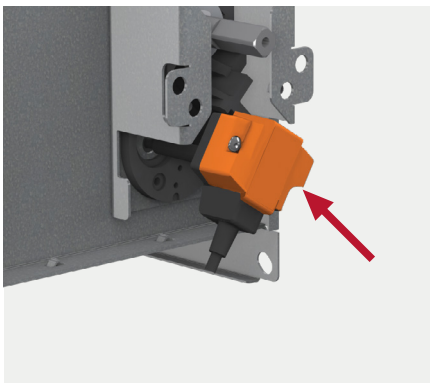
7. OPERATION OF THE FIRE DAMPER

7.1. REPLACEMENT OF THE UVA-M FUSE ELEMENT AFTER TRIGGERING

Please be sure the power supply is disconnected before starting any type of works.

If tripping of the thermal fuse Tf1 occurs (due to temperature outside the duct), the actuating mechanism including the thermoelectric tripping device must be changed – it is damaged irretrievably.

If tripping of the thermal fuse Tf2 occurs (due to temperature inside the duct), the separate spare tripping element part ZBAT72 must be changed. To replace the Tf2 fuse it is required to unscrew two selftapping screws and disconnect the thermoelectric tripping device from the casing of the damper. Then unscrew the screws and unclamp the inside duct probe. Replace the probe with ZBAT72 spare part and fasten it with screws. Before installing the thermoelectric tripping device back to the damper, use TEST button to verify the operation of the damper.



Restoration of the duct thermoelectric tripping device

7.2. RESTORATION OF THE UVA-H FUSE ELEMENT AFTER TRIGGERING

The construction of the UVA-H fire damper main mechanism is designed in such a way to make the replacement of the fuse element as easy as possible:



1
Unscrew the PUSH button fixing screw using square screwdriver



2
Pull out the button mechanism



3
Using a pliers, pull the replacing fuse element on the two metal hooks



4
Place the button mechanism back and screw in the fixing screw



5
Make sure the blade of the damper locks in the OPEN position by rotating the handle clockwise.

7.3. SAFETY REQUIREMENTS

 <p>Protective gloves must be worn</p> <p>Protective gloves protect hands against abrasion, oily environment, sharp metal parts and contact with hot surfaces.</p>	 <p>Protective industrial helmet must be worn</p> <p>Industrial helmets protect the head against impact from objects falling from above, by resisting and deflecting blows to the head.</p>	 <p>Protective boots must be worn</p> <p>Protective boots protect the foot from falling objects or compression and prevent slipping on a slippery floor.</p>	 <p>Incorrect use might cause dangerous situations.</p>
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Cables must not be removed from the device.

The two switches integrated in the actuator are to be operated either on power supply voltage or at safety extra-low voltage. The combination of power supply and voltage/safety extra-low voltage is not permitted. The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

The local regulations for health and safety at work and general safety regulations to be applied.

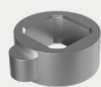
Personal protective equipment must be worn for such types of work: fire damper electrical installation, fire damper mechanical connection to the air duct system (ductwork) and any type of service or maintenance works.

IT IS IMPORTANT TO CORRECTLY USE THE FIRE DAMPER IN DESIGNED WAY ONLY:

- Fire damper is permitted to use in exhaust or supply air systems.
- Not allowed to operate the fire damper if it do not comply with manufacturer's installation requirements specified in this instruction.
- Any changes or modifications of the fire damper are strictly prohibited, except for using manufacturer's provided replacement parts.
- Qualified staff only are allowed to replace parts or service the fire damper.

7.4. INSTALLATION OF THE END POSITION SWITCHES

If fire damper is additionally assembled by one or two signaling devices (microswitches) and switch cam, simple installation of the parts is required:



— Switch cam
— 1 pc.

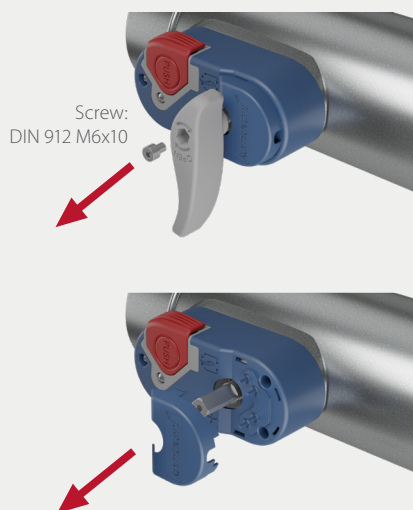


— End position switch –
1 or 2 pcs.

INSTALLATION PROCEDURE:

1

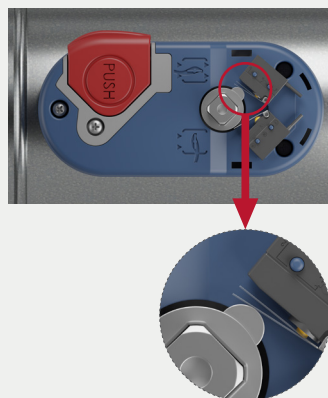
Unscrew damper's handle holding screw DIN 912, then remove handle and cap:



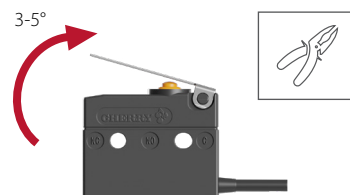
2

Place switch cam to the axis and one or two microswitches to the indicated positions. Make sure that the cam ledge pushes the microswitches' metal plate.

ACTION SHOULD BE TAKEN IF THE CAM DOESN'T PUSH THE METAL PLATE:



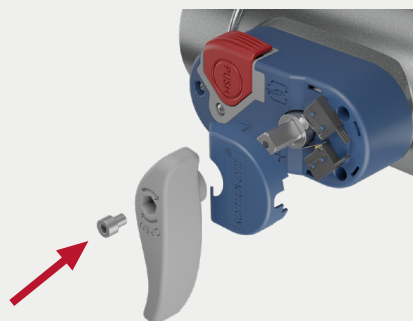
Using an appropriate tool (e.g. pliers), GENTLY fold the metal plate as shown:



Avoid to fold the plate too hard so it can be broken!

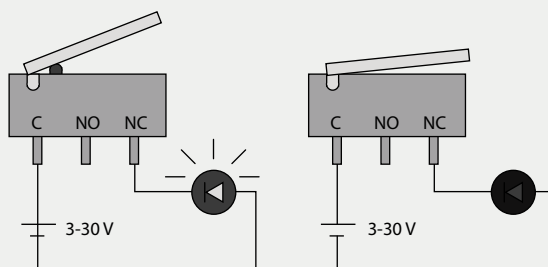
3

Place switch cam and handle back and screw in DIN 912 screw:



4

Connect microswitches to designed way. Each microswitch has NC (normally closed), NO (normally open) and C (common) poles. Connection scheme using signaling device is shown below:



7.5. DELIVERY AND STORAGE

The dampers are delivered as bulk goods and set on pallets. Other packing methods (e.g., individual packaging in separate box) must be planned in advance.

The dampers are usually transported by goods vehicles; cargo must be protected from downfalls, hits and exposed to a temperature higher than +40°C. During the transportation process, the fire dampers must be protected also against impact of weather conditions. During transportation and overloading, the blade of the damper is in closed position as it comes from the factory.

The fire dampers must be stored in covered and dry depositories. The storage temperature varies between -5°C and +40°, max. relative humidity is 80 %. For handling during storage, the dampers must be protected against mechanical damage.

7.6. WARRANTY PERIOD

KOMFOVENT provides a standard warranty period of 24 months for the dampers from the date of dispatch for the fire dampers.

The warranty for fire dampers no longer applies if closing and control devices are unprofessionally handled by untrained workers or if electric components, i.e., end position switches, actuating mechanisms, communication and supply devices and thermoelectric mechanisms are dismantled. The warranty no longer applies if the dampers are used for other purposes, devices and working conditions than those allowed by the manual 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.

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