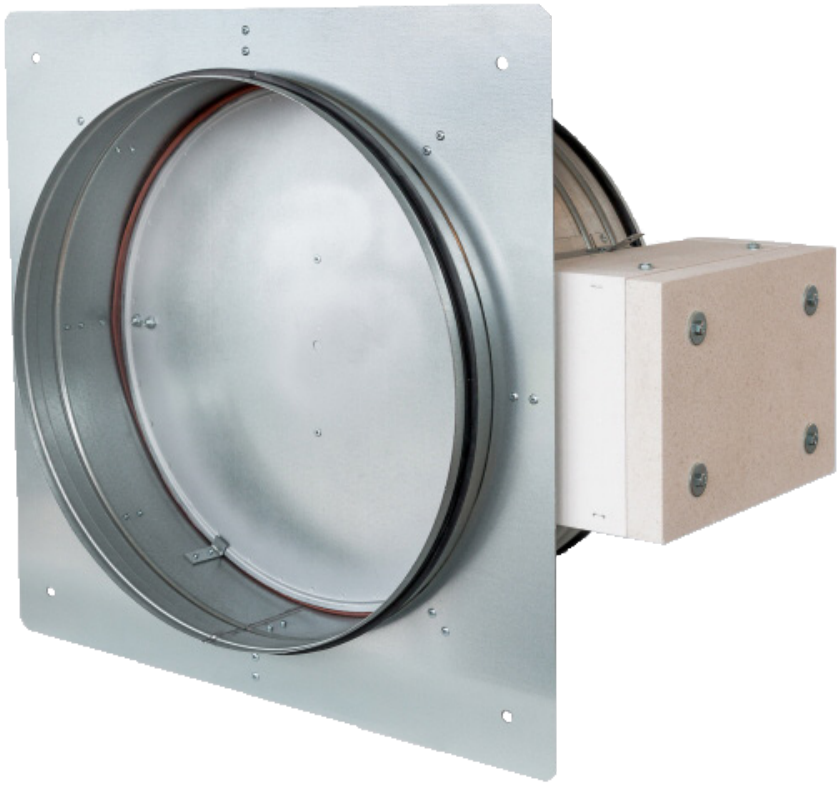


NORDfire

SEDS-R Smoke extraction damper

Round smoke extraction dampers Ø 100-630 mm

CE certified acc. to EN 12101-8

Tested in accordance with EN 1366-10

Classified acc. to EN 13501-4+A1

ES Certificate No. 1391-CPR-2020/0188

Declaration of Perfomance No. PM/SEDS-R/01/22/1

ETS NORD

Content

General

Smoke extraction dampers - single are shutters in smoke exhaust piping systems. Dampers are designed to remove heat and combustion products (e.g. smoke) from single fire compartment. In the event of fire the Smoke and Fire ventilation system opens the damper in the affected section which removes combustion products and heat from this section.

The damper blade is operated by an actuating mechanism.

The dampers can be installed in various duct sizes with respect to the field of direct applications according with EN 1366-9.

The field of direct applications based on tests results is acceptable according to EN 1363-1, part A.1 and A.2, EN 1366-2, part 13 and EN 1366-10, part 9.

Round smoke extraction dampers only for duct installation - single are classified as:

E_{600} 120 (v_e- i ↔ o) S1500C_{10000}MAsingle

Working conditions:

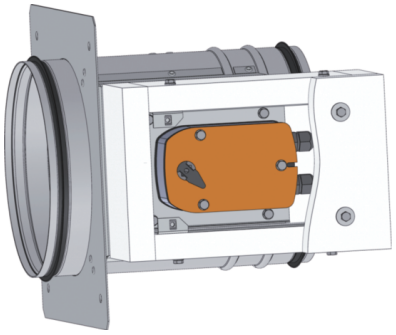
- Dampers are designed for smoke exhaust piping systems with underpressure max. 1500 Pa or overpressure max. 500 Pa.
- Dampers are designed for maximum air velocity 15 m/s.
- Dampers are designed for installation with horizontal blade axis. Flow direction has to be led from actuating side (it is labeled by arrow on the damper casing).
- Dampers are suitable for systems without abrasive, chemical and adhesive particles.
- Dampers are designed for macroclimatic areas with mild climate according to EN 60 72133.
- Temperature in the place of installation is permitted to range from -30°C to +50°C.

Damper characteristics

- Damper characteristics Ø 100-630 mm
- CE certified acc. to EN 12101-8
- Tested in acc. with EN 1366-10
- Classified acc. to EN 13501-4+A1
- External Casing leakage min. class B, Over blade min. class 4, diameter 100 min. class 3, according to EN 1751
- Cycling tests C10000 in class C_{mod} acc. to EN 12101-8
- ES Certificate of conformity No. 1391-CPR-2020/0188
- Declaration of Perfomance No. PM/SEDS-R/01/22/1
- Dampers are designed for maximum air velocity 15 m/s, and for smoke exhaust piping systems with underpressure max. 1500 Pa or overpressure max. 500 Pa

Design with actuating mechanism (Design .44, .54)

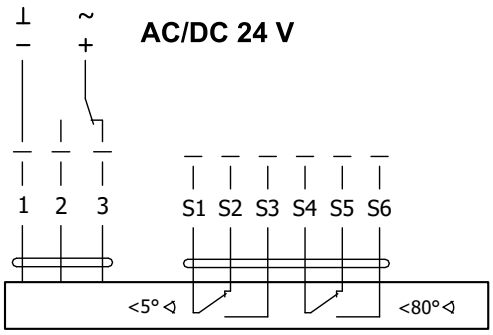
Belimo actuators are used for dampers, series BEN for 230V AC resp. 24 V AC/DC. After connection to the power supply voltage, the actuator moves the damper blade to the “OPEN” position or “CLOSED” (according to the corresponding connection, see wiring diagram). If the power supply is interrupted, the actuator stops at the current position. The signalling of the “OPEN” and “CLOSED” damper blade positions is ensured by two built-in fixed “potential-free” end- limit switches. The actuator for operating the damper blade is mounted in an insulated cover/box. It is accessible after removing the cover lid. The electrical connection of the actuator is made with a nonflammable cable (or a cable located in the adjoining cable duct), which passes through an opening made in the wall of the insulated cover/box when installing the damper or when connecting the actuator power cable. The cable entry must meet a minimum fire resistance of 30 minutes.



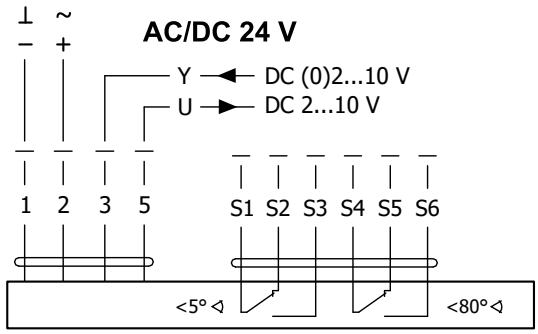
Electrical Components, Wiring Diagrams

Actuator Belimo15 Nm	BEN 24(-ST)	BEN 24-SR	BEN 230
Power voltage	AC/DC 24 V 50/60Hz	AC/DC 24 V 50/60Hz	AC 230 V 50/60Hz
Power consumption - in operation - in the end position	 3 W 0,1 W	 3 W 0,3 W	 4 W 0,4 W
Dimensioning	6 VA (Imax 8,2 A @ 5 ms)	6,5 VA (Imax 8,2 A @ 5 ms)	7 VA (Imax 4 A @ 5 ms)
Protection class	III	III	II
Degree of protection		IP 54	
Adjustment time for 95°		< 30 s	
Ambient temperature Storage temperature		–30 °C...+55 °C –40 °C...+80 °C	
Connection - drive - auxiliary switch	Cable 1 m, 3 × 0,75 mm² Cable 1 m, 6 × 0,75 mm² (BEN 24-ST) with plug connectors	Cable 1 m, 4 × 0,75 mm² Cable 1 m, 6 × 0,75 mm²	Cable 1 m, 4 × 0,75 mm² Cable 1 m, 6 × 0,75 mm²

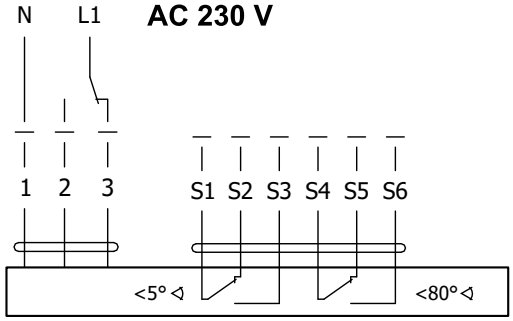
Actuator Belimon BEN 24(-ST)



Actuator Belimon BEN 24-SR



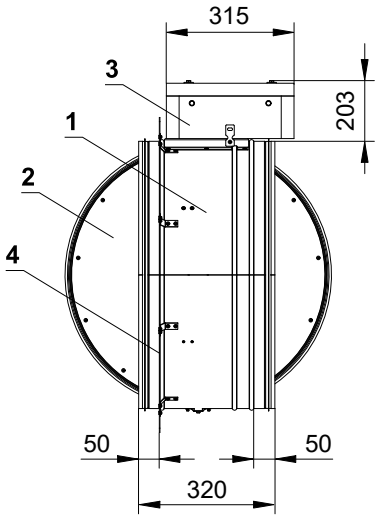
Actuator Belimon BEN 230

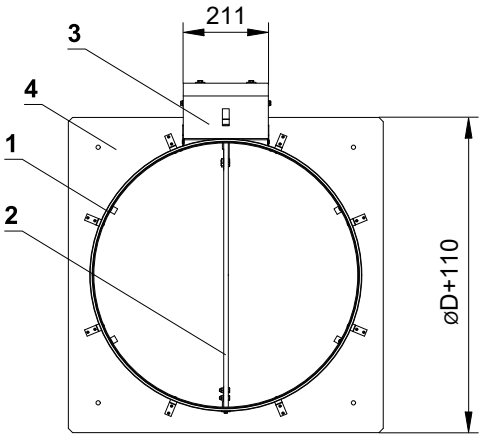


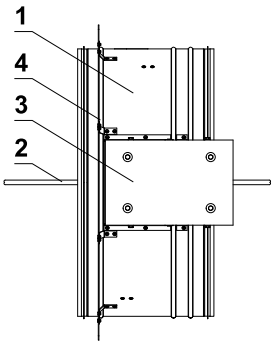
Dimensions, weihgts

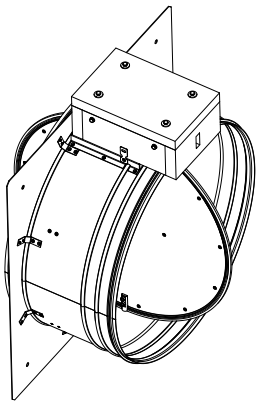
Damper casing and damper blade are made of galvanized plate without any other surface finish. Fasteners are galvanized.

Size D	a	c	Weight (kg)	Effective area S_{ef} (m^2)	Actuating mechanism
100	-	-	10,0	0,0061	BEN (15 N.m)
125	-	-	10,5	0,0100	BEN (15 N.m)
160	-	-	11,0	0,0172	BEN (15 N.m)
200	-	-	12,0	0,0278	BEN (15 N.m)
250	-	-	13,0	0,0446	BEN (15 N.m)
315	15,5	-	14,5	0,0722	BEN (15 N.m)
400	58	18	16,5	0,1183	BEN (15 N.m)
500	108	68	19,5	0,1872	BEN (15 N.m)
630	173	133	24,5	0,3001	BEN (15 N.m)



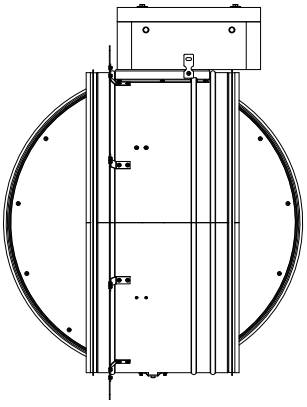


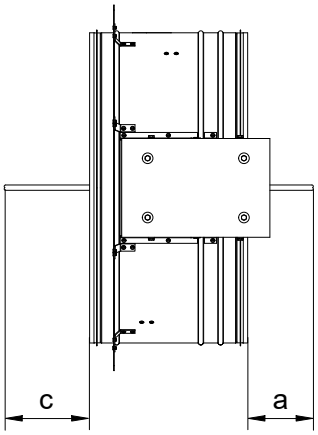




1 - Damper body
2 - Damper blade
3 - Actuating mechanism cover
4 - Installation flange

For damper the open damper blade overlaps the damper body from dimension D=315
by the value “a” or “a” and “c”. These values are specified in the Tab. 3.2.1.
Values “a” and “c” has to be respected when projecting related smoke exhaust ducts.





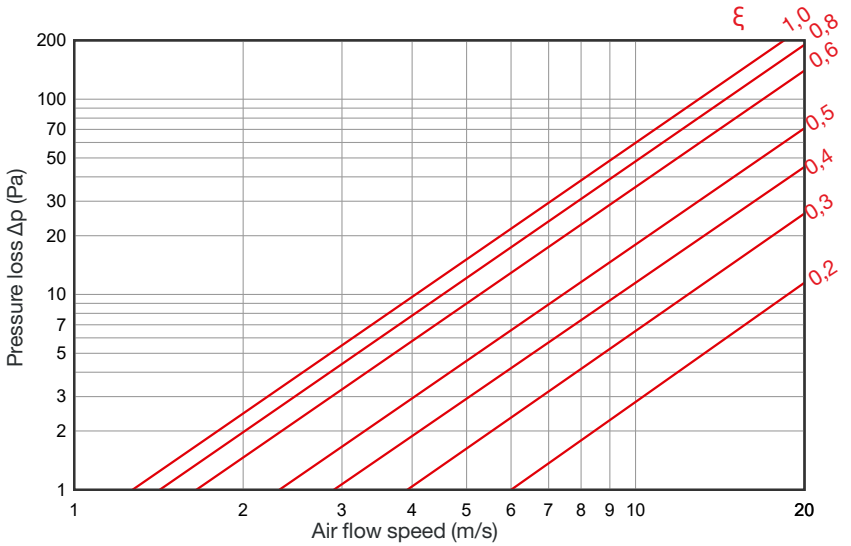
Technical Data

Pressure loss :

$$\Delta p = \xi * \rho * (v^2 / 2)$$

- **Δp** - presure loss (Pa)
- **ξ** - coefficient of local pressure loss for the nominal damper section
- **ρ** - air density (kg/m³)
- **v** - air flow speed in nominal damper section (m/s)

Air density ρ=1,2 kg/m³



Coefficient of local pressure loss ξ (-)									
D	100	125	160	200	250	315	400	500	630
ξ	1,111	0,930	0,760	0,576	0,500	0,381	0,315	0,252	0,182

Noise data

	Nominal size D mm								
	100			125			160		
v (m/s)	V (m³/h)	L_{WA} (dB)	Δp (Pa)	V (m³/h)	L_{WA} (dB)	Δp (Pa)	V (m³/h)	L_{WA} (dB)	Δp (Pa)
3	85	19	6	133	20	5	217	18	4
4	113	26	11	177	27	9	290	25	7
5	141	32	17	221	33	14	362	31	11
6	170	37	24	265	38	20	434	36	16
7	198	41	33	309	42	27	507	40	22
8	226	45	43	353	45	36	579	43	29
9	254	48	54	398	48	45	651	46	37
10	283	50	67	442	51	56	724	49	46

	Nominal size D mm								
	200			250			315		
v (m/s)	V (m³/h)	L_{WA} (dB)	Δp (Pa)	V (m³/h)	L_{WA} (dB)	Δp (Pa)	V (m³/h)	L_{WA} (dB)	Δp (Pa)
3	339	16	3	530	12	3	842	6	2
4	452	23	6	707	20	5	1122	13	4
5	565	29	9	884	26	7	1403	19	6
6	679	34	12	1060	30	11	1683	24	8
7	792	38	17	1237	34	15	1964	28	11
8	905	41	22	1414	38	19	2244	31	15
9	1018	44	28	1590	41	24	2525	34	19
10	1131	47	35	1767	44	30	2806	37	23

	Nominal size D mm								
	400			500			630		
v (m/s)	V (m³/h)	L_{WA} (dB)	Δp (Pa)	V (m³/h)	L_{WA} (dB)	Δp (Pa)	V (m³/h)	L_{WA} (dB)	Δp (Pa)
3	1357	6	2	2121	4	1	3367	2	1
4	1810	14	3	2827	12	2	4489	10	2
5	2262	20	5	3534	18	4	5611	16	3
6	2714	24	7	4241	22	5	6733	20	4
7	3167	28	9	4948	26	7	7855	24	5
8	3619	32	12	5655	30	10	8978	28	7
9	4072	35	15	6362	33	12	10100	31	9
10	4524	38	19	7069	36	15	11222	34	11

Product Marking

SEDS-R - d - .44

Type
SEDS-R - Round smoke extraction damper

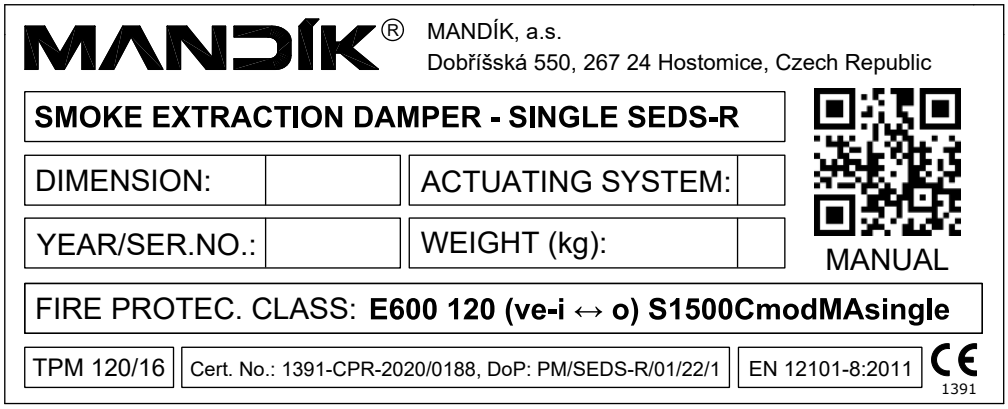
Diameter d
100, 125, 160, 200, 250, 315, 400, 500, 630

Design
.44 - with actuating mechanism BEN 230
.54 - with actuating mechanism BEN 24

Example: SEDS-R 200-.44

Extras: NGM-T Network

Nameplate



Inspection, testing

Laitteen on koonnut ja ennalta säätänyt sen valmistaja. Laitteen toiminta on riippuvainen asianmukaisesta asentamisesta ja hienosäädöstä.

Transporttation and storage

Dampers are transported by box freight vehicles without direct weather impact, there must not occur any shocks and ambient temperature must not exceed +40°C. Dampers must be protected against mechanic damages when transported and manipulated. During transportation, the damper blade must be in the „CLOSED" position.

Dampers are stored indoor in environment without any aggressive vapours, gases or dust. Indoor temperature must be in the range from -30°C to +40°C and maximum relative humidity 95 % (avoid condensation on the damper body). Dampers must be protected against mechanic damages when transported and manipulated.

Packaging, Transport, Acceptance, Storage

Assembly, maintenance and damper function check can be done only by qualified and trained person, i.e. "AUTHORIZED PERSON" according to the manufacturer documentation. All works done on the smoke control dampers must be done according international and local norms and laws

To ensure reliable smoke exhaust damper function it is necessary to avoid blocking the closing mechanism and contact surfaces with collected dust, fibre and sticky materials and solvents.

Manual operation

To ensure reliable smoke exhaust damper function it is necessary to avoid blocking the closing mechanism and contact surfaces with collected dust, fibre and sticky materials and solvents.

Commissioning and revision

Before entering the dampers into operation after assembly and after sequential revisions, checks and functionality tests of all designs including operation of the electrical components must be successfully provided and finished. After entering into operation, these revisions must be done according to requirement set by national regulations.

In case that dampers are found unable to serve for their function for any cause, it must be clearly marked. The operator is obliged to ensure that the damper is put into condition in which it is ready for function and meanwhile he is obliged to provide the fire protection by another appropriate way.

Results of regular checks, imperfections found and all-important facts connected with the damper function must be recorded in the „FIRE BOOK" and immediately reported to the operator.

Before entering the dampers into operation after their assembly and by sequential checks, the following checks must be carried out for all designs:

- Visual inspection of proper damper integration, inside damper area, damper blade, contact surfaces and silicon sealing.
- Opening the inspection hatch: remove the hatch by removing the screws from the corners of the hatch. Then remove the hatch.
- Check of damper blade displacement can be realize after actuating mechanism supply connection or signal connection from higher level control systems. Blade displacement from position "OPEN" to position "CLOSED" and return displacement is checked.

Spare parts

Spare parts are supplied only on the basis of orders.

Placement and assembly

smoke) from single fire compartment according EN1366-9. Smoke extraction dampers single are designed for installation with horizontal blade axis. Backtoback smoke exhaust duct has to be hung or supported so as all load transfer from the backtoback smoke exhaust duct to the damper is absolutely excluded. To provide needed access space to the control device, all other objects must be situated at least 350 mm from the control parts of the damper.

During installation the damper blade must be in position CLOSED. The damper body should not be deformed in the course of installation. Once the damper built in, its blade should not grind on the damper body during opening or closing.

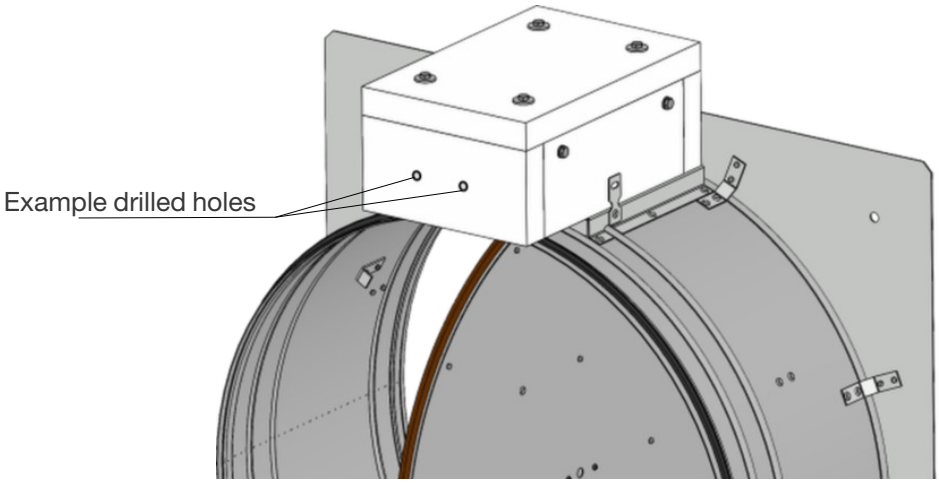
Electrical connections

Protection box without slot or predrilled holes

Procedure:

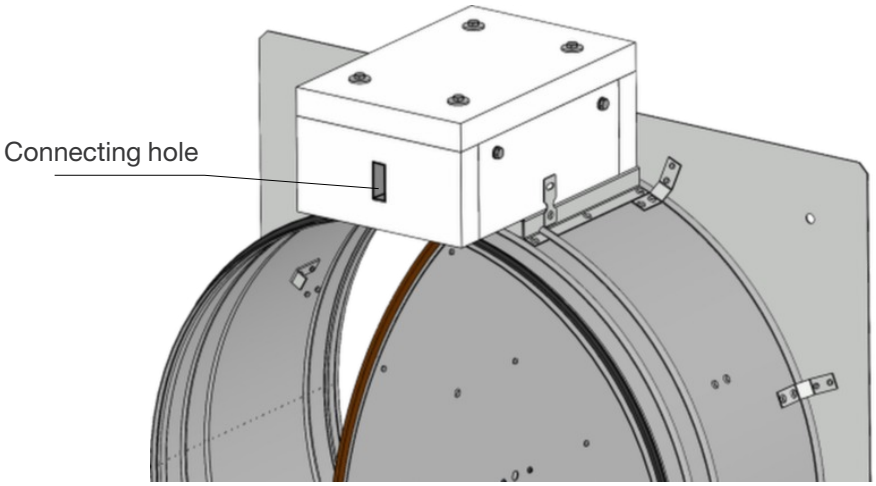
- Drill two holes into the protection box (from outside to inside) and pull through field wiring cables (fire resistant cables) to connect actuator trailing lead. Protection box is made of calcium silicate plates.
- Pull the heat resistant cable through the calcium silicate plate (wall) and connect with cables from actuator acc. to above mentioned electrical diagram.
- Seal up the space around cable with fire resistant mastic (e.g. HILTI CFS-S ACR) or equivalent

Example of position of holes in the wall of the box, without pre-manufactured slot.



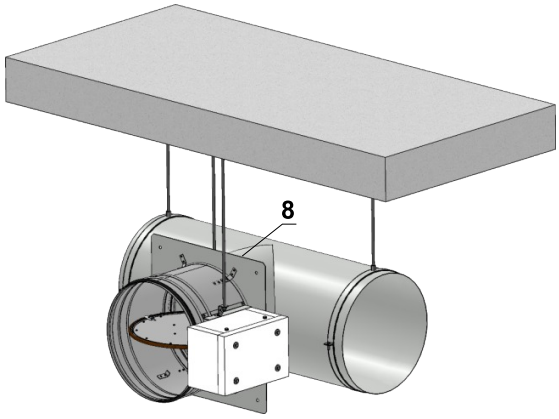
Protection box with slot including intumescent tapes

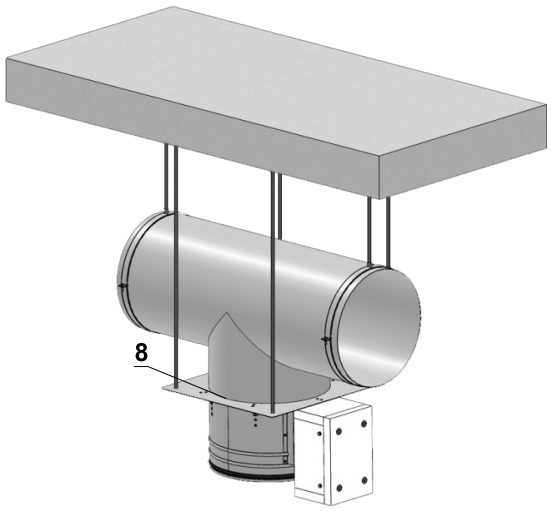
Example of pre-manufactured slot in the insulating box, with intumescent tape inside slot.

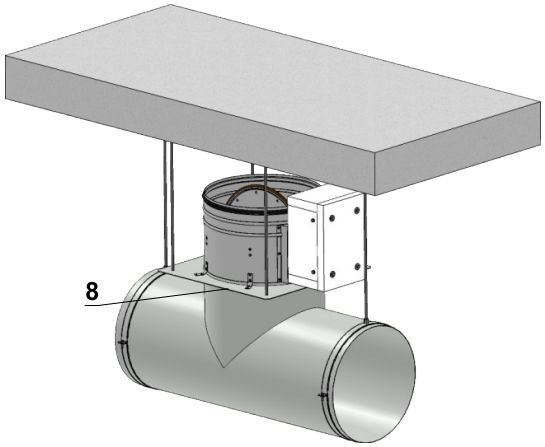


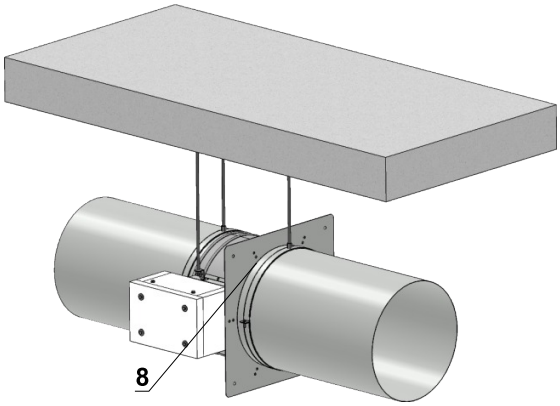
**To connect the actuator, use the prepared hole in the box, which is equipped with intumenscent tape.
If necessary , the hole can be additionally filled with fire-resistant sealant**

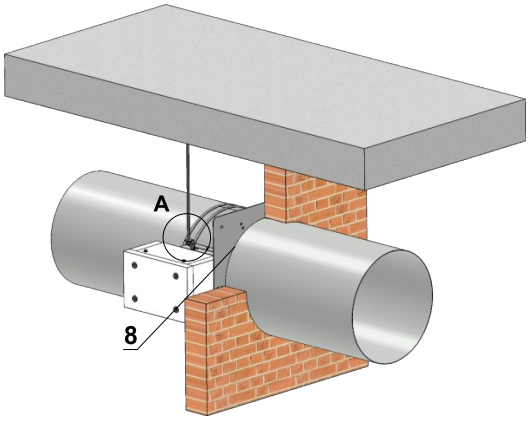
Installtion examples

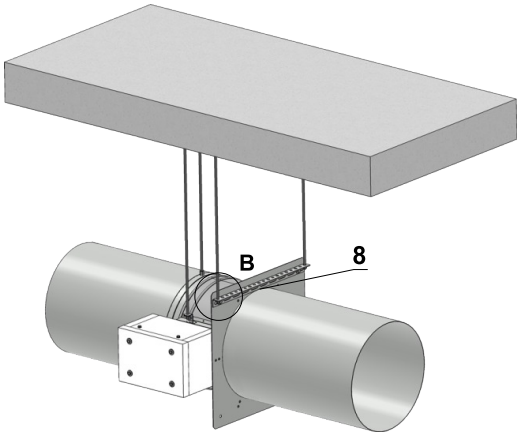








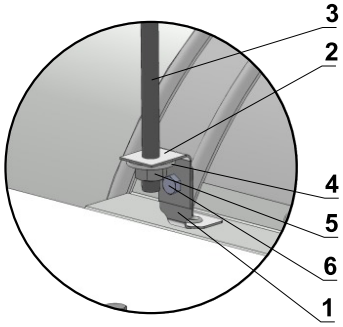




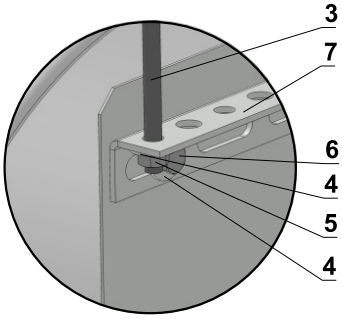
Position:

5 - Damper hinge
6 - Holder L
7 - Threaded rod
8 - Washer
9 - Nut
10 - Screw connection
11 - Profile 30x30
12 - Connection between duct and damper, seal with fire sealant*

Detail A



Detail B



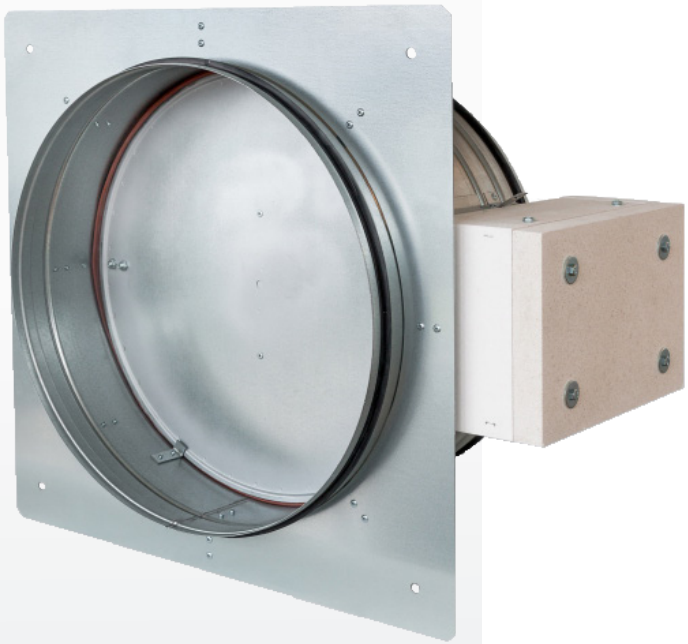
ETS NORD

ETS NORD Suomi

Osoite: Pakkasraitti 4
04360 Tuusula

Puhelin: +358 40 184 2842

info@etsnord.fi
www.etsnord.fi



Let's move the air ***together!***