



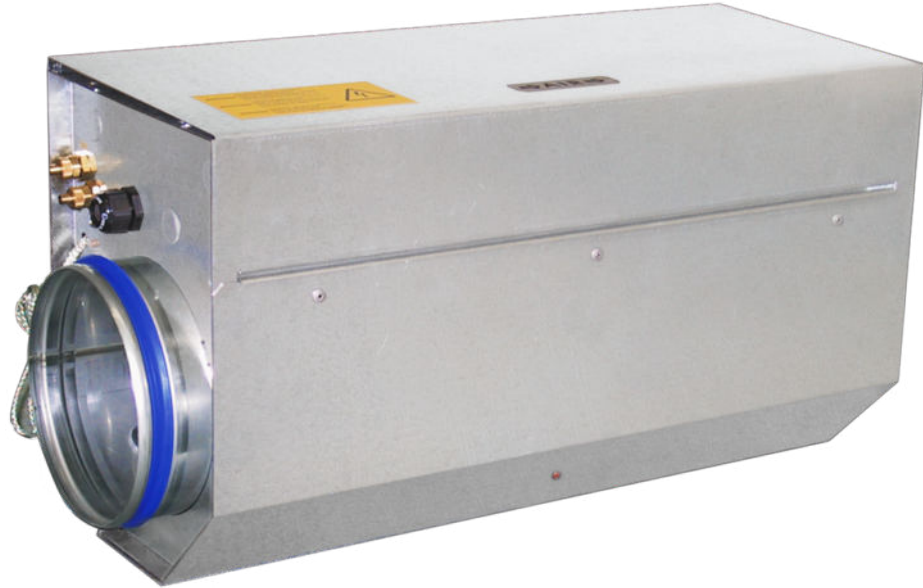
ATEX-compliant parts and units



ATEX certification

# Shut-off dampers

## AK-Ex



### For low-leakage shut-off of volume flows in potentially explosive atmospheres (ATEX)

Circular shut-off dampers for shutting off ducts, approved and certified for potentially explosive atmospheres (ATEX)

- ATEX-compliant construction and parts
- Approved for all gases, mists and vapours in zones 1 and 2, with electric actuator additionally for dusts in zones 21 and 22
- Suitable for supply air and extract air
- Electric or pneumatic actuator
- Any installation orientation
- Closed blade air leakage according to EN 1751, up to class 4
- Casing air leakage according to EN 1751, class C

Optional equipment and accessories

- Spring return actuator
- Auxiliary switch with adjustable switching points for capturing the end positions

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## General information

### Application

- Circular EXCONTROL shut-off dampers Type AK-Ex for shutting off or restricting the airflow in ventilation ducts of air conditioning systems
- For use in potentially explosive atmospheres (ATEX)
- Input signal to control shut-off damper blade is to be provided by others

### Special features

- ATEX mark and certification
- ATEX equipment group II, approved for use in zones 1 and 2; electric actuator also for zones 21 and 22

### Nominal sizes

- 125, 160, 200, 250, 315, 400

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- 125, 160, 200, 250, 315, 400

### Construction

- Galvanised sheet steel
- P1: Inner duct powder-coated, silver grey (RAL 7001)
- A2: Inner duct in stainless steel

### Parts and characteristics

- Ready-to-install shut-off damper
- Damper blade with blade mechanism
- Connection for equipotential bonding
- Cable bushings suitable for use in potentially explosive atmospheres
- ATEX-compliant actuator is factory assembled and wired

### Attachments

- Electronic actuator:
- Auxiliary switch for capturing the end positions
- Pneumatic actuator

### Construction features

- Circular casing
- Construction and materials comply with the EU directive for use in potentially explosive atmospheres (ATEX)
- Spigot with lip seal, for circular connecting ducts according to EN 1506 or EN 13180

### Technical data

- Nominal sizes: 125 – 400 mm
- Acceptable static differential pressure: 1500 Pa

### Standards and guidelines

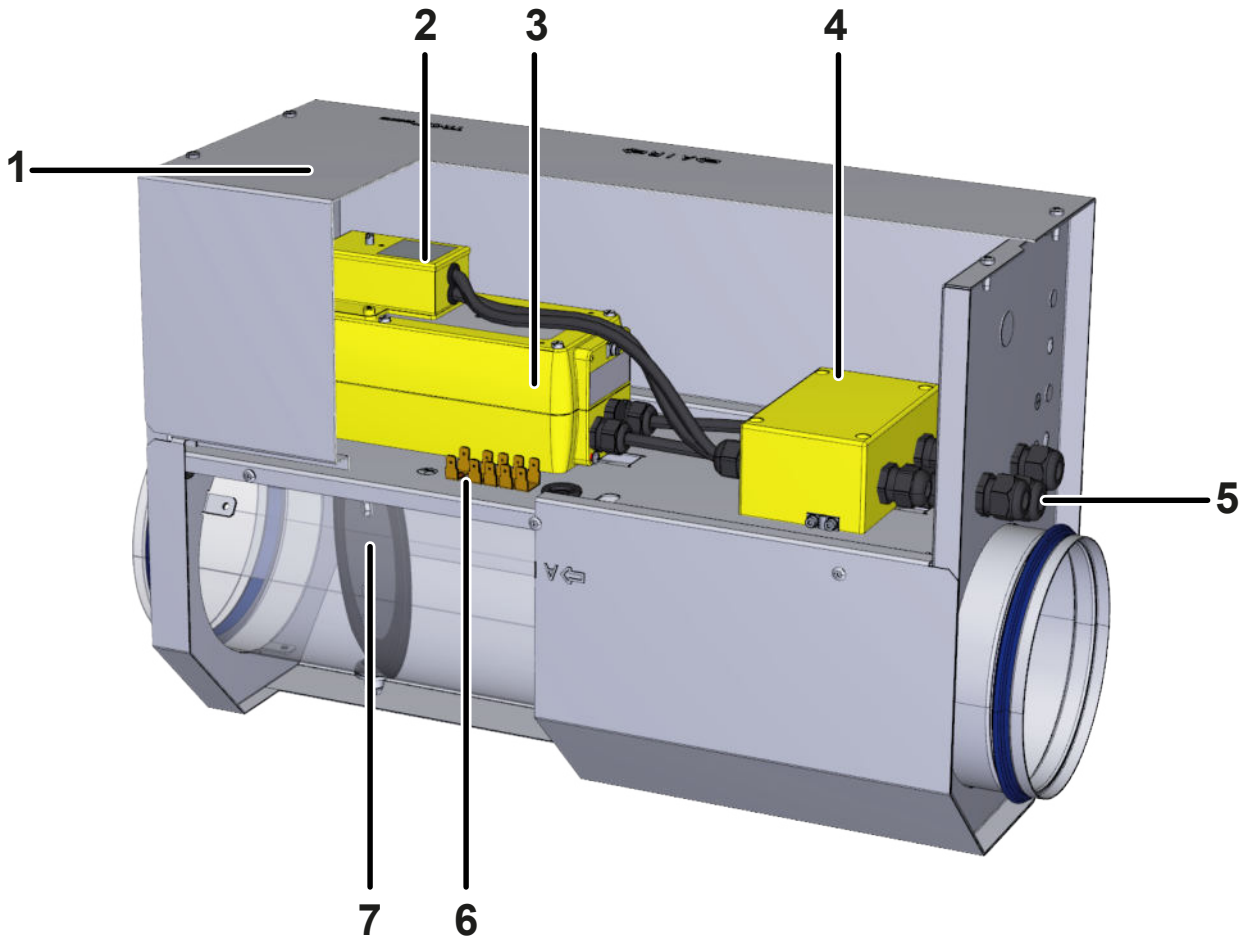
- Directive 94/9/EC: Equipment and protective systems intended for use in potentially explosive atmospheres
- Closed blade air leakage according to EN 1751, class 4 (nominal sizes 125 and 160, class 3)
- Nominal sizes 125 and 160 meet the general requirements, nominal sizes 200 – 400 meet the increased requirements of DIN 1946, part 4, with regard to the acceptable closed blade air leakage
- Casing air leakage according to EN 1751, class C

### Maintenance

- Maintenance-free, as construction and materials are not subject to wear and tear

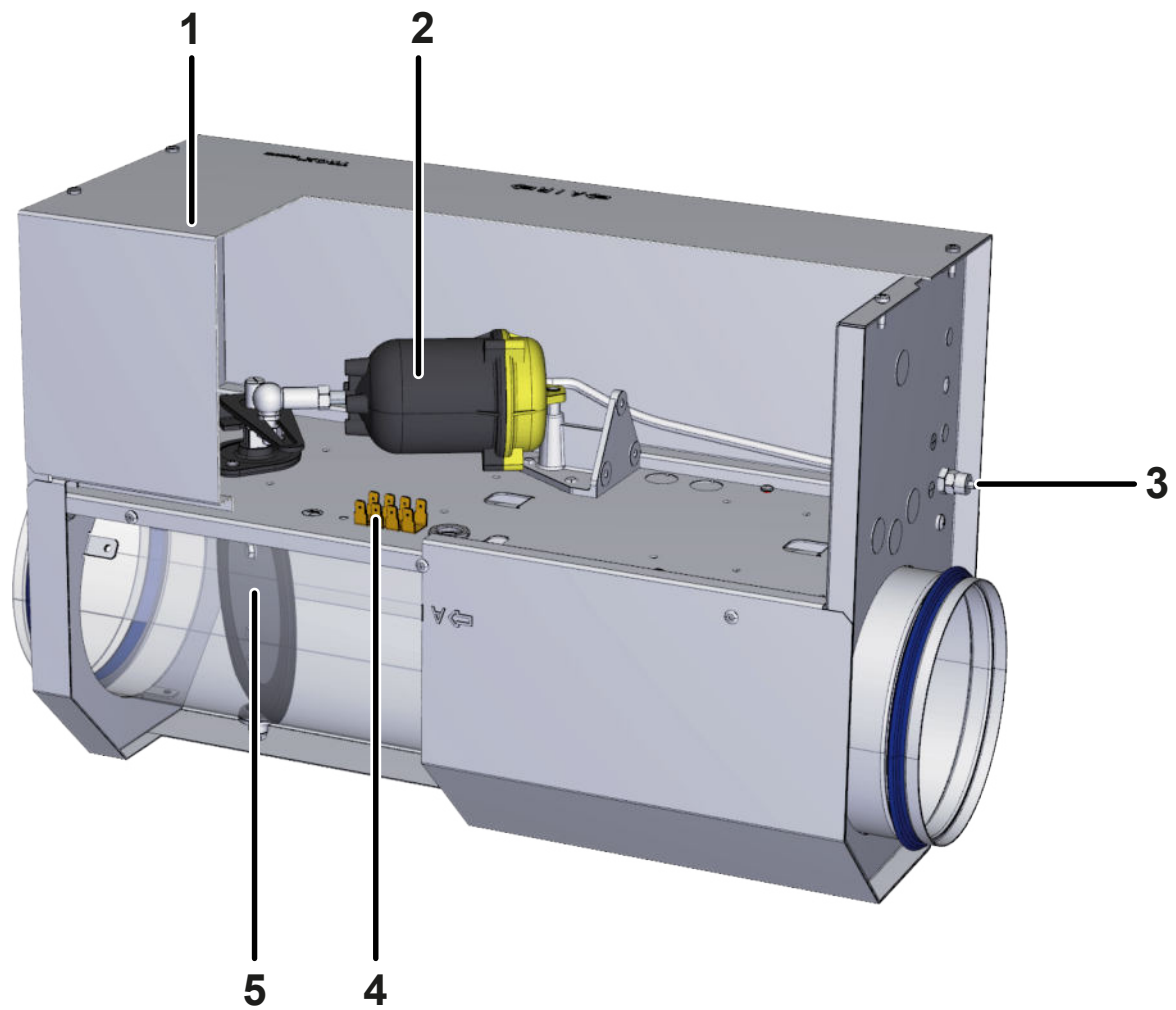
## Function

AK-Ex: schematic diagram - electric damper adjustment (attachments T0D, T0F, T0X, T0Y)



- 1 Access cover
- 2 Auxiliary switch
- 3 Electric actuator
- 4 Terminal box
- 5 Cable gland
- 6 Connection for equipotential bonding
- 7 Damper blade

## AK-Ex: schematic diagram - pneumatic damper adjustment (attachment P50)



- 1 Access cover
- 2 Pneumatic actuator
- 3 Pneumatic control signal connection
- 4 Connection for equipotential bonding
- 5 Damper blade

## Technical data

Nominal sizes	125 – 400 mm
Permissible static differential pressure	1500 Pa
Operating temperature	10 to 50 °C

### Electric

Supply voltage	24 – 230 V AC $\pm$ 10 %, 50/60 Hz
Power rating	120 VA max.
IEC protection class	I (protective earthing)
Protection level	IP 42
EC conformity	ATEX according to 2014/34/EU, EMC according to 2014/30/EU, low voltage according to 2014/35/EU

### Pneumatic

Control pressure	0 – 1.2 bar
Maximum permissible pressure	1.5 bar
Compressed air	compressed instrument air, free of oil, water, and dust
Protection level	IP 42
Air consumption (100 % stroke)	0.3 l/n (nominal size 125 - 250) up to a maximum of 0.5 l/n (nominal size 315 - 400)
EC conformity	ATEX according to 2014/34/EU



## Quick sizing

Quick sizing tables provide a good overview of the room sound pressure levels that can be expected. Approximate intermediate values can be interpolated. Precise intermediate values and spectral data can be obtained with our Easy Product Finder design programme.

### Quick sizing: Static differential pressure and sound pressure levels with open damper blade

NS	$q_v$ [l/s]	$q_v$ [m <sup>3</sup> /h]	Differential pressure	Air-regenerated noise
			$\Delta p_{st}$ [Pa]	$L_{-PA}$ [dB(A)]
125	49	177	5	20
	74	265	12	28
	98	353	21	34
	147	530	46	45
160	80	290	4	18
	121	434	10	26
	161	579	17	32
	241	869	39	40
200	126	452	4	17
	188	679	8	24
	251	905	14	29
	377	1357	32	37
250	196	707	3	16
	295	1060	6	22
	393	1414	11	28
	589	2121	25	37
315	312	1122	2	16
	468	1683	4	24
	623	2244	8	30
	935	3367	18	41
400	503	1810	1	26
	754	2714	3	37
	1005	3619	5	45
	1508	5429	10	58

## Specification text

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design programme.

Circular shut-off dampers for shutting off or restricting the airflow in potentially explosive atmospheres, for supply air or extract air, available in 6 nominal sizes.

Suitable for duct pressures up to 1500 Pa.

Ready-to-install unit consists of the casing with damper blade, and parts for equipotential bonding and for use in potentially explosive atmospheres.

Spigot with lip seal, for circular connecting ducts according to EN 1506 or EN 13180.

Closed blade air leakage according to EN 1751, class 4 (nominal sizes 125 and 160, class 3).

Casing air leakage according to EN 1751, class C.

### Special features

- ATEX mark and certification
- ATEX equipment group II, approved for use in zones 1 and 2; electric actuator also for zones 21 and 22

### Technical data

- Nominal sizes: 125 – 400 mm
- Acceptable static differential pressure: 1500 Pa

### Construction

- Galvanised sheet steel
- P1: Inner duct powder-coated, silver grey (RAL 7001)
- A2: Inner duct in stainless steel

### Technical data

- Nominal sizes: 125 to 400 mm
- Permissible static differential pressure: 1500 Pa

### Sizing data

- $q_v$  [m<sup>3</sup>/h]

Air-regenerated noise

- $L_{PA}$  [dB(A)]



Order code

AK-Ex – P1 / 125 / T0F / NO

1 2 3 4 5

1 Type

AK-Ex Shut-off damper for potentially explosive atmospheres

2 Material

No entry: galvanised sheet steel

P1 Inner duct powder-coated, RAL 7001 (silver grey)

A2 Inner duct in stainless steel

3 Nominal size [mm]

125, 160, 200, 250, 315, 400

4 Actuator

Electric

Order example: AK-Ex-P1/125/T0F/NO

Type	AK-Ex
Material	Inner duct powder-coated, RAL 7001 (silver grey)
Nominal size [mm]	125
Actuator	Spring return actuator
Damper blade position	pressure off/power off to OPEN (Normally Open)

T0S Actuator

T0F Spring return actuator

T0X Actuator with auxiliary switch

T0Y Spring return actuator with auxiliary switch

Pneumatic

P50 Actuator

5 Damper blade position

Only with spring return actuator or pneumatic actuator

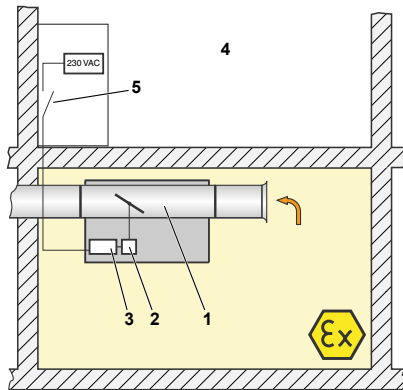
NO pressure off/power off to OPEN (Normally Open)

NC power off/pressure off to CLOSE (Normally Closed)



## Variants

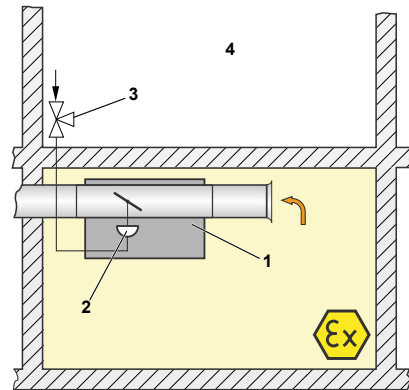
### AK-Ex electrical system diagram



Version with attachment T0S, T0F, T0X, T0Y

- 1 Shut-off damper
- 2 Electric actuator
- 3 Terminal box
- 4 Safe area
- 5 Switch (to be provided by the customer)

### AK-Ex pneumatic system diagram



Version with attachment P50

- 1 Shut-off damper
- 2 Pneumatic actuator
- 3 Valve or control signal 0 – 1 bar (to be provided by the customer)
- 4 Safe area

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AK-Ex, electric actuators

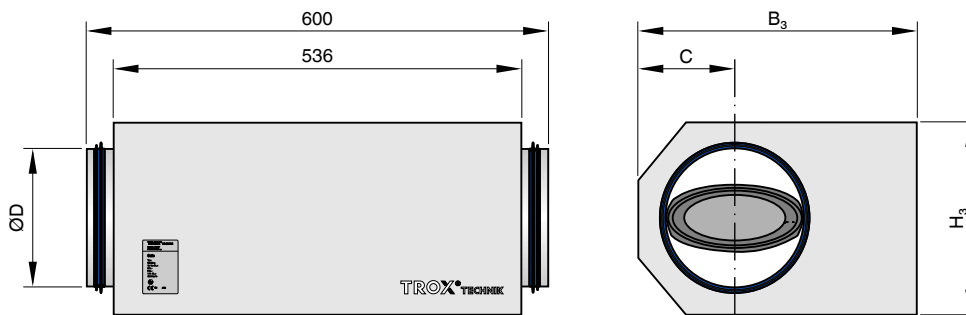
Order code detail	Actuator	Supply voltage	Auxiliary switch
Open/Close actuators			
T0S	Actuator	24 – 240 V AC/DC	–
T0F	Spring return actuator	24 – 240 V AC/DC	–
T0X	Actuator	24 – 240 V AC/DC	2
T0Y	Spring return actuator	24 – 240 V AC/DC	2

AK-Ex, pneumatic actuators

Order code detail	Actuator	Control pressure	Auxiliary switch
P50	Pneumatic actuator	0.2 – 1.2 bar	–

Dimensions and weights

AK-Ex



Dimensions for AK-Ex

NS	$\varnothing D$	$B_3$	$H_3$	C
125	124	372	221	129
160	159	372	221	111
200	199	463	311	182
250	249	463	311	157
315	314	627	461	289
400	399	627	461	246

AK-Ex

NS	AK-Ex/.../T0*		AK-Ex/.../P..
	m [kg]		
125	16.5	15	
160	16.5	15	
200	18	16.5	
250	18	16.5	
315	22	20.5	
400	22	20.5	

## Product details

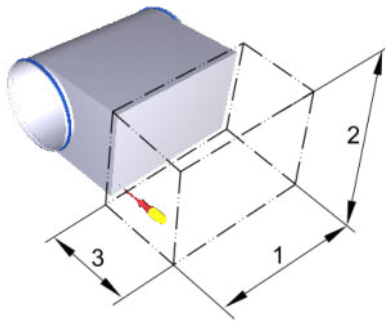
### Installation and commissioning

- Connections for equipotential bonding: Suitable cables must be connected by others
- Any installation orientation

### Space required for commissioning and maintenance

To enable commissioning and maintenance work, keep sufficient installation space free in the area of the appliance cover and the attachments underneath. Inspection openings of sufficient size may be required so that cover and attachments are easily accessible.

### Access to attachments



### Space required

NS	1	2	3
125	600	220	300
160	600	220	300
200	600	310	300
250	600	310	300
315	600	460	300
400	600	460	300

## Explanation

**ØD** [mm]

Shut-off and butterfly valves made of sheet steel:

- Outer diameter of the spigot

Shut-off damper made of plastic:

- Inner diameter of the connecting spigot

**ØD<sub>1</sub>** [mm]

Pitch circle diameter of flanges

**ØD<sub>2</sub>** [mm]

Outer diameter of flanges

**ØD<sub>4</sub>** [mm]

Inside diameter of the screw holes of flanges

**L** [mm]

Length of unit including connecting spigot

**L<sub>1</sub>** [mm]

Length of casing or acoustic cladding

**n** [ ]

Number of flange screw holes

**T** [mm]

Flange thickness

**m** [kg]

Unit weight including the minimum required attachments

**L<sub>PA</sub>** [dB(A)]

A-weighted sound pressure level of air-regenerated noise of the shut-off or flow adjustment damper, system attenuation taken into account

All sound pressure levels are based on 20 µPa.

**q<sub>v</sub>** [m<sup>3</sup>/h]; [l/s]

Volume flow rate

**Δp<sub>st</sub>** [Pa]

Static differential pressure

**Lengths** [mm]; [in]

All lengths are given in millimetres [mm] unless stated otherwise.