



Variant for manual operation



Tested to VDI 6022

Shut-off dampers

AK



For low-leakage shut-off

Circular shut-off dampers for shutting off the airflow in ventilation and air conditioning systems

- Maintenance-free damper blade mechanism
- 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

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

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General information

Application

- Circular shut-off dampers for shutting off or restricting the airflow in ventilation ducts of air conditioning systems

Special features

- Damper blade can be actuated manually, electrically or pneumatically
- Low-leakage shut-off
- Safety function provided by optional spring return actuator

Nominal sizes

- 100, 125, 160, 200, 250, 315, 400

Variants

- AK: Shut-off damper
- AK-FL: Shut-off damper with flanges on both ends

Construction

- Galvanised sheet steel
- P1: Powder-coated, silver grey (RAL 7001)
- A2: Stainless steel

Parts and characteristics

- Ready-to-install shut-off damper
- Damper blade with blade mechanism

Attachments

- Open/Close actuators: For the opening and closing of shut-off dampers in air conditioning systems
- Auxiliary switch for capturing the end positions

Accessories

- Lip seals on both ends (factory fitted)
- Matching flanges for both ends

Technical data

- Nominal sizes: 100 – 400 mm
- Acceptable static differential pressure: 1500 Pa

Material and surfaces

Galvanised sheet steel construction

- Casing and damper blade made of galvanised sheet steel
- Blade seal made of TPE plastic
- Plastic plain bearings TPU

Powder-coated construction (P1)

- Casing made of galvanised sheet steel, powder-coated
- Damper blade made of stainless steel 1.4301
- Shaft made of stainless steel 1.4305

Stainless steel construction (A2)

- Casing and damper blade made of stainless steel 1.4301
- Shaft made of stainless steel 1.4305

Standards and guidelines

- Meets the hygiene requirements of VDI 6022
- Closed blade air leakage to EN 1751, class 4 (nominal sizes 100, 125 and 160, class 3)
- Nominal sizes 100, 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

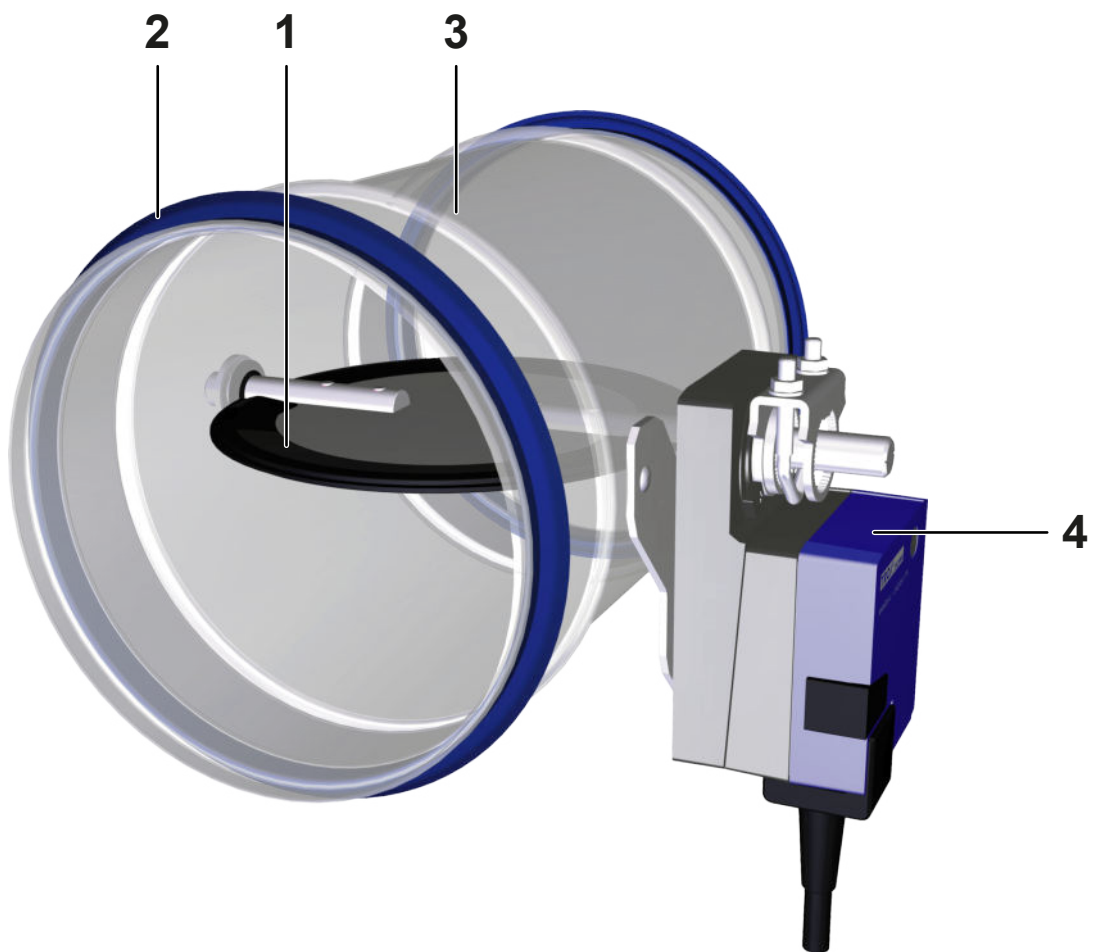
Function

Functional description

For airtight shut-off of volume flows in round air ducts. The basic version is shut off by manually actuating the damper blade. Electrically or pneumatically operated actuators, which are available in different versions, can also be used to operate the damper blade. The versions differ with regard to the power

supply and safety position (de-energised or de-pressurised state). Actuators with auxiliary switches for electrical monitoring of the damper blade position are also available. The actuator of a damper blade must be controlled by a customer-side circuit and then moves the damper blade to the OPEN or CLOSED position.

AK: schematic representation



- 1 Damper blade with sealing profile
- 3 Lip seal
- 3 Casing
- 4 Actuator (optional)



Technical data

Nominal sizes	100 – 400 mm
Permissible static differential pressure	1500 Pa
Operating temperature	10 to 50 °C

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 calculated with our design program Easy Product Finder.

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

NS	q _v [l/s]	q _v [m ³ /h]	Differential pressure	Air-regenerated noise
			Δp _{st} [Pa]	L _{PA} [dB(A)]
100	10	36	5	< 15
	40	144	10	27
	65	234	25	38
	95	342	55	49
125	15	54	5	< 15
	60	216	10	24
	105	378	25	36
	150	540	50	45
160	25	90	5	< 15
	100	360	10	22
	175	630	20	33
	250	900	45	41
200	40	144	5	< 15
	160	576	10	21
	280	1008	20	31
	405	1458	40	39
250	60	216	< 5	< 15
	250	900	5	19
	430	1548	15	29
	615	2214	30	38
315	100	360	< 5	< 15
	410	1476	5	21
	720	2592	15	34
	1030	3708	25	43
400	170	612	< 5	< 15
	670	2412	5	34
	1175	4230	10	50
	1680	6048	15	61

Sizing example

Given data

q_{v,max} = 100 l/s (360 m³/h).

Required sound pressure level in the room 30 dB(A). Δp_{st} = 10 Pa

Quick sizing

AK/160

Air-regenerated noise L_{PA} = 22 dB(A)

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 ventilation ducts of air conditioning systems, for supply air or extract air, available in 7 nominal sizes

Suitable for duct pressures up to 1500 Pa.

Ready-to-install unit which consists of a casing with a damper blade.

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

Position of the damper blade indicated externally at the shaft extension.

Closed blade air leakage to EN 1751, class 4 (nominal sizes 100, 125 and 160, class 3).

Casing air leakage according to EN 1751, class C.

Special features

- Damper blade can be actuated manually, electrically or pneumatically
- Low-leakage shut-off
- Safety function provided by optional spring return actuator

Material and surfaces

Galvanised sheet steel construction

- Casing and damper blade made of galvanised sheet steel

- Blade seal made of TPE plastic

- Plastic plain bearings TPU

Powder-coated construction (P1)

- Casing made of galvanised sheet steel, powder-coated

- Damper blade made of stainless steel 1.4301

- Shaft made of stainless steel 1.4305

Stainless steel construction (A2)

- Casing and damper blade made of stainless steel 1.4301

- Shaft made of stainless steel 1.4305

Construction

- Galvanised sheet steel

- P1: Powder-coated, silver grey (RAL 7001)

- A2: Stainless steel

Technical data

- Nominal sizes: 100 to 400 mm

- Acceptable static differential pressure: 1500 Pa

Sizing data

- q_v [m³/h]

Air-regenerated noise

- L_{PA} [dB(A)]

Order code

AK – P1 – FL / 160 / G2 / BP0 / NO

1	2	3	4	5	6	7

1 Type**AK** Shut-off damper**2 Material**

No entry: galvanised sheet steel

P1 Powder-coated RAL 7001 (silver grey)**A2** Stainless steel**3 Construction**

No entry: standard construction

FL Flanges on both ends**4 Nominal size [mm]****100, 125, 160, 200, 250, 315, 400****5 Accessories**

No entry: without accessories

D2 Double lip seal both ends**G2** Matching flanges both ends**6 Actuator**

No entry: Shut-off damper, manually adjustable

Open/Close actuators

B30 24 V AC/DC, 3-point**B32** 24 V AC/DC, 3-point, with auxiliary switch**B40** 230 V AC, 3-point**B42** 230 V AC, 3-point, with auxiliary switch

Open/Close actuators with safe position

BP0 24 V AC/DC, spring return**BP2** 24 V AC/DC, spring return, with auxiliary switch**BR0** 24 - 240 V AC, 24 - 125 V DC, spring return**BR2** 24 - 240 V AC, 24 - 125 V DC, spring return, with auxiliary switch

Modulating actuators

B20 24 V AC/DC, modulating, 2 – 10 V DC**B22** 24 V AC/DC, modulating, 2 – 10 V DC, with auxiliary switch

Pneumatic actuator with safe position

TN0 Pneumatic actuator 0.2 – 1 bar**7 Damper blade position**

Only with spring return actuator or pneumatic actuator

NO power off/pressure off to OPEN (Normally Open)**NC** power off/pressure off to CLOSE (Normally Closed)**Order example: AK-P1-FL/160/G2/BP0/NO**

Type	AK
Material	Powder-coated RAL 7001 (silver grey)
Construction	Flanges on both ends
Nominal size [mm]	160
Accessories	Matching flanges both ends
Actuator	24 V AC/DC, spring return actuator
Damper blade position	pressure off/power off to OPEN (Normally Open)

Variants

Shut-off damper (AK)



Variant without actuator, manual operation

Shut-off damper (AK)



Variant with electric actuator

Materialien

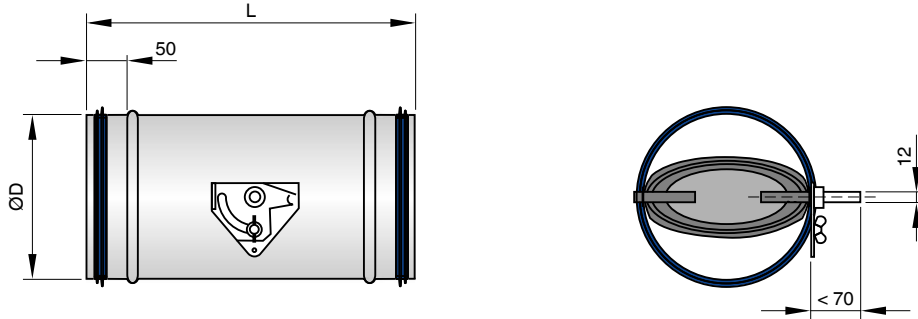
Order code detail	Component	Material
-	Casing	galvanised sheet steel
	Damper blade	galvanised sheet steel
	Blade seal	Thermoplastic elastomer (TPE)
	Shaft	Galvanised steel
	Plain bearings	Thermoplastic polyurethane (TPU)
P1	Casing	galvanised sheet steel
	Damper blade	Stainless steel, material no. 1.4301
	Shaft	Stainless steel, material no. 1.4305
A2	Casing	Stainless steel, material no. 1.4301
	Damper blade	Stainless steel, material no. 1.4301
	Shaft	Stainless steel, material no. 1.4305

Oberflächen

Order code detail	Component	Surface
-	Casing	Untreated
P1	Casing	Powder-coated, RAL 7001, silver grey
A2	Casing	Untreated

Dimensions and weight

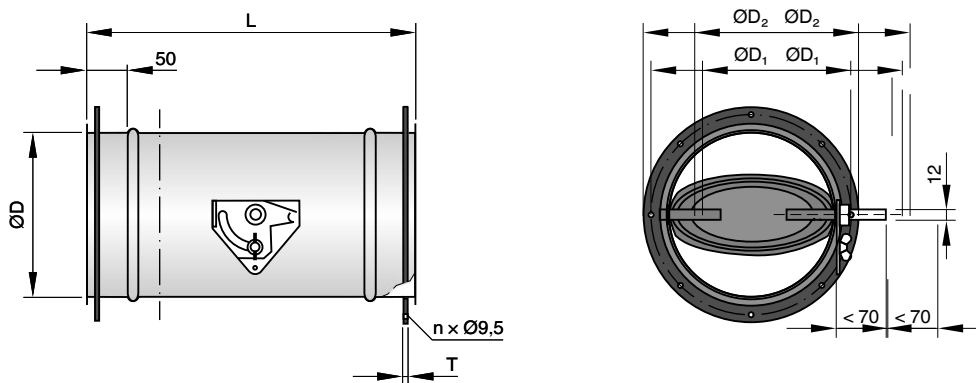
Shut-off damper with spigot (AK)



AK

NS	ØD	L	m [kg]
100	99	250	1.1
125	124	250	1.4
160	159	250	1.8
200	199	250	2.5
250	249	250	3.5
315	314	400	5.1
400	399	400	7.1

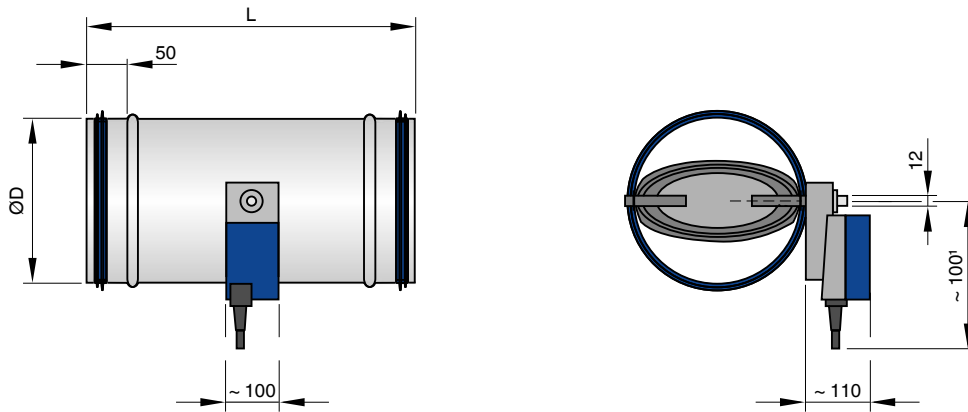
Shut-off damper with flange (AK-FL)



AK-FL

NS	ØD	L	ØD ₁	ØD ₂	n	T	m [kg]
100	99	230	132	152	4	4	1.8
125	124	230	157	177	4	4	2
160	159	230	192	212	6	4	3
200	199	230	233	253	6	4	3.9
250	249	230	283	303	6	4	5.2
315	314	380	352	378	8	4	8.2
400	399	380	438	464	8	4	11

Shut-off damper with spigot - electric actuator (AK / ... / B)**

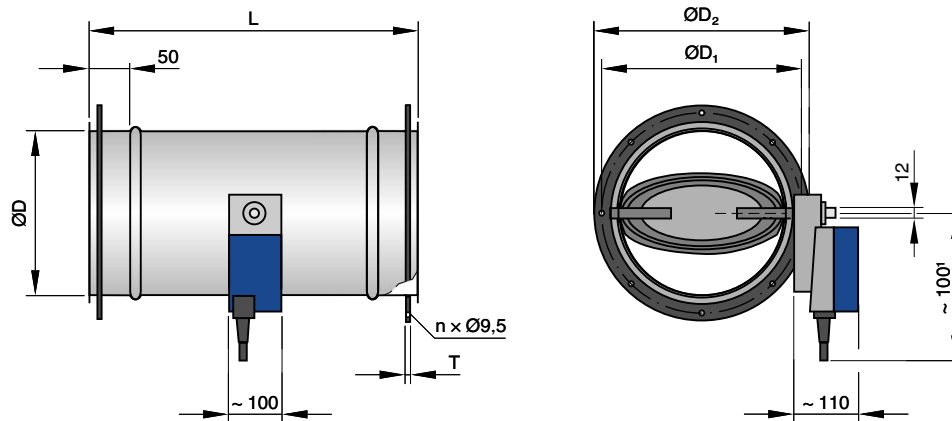


¹ for spring return actuators up to 195 mm

AK / ... / B**

NS	ØD	L	m [kg]
100	99	250	2.6
125	124	250	2.9
160	159	250	3.3
200	199	250	4
250	249	250	5
315	314	400	6.6
400	399	400	8.6

Shut-off damper with flange - electric actuator (AK-FL / ... / B)**

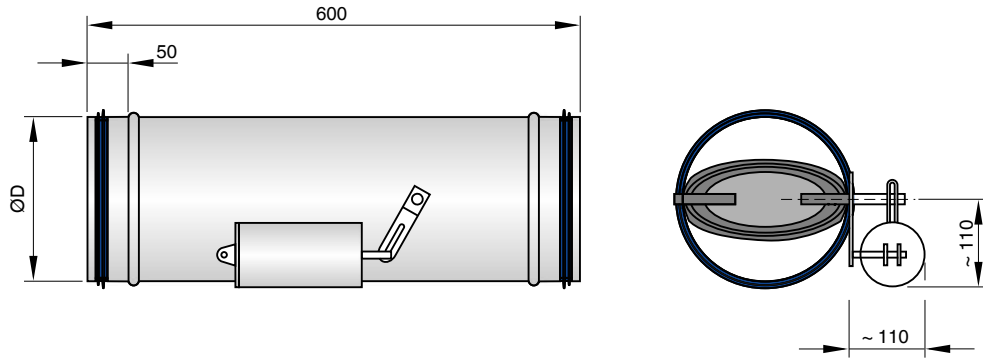


¹ for spring return actuators up to 195 mm

AK-FL / ... / B**

NS	ØD	L	ØD ₁	ØD ₂	n	T	m [kg]
100	99	230	132	152	4	4	3.2
125	124	230	157	177	4	4	3.5
160	159	230	192	212	6	4	4.4
200	199	230	233	253	6	4	5.4
250	249	230	283	303	6	4	6.7
315	314	380	352	378	8	4	9.7
400	399	380	438	464	8	4	12.5

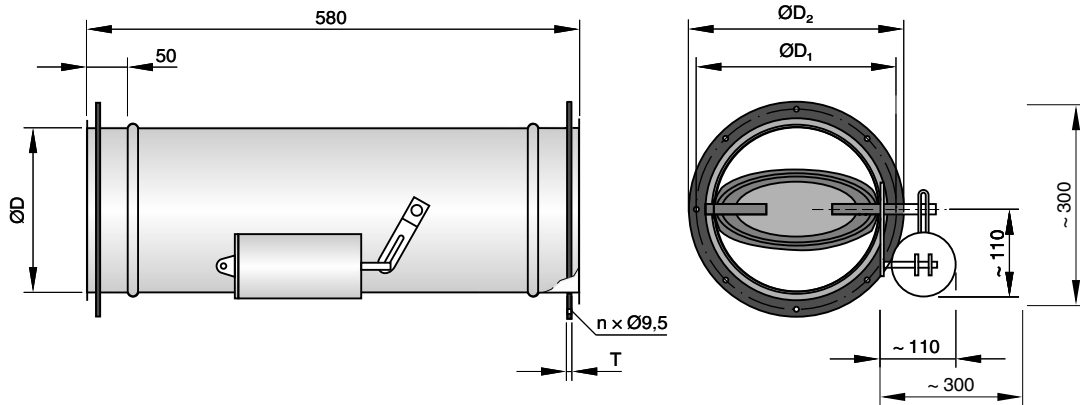
Shut-off damper with spigot - pneumatic actuator (AK / ... / TN0)



AK / ... / TN0

NS	ØD	L	m [kg]
100	99	600	3.3
125	124	600	3.6
160	159	600	4.2
200	199	600	5.1
250	249	600	6.1
315	314	600	7.2
400	399	600	9.4

Shut-off damper with flange and pneumatic actuator (AK-FL / ... / TN0)



AK-FL / ... / TN0

NS	ØD	L	ØD ₁	ØD ₂	n	T	m [kg]
100	99	580	132	152	4	4	3.9
125	124	580	157	177	4	4	4.2
160	159	580	192	212	6	4	5.3
200	199	580	233	253	6	4	6.5
250	249	580	283	303	6	4	7.8
315	314	580	352	378	8	4	10.3
400	399	580	438	464	8	4	13.3

Attachments

AK, electric actuators

Order code detail	Actuator	Supply voltage	Auxiliary switch
Open/Close actuators	Actuator	Supply voltage	Auxiliary switch
B30	Actuator with mechanical stops TROX/Belimo	24 V AC/DC	–
B32	Actuator with mechanical stops TROX/Belimo	24 V AC/DC	2
B40	Actuator with mechanical stops TROX/Belimo	100 – 240 V AC	–
B42	Actuator with mechanical stops TROX/Belimo	100 – 240 V AC	2
BP0	Spring return actuator with mechanical stops TROX/Belimo	24 V AC/DC	–
BP2	Spring return actuator with mechanical stops TROX/Belimo	24 V AC/DC	2
BR0	Spring return actuator with mechanical stops TROX/Belimo	24 – 240 V AC, 24 – 125 V DC	–
BR2	Spring return actuator with mechanical stops TROX/Belimo	24 – 240 V AC, 24 – 125 V DC	2
Modulating actuators			
B20	continuous actuator 0 - 10 V with mechanical stops TROX/Belimo	24 V AC/DC	–
B22	continuous actuator 0 - 10 V with mechanical stops TROX/Belimo	24 V AC/DC	2

AK, pneumatic actuators

Order code detail	Actuator	Control pressure	Auxiliary switch
TN0	Pneumatic actuator Manufacturer: TROX	0.2 – 1.0 bar	–

Product details

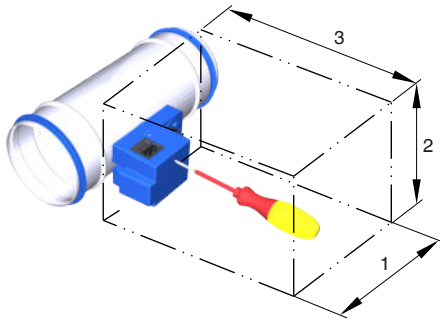
Installation and commissioning

- Any installation orientation

Space required for commissioning and maintenance

Sufficient space must be kept clear near any attachments to allow for commissioning and maintenance. It may be necessary to provide sufficiently sized inspection openings to make sure the attachments are easily accessible.

Access to attachments, mounted on one side



Schematic illustration of required installation space

Space required

Attachments	1	2	3
Without actuator	250	200	200
With electric actuator	200	300	300
With pneumatic actuator	400	300	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

ØD₁ [mm]

Pitch circle diameter of flanges

ØD₂ [mm]

Outer diameter of flanges

ØD₄ [mm]

Inside diameter of the screw holes of flanges

L [mm]

Length of unit including connecting spigot

L₁ [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_{PA} [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_v [m³/h]; [l/s]

Volume flow rate

Δp_{st} [Pa]

Static differential pressure

Lengths [mm]; [in]

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