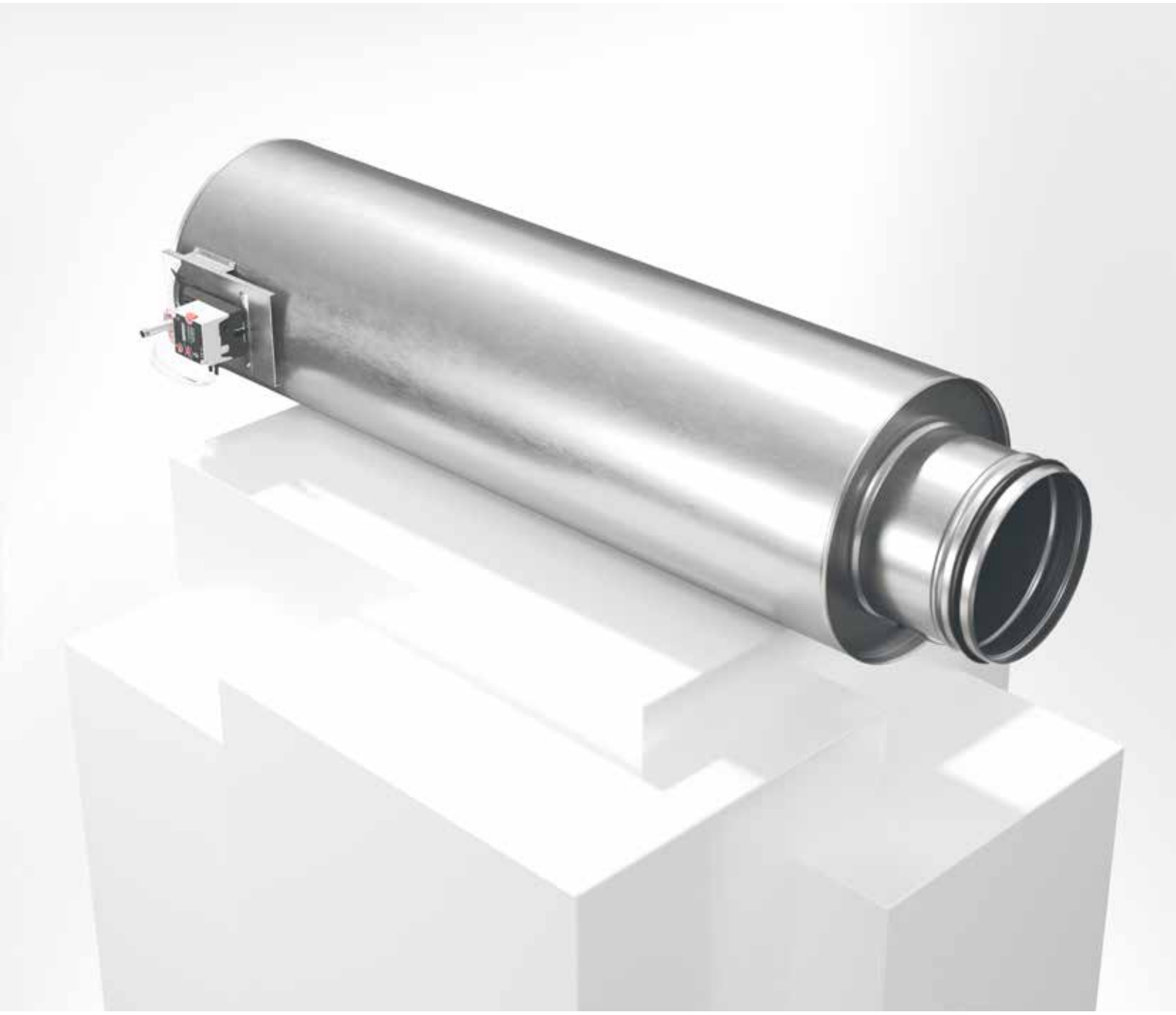
BVAVd-LD

Variable/constant flow device with display and built-in silencer

VAV, CAV & FLOW
MEASURING DAMPERS



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Variable/constant flow device with display BVAVd-LD

Quick facts

- Sizes Ø125 mm to Ø400 mm
- Supply air and exhaust air versions
- Integrated straight duct
- Low min. air flow
- Display showing current air flow
- Max. and min. air flow can be set on site
- Calibrated before delivery
- Available in MagiCAD

Use

The BVAVd-LD is an electronically variable/constant flow device with a built-in silencer. The unique design of the unit means that no straight duct is necessary before the unit, thus allowing it to be fitted immediately after a bend or union piece. The BVAVd-LD is available in supply air and exhaust air versions.
BVAVd-LD is based on our well-tried air flow device with actuator eFLOW, with regulator, pressure sensor and display. The regulator has a wider working range that allows you to choose a low min. air flow. The display shows current air flow, but also max. and min. air flow settings, actual value output etc. Max. and min. settings can be made directly on the actuator with built-in potentiometers. BVAVd-LD can be used for variable air flow with 2-10V alt. 0-10V control signal or for constant air flow.
BVAVd-LD is provided with a built-in silencer. This provides several advantages that simplify both project planning and installation. The silencer part is fitted internally with a baffle and a cleanable, type approved surface layer Protec®.

Material, surface treatment

BVAVd-LD is manufactured as standard of galvanized steel plate. The absorption material consists of mineral wool with a type approved surface layer, Protec®. The measuring tube is manufactured in extruded aluminium. BVAVd-LD can also be provided with a lacquered finish.
The device is delivered as standard in pressure class A and air tightness class 2. Casing and parts in hot galvanised sheet steel as per environmental class C3.

Specification

Example:
Variable/constant air flow device with display and built-in silencer BVAVd-LD - 1 - 200 - 200/50

Version:
Supply air = 1
Exhaust air = 2

Size:
Ød, as per size table

Set air flow:
Max/Min air flow l/s

NOTE! If the devices are to be used as master/slave, this must be specified.

Tillbehör
Union piece
Air quality sensor aSENSE VAV
Timer TEL
Summing unit eSUM

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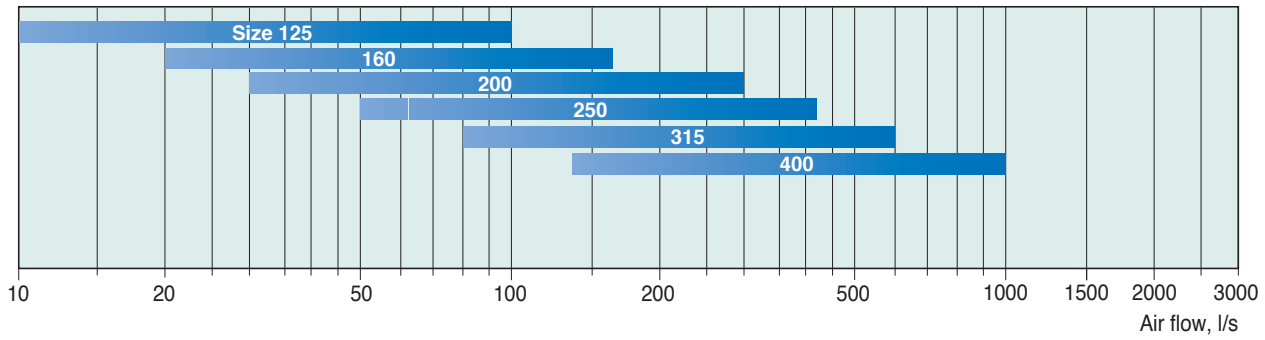
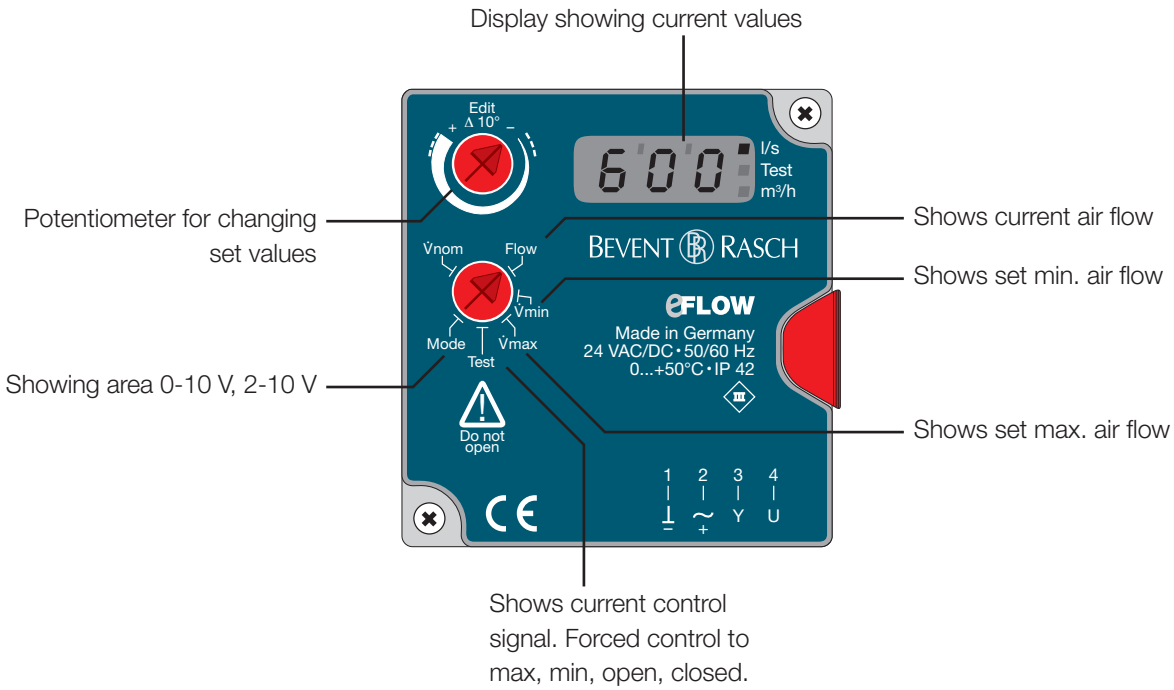
Flow range BVAVd-LD

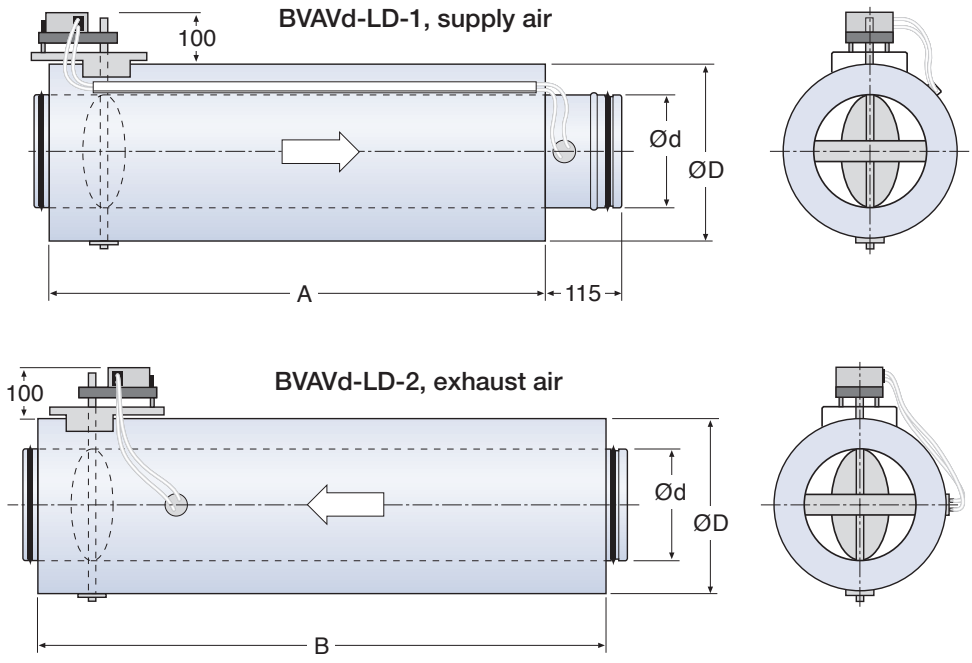


Air velocity below 1.5 m/s = unsafe area

BVAVd-LD with useful functions



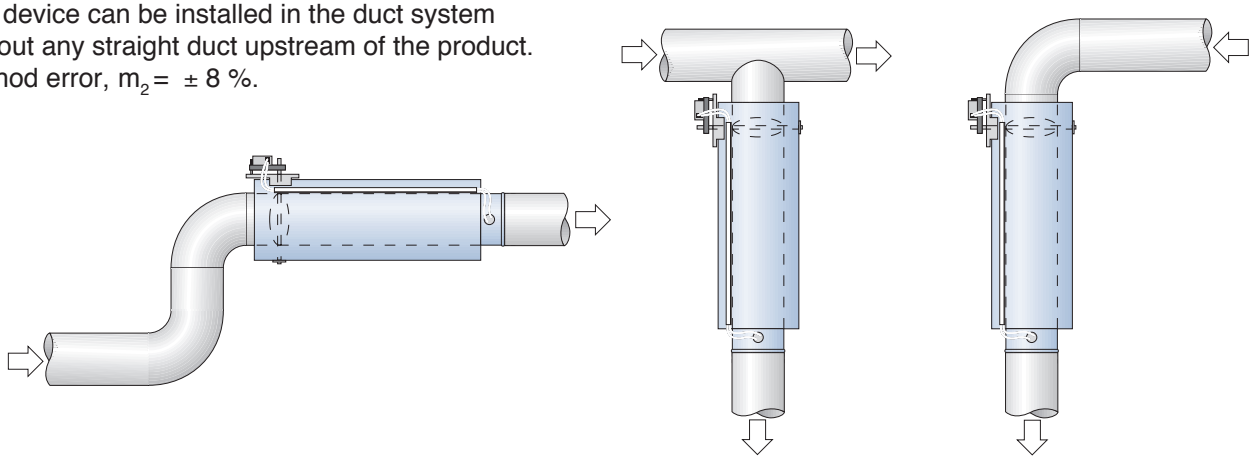
Size and weight



Size Ød	ØD	A	B	Weight kg LD-1	Weight kg LD-2
125	245	870	1250	10	12
160	280	870	1250	11	13
200	320	870	1250	12	15
250	370	870	1250	16	18
315	435	1250	1400	25	27
400	520	1250	1550	31	36

Installation

The device can be installed in the duct system without any straight duct upstream of the product. Method error, $m_2 =$ ± 8 %.



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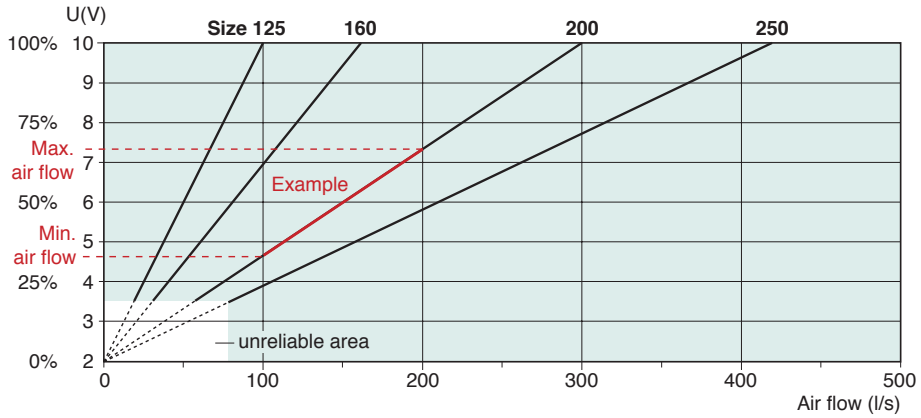
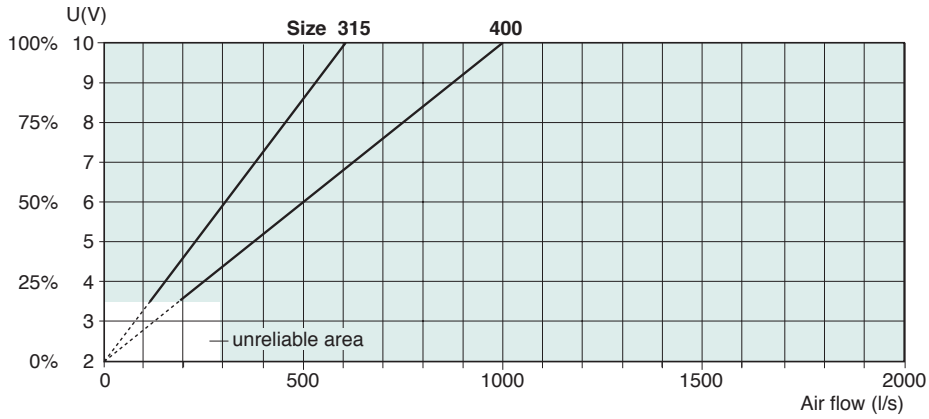
Air flow areas

The diagrams show the relationship between nominal flow and the output signal (U_5) for each size.

Size 125-250



Size 315-400



Operation range

Size	Nom. air flow l/s	Settable air flow range l/s
100	70	10-70
125	100	10-100
160	160	20-160
200	300	30-300
250	420	50-420
315	600	80-600
400	1000	140-1000

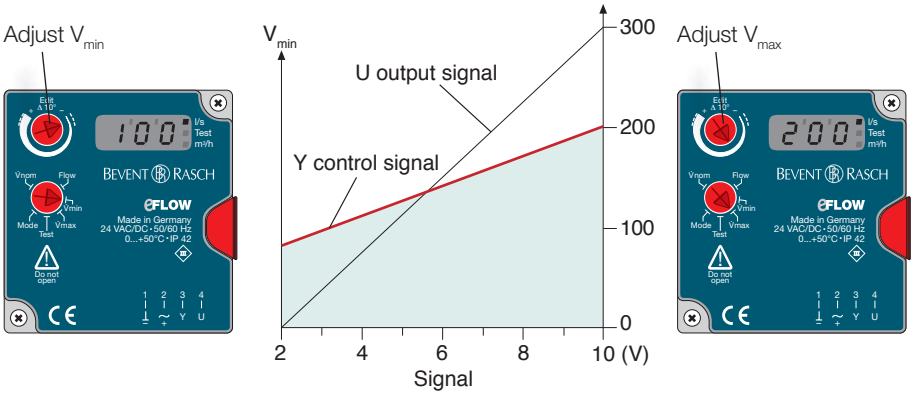
With min. air flow below the recommended min. air flow, the measuring uncertainty increases.

Example:

Prerequisites:

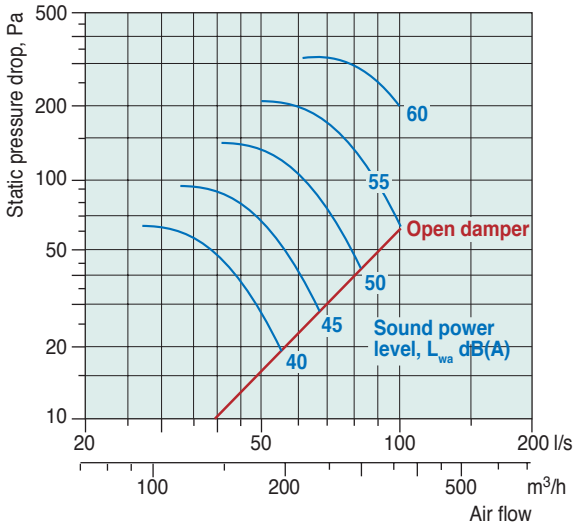
– Air flow, max. 200 l/s, min. 100 l/s
  Size 200

Nom. air flow = 300 l/s
(calibrated before delivery)
Max. air flow = 200 l/s
Min. air flow = 100 l/s
The output signal U is not affected by V_{max} and V_{min} settings.

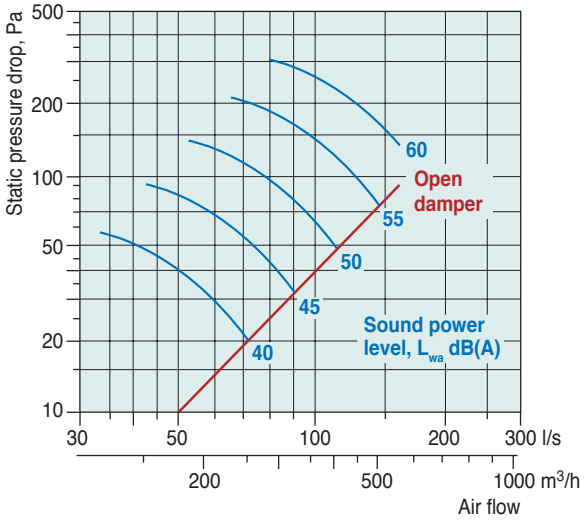


Size chart

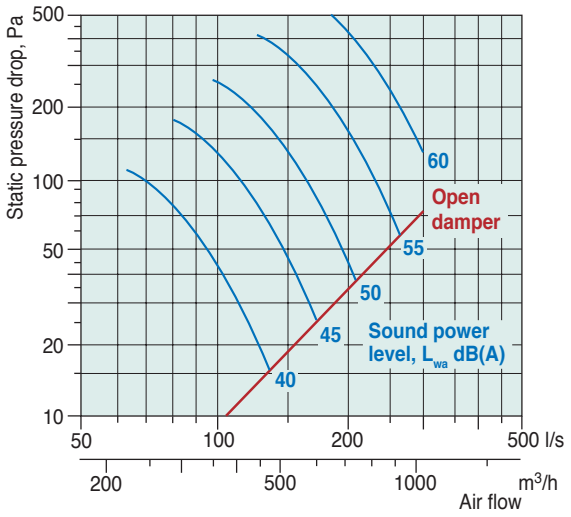
Size 125



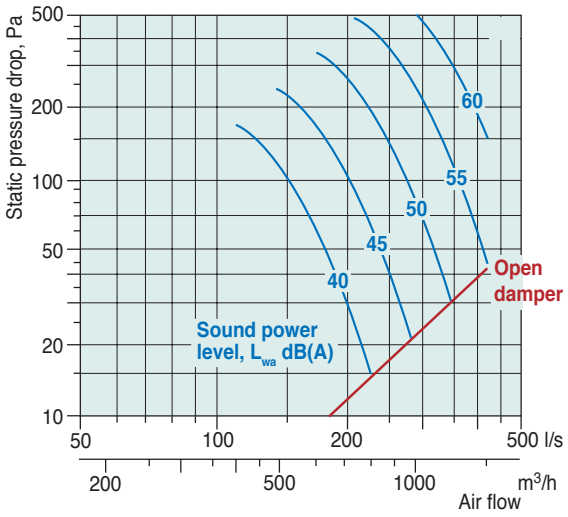
Size 160



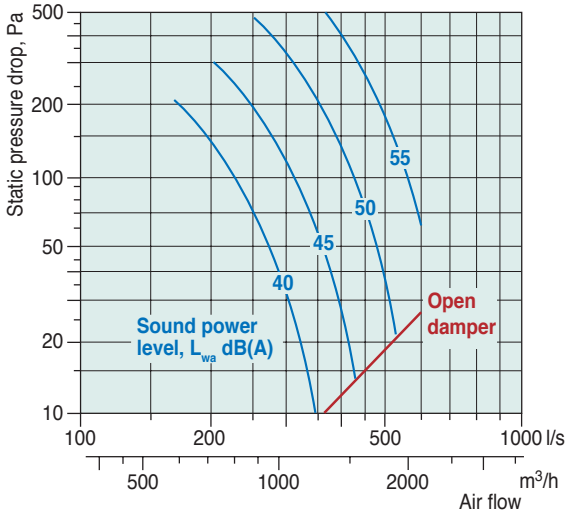
Size 200



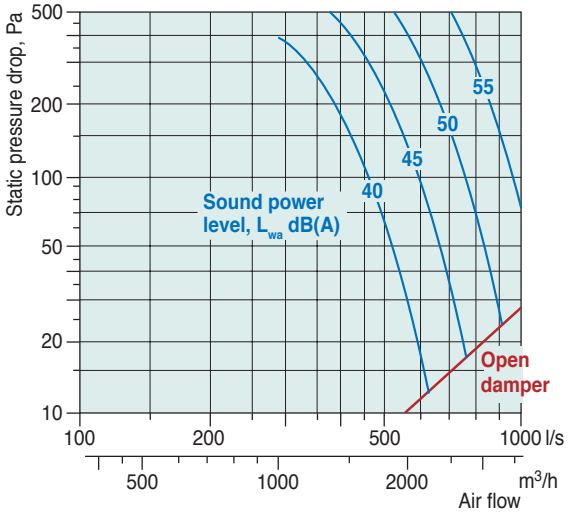
Size 250



Size 315



Size 400



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Sound data

Correction of sound power level, L_{Wok}, in octave band
$L_{wok} = L_{wa} + K_{ok}$

Correction, K_{ok}

Size Ød	Mid frequency Hz						
	125	250	500	1K	2K	4K	8K
125	10	-1	-5	-11	-14	-12	-24
160	8	0	-3	-9	-11	-9	-20
200	5	0	-4	-10	-11	-9	-20
250	9	2	-4	-11	-16	-13	-27
315	10	3	-5	-11	-16	-14	-28
400	12	4	-6	-11	-17	-15	-30

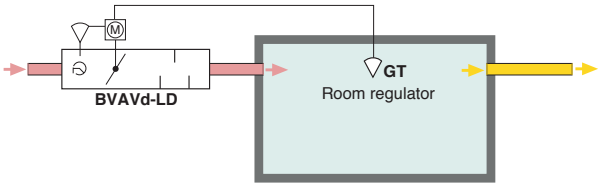
Insertion loss

Size Ød	Insertion loss in octave band dB. Mid frequency Hz							
	63	125	250	500	1K	2K	4K	8K
125	6	7	15	24	36	43	25	13
160	4	6	14	25	40	44	24	14
200	5	9	16	26	37	46	26	17
250	7	8	19	28	41	51	33	23
315	6	7	13	25	40	51	31	21
400	5	6	11	20	29	45	22	18

Installation examples

Alt. 1. Installation of separate VAV devices

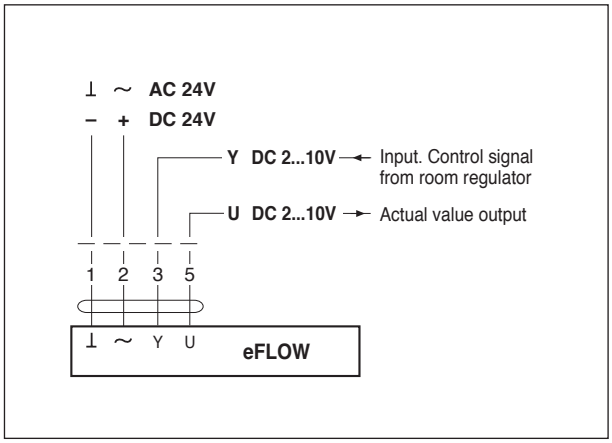
The control signal from the room regulator or DUC, controls the VAV-device. The actual value signal can be forwarded for external monitoring of the actual flow.



CAUTION! When connecting several VAV devices to the same transformer, it is important that all system phases are connected to (~) and all system neutrals are connected to (⊥).

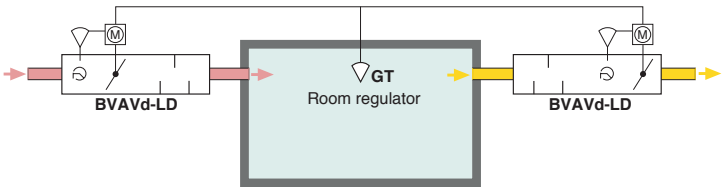
Wiring diagram

eFLOW



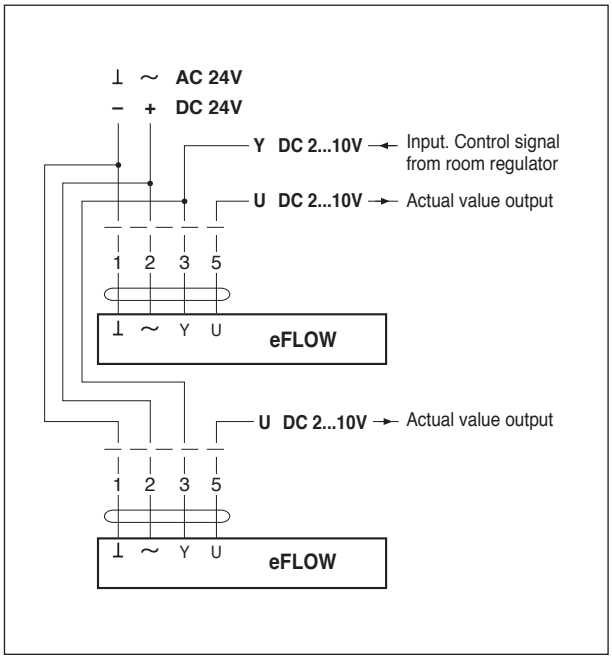
Alt. 2. Supply and exhaust air are controlled in parallel

The control signal from the room regulator or DUC, controls the supply air and exhaust air devices in parallel. The air flow for the devices can be set individually. The output signals from each device can be forwarded for external monitoring of the actual flow.



Wiring diagram

eFLOW

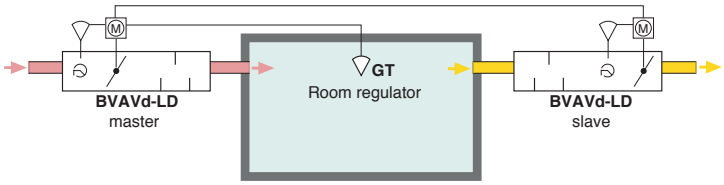


Electrical data eFLOW actuator

Supply voltage:	24V AC/DC ±20% 50/60Hz
Effect:	3 W (5 VA)
Sound level:	35 dB(a)
Ambient temperature:	0°C - 50°C
Running time:	120 sec.

Alt. 3. The exhaust air is slave controlled by the supply air

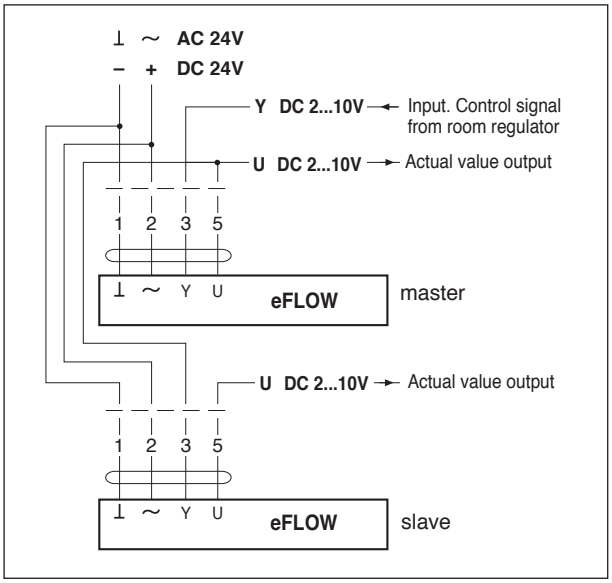
The control signal from the room regulator or DUC, controls the supply air device (BVAV master). The exhaust air device (BVAV slave) is controlled by the supply air device's control signal (U5 output). The slave follows the master. The flow relationship between slave and master is dependent on the set maximum flow of the slave (normally 100%). The output signal from each device can be forwarded for external monitoring of the actual flow.



This setting option must be made known before delivery of the VAV devices.

Wiring diagram

eFLOW



Alt. 4. Constant supply air flow

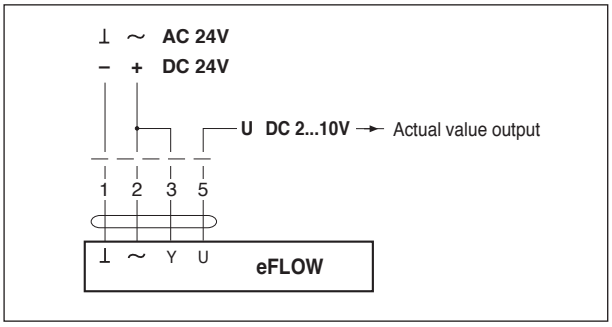
The VAV device maintains a constant flow that is preset at the factory, which is why the device is not normally controlled by any external control signal. The output signal can be forwarded for external monitoring of the actual flow. The VAV device can be mechanically operated for a range of operational alternatives.

Constant supply air flow, basic or forced flow

A timer or monitor controls the supply air device (BVAV) to force the supply air to a constant set max. flow when the room is used. When the room is not in use the BVAV device works with the basic flow.

Wiring diagram

eFLOW

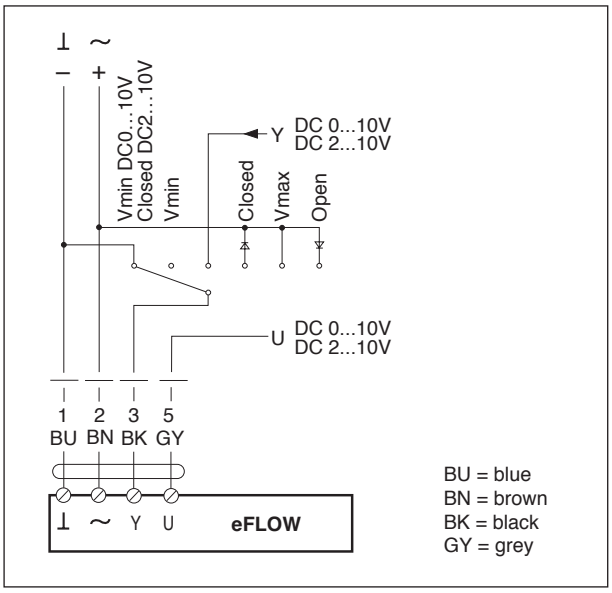


Control functions for eFLOW-actuator

By using contact functions the supply air device (BVAVd) can be controlled to closed, min. flow, variable flow, intermediate position, and max. flow and fully open.

Wiring diagram

eFLOW



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