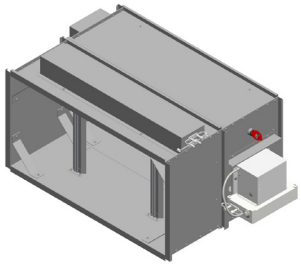
Product description

DCV-BL – Airflow control unit

FBL Version B03 with actuator DA4/8

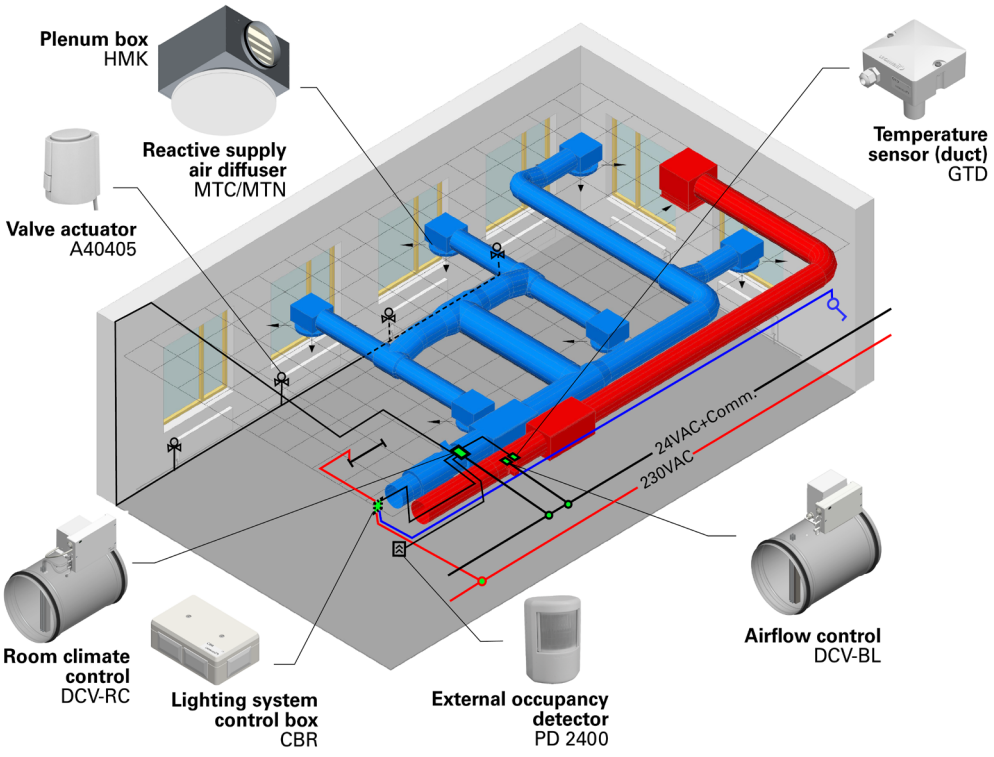
DCV-BL circular - Controller FBL and damper actuator mounted on a circular damper with measuring flange.



DCV-BL rectangular - Controller FBL and damper actuator mounted on a rectangular damper with an attached rectangular measuring flange.

DCV-BL

Airflow control unit



Office landscape with DCV-RC.

Product description

DCV-BL – Airflow control unit

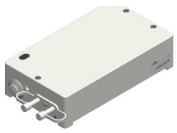
FBL Version B03 with actuator DA4/8

Contents Page

Products included (circular or rectangular design)

The products below are included in DCV-BL. The damper and the measuring flange are for either a circular or a rectangular duct.

Airflow controller FBL
- Internal flow sensor
- CAN connection
- Inputs and outputs for equipment/functions
- Pre-mounted in circular design

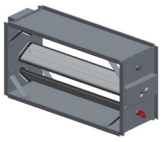


Controller FBL

Circular damper with measuring flange SPMF
- Measuring flange with double measurement points
- Throttle damper with full damper blade
- Pre-mounted with controller FBL and damper actuator

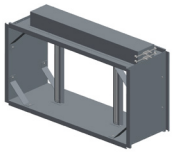
Circular damper SPMF

Rectangular damper JSPM
- Louvre damper
- Supplied separately



Rectangular damper JSPM

Rectangular measuring flange SMRD
- Measuring flange with double measurement points
- Supplied separately



Measuring flange SMRD

Damper actuator DA4 or DA8
- Supplied pre-mounted in circular design (DA4)
- Supplied separately with rectangular design (DA4 or DA8 depending on damper size)

Damper actuator DA4 (DA8)

Product description

DCV-BL – Airflow control unit

FBL Version B03 with actuator DA4/8

Introduction DCV-BL

DCV-BL is a smart damper and measuring unit used for fast and accurate airflow balance between supply and extract air or for constant airflow control.

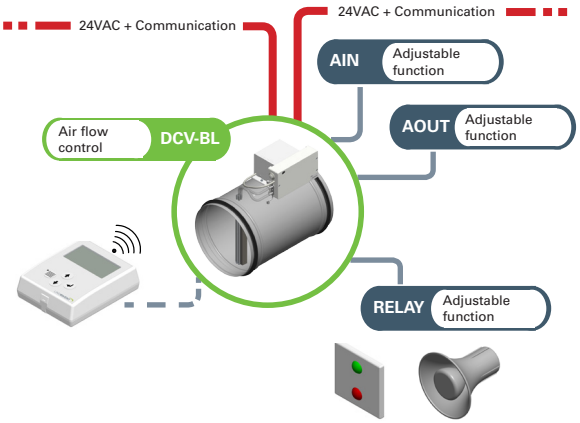
DCV-BL circular (Ø125-500) is supplied factory-assembled. For other sizes the damper, the measuring flange and the damper actuator with controller are supplied separately. DCV-BL is in the database for MagiCAD.

Function

- Can measure, add and balance the airflow from specific nodes, e.g., active devices, via CAN protocol. This brings great flexibility when designing systems as there is no need to take account of where the supply air is coming from. See the functional chart with DCV-BL on page 2.
- Can create an airflow zone covering up to 100 units (e.g. active devices and airflow controllers).
- Can add positive or negative offset to the airflow.
- Can be operated using a slave function. This function allows the total balanced airflow to be distributed over several ducts.
- Can be operated to keep a specific airflow constant.
- Can be connected via node ID to a communication loop (CAN) for access to and communication with other concurrent nodes or systems via LINDINTELL or Gateway NCE with ModbusTCP/RTU.
- The controller has a great number of parameters that can be read and controlled from LINDINTELL/LINDINSPECT via CAN.

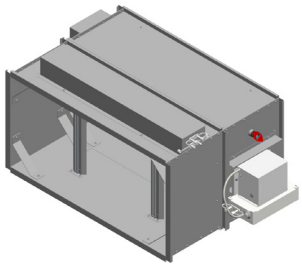
Connections for input and output signals

Many types of equipment/functions can be connected to the controller. If exchange to a superior system is desired but not possible via Modbus, a number of functions can be defined for the controller's inputs and outputs.



Connection diagram DCV-BL Circular. The controller is connected to a voltage feed and communication loop via Lindinvent's standard cable with two conductors for voltage feed and two twisted-pair conductors for communication.

DCV-BL circular - Controller FBL and damper actuator mounted on a circular damper with measuring flange.



DCV-BL rectangular - Controller FBL and damper actuator mounted on a rectangular damper with an attached rectangular measuring flange.

User interface

- Server with LINDINTELL/LINDINSPECT via CAN.
- Direct login on the controller via DHP hand unit (IR or wired communication)
- Direct login on the controller using FLOCHECK P (wired communication)
- Digital Room Panel DRP
  (A limited subset of variables made available using wired communication over CAN)

LINDINTELL/LINDINSPECT

LINDINTELL is the software package that is installed on a central server. The software coordinates all optimisation and monitoring functions in Lindinvent's system for climate control and protective ventilation. LINDINTELL has functions for optimisation, oversteering and free programming.

LINDINSPECT is a Web interface that has been developed to be used with LINDINTELL.

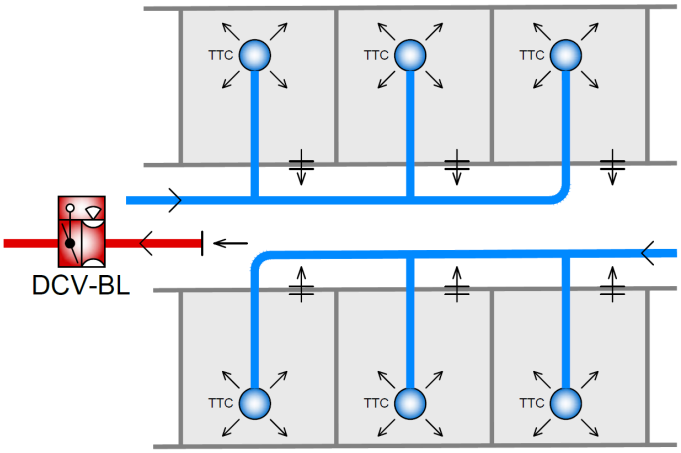
Simplified start-up

DCV-BL is supplied factory calibrated. A simplified start-up process is available. Initially you have to select operation mode. If you stay with the default settings the required remaining inputs are: Duct diameter (or the C-factor) and location on either the supply or extract air duct.

DCV-BL – Airflow control unit

FBL Version B03 with actuator DA4/8

Functional chart with DCV-BL



Flow balancing (corridor)

Cell offices with supply air via active diffusers and extract air via over air to a common corridor.

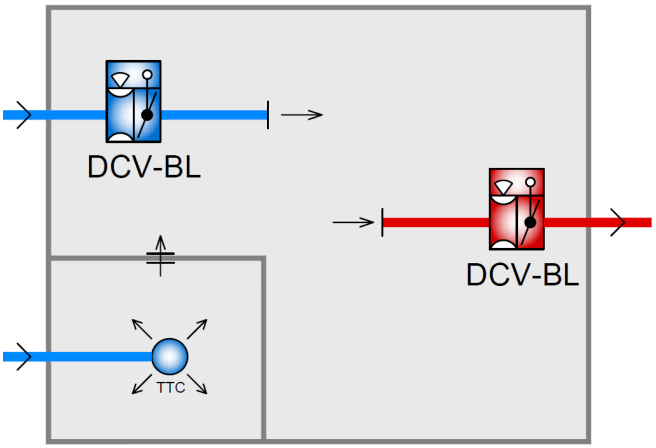
Active roof mounted supply air diffussers:

- Individually controls the climate in each office according to setpoints.
- Announces current supply air flow to interoperable nodes.
- The supply air diffusers in a specific flow area can be operated from different supply air ducts.

DCV BL:

- Measures the extract air flow rate from the corridor.
- Maintains the desired balance of air flow by increasing or decreasing the extract air flow from the corridor.

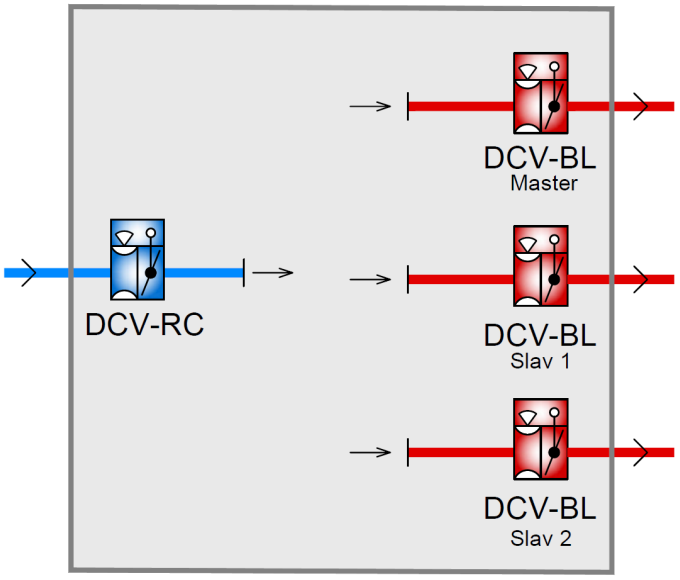
DCV-BL is commissioned for airflow balancing.



Constant flow control and flow balancing

DCV BL:

- DCV-BL operated for constant flow control on a supply air duct.
- DCV-BL operated for flow balancing of the total constant and variable supply airflow.



*Concurrent flow balancing, several extract air ducts**

DCV-BL:

- DCV-BL [Master] measures its own flow and sums this up with the exhaust air measured by Slave 1 and Slave 2
- DCV-BL[Slave1] and [slave2] are both operated to act as slave to DCV-BL[Master].
- DCV-BL [Master] reads the supply air flow communicated via DCV-RC and regulates the extract air via its own and the slave units' dampers to maintain the desired balancing.

DCV-RC:

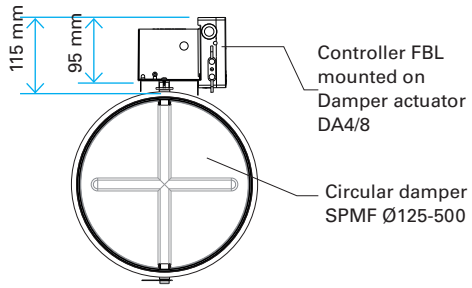
- Is measuring the supply air flow rate.
- On demand controls the supply air via damper.

Note: For premises that are supplied by several variable supply air ducts, see the product description for DCV-RC.

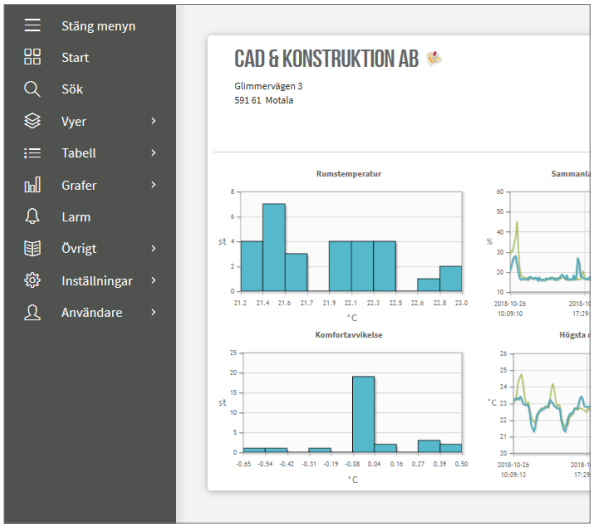
DCV-BL – Airflow control unit

FBL Version B03 with actuator DA4/8

Dimensions DCV-BL



Dimensions to be considered when installing DCV-BL.



Detail from the start page in LINDINSPECT. LINDINSPECT is a web interface where DCV-BL and other connected nodes can be visualized and administered.

Ordering format

Circular Ø125-500

Air flow control, Lindinvent AB,
type **DCV-BL-[Damper size][Material]-[Colour]**

Size of damper SPMF = 125, 160, 200, 250, 315, 400, 500
Material: G (Galvanised), E (Epoxy; RAL9003, Gloss 85), P (Powder coated); Omitted material specification = G (Galvanised)
Colour = Colour code indicated for material P; RAL9003, Gloss 30 (Standard)

Example: DCV-BL-250P-RAL9003 (powder coated, RAL9003):
This DCV-BL circular is shipped with airflow controller FBL and damper actuator DA4 assembled on a powder coated SPMF-250 damper.

Circular connection Ø630

Air flow control, Lindinvent AB,
type **DCV-BL-630(700x700)[Material]**

Material = Galvanised (G)

Example: DCV-BL-630(700x700)G
The rectangular damper JSPM 700x700 with circular connection 630, a circular measuring flange with diameter 630, controller FBL and damper actuator DA8 are supplied individually to be assembled on site.

Rectangular

Air flow control, Lindinvent AB,
type **DCV-BL- [WxH] [Material]**

State size of measuring flange SMRD and damper JSPM:
Size: WxH = 200x200 -> 1600x1000 mm
Width (W): 200 to 1000 mm in intervals of 100, then in intervals of 200 mm.
Height(H): 200 to 800 mm in intervals of 100, then in intervals of 200 mm.
Contact Lindinvent where differing dimensions are required.
Material = G (Galvanised)
Omitted material specification = Galvanised

Example: DCV-BL-600x300G (Rectangular DCV-BL)
Damper JSPM, measuring flange SMRD, controller FBL and damper actuator DA8 are supplied individually to be assembled on site.

Additional product documentation DCV-BL

Table 1: Additional documentation for DCV-BL can be obtained via links on the product's website under Products at www.lindinvent.se

Document	Available	Not available	Comments
Installation Instruction	●		Combined installation instruction for DCV-BL and airflow controller FBL (Assembly + connection)
Start-up instruction	●		Simplified start-up (for the complete set of settings, see the start-up instruction for flow controller FBL).
Maintenance instruction		●	Regarded as maintenance-free. For cleaning and control measurement of measuring flange, see the maintenance instruction for SPMF and SMRD
External connection diagram	●		External connection diagram FBL
Environmental product declaration	●		Assessed by Byggvarubedömningen
User information		●	Not applicable
Modbus list	●		Air flow controller FBL
AMA text	●		

DCV-BL – Airflow control unit

FBL Version B03 with actuator DA4/8

Introduction FBL

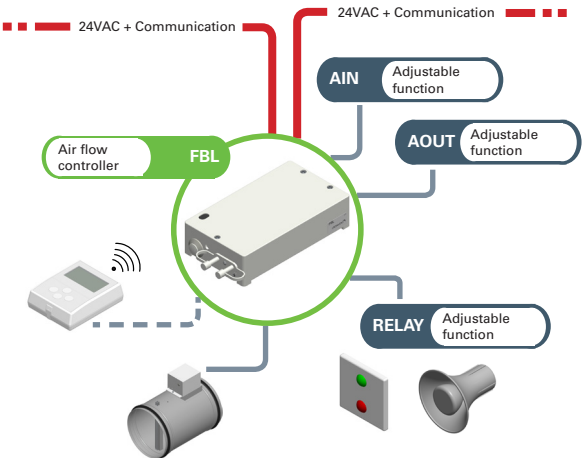
Air flow controller FBL is factory calibrated and it is included in Lindinvent's smart damper and measuring unit DCV-BL. FBL is also used as controller in flow measuring unit DCV-MF.

Function

- Can measure, add and balance the airflow from specific nodes, e.g., active devices, via CAN protocol. This brings great flexibility when designing systems as there is no need to take account of where the supply air is coming from.
- Can create an airflow zone covering up to 100 units (e.g. active devices and flow controllers).
- Can add positive or negative offset to the airflow.
- Can be operated using a slave function. This function allows the total balanced airflow to be distributed over several ducts.
- Can be operated to keep a specific airflow constant.
- Can be operated for pure airflow measuring, see DCV-MF.
- Can be connected via node ID to a communication loop (CAN) for access to and communication with other concurrent nodes or systems via LINDINTELL or Gateway NCE with Modbus TCP/RTU.
- The controller has a great number of parameters that can be read and controlled from LINDINTELL/ LINDINSPECT via CAN.

Connections for input and output signals

Many types of functions can be connected to the controller. For example, a fire signal can be connected and a buzzer alarm provided via relay. If exchange to a superior system is desired but is not possible via Modbus, a number of functions can be defined for the controller's inputs and outputs.



Connection diagram FBL. The controller is connected to a voltage feed and communication loop via Lindinvent's standard cable with two conductors for voltage feed and two twisted-pair conductors for communication. The same cable is used for connection of damper actuator and other accessories.

FBL – Air flow controller.

User interface

- Server with LINDINTELL/LINDINSPECT via CAN.
- Direct login on the controller via DHP hand unit (IR or wired communication)
- Fixed wall panel FLOCHECK P (Direct wired communication on FBL)
- Fixed wall panel DRP (Direct wired communication via CAN)

LINDINTELL/LINDINSPECT

LINDINTELL is a software package that is installed on a central server. The software coordinates all optimisation and monitoring functions in Lindinvent's systems for climate control and protective ventilation. LINDINTELL has functions for optimisation, oversteering and free programming.

LINDINSPECT is a Web interface that has been developed to be used with LINDINTELL.

Simplified start-up

FBL is supplied factory calibrated. A simplified start-up process is available. Initially you have to select operation mode. If you stay with the default settings the required remaining inputs are: Duct diameter (or the C-factor) and location on either the supply or extract air duct.

Control and alarm

Systems with LINDINTELL/LINDINSPECT can log flows continually and set an alarm flag in the event of any deviations. By mounting FLOCHECK P as fixed panel, an alarm can be indicated both acoustically and optically in the event of air flow deviation.

DCV-BL – Airflow control unit

FBL Version B03 with actuator DA4/8

Technical specifications FBL

General

Dimension
176 x 100 x 44 mm (LxWxH)

Material
Polystyrene encapsulation

Net weight
0.3 kg

Colour
RAL 9003

IP classification
IP53 encapsulation

Temperature limits
Operation: 0°C to 40°C; <85% RF
Storage: -20°C to 50°C; <90% RF

Electrical system

Supply voltage
24 VAC

Output
1.5 VA

CE marking
Complies with EMC and the Low Voltage Directive

Controlling the airflow

Flow sensor
FBL is equipped with an internal airflow sensor.

Interval
Recommended interval: 0.5–6.0 m/s
Maximum interval: 0.2 - 7.0 m/s
Note: In laboratories, you should not go lower than 0.5 m/s

Tolerance
±5 % or minimum ± x l/s (x = the duct area in dm^2)

Performance
Speed: Change regulated within 4 s (95% within 3 s)

Connections

- 2 x 24 VAC + communication loop (CAN)
- 1 x 0-10 VDC analogue out for damper actuator
- 1 x 0-10 VDC analogue in for feedback from damper actuator
- 1 x general 0-10 VDC analogue in
- 1 x general 0-10 VDC analogue out
- 1 x relay (24VAC or potential-free switch)
- 1 x IR port (For wireless communication with DHP)
- 1 x modular jack RJ45 - for connection of user panel DHP or FLOCHECK P.

Additional product documentation FBL

Table 1: Additional documentation for FBL can be obtained via links on the product's website under Products at www.lindinvent.se

Document	Available	Not available	Comments
Installation Instruction	●		Combined installation instruction for FBL and DCV-BL (Assembly + connection)
Start-up instruction	●		Describes the complete menu structure with settings
Maintenance instruction		●	Regarded as maintenance-free
External connection diagram	●		
Environmental product declaration	●		Assesed by Byggvarubedömningen
User information		●	Not applicable
Modbus list	●		
AMA text	●		

DCV-BL – Airflow control unit

FBL Version B03 with actuator DA4/8

Introduction SPMF

SPMF is a throttle damper with a full damper blade equipped with a measuring flange with double measurement points. The damper requires low torque, which makes control quick and accurate. The actuator seat is adapted for Lindinvent's damper actuator. SPMF is included as a damper unit in the circular design of control unit DCV-RC, DCV-LC, DCV-BL and DCV-CF.

SPMF – A Circular damper with measuring flange.

Function

SPMF is used together with Lindinvent's flow sensor and damper motor, which allows regulation of airflow at low air speeds. In combination with a measuring flange, see SMED or SMID, damper SPM can be used as an alternative to SPMF.

Ordering information

Circular damper with measuring flange, Lindinvent AB,
[FC-]SPMF-[Size][Material]-[Colour]
Size: 125, 160, 200, 250, 315, 400, 500
Material: G (Galvanised), E (Epoxy lacquered; RAL9003; Gloss 85), P (Powder coated); Omitted material specification = G.
Colour: Stated only for material code P. RAL9003; Gloss level 30 is standard.

Example: SPMF-250P-RAL9003
SPMF can also be supplied in stainless steel, SS 23 33 or SS 23 43; state material in plain text when ordering.

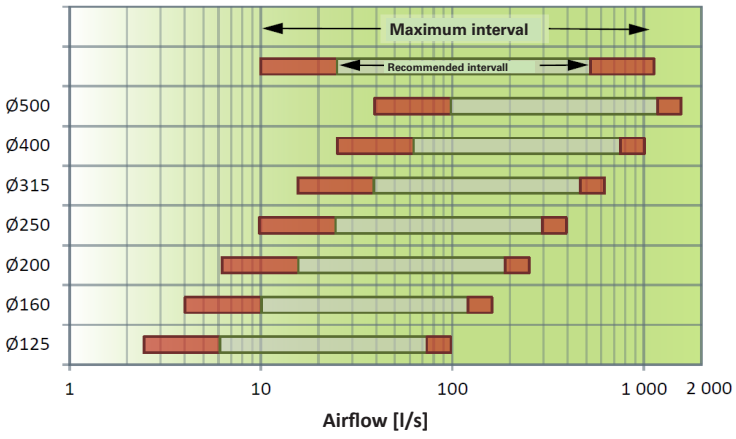
To be placed after a straight duct section

For accurate measurement data: SPMF should be positioned in the correct direction and directly after a disturbance-free straight duct section corresponding to a length of 3.5 times the duct diameter.

Directly after SPMF no minimum distance to a subsequent bend or other disturbance is required.

When SPMF is placed after a silencer with a different cross-sectional area (smaller inner diameter, center body or center baffle), SPMF can be placed directly after a straight duct section, corresponding to 2.0 times the duct diameter where the length of the silencer not is included.

Diagram 1: Airflow intervals for SPMF-125 to SPMF-500



Technical specifications

General

Material
The dampers are manufactured in galvanised steel plate, but can be supplied in other materials and surface treatments; see material under *Ordering information* above. Duct seal in EPDM rubber and damper blade seal in silicon rubber.

Size and classification
Sizes: Ø125 – Ø500 mm according to EN 1506:2007
SPMF: Tightness class 3 according to VVS AMA.
SPMF: Pressure class A according to VVS AMA.
FC-SPMF: Tightness class 1 according to VVS AMA.

Flow measuring
Recommended measuring range: 0.5 – 6.0 m/s
Maximum range: 0.2 – 7.0 m/s
Measurement accuracy*: ± 5% or minimum ± x l/s
(x = duct area in dm^2) *Applies together with Lindinvent's controller and damper actuator.

Dimensions

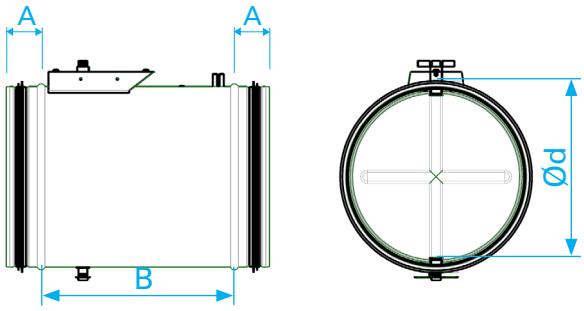


Table 1: Dimensions, weight and K-factor

Ød	A	B	Weight/ kg	K-factor (c)
125	38	150	1	9.5
160	38	180	1.5	15.4
200	38	200	2	23.9
250	60	240	2.5	36.9
315	60	290	4.5	57.8
400	78	350	6	91.7
500	78	410	9.6	141.0

Flow calculation: $q = c \times \sqrt{\Delta p}$ [l/s]

DCV-BL – Airflow control unit

FBL Version B03 with actuator DA4/8

Diagram 2 to 5 below: Total A-weighted sound power levels, dB (A) for SPMF-125 to SPMF-250.

Noise generation

$L_W = L_{WA} + K_0$

L_W = Sound power level [dB]
L_{WA} = Total A-weighted sound power level [dB (A)] is read from the sound level diagram for each SPMF dimension.
K_0 = Correction factor for actual frequency band is read from the table under each SPMF sound diagram.

Table 2: Tolerance sound power level L_W [dB]

Hz	63	125	250	500	1k	2k	4k	8k
± dB	6	4	3	3	3	3	3	3

Diagram 2: Sound diagram SPMF-125

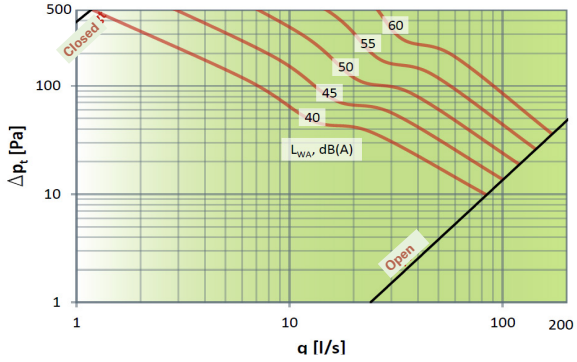


Table 3: Correction factor K_0 [SPMF-125]

Hz	63	125	250	500	1k	2k	4k	8k
K_0	13	13	10	3	-6	-10	-17	-23

Diagram 3: Sound diagram SPMF-160

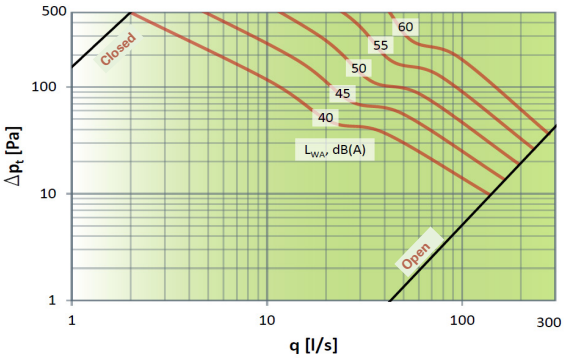


Table 4: Correction factor K_0 [SPMF-160]

Hz	63	125	250	500	1k	2k	4k	8k
K_0	12	9	8	0	-4	-9	-15	-21

Diagram 4: Sound diagram SPMF-200

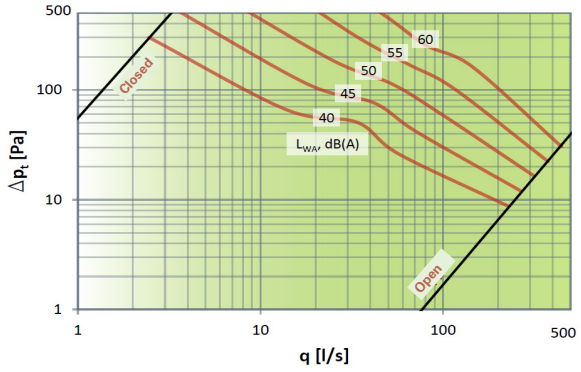


Table 5: Correction factor K_0 [SPMF-200]

Hz	63	125	250	500	1k	2k	4k	8k
K_0	14	8	6	0	-4	-9	-15	-21

Diagram 5: Sound diagram SPMF-250

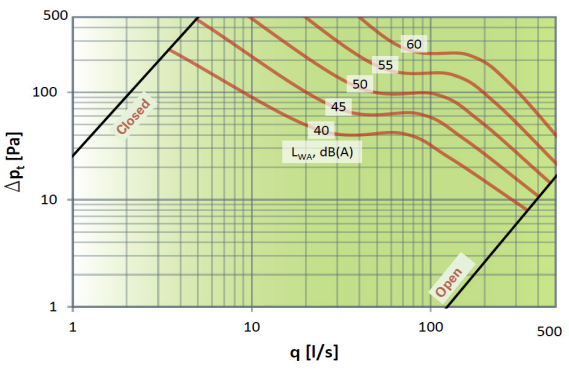


Table 6: Correction factor K_0 [SPMF-250]

Hz	63	125	250	500	1k	2k	4k	8k
K_0	15	9	7	0	-5	-10	-16	-24

DCV-BL – Airflow control unit

FBL Version B03 with actuator DA4/8

Diagram 6 to 8 below: Total A-weighted sound power levels, dB (A) for SPMF-315 to SPMF-500.

Noise generation

$L_W = L_{WA} + K_0$

L_W = Sound power level [dB]
L_{WA} = Total A-weighted sound power level [dB (A)] is read from the sound level diagram for each SPMF dimension.
K_0 = Correction factor for actual frequency band is read from the table under each SPMF sound diagram.

Table 2: Tolerance sound power level L_W [dB]

Hz	63	125	250	500	1k	2k	4k	8k
± dB	6	4	3	3	3	3	3	3

Diagram 6: Sound diagram SPMF-315

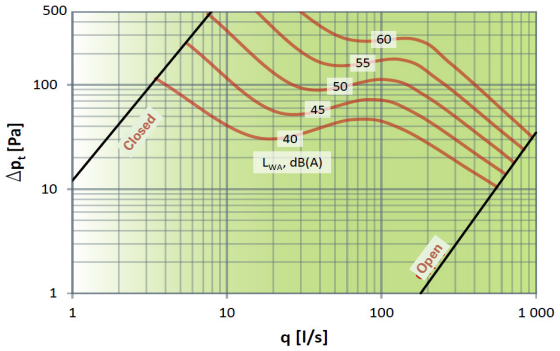


Table 7: Correction factor K_0 [SPMF-315]

Hz	63	125	250	500	1k	2k	4k	8k
K_0	15	8	5	1	-5	-11	-16	-24

Diagram 7: Sound diagram SPMF-400

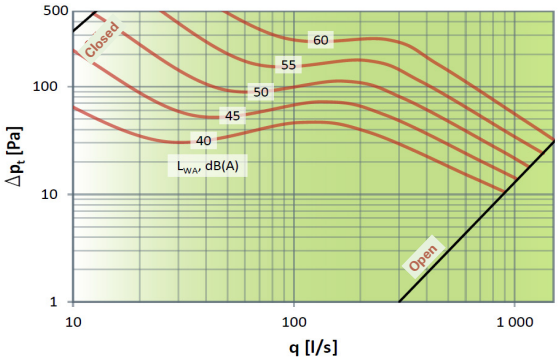


Table 8: Correction factor K_0 [SPMF-400]

Hz	63	125	250	500	1k	2k	4k	8k
K_0	12	7	4	0	-4	-12	-15	-23

Diagram 8: Sound diagram SPMF-500

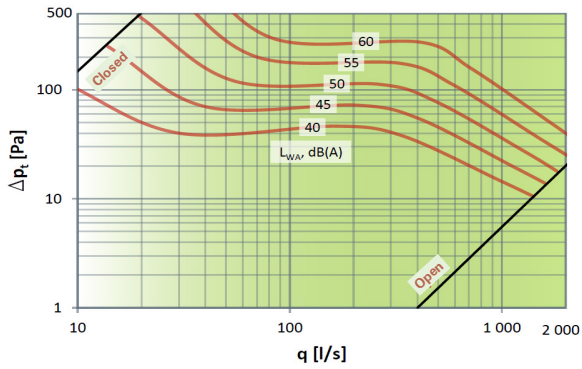


Table 9: Correction factor K_0 [SPMF-500]

Hz	63	125	250	500	1k	2k	4k	8k
K_0	11	5	5	1	-4	-12	-15	-22

Additional product documentation SPMF

Table 10: Additional documentation for SPMF can be obtained via the product's website under Products at www.lindinvent.se

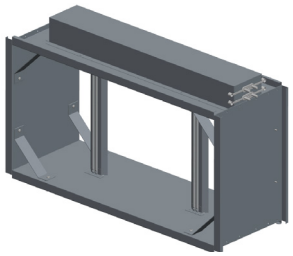
Document	Available	Not available	Comments
Installation Instruction		●	See the installation instruction for DCV-BL.
Start-up instruction		●	Not applicable.
Maintenance instruction	●		Cleaning of measuring flange and control measurement of air flow
External connection diagram		●	Not applicable.
Environmental product declaration	●		Assessed by Byggvarubedömningen and Sundahus
User information		●	Not applicable.
Modbus list		●	Not applicable.
AMA text	●		

DCV-BL – Airflow control unit

FBL Version B03 with actuator DA4/8

Introduction SMRD

SMRD is a measuring flange for rectangular ducts, built with one to four flanges depending on size. All flanges are connected to a double measuring point. SMRD is used in the rectangular design of measuring unit DCV-MF. SMRD is also used with damper JSPM to install a rectangular version of DCV-RC, DCV-LC, DCV-BL and DCV-CF.



SMRD – A rectangular measuring flange.

Order information

Rectangular damper, Lindinvent AB, type SMRD-[WxH]
Sizes (W x H) in combinations according to *Table 1*.
Width (W): from 200 to 1600 mm.
Height (H): from 200 to 1000 mm.
Length (L): Not relevant here (Always 220 mm)
Example: SMRD-600x300

Dimensions: Width(W) x Height(H) in mm

W/H	200	300	400	500	600	700	800	1000
200								
300								
400								
500								
600								
700								
800								
1000								
1200								
1400								
1600								

Table 1: Standard dimensions for W and H, available to order. The length (L) is always 220 mm. Units within the marked area are all available in MagiCAD.

To be placed after a straight duct section

For accurate measurement data: SMRD should be positioned in the correct direction and directly after a disturbance-free straight duct section is required of 3.5 x the length of the equivalent channel diameter.

Directly after SMRD no minimum distance to a subsequent bend or other disturbance is required.

When SMRD is placed after a silencer with a different cross-sectional area (smaller inner diameter, center body or center baffle), SMRD can be placed directly after a straight duct section corresponding to 2.0 x the length of the equivalent duct diameter is required where the length of the silencer is not included.

The equivalent duct diameter (de) is calculated by the following formula: de ≈ 1.15 x √ A (where A = W x H).

Technical specifications

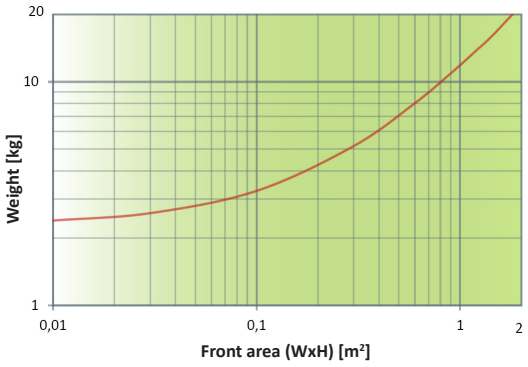
General

Material

The measuring device consists of a case and measuring flanges in galvanised steel plate. Measuring tubes in aluminium.

Weight

Diagram 1: Weight SMRD



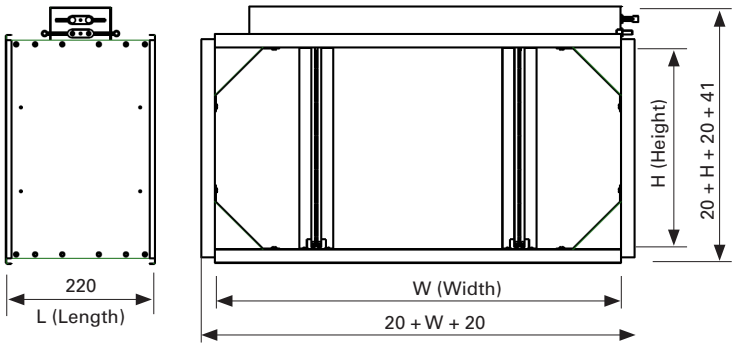
Flow measuring

Recommended measuring range: 0.5 – 6.0 m/s
Maximum range: 0.2 – 7.0 m/s
Measurement accuracy*: ± 5% or minimum ± x l/s
(x = duct area in dm²)
*Applies together with Lindinvent's controller and damper actuator.

K-factor and air flow calculation

K = 749 x A; A = Width (W) x Height (H) in metres.
Example: K-factor for SMRD 500x200 = 749x0.5x0.2 = 74.9
Air flow calculation (q): q = K x √ Δp [l/s]

Measure in mm



DCV-BL – Airflow control unit

FBL Version B03 with actuator DA4/8

Pressure drop and sound data SMRD

Pressure drop
Total pressure drop for various cross section areas of SMRD can be read from the pressure drop diagram below.

Noise generation

$L_W = L_{WA} + K_0$

L_W = Sound power level [dB]
L_{WA} = Total A-weighted sound power level [dB (A)] is read from diagram 3.
K_0 = Correction factor for actual frequency band is read from table 2 for different cross section areas.

Table 2: Correction factor, K_0

Cross section area	Octave band (Hz)							
	63	125	250	500	1k	2k	4k	8k
0.1 m²	-3	-7	-2	-2	-5	-9	-17	-31
0.5 m²	+5	+1	+1	-3	-5	-10	-17	-30
1 m²	+5	+1	+1	-3	-5	-10	-17	-30
2 m²	+5	+1	+1	-3	-5	-10	-17	-30

Table 3: Tolerance sound data

Hz	63	125	250	500	1k	2k	4k	8k
± dB	6	4	3	3	3	3	3	3

Diagram 2: Static pressure drop [SMRD]

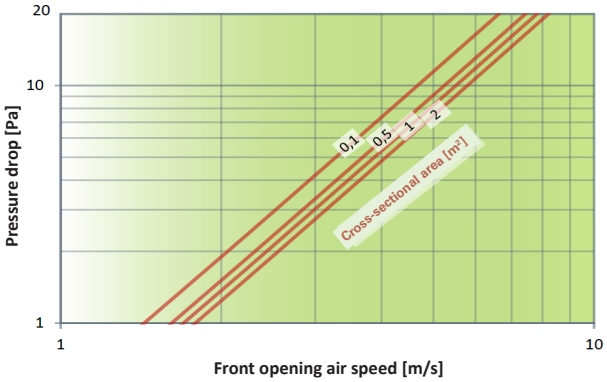
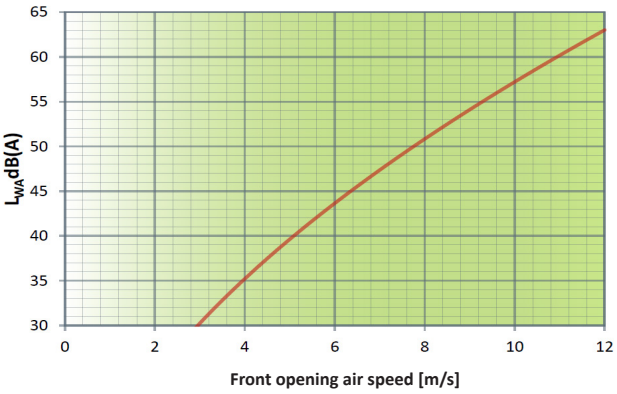


Diagram 3: Sound level [SMRD]



Additional product documentation SMRD

Table 4: Additional documentation for SMRD can be obtained via the product's website under Products at www.lindinvent.se

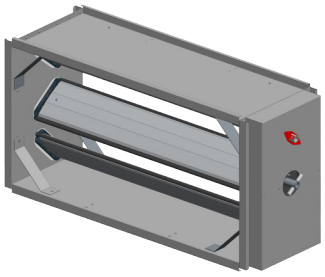
Document	Available	Not available	Comments
Installation Instruction		●	See the installation instruction for DCV-BL
Start-up instruction		●	Not applicable
Maintenance instruction	●		Cleaning and control measurement
External connection diagram		●	Not applicable
Environmental product declaration	●		Assessed by Byggvarubedömningen
User information		●	Not applicable
Modbus list		●	Not applicable
AMA text	●		

DCV-BL – Airflow control unit

FBL Version B03 with actuator DA4/8

Introduction JSPM

JSPM is a fully sealed balancing damper with an actuator seat adapted for Lindinvent's damper actuator. The damper blades are linked via gears. JSPM is included in the rectangular design of control unit DCV-SP. JSPM is also included, along with the rectangular measuring flange SMRD, in the smart control units DCV-RC, DCV-LC, DCV-BL and DCV-CF.



JSPM size 600x300 mm.

JSPM size 700x700/630 mm.

Function

The damper is used for controlling flow and pressure together with a Lindinvent controller and a damper actuator.

Order information

Rectangular damper, Lindinvent AB, type JSPM-[WxH]

Sizes (WxH) in combinations according to *Table 1*.
Width (W): from 200 to 1600 mm.
Height (H): from 200 to 1000 mm.
Length (L): Not relevant here (Always 220 mm)
Example: JSPM-400x300

JSPM may be ordered with circular connection Ø630 or Ø800. Designations as follows: *JSPM-700x700/630* or *JSPM-800x800/800*.

Dimensions: Width(W) x Height(H) in mm

W\H	200	300	400	500	600	700	800	1000
200	DA4	DA4	DA4	DA4	DA8	DA8	DA8	DA8
300	DA4	DA4	DA4	DA4	DA8	DA8	DA8	DA8
400	DA4	DA4	DA4	DA4	DA8	DA8	DA8	DA8
500	DA4	DA4	DA4	DA4	DA8	DA8	DA8	DA8
600	DA4	DA8	DA8	DA8	DA8	DA8	DA8	DA8
700	DA4	DA8	DA8	DA8	DA8	DA8	DA8	DA8
800	DA4	DA8	DA8	DA8	DA8	DA8	DA8	DA8
1000	DA4	DA8	DA8	DA8	DA8	DA8	DA8	DA8
1200	DA4	DA8	DA8	DA8	DA8	DA8	DA8	DA8
1400	DA4	DA8	DA8	DA8	DA8	DA8	DA8	DA8
1600	DA4	DA8	DA8	DA8	DA8	DA8	DA8	DA8

Table 1: Available standard dimensions for W and H. The length (L) is always 220 mm. Devices within the marked area are available in MagiCAD. The table shows which actuator DA4 or DA8 should be used for each damper.

Technical specifications

General

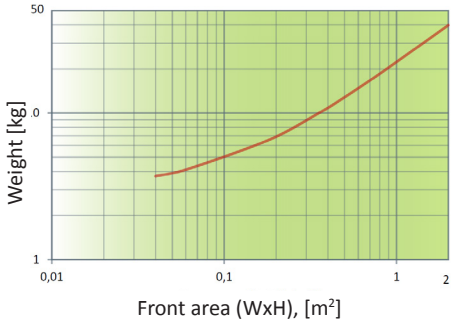
Material

The damper consists of a case in galvanised steel plate and damper blades in aluminium. The damper blades are equipped with end gaskets made of nylonplated EPDM-rubber and with length going gaskets made of silicon-rubber.

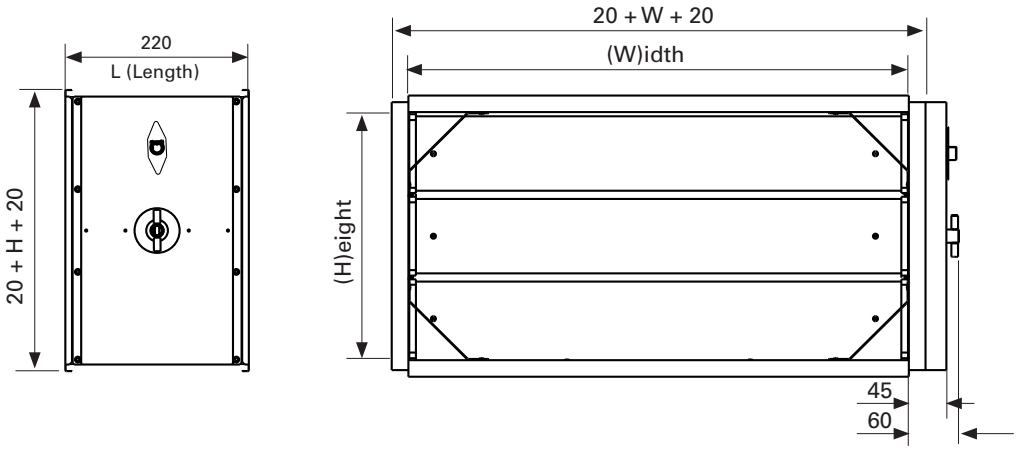
Tightness class 2 according to VVS AMA.
Pressure class A according to VVS AMA.

Weight

Diagram 1: Weight JSPM



Measure in mm



DCV-BL – Airflow control unit

FBL Version B03 with actuator DA4/8

Sound data JSPM

Noise generation

$L_W = L_{pA} + K_0 + K_k$

L_W = Sound power level, dB.
L_{pA} = Total A-weighted sound power level, dB (A), read from sound level diagram below for cross section area 1 m².
K_0 = Correction factor for actual frequency band read from table 2 for actual damper blade angle.
K_k = Correction factor for actual duct area is read from diagram 3.

Table 2: Correction factor K_0 [JSPM]

Damper angle	Octave band (Hz)							
	63	125	250	500	1k	2k	4k	8k
30 - 40°	-4	-6	-8	-8	-9	-12	-16	-19
50 - 60°	-5	-5	-8	-10	-10	-10	-13	-15
70 - 80°	-6	-4	-5	-7	-9	-9	-10	-12

Table 3: Tolerance sound power level L_W [JSPM]

Hz	63	125	250	500	1k	2k	4k	8k
± dB	6	4	3	3	3	3	3	3

Diagram 2: Noise generation (cross section area 1 m²) [JSPM]

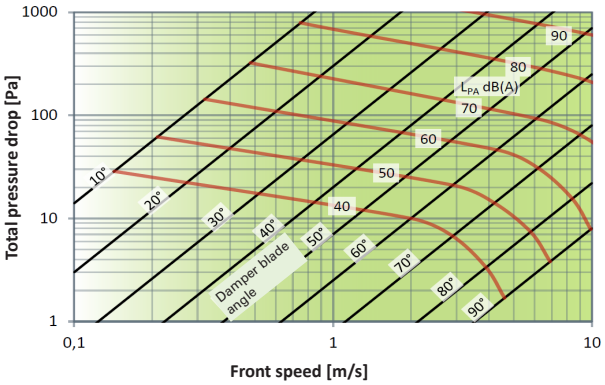
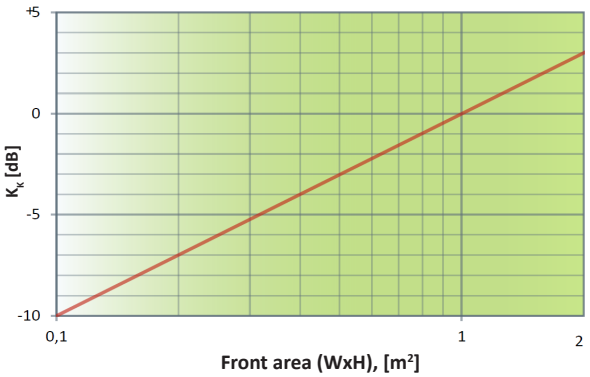


Diagram 3: Correction factor for duct area [K_k]



Additional product documentation JSPM

Table 4: Additional documentation for JSPM can be obtained via links on the product's website under Products at www.lindinvent.se

Document	Available	Not available	Comments
Installation Instruction		●	See installation instruction for DCV-BL.
Start-up instruction		●	Not applicable.
Maintenance instruction		●	Maintenance free.
External connection diagram		●	Not applicable.
Environmental product declaration	●		Assessed by Byggvarubedömningen.
User information		●	Not applicable.
Modbus list		●	Not applicable.
AMA text	●		

Product description

DCV-BL – Airflow control unit

FBL Version B03 with actuator DA4/8

Introduction DA4 and DA8

The damper motors DA4 and DA8 are designed for Lindinvent's dampers for air flow and pressure control. All smart dampers in circular design are equipped with DA4 while DA8 is used for larger rectangular dampers as shown in Table1 below.

Function

The damper motor controls damper blades via signal from the connected regulator.

The motor cover is specially designed to act as holder for Lindinvent's regulators. Assembly and disassembly of the regulator on the cover is made easy and without tools.

Ordering information

Both DA4 and DA8 can be ordered with cabling mounted in two designs: Length 0.25 meters with a connector mounted or length 3 meters without a connector mounted.

Motor size: DA4 or DA8

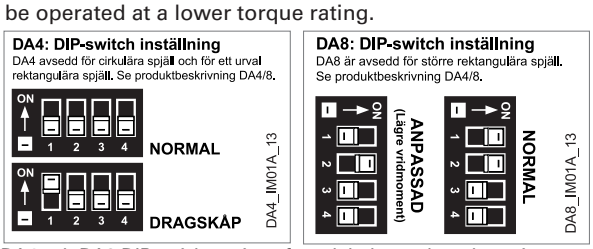
DA4 is used for Lindinvent's circular dampers Ø125 - Ø500 and for a selection of rectangular dampers. DA8 is used for Lindinvent's larger rectangular dampers, see Table 1 below. DA8 should also be used for the rectangular damper 700x700 with circular connection Ø630.

B\H	200	300	400	500	600	700	800	1000
200	DA4	DA4	DA4	DA4	DA8	DA8	DA8	DA8
300	DA4	DA4	DA4	DA4	DA8	DA8	DA8	DA8
400	DA4	DA4	DA4	DA4	DA8	DA8	DA8	DA8
500	DA4	DA4	DA4	DA4	DA8	DA8	DA8	DA8
600	DA4	DA8	DA8	DA8	DA8	DA8	DA8	DA8
700	DA4	DA8	DA8	DA8	DA8	DA8	DA8	DA8
800	DA4	DA8	DA8	DA8	DA8	DA8	DA8	DA8
1000	DA4	DA8	DA8	DA8	DA8	DA8	DA8	DA8
1200	DA4	DA8	DA8	DA8	DA8	DA8	DA8	DA8
1400	DA4	DA8	DA8	DA8	DA8	DA8	DA8	DA8
1600	DA4	DA8	DA8	DA8	DA8	DA8	DA8	DA8

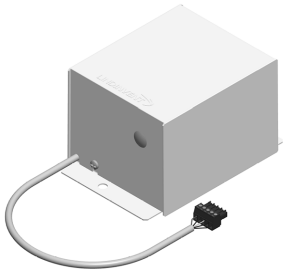
Table1: Rectangular damper JSPM showing it's size dependent designated actuator DA4 or DA8. Sizes within the marked area are available in MagiCAD.

Mode of operation

Both actuators are normally delivered with it's DIP-switch settings at "NORMAL", as shown bellow . DA4 is set to "DRAGSKÅP" when installed with Fume capboard controller FCL. DA8 can be switched to "ANPASSAD" to be operated at a lower torque rating.



DA4 och DA8 DIP-swich settings from labels used on the units.



DA4 with pre-mounted connector. Damper actuator for Lindinvent's controllers.

DCV-SP circular: Regulator SPL and damper motor DA4 mounted on a circular damper.

Technical specifications

General

Dimension
DA4: 140 x 97 x 80 mm (LxWxH)
DA8: 140 x 130 x 80 mm (LxWxH)

Material
Gearbox in metal
DA4: Thermoplastic encapsulation (PS)
DA8: Powder-coated steel plate encapsulation

Weight
DA4: Net weight 0.7 kg (0.25 m cable with connector)
DA8: Net weight 1.4 kg (0.25 m cable with connector)

Colour
RAL 9003

IP class
Encapsulation complies with IP42

Damper blade positioning
By turning a screw, any damper angle can be selected on a switched-off motor. The engine calibration is not affected by the damper position being set with the screw.

Electrical system

Supply voltage
24 VAC

Capacity
DA4: 2.3 VA (max 12 VA)
DA8: 2.3 VA (max 17 VA)

CE marking
Complies with EMC and the Low Voltage Directive

Performance

DA4: Running time 0-90° 6.5 s
DA8: Running time 0-90° 6.5 s

Input and output signals

Input signals
1 x 0-10 VDC control signal

Output signals
1 x 0-10 VDC feedback signal

DCV-BL – Airflow control unit

FBL Version B03 with actuator DA4/8

Additional product documentation DA4/8

Table 1: Additional documentation for DA4/8 can be obtained via links on the product's website under Products at www.lindinvent.se

Document	Available	Not available	Comments
Installation Instruction	●		
Start-up instruction		●	See start-up instruction for connected controller.
Maintenance instruction	●		Regarded as maintenance-free.
External connection diagram	●		The connection diagram is also printed on a connection label attached to the product.
Environmental product declaration	●		Assessed by Byggvarubedömningen.
User information		●	Not applicable.
Modbus list		●	Not applicable.
AMA text		●	See corresponding controller.

Product documentation can be downloaded via www.lindinvent.se/produkter/

Contact

www.lindinvent.se
Tel: 046–15 85 50

Lindinvent – Smarter indoor climate. Greener buildings.

The company offers products and systems for controlling ventilation, lighting, solar shading and local utilization. Equipment and climate solutions are being developed for offices, schools, hospitals, laboratories and similar working environments. Lindinvent's systems work together to provide high indoor comfort and the lowest possible energy use.