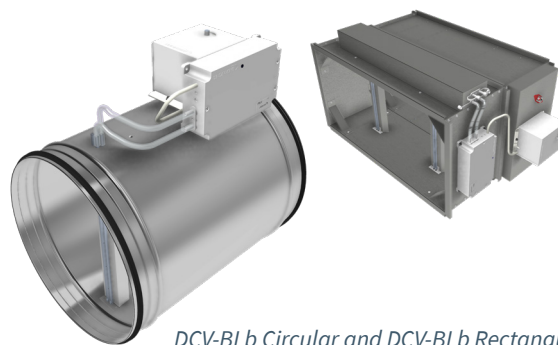




INTRODUCTION

DCV-BLb is part of Lindinvent's series of smart and installation-efficient dampers and measuring devices for protective ventilation and climate control at workplaces.

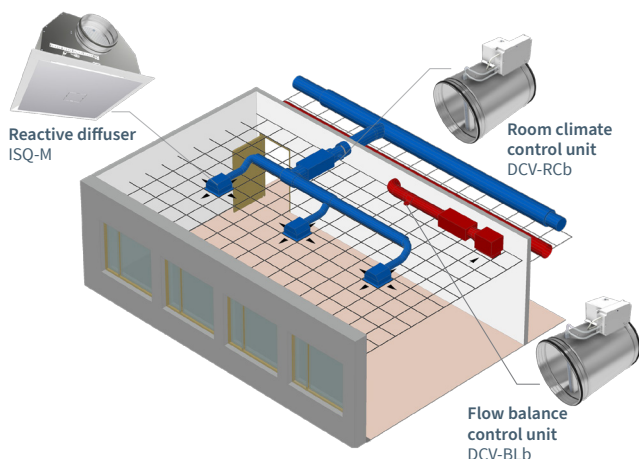
FUNCTIONS

DCV-BLb consists of a damper with a measuring flange, a damper actuator, and an airflow controller. The unit cooperates with other control equipment via a local network (CAN loop) to control airflows.

CIRCULAR OR RECTANGULAR

The circular version (Ø100-500 mm) is delivered as a complete module with the constituent parts connected and ready for installation as a unit. DCV-BLb Rectangular is ordered as a set of parts to be assembled on site. DCV-BLb in circular design is available in database for MagiCad. DCV-BLb rectangular drawn as damper JSPM and measuring unit SMRD.

See page 2 for a presentation of included parts.



Type solution: An office landscape or equivalent with supply air via reactive diffusers and extract-air-balancing via DCV-BLb.

AIRFLOW RANGES AND MEASUREMENT

Circular & Rectangular

Measurement range: 0.5 – 6.0 m/s

Maximum range: 0.2 – 7.0 m/s

Accuracy: $\pm 5\%$ or at least $\pm x$ l/s

(where x = The channel area in dm^2)

Airflow calculation (q): $q = k \cdot \sqrt{\Delta p}$ [l/s]

k-factor Rectangular

Calculate k as follows:

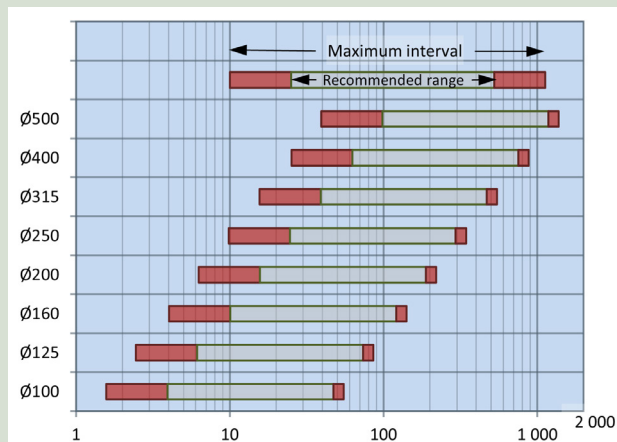
$k = 749 \cdot A$ where $A = \text{Width}(W) \cdot \text{Height}(H)$ where measures W and H in meters

An example: SMRD 500x200 = $749 \cdot 0,5 \cdot 0,2 = 74,9$

k-factor Circular

The k-factor can be read from the damper or from the table in the product description for SPMF.

Quick guide to flow ranges for DCV-BLb Circular

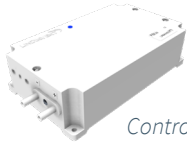


Flow range [l/s] for each size of SPMF.

CONSTITUENT PARTS

The products below are included as parts of DCV-BLb. The damper and measuring flange are either circular or rectangular. See the product description for more complete technical specifications.

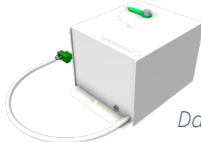
DCV-BLb Circular (delivered with parts assembled and connected)



Controller FBLb.

Airflow controller - FBLb

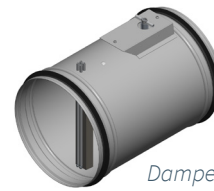
- Integrated digital airflow sensor
- CAN connection
- IP-class: IP53
- Operating temperature limits: 0°C to 40°C; <85% RH
- Temperature limit storage: -20°C to 50°C; <90% RH
- Weight: 0.3 kg
- Commissioned for either: Flow balancing control, Constant flow control, Flow measuring or as Slave to a Master DCV-BLb



Damper actuator DBA.

Damper actuator - DBA

- Microprocessor controlled BLDC motor
- Indicator pin to show the damper opening angle
- IP-class: IP42 (mounted on the actuator holder)
- Operating temperature limits: 0°C to 40°C; <85% RH
- Temperature limit storage: -20°C to 50°C; <90% RH
- Weight: 0.9 kg

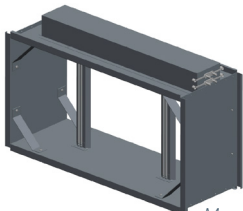


Damper SPMF.

Circular damper with measuring flange - SPMF

- Measuring flange with double measurement points
- Full damper blade
- Actuator shelf adapted for Lindinvent's damper actuator
- Tightness class 3 according to VVS AMA
- Pressure class A according to VVS AMA
- Weight: After damper size (1 to 10 kg)

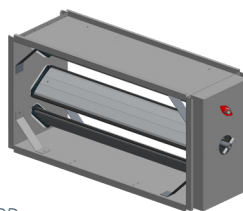
DCV-BLb Rectangular (parts delivered separately for assembly on-site)



Measuring flange SMRD.

Rectangular measuring flange - SMRD

- Included in DCV-BLb Rectangular
- Measuring flange with double measurement points
- Case and measuring flanges of galvanized sheet steel (C3)
- Measuring tubes of aluminum (C4)
- Weight: After size (2 to 20 kg)

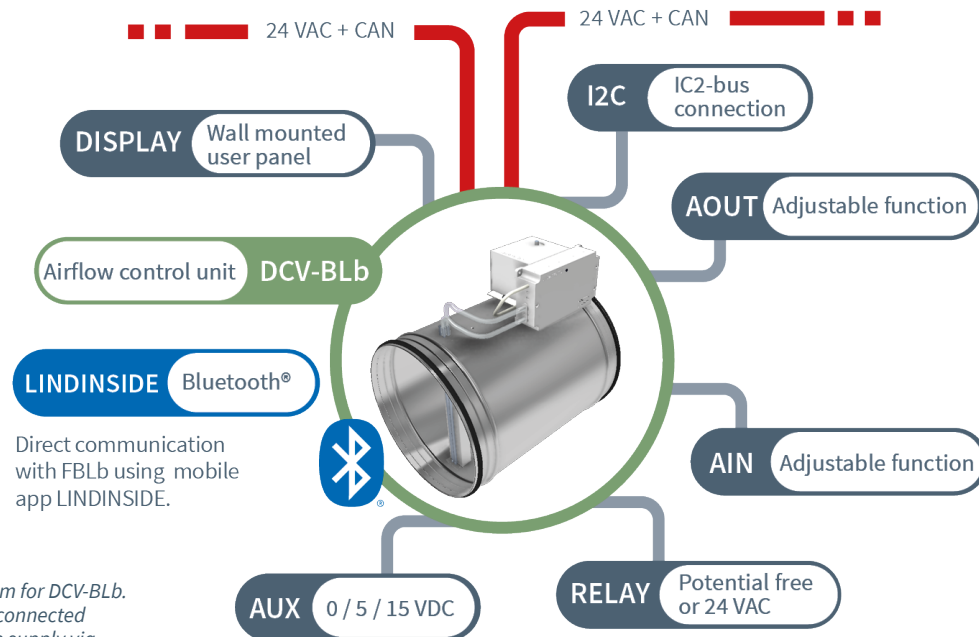


Damper JSPM.

Rectangular damper - JSPM

- Included in DCV-BLb Rectangular
- Case and of galvanized sheet steel (C3) as standard
- Actuator shelf adapted for Lindinvent's damper actuator
- Damper blades of aluminium (C4)
- Tightness class 2 according to VVS AMA
- Pressure class A according to VVS AMA
- Available with circular connection with size 700x700 or 800x800
- Weight: After damper size (3 to 40 kg)

CONNECTION DIAGRAM



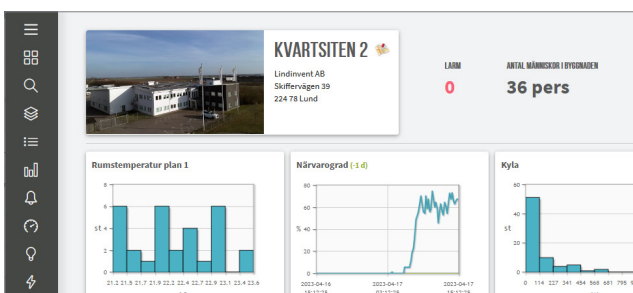
Connection diagram for DCV-BLb. Controller FBLb is connected to CAN and voltage supply via Lindinvent's 4-conductor cable.

CONNECTIONS

- 2 x terminals for 24 VAC + CAN
- Terminal AIN1 and AOUT1 (0-10 VDC) used by the damper actuator
- Terminal AIN2 and AOUT2 (general 0-10 VDC)
- Relay (24 VAC or potential-free)
- Terminal AUX for Generic power supply (0, 5, 15 VDC)
- Terminal for I2C-bus
- Module for Bluetooth®
- Terminal for user panel (FLOCHECK P version B02)

VISUALIZATION TOOL LINDINSPECT®

LINDINSPECT® is a powerful web-based tool which is part of the central unit system software. Everything from control units to supplementary systems for comfort and sustainable energy use is made accessible for central optimization, administration and visualization.



Detail from the start page in LINDINSPECT® from which the climate control can be visualized and administered.

USER INTERFACES

Look for details about a specific interface via its product name and product description.

- Login locally directly to the controller via mobile phone with the LINDINSIDE app
- Via Gate way NCE and Lindinvent's central unit running LINDINSPECT®
- Other parent system via Gateway NCE and ModbusRTU or ModbusTCP
- Fixed panel FLOCHECK P, wired directly to FBLb

TROUBLESHOOTING AND ALARM NOTIFICATION

Systems with LINDINSPECT® log and set alarm flags in case of deviations. Alarms can also be indicated both acoustically and optically by connecting user panel FLOCHECK P to the controller.

EASY COMMISSIONING

The internal airflow sensor is delivered factory calibrated. Values of a few control variables are requested in connection with commissioning.

FUNCTIONAL CHARTS

Cell Office Solution with DCV-BLb

Supply air via active diffusers and extract air through a ventilation grill to a corridor.

Supply air from active diffusers that:

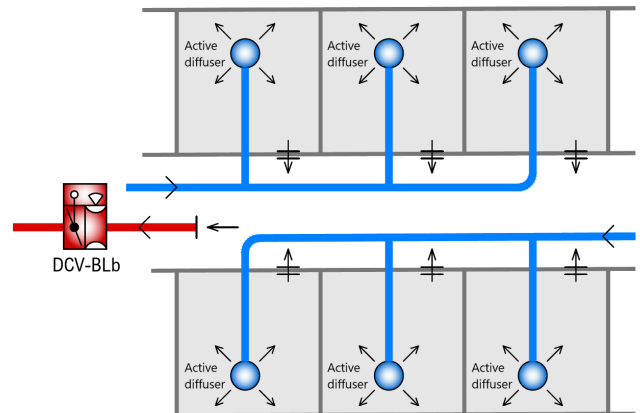
- Individually controls the climate in each office according to setpoints
- Notifies cooperating nodes, here DCV-BLb, of its individual current supply airflow

The diffusers can be operated from different supply air ducts.

DCV-BLb:

- 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

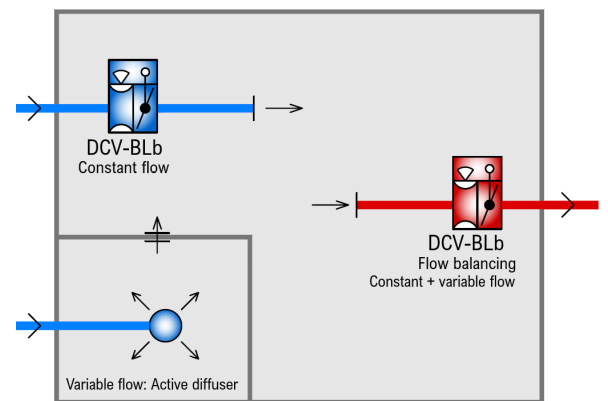
DCV-BLb is commissioned for airflow balancing.



Common extract air control in corridors.

Constant Airflow and Airflow Balancing

- DCV-BLb on the supply air duct is commissioned for constant airflow control
- DCV-BLb on the extract air duct is commissioned to balance the total supply air flow



Constant airflow control with DCV-BLb.

Collaborative Airflow Balancing

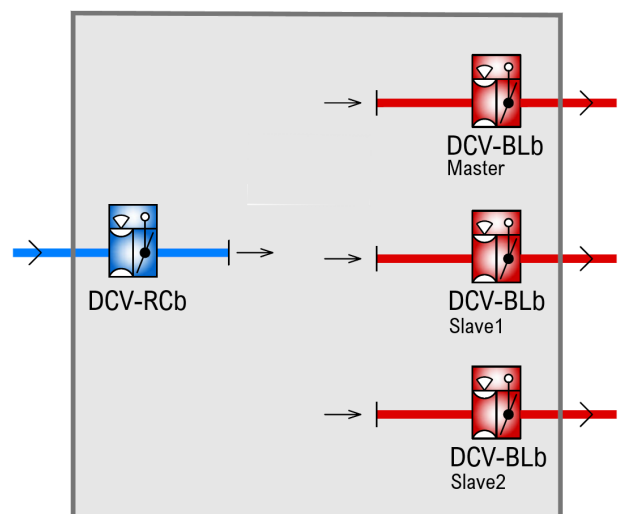
DCV-BLb:

- DCV-BLb (Master) measures its own flow and sums this up with the extract air measured by Slave1 and Slave2
- DCV-BLb (Slave1) and (Slave2) are both operated to act as slave to DCV-BL (Master)
- DCV-BLb (Master) reads the supply airflow communicated via DCV-RCb and regulates the extract airflow via its own and the slave units dampers to maintain the desired balancing

DCV-RCb:

- Measures the supply airflow rate
- Controls the actual supply airflow to meet setpoints

For a space supplied by several variable supply air ducts: see the product description for DCV-RCb.



Collaborative airflow balancing.

ORDER INFORMATION

DCV-BLb Circular (Ø100-500 mm)

Airflow control unit, Lindinvent AB,
DCV-BLb-[Damper][Material]-[Colour]

Damper SPMF: 100, 125, 160, 200, 250, 315, 400, 500

Material:

- Galvanized sheet steel(C3)
- Stainless acid-resistant sheet steel(C5)
- Epoxy-coated sheet steel (E)
- Powder-coated sheet steel(P)

Omitted material specification: Galvanized(C3)

Colour: RAL9003 (standard)

To be stated only for E and P. Other colours and gloss levels can be ordered.

Example:

- DCV-BLb-250C3
(Circular DCV-BLb galvanized)
- DCV-BLb-250P-RAL9003
(Powder-coated RAL9003)

DCV-BLb Circular (duct connection Ø630 mm)

Airflow control unit, Lindinvent AB,
DCV-BLb-630(700x700)[Material] or
DCV-BLb-630(800x800)[Material]

Size: 700x700 or 800x800 available

Material: Galvanized (C3)

Example: DCV-BLb-630(700x700)C3

DCV-BLb-630 is delivered as a construction kit. The rectangular damper JSPM 700x700 mm with circular connection 630, a circular measuring flange with diameter 630 mm, controller FBLb and damper actuator DBA are delivered separately to be installed on site.

DCV-BLb Rectangular

Airflow control unit, Lindinvent AB,
DCV-BLb-[WxH][Material]

Standard sizes WxH: from 200x200 mm to 1600x1000 mm
Width(W): from 200 to 1000 mm in intervals of 100 mm,
then in intervals of 200 mm

Height(H): from 200 till 800 mm in intervals of 100 mm,
then in intervals of 200 mm

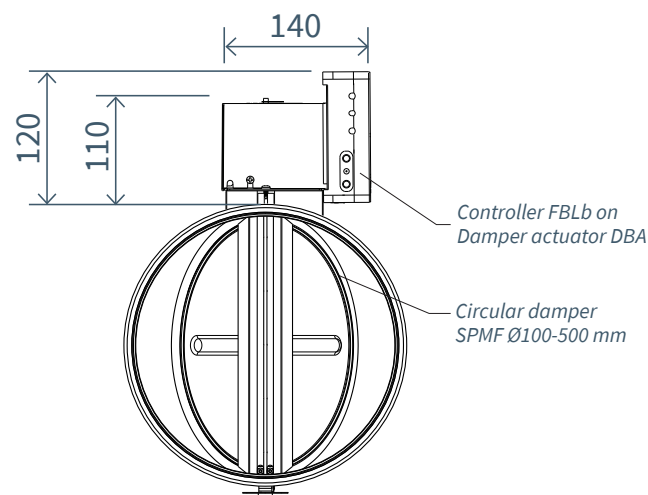
Contact Lindinvent if you need non-standard dimensions.

Material: Galvanized(C3)

Example: DCV-BLb-600x300C3

Rectangular DCV-BLb is delivered as a construction kit where damper JSPM, measuring flange SMRD, controller FBLb and damper actuator DBA are delivered separately to be installed on site.

DIMENSIONS (mm)



Dimensions of DCV-BLb Circular.

COMPLEMENTARY DOCUMENTATION

Document can be viewed on the product page at www.lindinvent.com

Document	Comments
Installation instructions	Combined installation instructions for DCV-BLb and airflow controller FBLb (mounting + connection).
Operation instructions	Short presentation of LINDINSIDE and control variables.
Maintenance instructions	Considered maintenance free. For cleaning and control measurement of the flange, see the maintenance instructions for SPMF.
External connection diagram	Shows how conductors from equipment are connected to FBLb.
Environmental product declaration	For assessment at Byggarbeteckningen in Sweden.
Modbus list	Last entry in the modbus list for FBLb.
AMA-text	Available.