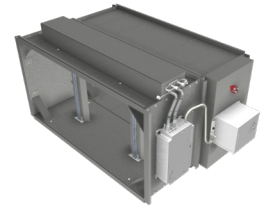


DCV-CFb Circular - Controller CFLb and a damper actuator mounted on a circular damper with measuring flange.



DCV-CFb Rectangular.

Introduction

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

FUNCTIONS

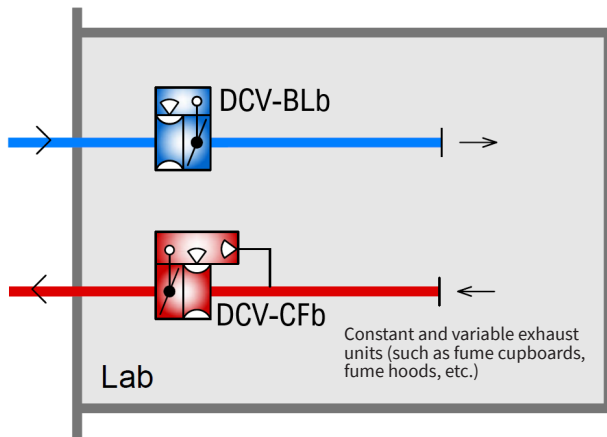
DCV-CFb consists of a damper, a measuring flange, a damper actuator and controller CFLb. The unit cooperates with other controllers via a local network (CAN loop) to maintain duct pressure and at the same time measure airflow.

Circular or Rectangular

The circular version (Ø100-500 mm) is delivered as a complete module with included parts connected and assembled. DCV-CFb Rectangular is supplied in parts to be assembled on site. DCV-CFb Circular is available in the database for MagiCad. DCV-CFb Rectangular is drawn as damper JSPM and measuring flange SMRD.

See page 2 for a presentation of constituent parts.

Laboratory with DCV-CFb



DCV-BLb:

- Measures the supply air
- Retrieves the extract air from DCV-CFb via CAN
- Adjusts the amount of supply air via damper control for balancing of the total extract air

DCV-BLb is commissioned for airflow balancing.

DCV-CFb:

- Measures and reports the extract air via CAN
- Measures and maintains the duct pressure that ensures desired fixed extract airflow

Note: DCV-CFb is always commissioned for pressure control and airflow measurement

Pressure Measurement and Control

Pressure sensor: Digital, integrated

Measuring range: 5 to 500 Pa

Tolerance: $\pm 5\%$ or at least $\pm 3\text{ Pa}$

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

Airflow Measurement

Airflow sensor: Digital (factory calibrated)

Calibration: Duct dimension or the k-factor is specified after logging in to controller CFLb. On-site verification is not needed.

Recommended measurement range: 0.5 to 6.0 m/s

Maximum range: 0.2 to 7.0 m/s

Measurement accuracy*: $\pm 5\%$ or at least $\pm x \text{ l/s}$
where x = duct area in dm^2

*Applies together with Lindinvent's controller CFLb.

Placement

For accurate airflow measurement, DCV-CFb must be correctly oriented in the airflow direction and preceded by an undisturbed straight duct section corresponding to a length of 3.5 times the duct diameter.

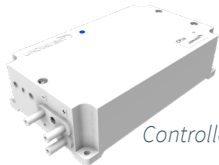
When DCV-CFb is placed after a silencer, with a different cross-sectional area, DCV-CFb must be preceded by a straight duct section corresponding to 2.0 times the duct diameter where the length of the silencer is not included.

After DCV-CFb, no minimum distance to a subsequent bend or other disturbance is required.

Constituent Parts

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

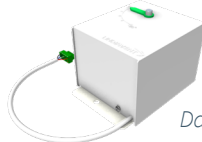
DCV-CFb and Its Constituent Parts



Controller CFLb.

Pressure controller with airflow measuring - CFLb

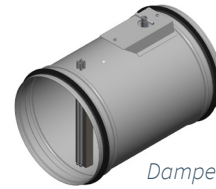
- Included in DCV-CFb Circular
- Supplied as part to DCV-CFb Rectangular
- Integrated digital pressure sensor
- Integrated digital airflow sensor
- CAN connection
- IP-class: IP53
- Operating temperature limits: 0°C to 40°C; <85% RH
- Temperature limit storage: -20°C to 50°C; <90% RH
- Weight: 0.3 kg
- One of the following main features is to be selected at commissioning: Pressure control, Pressure control external measurement, Pressure measurement, or Slave control



Damper actuator DBA.

Damper actuator - DBA

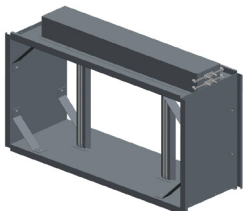
- Included in DCV-CFb Circular
- Supplied as part to DCV-CFb Rectangular
- Microprocessor controlled BLDC motor
- Indicator pin to show the damper opening angle
- IP-class: IP42 (mounted on the actuator holder)
- Operating temperature limits: 0°C to 40°C; <85% RH
- Temperature limit storage: -20°C to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



Damper SPMF.

Circular damper with measuring flange - SPMF

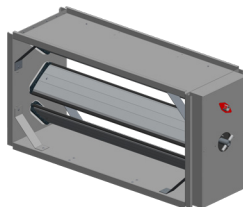
- Included in DCV-CFb Circular
- Measuring flange with double measurement points
- Full damper blade
- Actuator shelf adapted for Lindinvent's damper actuator
- Tightness class 3 according to VVS AMA
- Pressure class A according to VVS AMA
- Weight: After damper size (1 to 10 kg)



Measuring flange SMRD.

Rectangular measuring flange - SMRD

- Supplied as part to DCV-CFb 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)

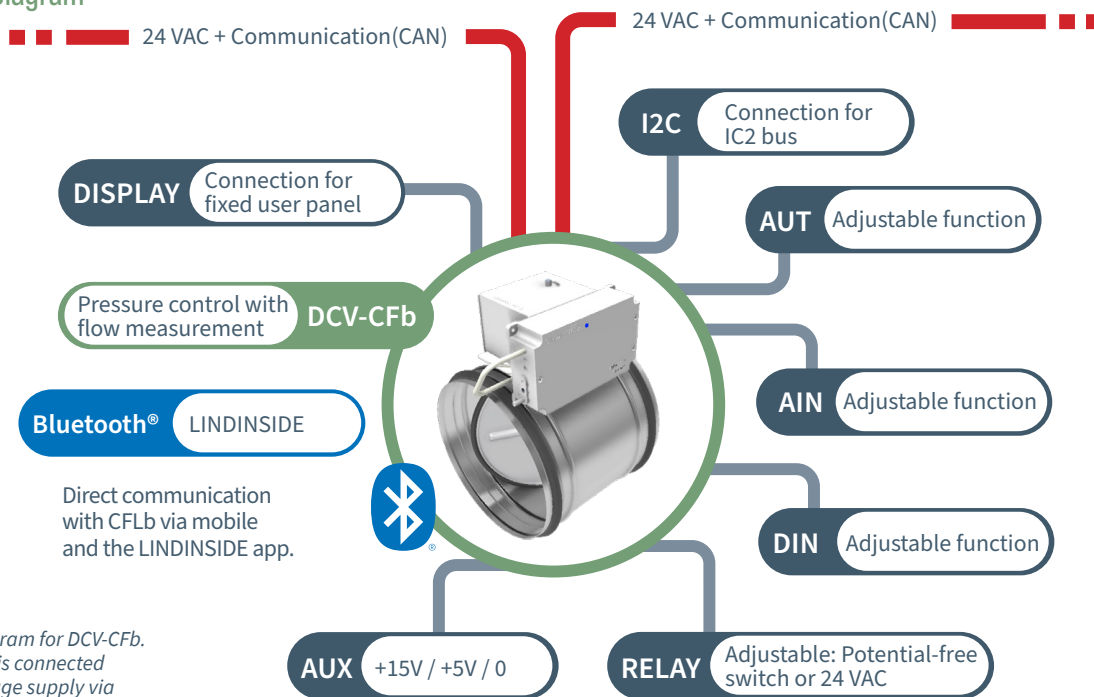


Damper JSPM.

Rectangular damper - JSPM

- Supplied as part to DCV-CFb Rectangular
- Case of galvanized sheet steel (C3)
- 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



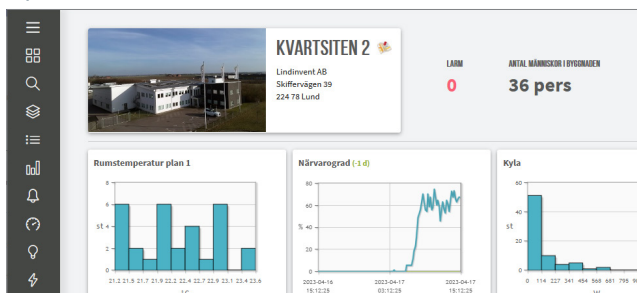
Connection diagram for DCV-CFb. Controller SPLb is connected to CAN and voltage supply via Lindinvent's 4-conductor cable.

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)
- DUT1 (RELAY) for potential-free switch alternatively 24 VAC
- 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.

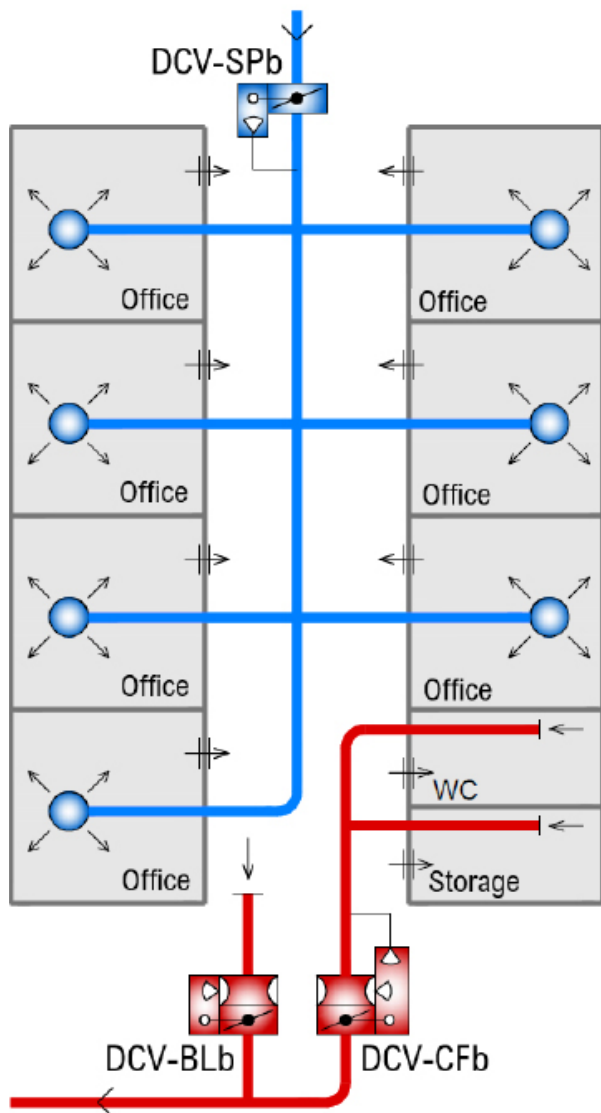
- Login locally directly to the controller via mobile phone with the LINDINSIDE app
- Via Gate way NCE and Lindinvent's central unit running LINDINSPECT®
- Other parent system via Gateway NCE and Modbus-RTU or ModbusTCP
- Fixed panel FLOCHECK P, wired directly to CFLb

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

All of Lindinvent's controllers are delivered factory-calibrated. Only a few settings are required in connection with commissioning.



Example of a Functional Diagram with DCV-CFb.

Functional Chart with DCV-CFb

DCV-CFb for Fixed Extract Airflows:

Cell office with supply air via active diffuser and extract air via corridor. Two fixed extract airflows with supply air from the corridor.

Active diffusers:

- Controls the climate in each office according to setpoints
- Notifies collaborating nodes their current airflow

DCV-SPb:

- Continuously measures the pressure in the duct section
- Maintains the duct pressure according to setpoints via damper control
- DCV-SPb is commissioned for pressure control

DCV-CFb:

- Maintains a constant duct pressure to maintain the fixed set extract air

DCV-CFb is commissioned for pressure control and flow measurement.

DCV-CFb is commissioned for pressure control and flow measurement.

DCV-BLb:

- Measures the extract air from the corridor
- Reads the reported DCV-CFb airflow
- Sums its own measured airflow with the measured airflow from DCV-CFb
- Maintains the desired balancing of supply air through damper control

DCV-BLb is commissioned for flow balancing.

Order Information

DCV-CFb Circular (Ø100-500 mm)

Pressure control unit with airflow measuring, Lindinvent AB, DCV-CFb-[Damper size][Material]-[Colour]

Damper size 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 for E and P. Other colours and gloss levels can be ordered.

Example:

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

DCV-CFb Circular (duct connection Ø630 mm)

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

Size available: 700x700 or 800x800 mm

Material: Galvanized (C3)

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

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

DCV-CFb Rectangular

Pressure control unit with airflow measuring, Lindinvent AB, DCV-CFb-[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 to 800 mm in intervals of 100 mm, then in intervals of 200 mm

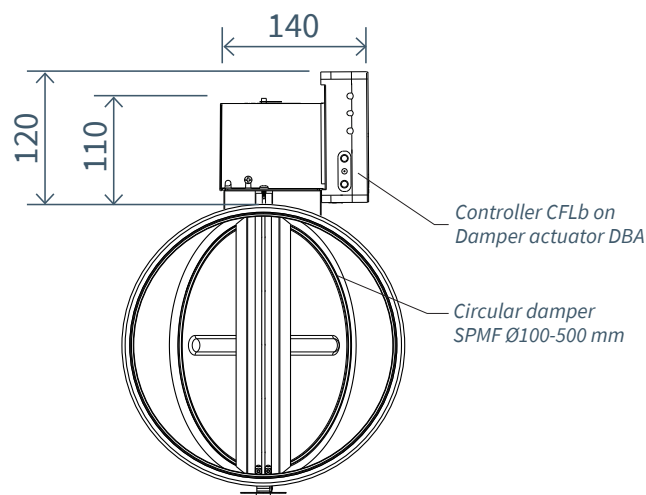
Contact Lindinvent if you need non-standard dimensions.

Material: Galvanized (C3)

Example: DCV-CFb-600x300C3

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

Dimensions in mm



Dimensions of DCV-CFb Circular.

Complementary Documentation

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

| Document | Comments |
|-----------------------------------|--|
| Installation Instructions | Combined installation instructions for DCV-CFb and pressure controller CFLb (mounting + connection). |
| Operation Instructions | Short presentation of LINDINSIDE and control variables. |
| Maintenance Instructions | Considered maintenance free. |
| External Connection Diagram | Shows how conductors from equipment are connected to CFLb. |
| Environmental Product Declaration | For assessment at Byggarubedömningen in Sweden. |
| Modbus List | Last entry in the modbus list for CFLb. |
| AMA-Text | Available. |