

Decentralised window and façade ventilators with high acoustic performance

Type FSL-B-100

Supply and extract air units with or without fan



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FSL

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The type FSL-B-100 (Fig 1) is a façade ventilation unit incorporating noise control. It provides supply or extract air for individual rooms or can be applied to complete buildings. This type of unit is integrated into the façade/external wall and provides ventilation into or out of the internal space using the most direct route. Various configurations are available ranging from non fan powered ventilation to fan powered supply and extract units with or without motorised shut-off dampers and with backdraught flap. Operation of the units can be controlled by an integral rocker switch or by a manual shut-off device as well as by external switching provided by others.

Fig. 1
Type FSL-B-100-...-SEB



Fig. 2
Construction
External casing – Modular inserts – inspection flap



The type FSL-B-100 consists of an external casing with inspection flap and modular insert (Fig. 2). The external casing between the front and rear extrusions is from flame retardant rigid board (material rating B1). This ensures adequate unit stability whilst providing a thermal break in the construction between front and rear detail. The units can be installed under a sill, or as the sill itself, at high level, or as part of a window head detail, vertically at the side of a window or integrated into curtain walling. The external face aluminium extrusion incorporates an insect screen. The modular approach allows the installation of the external casing at an early stage of the construction process. After the installation of the external casing modular inserts of supply or extract air elements with acoustic and thermal insulation can be installed to meet the design requirements. The modular approach doesn't only prevent contamination and/or damage to the modular units but also allows the flexibility to change the functional configurations after completion of the building.

The units have an overall height of 100 mm and are variable in depth and width between 231 to 600 mm and 1000 to 3000 mm respectively (see construction on page 3). Thus they can be ideally matched to the structural situation.

With a width of 1950 mm or above two modular inserts can be fitted into the external casing. The casings can be finished in different RAL colours.

For units with electrical components (fan and/or shut-off damper), a 230 V voltage supply is necessary.

Detailed instructions on installation, electrical connection, operation and maintenance can be found in the Installation, Operating and Maintenance Manual MW/FSL/7/EN.

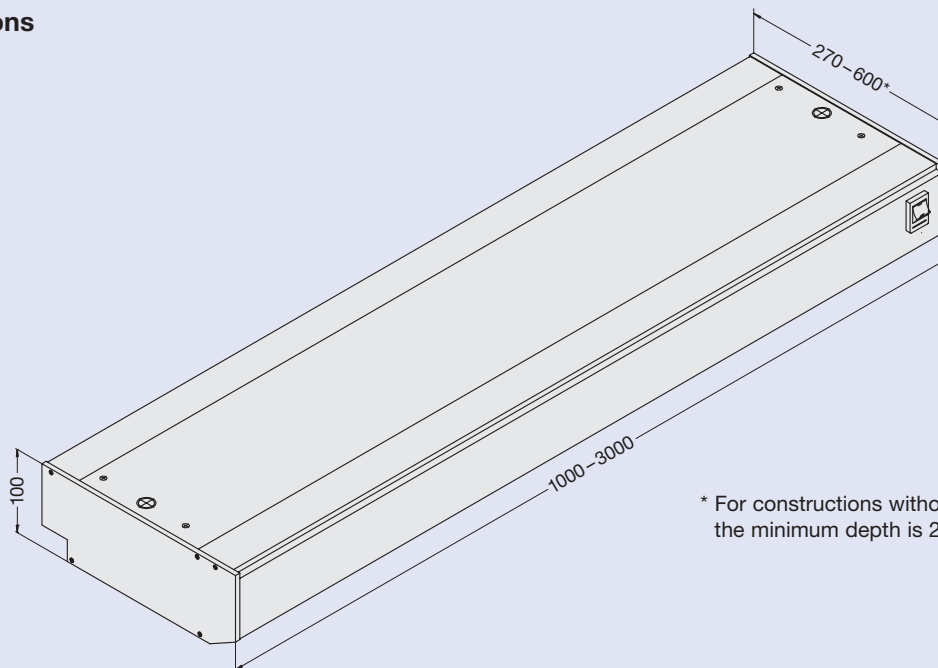
The modular inserts are made from galvanised sheet steel and are lined with mineral wool covered with a fibreglass mesh for noise control and thermal insulation. The materials used are resistant to erosion for air velocities up to 20 m/s and meet all the hygiene requirements of VDI 6022.

The basic design of the inflow or outflow units contains an automatic backdraught damper ① which prevents reverse air flows. The back draught damper has no function when the unit is installed vertically. In these variants the following constructions are available as options:

- manual stepless shut-off device on the lower surface of the internal section extrusion for closure of the air outlet ⑦
- coarse dust filter class G3 ③
- motorised shut-off damper (power off closed) ⑤

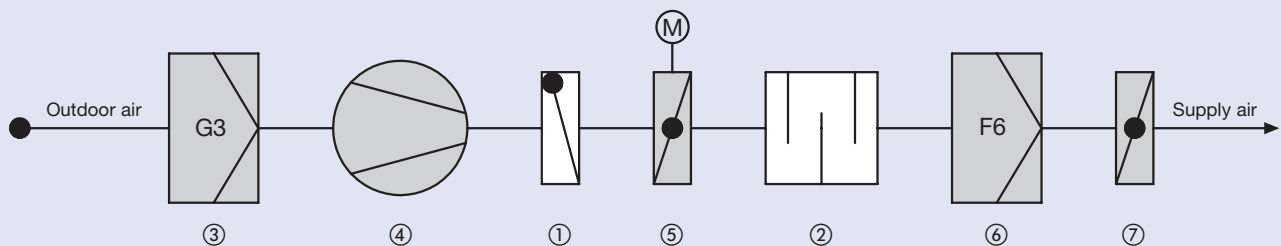
The standard construction for fan powered supply or extract air units includes sound insulation lining ② backdraught damper ① and radial flow fan ④. The control of the unit can be by a three position rocker switch (0/1/2) or by external switching supplied by others. The two stage fan provides a choice of flow rates as follows 30/40/50/60/80 m³/h. Potentiometers are used to achieve the adjustment. Thus flow rates can be changed to reflect subsequent changes in the division of the internal space. The installation of an F6 fine dust filter ⑥ is also possible. With the installation of F6 filters the mechanical ventilation units comply with all the requirements of VDI 6022.

Main dimensions



* For constructions without external extrusion, the minimum depth is 231 mm.

Ventilation schematic diagram



The grey components are optional.

- | | |
|----------------------|-----------------------------|
| ① Backdraught damper | ⑤ Motorised shut-off damper |
| ② Attenuator | ⑥ Fine dust filter |
| ③ Coarse dust filter | ⑦ Manual shut off device |
| ④ Fan | |

Construction · Installation proposals

The type FSL-B-100 unit is available in various configurations to match the application and installation requirements.

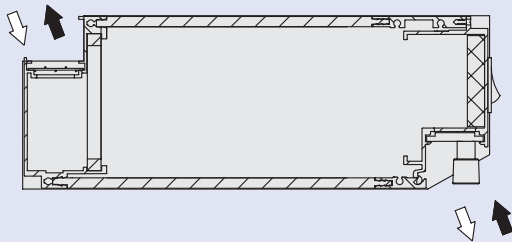
Six different casing configurations provide the ability to optimise the construction for a particular type of installation. There are three casing configurations for sill installation as shown below. Page 5 gives details of configurations for two window head options and a side of window installation.



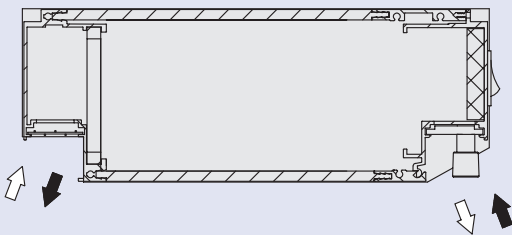
Installation example FSL-B-100 · Office application

Construction of casing

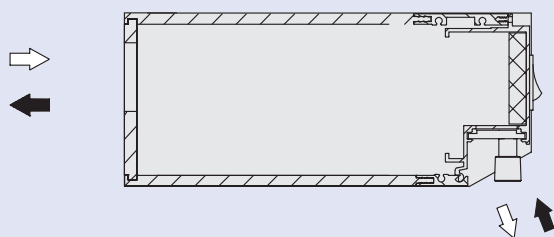
Covered installation under sill · **VEB**



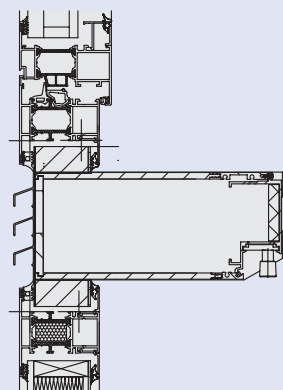
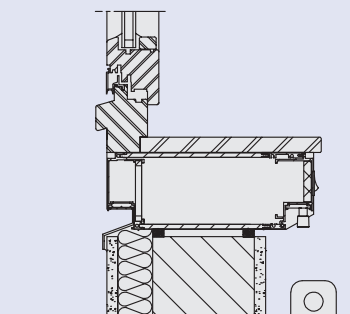
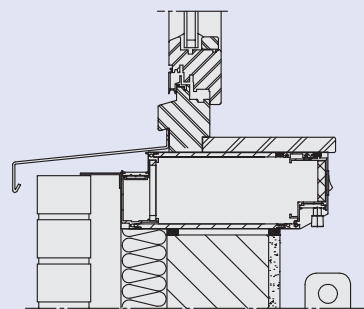
Visible installation under sill · **SEB**



Without integral extrusion, installation under sill · **OAB**



Installation proposals



Construction · Installation proposals

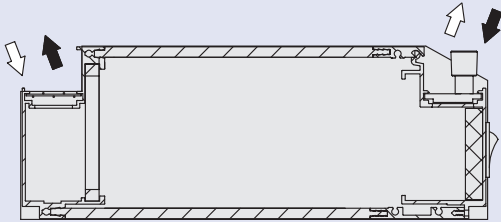
Independent of the casing construction, different modular inserts can be fitted to provide a large number of different configurations. The basic layout and function of the different inserts are described on page 3.



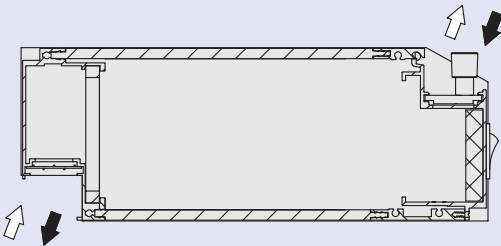
Installation example FSL-B-100 · Corridor application

Construction of casing

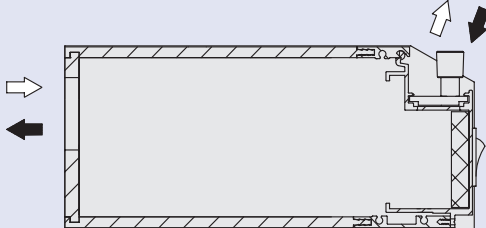
Installation at side of window · **VED**



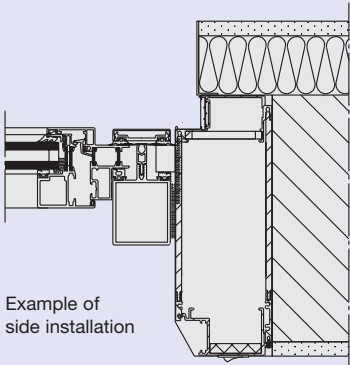
Visible installation as window head detail · **SED**



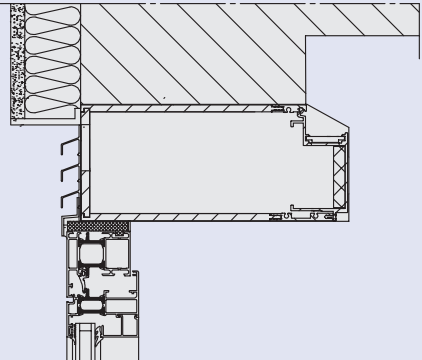
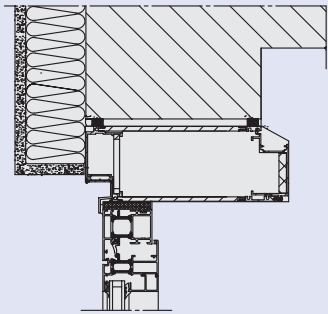
Without integral extrusion, installed as window head detail · **OAD**



Installation proposals



Example of side installation



Installation · Operation · Maintenance

Installation

There are various options for the integration and installation of the type FSL-B-100 into the façade. The basic version of the unit is supplied with casing ② fixing plugs and screws ① installation under sill or in the window head detail.

When installing in a window head detail or curtain walling, the casing can be supplied with purpose designed fixing components as optional items. These can be factory fitted to simplify site installation. After installation of the casing, the modular insert ③ is fitted and electrically connected.

The inspection flap ④ is hung and fastened with screws ⑤. A detailed description of the unit installation and the electrical connection can be found in the Installation, Operating and Maintenance Manual MW/FSL/7/EN.

Operation

The operation of units with integral electrical components (fan and/or shut-off damper) is controlled by a three position rocker switch (0/1/2) ⑥, this is fixed into the inspection flap ④. These units can alternatively be actuated by means of an externally located switch supplied by others. For units without electrical components a manual shut-off device is integrated in the modular insert and a backdraught flap can be integrated into the inspection flap.

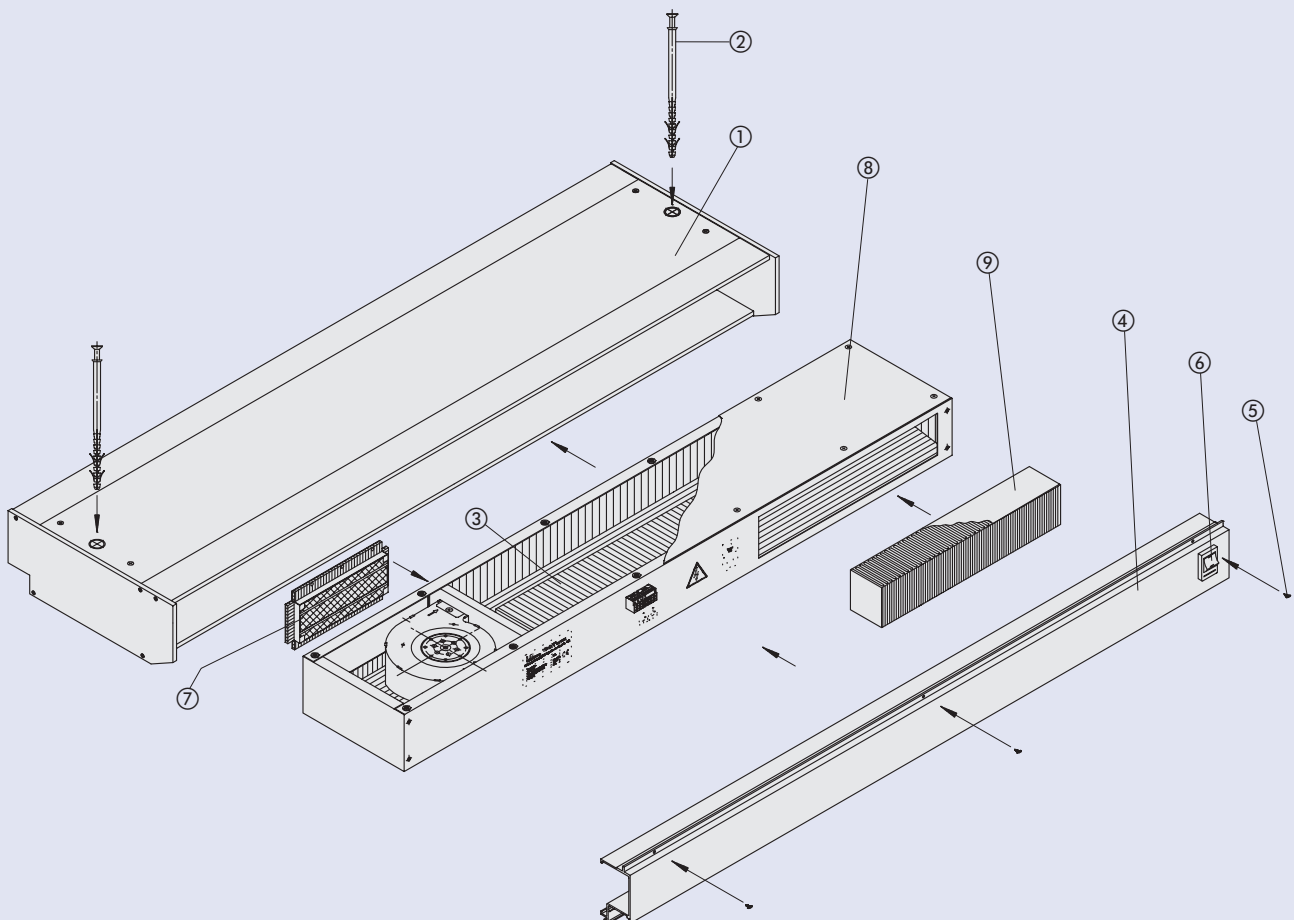
A detail description of the unit operation can be found in the Installation, Operating and Maintenance Manual MW/FSL/7/EN.

Maintenance

To change filters, the inspection flap ④ fastened with the screws ⑤ must be opened. In units fitted with F6 filters ⑨, the filter change can be performed without removal of the modular insert. The fine dust filter is visible on the right hand side of the front of the modular insert; the dirty cartridge can be removed from the front and replaced with a new one. In units fitted with G3 filters ⑦ the modular insert ③ must be pulled out of the outer casing to effect a filter change.

The filter pad is accessible on the rear end of the insert for changing. Detailed instructions on how to replace the filter and how to clean and care for the equipment can be found in the Installation, Operating and Maintenance Manual MW/FSL/7/EN.

- ① External casing
- ② Casing fixing plug and screw
- ③ Modular insert
- ④ Inspection flap
- ⑤ Fixing screws for inspection flap
- ⑥ Rocker switch
- ⑦ Coarse dust filter G3 (optional)
- ⑧ Insert cover
- ⑨ Fine dust filter F6 (optional)



Nomenclature

H	in mm: Unit height
T	in mm: Unit depth
B	in mm: Unit width
\dot{V}_{mG}	in m ³ /h: Volume flow with fan (without filter)
\dot{V}_{oG}	in m ³ /h: Volume flow without fan (without filter)
Δp	in Pa: Pressure difference between the room and outside
$D_{n, e, w (a)}$	in dB: Evaluated regulation noise-level difference with unit off
$D_{n, e, w (b)}$	in dB: Evaluated regulation noise-level difference unit in operation
L_p	in dB(A): Sound pressure level (fan/air noise) within the space with an 8 dB room attenuation
P_{el}	in watt: Max. electric power consumption

Technical data

H	100
T	231 – 600
B	1000 – 3000
\dot{V}_{mG}	30 / 40 / 50 / 60 / 80
\dot{V}_{oG} (for $\Delta p = 20$ Pa)	approx. 30
P_{el} (for 230 V / 50 Hz)	18
$D_{n, e, w (a)}$ (for T = 270 mm)	57
$D_{n, e, w (b)}$ (for T = 270 mm)	55
L_p (for $\dot{V}_{mG} = 30$ m ³ /h)	25
L_p (for $\dot{V}_{mG} = 50$ m ³ /h)	31
L_p (for $\dot{V}_{mG} = 80$ m ³ /h)	38

Order details

Specification Text

Modular constructed ventilation unit for supply and extract air application, with or without fan (single modular insert)

External casing:

- For installation under or as a sill, on the side of, or above a window or integrated into curtain walling.
- Outer casing from flame retardant rigid board (material rating B1, flame resistant to DIN 4102, part 1). The board provides a thermal break between the front and rear of the casing.
- Front and rear casing elements are aluminium extrusions.
- Aluminium components powder-coated white RAL 9010.
- External inlet/discharge face can be visible or covered or without the aluminium extrusion.
- Internal inspection flap can swing forward.
- Cable exit can either be on the left or the right of the assembly.
- Outer casing fixing screws (10 mm) and plugs included in supply.
- All constructions comply with all the hygiene requirements of VDI 6022.

Modular inserts:

- As supply or return air unit with or without fan.
- One/two stage fan (volume flow rate can be selected, options 30, 40, 50, 60 or 80 m³/h).
- Fan/air noise for fan powered units 30/50 m³/h L_p = 25/31 dB(A) including a room attenuation of 8 dB)
- Control of powered operation by integral switches or external remote switches supplied by others.
- Acoustic and thermal lining mineral wool with fibreglass mesh covering (material rating class A flame retardant to DIN 4102 part 1) erosion resistant for air velocities up to 20 m/s.

- Regulation standard sound level difference with a depth of 270 mm, unit switched off unit D_{n,e,w} = 57 dB unit operating D_{n,e,w} = 55 dB.
- Automatic backdraught flap.

Dimensions:

Height: 100 mm, Depth: 231 – 600 mm, Width: 1000 – 3000 mm

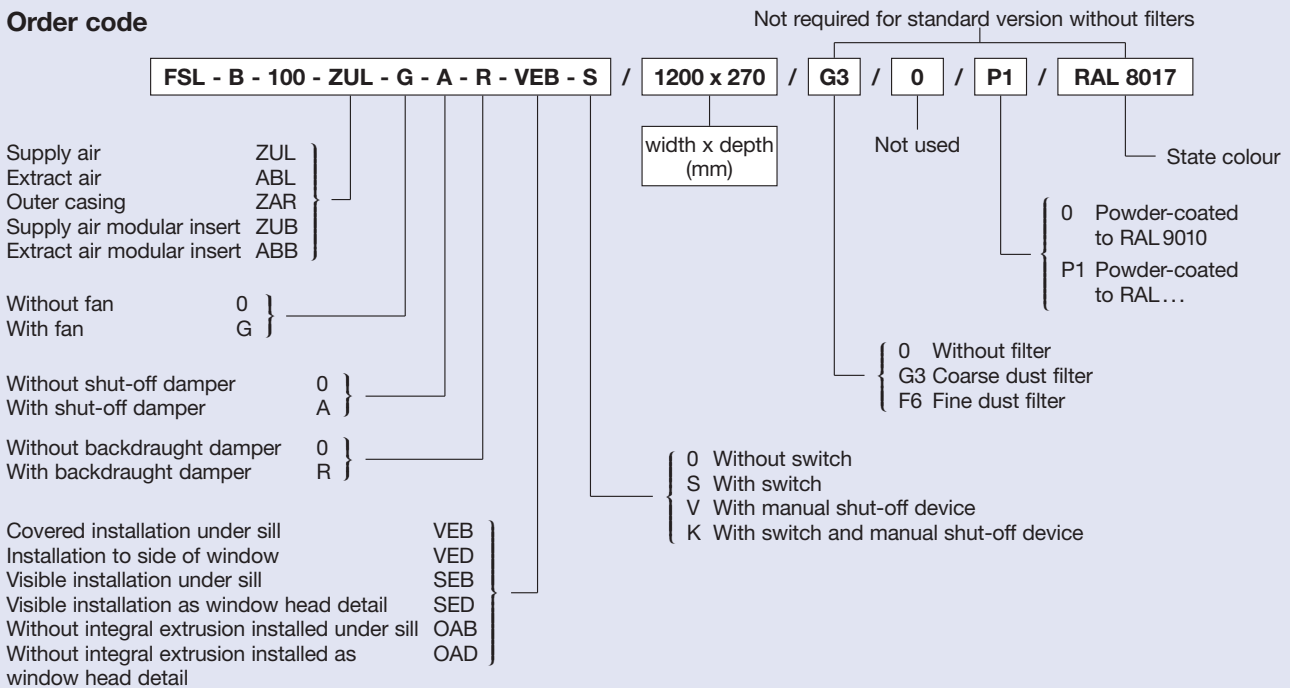
External casing options:

- Factory assembled details: perimeter fixing frame (related to glass strength) or side fixing angles.
- Weather bar (with or without adjustment detail), fixing strip for location of unit on window detail.
- Can be finished in required RAL colour.
- Aluminium lamination finished in the required RAL colour.
- More than one modular insert for widths over 1950 mm.
- Manual shut-off device.
- Integral rocker switch.

Modular insert options:

- Open/closed shut off damper with spring return actuator, power off closed.
- G3 coarse dust filter, easy filter change.
- F6 fine dust filter, easy filter change (necessary with fan powered modular insert to comply with all the hygiene requirements of VDI 6022).

Order code



Order example

Make: TROX

Type: FSL-B-100-ZUL-G-A-R-VEB-S / 1200x270 / G3 / P1 / RAL 8017