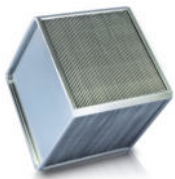




Conforms to VDI 6022



Energy label



Cross flow heat recovery unit



Water connection



Levelling foot

Decentralised ventilation

FSL-V-ZAB/SEK

Supply and extract air unit with heat exchanger and heat recovery unit, secondary air option, for vertical installation on an external wall, e.g. adjacent to a window

Ready-to-operate decentralised ventilation unit for comfortable room temperature control and ventilation of rooms

- Acoustically optimised EC fans with low specific fan power, acc. to DIN EN 16798-3 SFP = 0
- Cross flow heat recovery unit (heat recovery efficiency 61 %)
- Highly efficient heat exchanger for heating and cooling as 2-pipe or 4-pipe system
- Heat exchanger connection is on the right side of the room
- Condensate drip tray with condensate drain
- Heat recovery all year round (condensate drainage required on site)
- Unit floor space approx. 0.13 m²
- Reduction of fine dust and pollen contamination due to integral filters that conform to VDI 6022 – filter class ISO ePM1 65% / ISO coarse 50%
- Service-friendly maintenance cover for filter changing and cleaning the heat recovery system
- Motorised shut-off dampers, normally closed (NC)
- Automatic switching to secondary air mode (based on air quality)

Optional equipment and accessories

- Control system FSL-CONTROL III, specially designed and modularly constructed for decentralised ventilation systems
- Wood panelling covers in various colours, with TROX ventilation grilles for supply and extract air (self-assembly kit)

Function	2	Specification text	7
Function	3	Order code	11
Technical data	5	Dimensions	13
Quick sizing	5	Product details	14

Function

Decentralised supply and extract air units for room ventilation and for dissipating cooling loads and heat loads. An EC centrifugal fan takes in the outdoor air which then flows through the motorised shut-off damper and the outdoor air filter. Then the outside air flows through the cross-flow heat recovery unit, which can be bypassed in energetically sensible operating situations and for unit protection. Before the supply air flows into the room like displacement flow, it is heated or cooled in the heat exchanger if required. The extract air first passes through the extract air filter, then flows through the heat recovery unit, the extract air fan and the motorised shut-off damper before it is discharged to the outside as exhaust air. If the indoor air quality is sufficient, FSL-CONTROL III closes the outdoor air dampers to change into the more energy efficient secondary air operation

mode. The control system compares the room air quality setpoint value to the actual value measured by the CO₂ sensor and switches automatically between outdoor air and secondary air operation. In case of a power failure, the outdoor air and exhaust air dampers are closed to ensure fire protection, frost protection and to avoid draughts. This is ensured by a capacitor in each actuator. Near the external wall, the supply air is discharged into the room with a medium velocity between 1.0 and 1.5 m/s. Due to the induction effect, the supply air velocity is rapidly reduced after entering the room. As a result, in cooling mode, the supply air spreads out like displacement ventilation over the entire floor area. Near heat sources such as people or equipment, a lift current is formed by natural convection, so that the air is exchanged primarily in these areas.

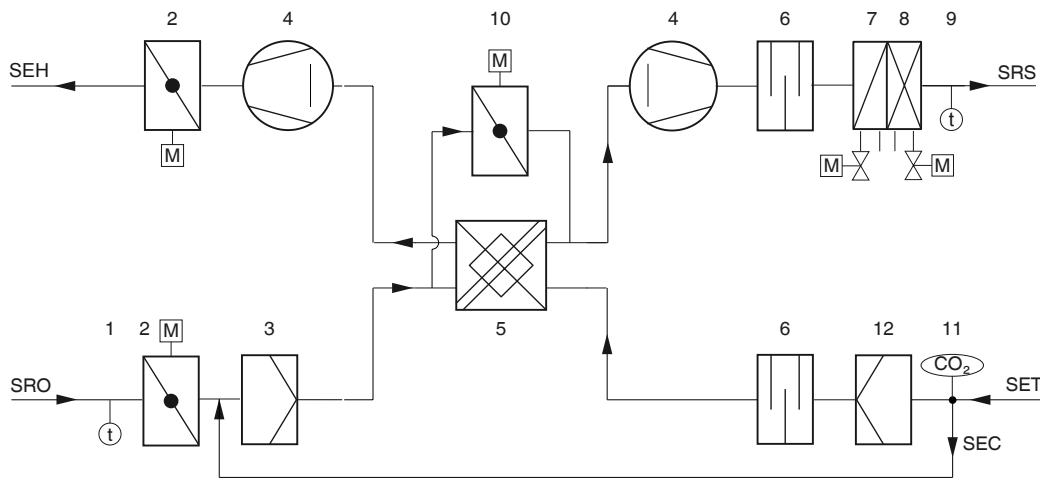
Function

Functional description

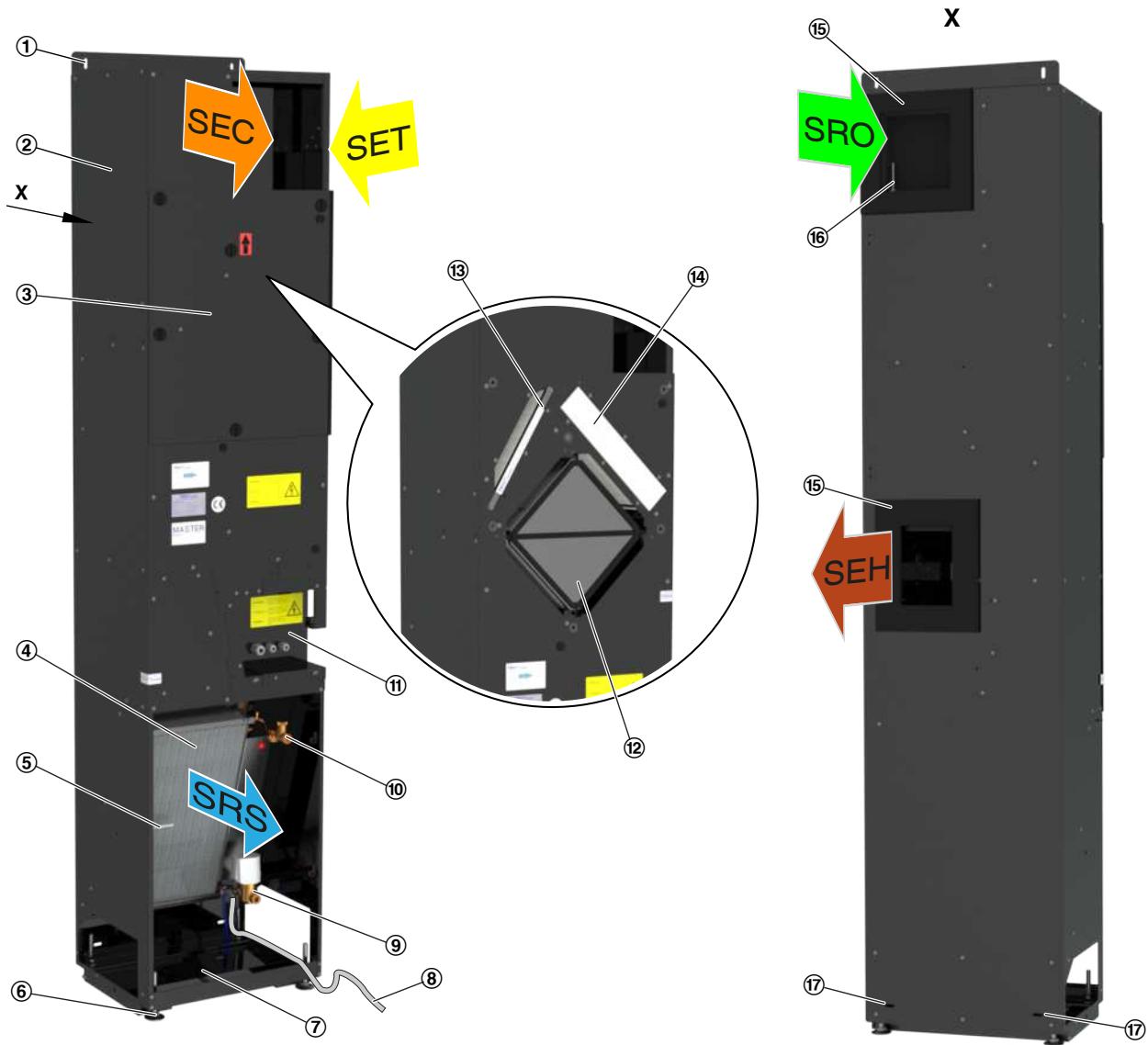
Decentralised supply and extract air units for room ventilation and for dissipating cooling loads and heat loads. An EC centrifugal fan takes in the fresh air which then flows through the motorised shut-off damper and the F7 filter. Once the fresh air has passed the fan, it flows through the recuperative heat exchanger for heat recovery; it is possible to bypass the heat exchanger in order to protect it, or when it is sensible with regard to energy efficiency. If necessary, the air is heated or cooled by the heat exchanger before it is discharged to the room as a displacement flow.

The extract air first passes a G3 filter (that protects the unit), then flows through the heat exchanger (for heat recovery), the extract air fan and the motorised shut-off damper before it is discharged to the outside as exhaust air.

Automatic switching to secondary air mode (only with an air quality sensor) if the room air quality is sufficient. The fresh air damper closes, the self-powered secondary air damper opens and the extract air fan is switched off. The unit always starts in secondary air mode, which is more energy efficient.



- 1 Outdoor air temperature sensor (optional)
- 2 Shut-off damper with actuator (exhaust air and outdoor air)
- 3 Outdoor air filter
- 4 Fans (supply air and extract air)
- 5 Recuperative cross flow plate heat exchanger
- 6 Sound attenuator
- 7 Heating coil
- 8 Cooling coil
- 9 Supply air temperature sensor
- 10 Bypass damper with actuator
- 11 CO₂ sensor (optional)
- 12 Extract air filter
- SEH Single room exhaust air
- SET Single room extract air
- SRO Single room outdoor air
- SRS Single room supply air
- SEC Secondary air (optional)



- 1 mounting bracket (sliding)
- 2 Casing
- 3 Inspection access panel
- 4 Heat exchanger 2- or 4-pipe
- 5 Supply air temperature sensor
- 6 Levelling feet
- 7 Condensate drip tray
- 8 Supply voltage connecting cable
- 9 Control valve
- 10 Lockshield
- 11 Access panel control
- 12 Cross flow heat recovery
- 13 Extract air filter ISO coarse 50%
- 14 Outdoor air filter ISO ePM1 65%
- 15 Seal on the wall side
- 16 Outdoor air temperature sensor (optional)
- 17 Lower fixing holes
- SEH Single room exhaust air
- SET Single room extract air
- SRO Single room outdoor air
- SRS Single room supply air
- SEC Secondary air (optional)

Technical data

Width	400 mm
Height	1800 mm
Depth	320 mm
Volume flow rate	75, 90, 120 m ³ /h (boost 150 m ³ /h)
Nominal volume flow rate	120 m ³ /h
Sound pressure level at nominal flow rate and 8 dB room attenuation	32 dB(A)
Sound power level	30 – 44 dB(A)
Heat recovery efficiency	61%
Maximum operating pressure, water side	6 bar
Maximum operating temperature	75 °C
Supply voltage	230 V AC ±10 %, 50/60 Hz
Power rating	240 VA
Weight	60 kg

Quick sizing

Sizing example 1

Supply air flow rate	m ³ /h	75	90	120	150
Total cooling capacity	W	350	420	550	690
Room cooling capacity	W	205	243	325	401
Air temperature inside the unit	°C	32	32	32	32
Relative humidity	%	40	40	40	40
Water content of the dry air	g/kg	11.9	11.9	11.9	11.9
Supply air temperature	°C	17.8	17.9	17.9	18
Condensation	g/h				
Chilled water flow rate	l/h	50	70	110	150
Water temperature, inlet	°C	16	16	16	16
Water temperature, outlet	°C	22	21.1	20.3	19.9
Water side pressure drop	kPa	2.1	3.7	8.2	14.1
Total heating capacity	W	1480	1740	2280	2770
Room heating capacity	W	383	433	545	611
Air temperature inside the unit	°C	-16	-16	-16	-16
Supply air temperature	°C	35.3	34.4	33.6	32.2
Hot water flow rate	l/h	40	50	80	110
Water temperature, inlet	°C	60	60	60	60
Water temperature, outlet	°C	27.9	29.8	35.2	38
Water side pressure drop	kPa	2.6	3.8	8.5	14.7
Sound power level LWA	dB(A)	30	33	39	44
Sound pressure level including 8 dB system attenuation	dB(A)	22	25	31	36
Active power P _{el}	W	20	23	27	35

Sizing example 2 with year-round heat recovery utilisation

Supply air volume flow	m ³ /h	75	90	120	150
Total cooling capacity	W	320	390	520	660
Room cooling capacity	W	200	240	321	401
Air temperature inside the unit	°C	28	28.1	28.3	28.4
relative humidity	%	50.2	50	49.5	49.3
Water content of dry air	g/kg	11.9	11.9	11.9	11.9
Supply air temperature	°C	18	18	18	18
Condensate	g/h	104	133	162	207
Chilled water flow rate	l/h	40	55	88	112
Water inlet temperature	°C	12	12	12	12
Water outlet temperature	°C	18.8	18	17.1	17.1
Water side pressure drop	kPa	1.4	2.4	5.5	8.4
Total heating capacity	W	620	780	1030	1290
Room heating capacity	W	318	388	493	541
Air temperature inside the unit	°C	9.8	9.2	8.8	7.4
Supply air temperature	°C	33.7	33.9	33.3	31.8
Condensate	g/h	200	200	200	300
Hot water flow rate	l/h	35	50	80	100
Water inlet temperature	°C	45	45	45	45
Water outlet temperature	°C	29.5	31.5	33.8	33.8
Water side pressure drop	kPa	2	3.6	8.2	12.2
Sound power level L _{w,a}	dB(A)	30	33	39	44
Sound pressure level including 8 dB room attenuation	dB(A)	22	25	31	36
Active power P _{el}	W	20	23	27	35

Specification text

This specification text describes the general characteristics of the product. Texts for variants can be generated with our Easy Product Finder design program.

FSL-V-ZAB/SEK-4-KM/400×1800×320/C3

Under sill units for vertical installation on an external wall

Please note:

The vertical decentralised ventilation unit variant described is equipped with an individual room control located in the unit for self-sufficient room operation. The parameters for standard control of a classroom according to our control system description are stored in the controller

FSL-V-ZAB/SEK with automatic secondary air changeover function - master unit

TROX FSL-V-ZAB/SEK vertical decentralised ventilation unit with supply and extract air function and switchover option to secondary air operation (depending on air quality), heat recovery as well as heating and cooling function for mounting on on-site facade construction:

- Casing made of galvanised sheet steel, cover and sheet metal connections with deep-drawn threads and stainless steel cross-head screws, internal ducts sealed and lined as required, internal cable penetrations sealed, exposed surface powder-coated (RAL 9005, jet black)
- For on-site fastening, adjustable L-bracket on the top of the unit with 2 slotted holes and slotted holes behind the heat exchanger in the lower part of the unit
- Opening on the room side in the upper area for the extract air and secondary air intake, without sealing tape, sealing to the sill panelling by means of closed-pored sealing tape to prevent air short-circuits (sealing tape not included in TROX scope of delivery) is required
- Sound- and heat-insulating lining on suction and discharge side made of mineral wool faced with glass fibre scrim (material classification A, non-combustible according to DIN 4102, T1), erosion resistant up to air velocities of 20 m/s, or closed cell insulation material
- The unit meets the hygiene requirements of VDI 6022
- Levelling feet, +40 mm
- Connection to the on-site fresh air and exhaust air openings of the façade by means of a circumferential closed-pore sealing tape on the rear side of the unit, $w \times d = 50 \times 10$ mm, the intake and discharge resistance of the on-site construction should not exceed 20 Pa at nominal volume flow. The weather protection must be provided on the façade side and serves to protect the unit (weather protection not included in the TROX scope of delivery)
- Use of 2 energy-saving EC centrifugal blowers, supply and extract air fan classified in category SFP 0 (< 500 W/(m³/s) according to DIN EN 16798-3: electrical power consumption of the entire unit at nominal volume flow 120 m³/h < 27 W, a connected load of 240 VA must be taken into account for dimensioning the connecting cable
- Suitable for 4 speed levels (e.g. 60, 90, 120 and 150 m³/h), control via unit-internal individual room control, volume flow rate level correction by adjusting the control voltage subsequently possible
- Meets the requirements of EU Regulation 1253/2014 (ErP Directive)
- Sound power level in supply/exhaust air mode at 60/90/120/150 m³/h = 30/33/39/44 dB(A) (corresponds to a sound pressure level of = 22/25/31/36 dB(A) with a room attenuation of 8 dB). The measurement values refer to sound power measurements of a single unit in a reverberation chamber according to accuracy class 1. Results may vary depending for some installation situation
- Integrated recuperative, cross-flow heat exchanger for heat recovery in seawater-resistant aluminium design, with high efficiency due to special plate structure, plate spacing and package length, including condensate tray and discharge into the heat exchanger condensate tray. Accessibility for maintenance purposes via separate service cover possible without removing the unit cover
- With electromotive bypass, which bypasses the heat recovery unit, 24 V drive (continuous), 100 % open-close, control via unit-internal individual room control system
- Motorised shut-off dampers in fresh air and exhaust air areas, normally closed in inactive state via energy storage, 230 V drive, open-close, control via unit-internal individual room control system
- Automatic switching to secondary air mode (only with an air quality sensor) if the room air quality (measured with the integral CO₂ sensor, for example) is within the defined limits. The outdoor air damper closes, the self-powered secondary air damper opens and the extract air fan is switched off.
- Integral electrical components are completely wired with FSL-CONTROL III, control components are integrated. Cable for on-site connection (connection not included in TROX scope of delivery) of the power supply (L, N, PE) with wire end ferrules led approx. 1 m out of the unit, as a transfer point to the on-site electrical installation:
 - Supply voltage (230 V): 3 wires, 3×1.5 mm² (L, N, PE)
- Integration with bus system as an option, connection of control panels etc. in the customer area of the control system. As a transfer point to the controls provided by others:
 - Rail mount terminals type Wago 260 for the connection (by others) of
 - Digital inputs DI
 - Digital outputs DO
 - Master-slave connection RS485
 - Central BMS connection (optional) RS485
 - Room control panel
- RJ45 socket as service access to the user interface or for BMS connection (optional) Ethernet
- The following sensors are included in the unit as part of the single room control system (the actual room temperature is captured at the control panel):
 - Indoor air quality sensor CO₂
 - Supply air temperature measurement downstream of the heat exchanger

- Outdoor air temperature measurement in the outdoor air intake
- 4-pipe aluminium-copper heat exchanger for air heating or air cooling, matched to the project-specific data, easily removable for cleaning (decisive is the on-site connection to the main piping, not included in TROX's scope of supply), drainage and venting option per heating/cooling circuit, arrangement on the right-hand side of the room. We recommend a connection to the on-site pipe network with flexible hoses (not included in the TROX scope of delivery), so that the heat exchanger can be easily removed for cleaning
- Transfer points are the manually pre-assembled control components
 - Valves in the return: transfer with G ½" external thread, flat seal
 - Lockshields in the flow: transfer with G ½" external thread, flat seal
- Easy-to-clean condensate pan made of galvanised sheet steel, powder-coated RAL 9005, with condensate drain Ø 12 × 1 [mm]
- Outdoor air filter as Mini Pleat filter, class ePM1 (fine dust filter):
 - Filter class to ISO 16890: ISO ePM1 65%
 - Eurovent-certified
 - ePM1 filter media made from high-quality, wet-strengthened glass fibre paper are pleated, the spacers are made from thermoplastic hot melt adhesive and ensure uniform spacing (4 mm) between the pleats
 - The frame is made of moisture-resistant fleece with pull-out tabs and must not reduce the flow cross-section (filter size = flow cross-section)
 - Filter area ≥ 1.8 m²
- Extract air filter class G3 (coarse dust filter) as flat filter medium, filter class according to ISO 16890: ISO coarse 50%
- Easy inspection of the filters and the heat recovery unit due to the compact arrangement of the components behind the service cover. The service lid can be opened without tools via user-friendly quarter-turn fasteners. Accessibility must not be restricted by the on-site parapet cladding
- Closed-pored sealing tapes for sealing and adaptation to the on-site cladding are not included in the TROX scope of delivery
- The sill cladding provided by the customer shall have perforations in areas of the heat exchanger to be specified for the introduction of supply air into the room and shall not restrict maintenance work or unit assembly/disassembly on the front side of the unit. An opening for exhaust air intake must also be arranged in the upper area of the cladding
- Clear distance of approx. 30 mm between the front edge of the unit and the inner edge of the under sill trim
- The front of the device must be completely accessible after disassembly of the outer casing

Units - dimensions and weight:

Width: approx. 400 mm

Height: approx. 1800 mm (without top mounting bracket, without height adjustment)

Depth: approx. 320 mm (without compressible façade seal on the back of the unit)

Weight: approx. 60 kg

FSL-CONTROL III controller

Including control system FSL-CONTROL III, as described below: FSL-CONTROL III is described as stand-alone single room control equipment with a simple timer. Optional expansions, such as connection to the central BMS provided by others via Modbus TCP / Modbus RTU, BACnet MS/TP or BACnet IP, humidity sensors, return flow temperature sensors, electromotive valve actuators or pressure-independent control valves are included in the product range, but must be replaced with the standard components in the following description. A room temperature signal is also required. Various room control panels and sensors are available for this purpose. The corresponding optional equipment text modules can be found in the appendix of the following standard equipment for room-autonomous operation. We recommend commissioning by our technical service. You will find related text modules below.

TROX control module FSL-CONTROL III (order code ...-C3-MA ...):

- Single room controller for mounting on DIN mounting rail in the unit or in a separate control casing
- 42 digital or analogue inputs and outputs
- MicroSD card (at least 2 GB) as integral flash memory. The trend data is stored here and can be accessed via the RJ45 service socket.
- Equipped at the factory with a software package for master units specially developed for decentralised ventilation units. The software enables simple master-slave communication via Modbus RTU
- Up to 10 slave devices can be connected to one master device
- The software provides 3 types of operation (Off, Automatic and Manual), 3 operating modes (Occupied, Unoccupied and Standby) and 4 operating mode overrides (Boost, Class, Night Ventilation and Fan Forced Circuit)
- Basic distinction between room temperature control by controlling heating and cooling valves or modulating bypass damper or supply air temperature control for isothermal ventilation
- CO₂-guided air quality control
- Year-round heat recovery use
- Filter monitoring
- Configurable DI, e.g. for connection (by others) of PIR sensors, window contacts, holiday switching, etc.
- Alarm signals type A (= switch-offs) and type B (= notifications)

Real time clock (RTC)

Real Time Clock (RTC/real time clock) (order code ...-T/...):

- Component of the Master Software Package
- Enables a simple timer
 - 7 days with 10 switching points each
 - Automatic summer / winter time changeover
 - Temporal activation of night purge

CO₂ sensor

CO₂ sensor (order code .../C/...):

- Sensor arranged in the extract air intake of the master unit for recording the indoor air quality and corresponding control of the outdoor air flow rate

- Measurement via an NDIR sensor, which works on an infrared basis and compensates for any contamination by its 2-beam measurement principle
- Measuring range 0 – 2000 ppm

Supply air temperature sensor

Supply air temperature sensor (order code .../Z/...):

- Supply air temperature sensor with NTC thermistor as sensing element, resistance 10 kΩ at 25 °C, measuring range 0 – 50 °C
- Especially fast response time due to perforated measuring tip

Fresh air temperature sensor

Outdoor air temperature sensor (order code .../A/...):

- Outdoor air temperature sensor with NTC thermistor as sensing element, resistance 10 kΩ at 25 °C, measuring range -30 – 50 °C

Water side components

Water-side components (order code.../HV-R-.../KV-R-...):

- Valve actuators: 2 × thermoelectric actuators for opening and closing valves, with position indicator, including pluggable connection power, operating voltage 24 V DC, control voltage 0 - 10 V DC, power consumption 1 W, protection class: IP 54
- Straightway valves: 2 × straightway small valves ½" standard, hand-tight pre-assembled, PN 16, DN 10, kvs 0.4 (alternatively 0.25, 0.63 or 1.0 m³/h - please state the required kvs value), threaded connection G 1/2B, media temperature 1 - 110 °C
- Lockshields: 2 x lockshields on both sides ½", manually preassembled, nominal width DN 15; ½ inch, valve casing straight through with male thread on both sides, flat seal, for regulation and shut-off, operating temperature max. 120 °C

Optional control accessories

Optional equipment to increase the comfort of the FSL-CONTROL III:

TROX control panels for FSL-CONTROL III:

At least one room temperature signal is required per room.

There are several variants of TROX control panels available, optionally with or without step switching. Additionally we offer a room temperature sensor RTF without control elements. Alternative room control units provided by the customer must be connected via bus communication.

Digital control panels for surface mounting:

For operation and adjustment of the ventilation units.

- Supplied loose as an accessory. Connection to master unit via Modbus Serial line. Project-specific software including setpoint value adjuster, various status displays, selector switch, CO₂ traffic light. Touch-sensitive colour display 3.5" 320 × 240 pixels. Sensor: NTC 10 kΩ. Degree of protection: IP 20. Type: Schneider TM172DCLWT. Dimensions (H × B × T): 120 × 86 × 25 mm, weight: 340 g, colour: white. Installation: Surface mounting or on a standard flush box. Supply voltage: 24 V DC. Power consumption: 3.2 VA/1.3 W. Other design frames are available upon request and for a surcharge.

Control panels with selector switch for surface mounting

Control panel with selector switch, for surface mounting, type Thermokon

- Supplied loose as an accessory, with room temperature sensor, setpoint adjuster, override button, LED and 3-step switch as well as off and automatic, housing made of PVC0 pure white (RAL 9010), mounting on 60 mm flush-mounted box or directly on the wall, NTC thermistor as sensor element, resistance 20 kΩ at 25 °C, dimensions (W × H × D): 84.5 × 84.5 × 25 mm, operating temperature: -35 - 70 °C

Control panels without selector switch for surface mounting

Control panel without selector switch, for surface mounting, type Thermokon:

- Supplied loose as accessory, with mode indicator, push-button and setpoint adjustment, sensor NTC 20 kΩ, protection class: IP 20, dimensions (W × H × D) 84.5 × 84.5 × 25 mm

Room temperature sensor for surface mounting

TROX RTF room temperature sensor, surface mounting

- Supplied loose as an accessory, room sensor without operating elements, measuring range: -35 - +70°C, sensor NTC 10 kΩ, connection terminal screw terminal, d = 1.5 mm, protection class IP 20, mounting on wall or on 70 mm flush-mounted box, dimensions (W × H × D) 85 × 85 × 30 mm, housing ABS in RAL 9010

Control panels without selector switch for flush mounting: For manual operation of the ventilation units with a high-quality look and matching design frames from various switch ranges, the unit is suitable for particularly design-oriented interiors.

Control panel without selector switch, for flush mounting, type Thermokon, switch from Berker S.1 range, polar white

- Supplied loose as an accessory, with mode display, push button and setpoint adjuster, NTC sensor 20 kΩ, protection level: IP 20

Control panel without selector switch, for flush mounting, type Thermokon, switch from Berker Q.3 range, white

- Supplied loose as an accessory, with mode display, push button and setpoint adjuster, NTC sensor 20 kΩ, protection level: IP 20

Control panel without selector switch, for flush mounting, type Thermokon, switch from Busch Jäger future linear range, white

- Supplied loose as an accessory, with mode display, push button and setpoint adjuster, NTC sensor 20 kΩ, protection level: IP 20

Other switch programmes on request!

Control panels without selector switch and without setpoint value adjuster for flush mounting

Control panel without selector switch and without setpoint value adjuster, for flush mounting, type Thermokon, switch from Gira E2 range

- Supplied loose as an accessory, with mode display and push button, NTC sensor 20 kΩ, protection level: IP 20

Other switch programmes on request!

Electromotive valve actuator as an alternative to the thermoelectric actuator installed as standard:

- 2 x electromotive actuators for opening and closing valves, supply voltage AC/DC 24 V, maximum power consumption 2.5 VA, signalling of control signal 3-point DC 0 – 10 V, permitted operating fluid temperature 1 – 110 °C

Pressure-independent control valve as an alternative to the through small valve installed as standard:

- 2 x pressure-independent control valves, manually pre-assembled with modulating open and close control in combination with an externally adjustable dynamic volume flow controller, with full valve authority, nominal width DN 10, ½ inch, valve casing straight through with male thread on both ends, flat seal, fluid temperature 0 - 120 °C

Interface for connection to central building management system (BMS) provided by others:

Modbus TCP interface including web server (order code .../MT/...): To increase comfort, we recommend integration into an on-site BMS. FSL-CONTROL III offers the option of being connected to an on-site BMS via Modbus TCP protocol.

Additionally incl. web server for simplified configuration, commissioning and remote monitoring of the device. The central BMS is not included in the supply package from TROX, only the interfaces listed above are available here.

- Modbus TCP interface (Ethernet)

BACnet IP interface including web server (order code .../BI/...): To increase comfort, we recommend integration into an on-site BMS. FSL-CONTROL III offers the option of being connected to an on-site BMS via BACnet IP protocol. Additionally incl. web server for simplified configuration, commissioning and remote monitoring of the device. The central BMS is not included in the supply package from TROX, only the interfaces listed above are available here.

- BACnet IP interface (Ethernet)

Modbus RTU (order code .../MR/...): To increase comfort, we recommend integration into an on-site BMS. FSL-CONTROL III offers the option of being connected to an on-site BMS via Modbus RTU. The central BMS is not included in the supply package from TROX, only the interfaces listed above are available here.

- Modbus RTU interface (RS485)

BACnet MS/TP (order code .../BM/...): To increase comfort, we recommend integration into an on-site BMS. FSL-CONTROL III offers the option of being connected to an on-site BMS via BACnet MS/TP. The central BMS is not included in the supply package from TROX, only the interfaces listed above are available here.

- BACnet MS/TP interface (RS485)

Commissioning of the decentralised ventilation units

Commissioning / parameter setting of decentralised ventilation units without connection to the central building management system

- Visual inspection of the unit connections carried out by others for compliance with the respective installation specifications from the installation and configuration instructions: air connections, heating/cooling connection, electrical connections, integration into the installed outer casing, connections of external components

- Checking and, if necessary, adapting the project parameters pre-set in the factory with regard to customer-specific adaptations
- Functional test of the individual components (control elements, fans, valves, dampers, sensors)
- Checking the project-specific control functions including any special functions such as volt-free switch contacts
- Documentation of the device settings as well as their use in a service report. The service report must be signed by your company as the customer or your representative
- The invoice is made as a flat rate, derived from the number of devices and distance

Commissioning / parameter setting of decentralised ventilation units with connection to the central building management system

- Visual inspection of the unit connections carried out by others for compliance with the respective installation specifications from the installation and configuration instructions: air connections, heating/cooling connection, electrical connections, integration into the installed outer casing, connections of external components, central building management system connections
- Checking and, if necessary, adapting the project parameters pre-set in the factory with regard to customer-specific adaptations
- Functional test of the individual components (control elements, fans, valves, dampers, sensors)
- Checking the project-specific control functions including any special functions such as volt-free switch contacts
- Function test of the communication to the central BMS in cooperation with the ordered controls company:
 - Checking that the settings that are provided by others comply with the specifications in the installation and configuration instructions
 - Input test of the data points sent by the customer
 - Output test of the output data points
 - Trial operation of the operating conditions switchable by the central BMS
- Documentation of the device settings as well as their use in a service report. The service report must be signed by your company as the customer or your representative
- The invoice is made as a flat rate, derived from the number of devices and distance

Instruction in operation and maintenance

- One-off instruction for the operation of the decentralised ventilation units consisting of:
 - Description of the equipment functions on the unit that has already been put into operation
 - Description of the room control panel and the room conditions that can be influenced by it
 - Description of maintenance work
- The invoice is a flat rate and is carried out by the responsible sales representative

Order example: FSL-V-ZAB/SEK-HE-4-KR/604×2200×260/C3/MA-T/MR/C/Z/A/HV-R-F0.40/KV-R-F0.25

Type	FSL-V-ZAB/ZEK
Variant	High heat recovery efficiency
Heat exchanger	4-pipe
Construction variant	with condensate drain on the right
Dimensions [mm]	Width 604, height 2200, depth 260
Control system	with FSL-CONTROL III
Control function	Master
Real time clock	with real time clock
Interface	with Modbus RTU
Air quality sensor	with CO2sensor
Supply air temperature sensor	with supply air temperature sensor
Outdoor air temperature sensor	with outdoor air temperature sensor
Heating valve	with heating valve
Lockshield – heating circuit	with lockshield
kVS value – heating valve	0.40 (straight-way valve)
Cooling valve	with cooling valve
Lockshield – cooling circuit	with lockshield
kVS value – cooling valve	0.25 (straight-way valve)

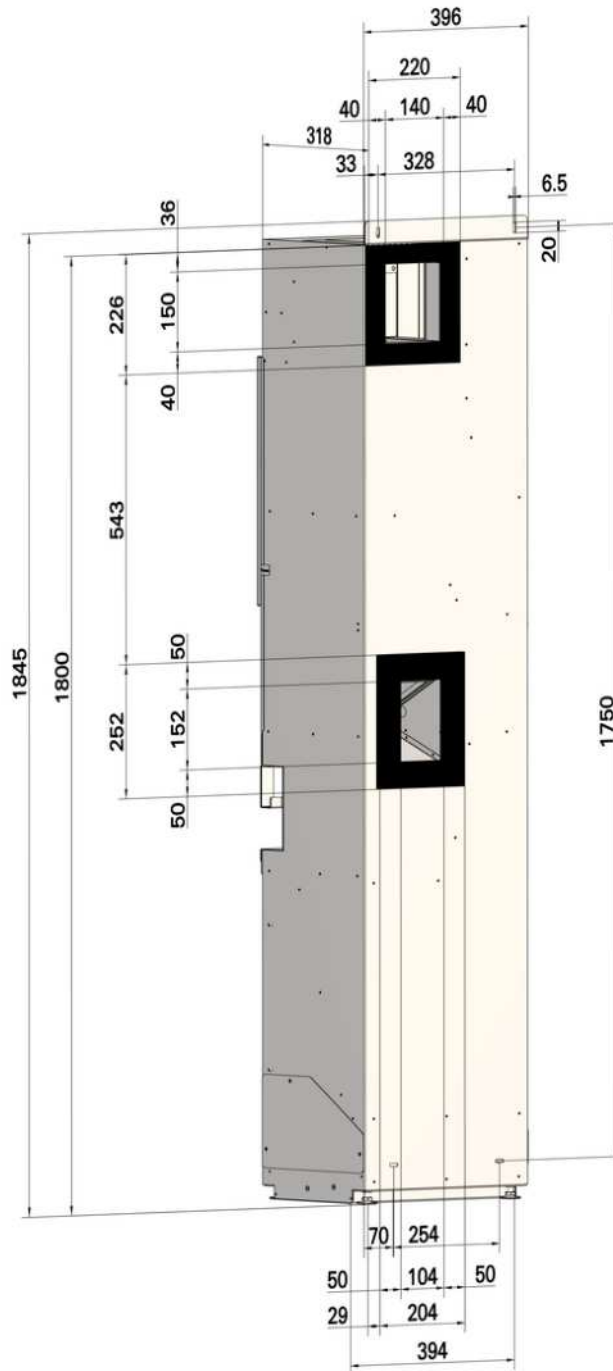
Order example: FSL-V-ZAB/SEK-4-KM/400×1800×320/C3/MA-T/MR/C/Z/A/HV-R-0.40/KV-R-0.25

Type	FSL-V-ZAB/ZEK
Variant	Standard
Heat exchanger	4-pipe
Construction variant	with condensate drain
Dimensions [mm]	Width 400, height 1800, depth 320
Control system	with FSL-CONTROL III
Control function	Master
Real time clock	with real time clock
Interface	with Modbus RTU
Air quality sensor	with CO2sensor
Supply air temperature sensor	with supply air temperature sensor
Outdoor air temperature sensor	with outdoor air temperature sensor
Heating valve	with heating valve
Lockshield – heating circuit	with lockshield
kVS value – heating valve	0.40 (straight-way valve)
Cooling valve	with cooling valve
Lockshield – cooling circuit	with lockshield
kVS value – cooling valve	0.25 (straight-way valve)

Order example: FSL-V-ZAB/SEK-4-KM/400×1800×320/C3/SL-BI-Z/HV-R-0.40/KV-R-0.25

Type	FSL-V-ZAB/ZEK
Variant	Standard
Heat exchanger	4-pipe
Construction variant	with condensate drain
Dimensions [mm]	Width 400, height 1800, depth 320
Control system	with FSL-CONTROL III
Control function	Slave
Real time clock	–
Interface	With BACnet IP
Air quality sensor	–
Supply air temperature sensor	with supply air temperature sensor
Outdoor air temperature sensor	–
Heating valve	with heating valve
Lockshield – heating circuit	with lockshield
kVS value – heating valve	0.40 (straight-way valve)
Cooling valve	with cooling valve
Lockshield – cooling circuit	with lockshield
kVS value – cooling valve	0.25 (straight-way valve)

Dimensions



Product details

Installation example



Einbaubeispiel



Einbaubeispiel



Installation and commissioning

- Vertical installation on the façade or on an external wall
- Level adjustment using the 4 levelling feet (+40 mm)
- The fresh air connection is provided by two ventilation openings in the façade system or external wall (to be provided by others), preferably sloping towards the outside
- Weather protection for the fresh air and exhaust air openings to be provided by others
- Installation and connections to be performed by others; fixing, connection and sealing material to be provided by others
- The water flow and return connections are on the right-hand side of the unit when seen from the room
- Vents and drainage by others
- The electrical connection is on the right when seen from the room
- The under sill trim must not obstruct installation or deinstallation of the unit or maintenance access on the front of the unit