SCHOOL VENTILATION UNIT LG 1000 SKS

EDUCATION OFFICE

PICHLER

Systematic ventilation.

Product description

The floor unit LG 1000 SKS for classrooms consists of a compact, thermally insulated, thermal bridge-free housing made of galvanised sheet steel, powder-coated in RAL 9003 matt.

It has a highly efficient heat recovery system with an enthalpy exchanger for heat and moisture recovery, an automatic bypass and energy-saving radial fans with the latest EC motor technology.

To prevent overheating in the summer, all Pichler school ventilation units come equipped with an automatic temperature- and time-controlled night cooling function. The night cooling function helps the structure and fixtures to cool down. The unit can be started via adjustable time programmes or by means of a presence detector (surcharge).

The CO_2 sensor built into the exhaust air as standard ensures that the appliance control system automatically adjusts the air volume to the respective fresh air requirement in the room.

The integrated air flow rate measurement guarantees balanced operation with constant flow on the supply and extract air sides.

Butterfly valves integrated into both the outdoor air and exhaust air ducts serve to prevent unintentional air circulation in the event of a unit standstill. To ensure reliable functioning, even at low outdoor temperatures, a continuously adjustable pre-heating coil is provided. An integrated electric re-heater battery ensures a pleasant indoor climate.

The standard air filters used are ODA filters ISO ePM1 55% in the outdoor air duct and ETA filters ISO ePM10 75% in the extract air duct.

The ventilation unit can be controlled centrally via the building control system using a Modbus RTU connection, or by means of the TFT touch control unit optionally available. Furthermore every unit is provided with a LAN interface allowing for easy connection to the PICHLER Connect system.

The LG 1000 SKS floor unit for classrooms is suitable for free-standing installation in frost-free rooms.

The unit's design meets the hygienic requirements of VDI 6022.

Scope of application

The LG 1000 SKS floor unit for classrooms is used for the controlled mechanical ventilation of classrooms and schoolrooms.

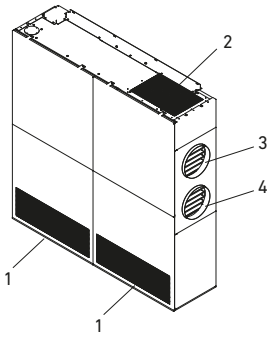
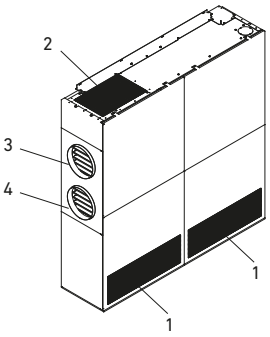
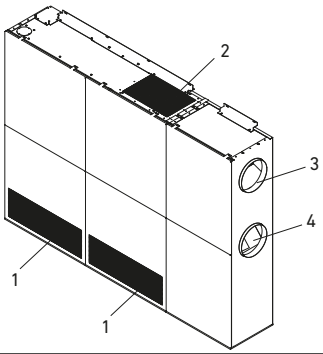
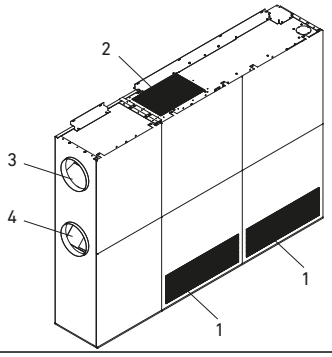
Its scope of application covers a maximum adjustable air volume flow of 1000 m^3/h.
The specially developed condensate avoidance function in combination with an enthalpy exchanger and a humidity sensor enables condensate-free operation of the ventilation unit.

Versions

Each of the ventilation units is provided with a silencer (SUP/ETA) that is mounted directly on the unit.

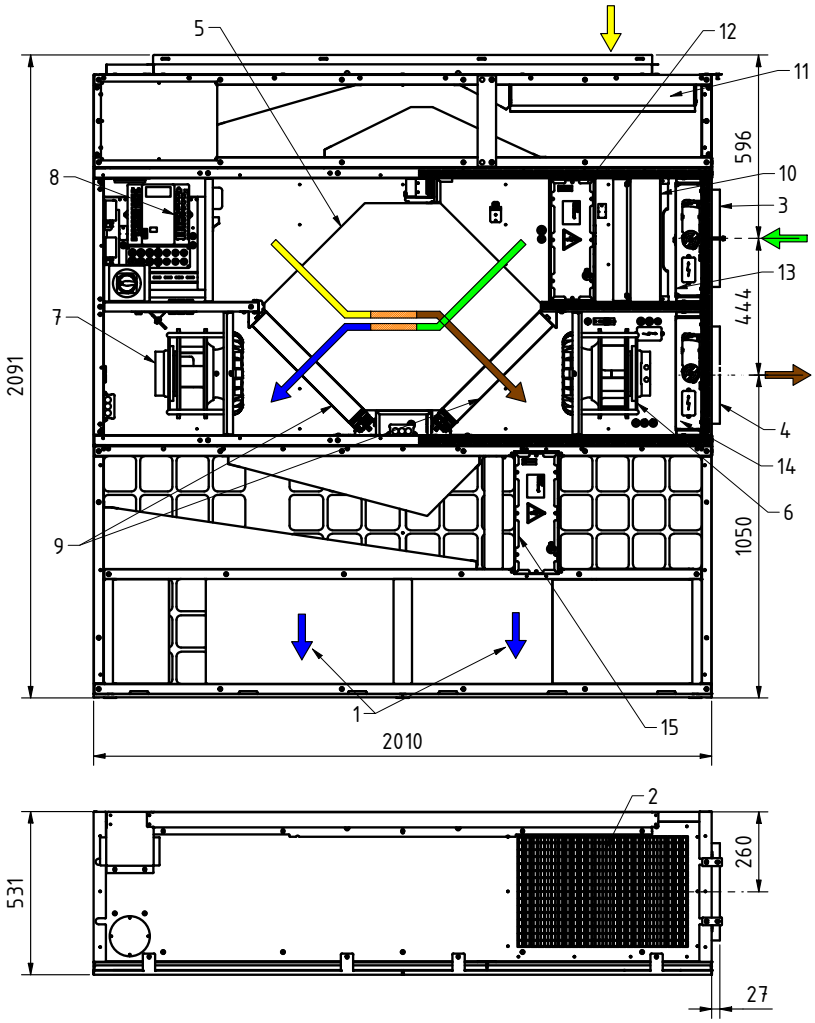
This sound-absorbing (SA) module makes it possible to obtain low-noise operation and optimum air distribution.

Optionally, the school classroom unit can be expanded with a silencer module in the EHA/ODA.

Free-standing design LG 1000 SKS	Left-hand version	Right-hand version
Article no. with silencers (SUP/ETA)	0810FKSSLHVENES2	0810FKSSRHVENES2
1 Supply air ***2 Extract air*** ***3 Outdoor air*** ***4 Exhaust air***		
Article no. with silencers (SUP/ETA) and SA-module (EHA/ODA)	0810FKSSLHVENES3	0810FKSSRHVENES3
1 Supply air ***2 Extract air*** ***3 Outdoor air*** ***4 Exhaust air***		

Design drawing (free-standing installation, left-hand version)

Dimensions: (W x H x D) 2010 x 2091 x 531 mm
Air line connection: Outdoor air, exhaust air: Ø 315 mm, sleeve size



1 Supply air SUP
2 Extract air ETA
3 Outdoor air ODA Ø 315 sleeve size
4 Exhaust air EHA Ø 315 sleeve size
5 Counterflow heat exchanger (with moisture recovery)
6 Exhaust air fan
7 Supply air fan
8 Controller
9 Bypass flap
10 ODA filter ISO ePM1 55%
11 ETA filter ISO ePM10 75%
12 Electric pre-heating coil
13 Outdoor air flap
14 Exhaust air flap
15 Electric re-heater battery

Illustration:
LG 1000 SKS (left-hand version)

Design drawing with SA module (free-standing installation, left-hand version)

Dimensions: (W x H x D) 2812 x 2091 x 531 mm
Air line connection: Outdoor air, exhaust air: Ø 315 mm, sleeve size

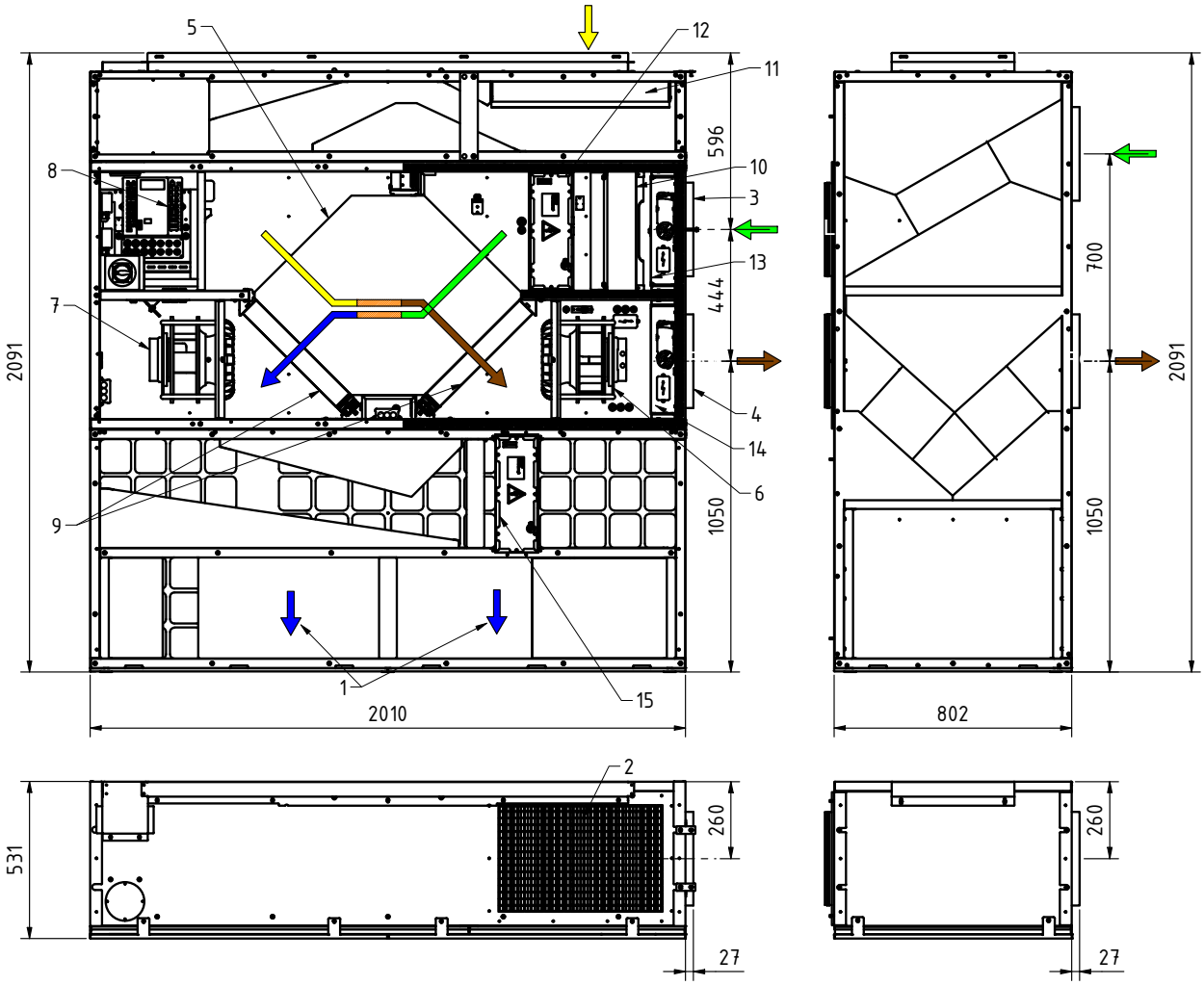


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Illustration:
LG 1000 SKS (left-hand version)

Technical specifications

Unit type	LG 1000 SKS
Heat exchanger	Enthalpy exchanger
Air volume flow min.– max. (adjustable in 3 steps)	300 – 1000 m^3/h

CHARACTERISTIC VALUES IN ACCORDANCE WITH EU REGULATION 1253-2014	
Maximum operating point	
Volume flow	1000 m^3/h
External compression	100 Pa
Nominal operating point	
Volume flow	700 m^3/h
External compression	50 Pa
Specific fan power SFP	0.23 Wh/m^3
Thermal efficiency	77.9 %
Moisture transfer rate	42.16 %
Sound pressure level at a distance of 1 m	33 dB(A)

Classification of air filters in accordance with EN ISO 16890	
ODA filter (outdoor air)	ISO ePM1 55%
ETA filter (extract air)	ISO ePM10 75%

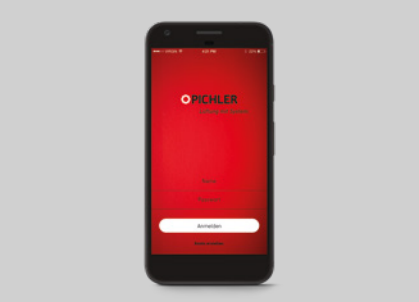
Operating conditions	
Permissible ambient temperature (place of installation)	+5 to +35 °C
Permissible operating temperature (outdoor air)	-15 to +35 °C

Electrical system	
Electrical connection	3~400V / L/N/PE / 50 Hz / 16 A
IP classification	IP40 with connected air ducts
Max. power with pre-heating coil and re-heater battery	3100 W

Materials	
Inner part	Sheet steel, galvanised
Housing	Galvanised sheet steel and powder-coated in RAL 9003 matt
Enthalpy exchanger	Aluminium and polymer membrane counterflow exchanger

Housing	
Air line connections for outdoor air / exhaust air	2 x Ø 315 mm, sleeve size
Condensate drainage	Nonexistent
Dimensions with silencers (SUP/ETA) (W x H x L)	2010 x 2091 x 531 mm
Dimensions with silencers (SUP/ETA) and SA-module (EHA/ODA) (W x H x L)	2812 x 2091 x 531 mm
Weight with silencers (SUP/ETA)	450 kg

TOUCH control unit



Pichler app

Operation

BYPASS FOR HEAT EXCHANGER

The bypass is regulated as a function of the measured extract air or outdoor air temperature. The heat exchanger may thus be bypassed in the summer, blowing cool outdoor air directly into the room.

CONTROLLER

The ventilation unit can be controlled centrally via the building control system using a Modbus RTU connection, or by means of the locally mounted, TFT touch control unit (optional). Furthermore, every unit is provided with a LAN interface, allowing for easy connection to the PICHLER Connect system. The cloud-based solution offers a clear system management to the operator, including an indication for operating values, adjustment options and error messages. On request, error messages can also be transmitted to the system operating company via email. The air volume flow can be predefined by three steps and, when required, is increased up to its maximum setting by means of the integrated CO_2 sensor in the extract air. An integrated humidity sensor for moisture monitoring is used to prevent condensate formation.

TOUCH CONTROL UNIT

The optional control unit with 4.3" colour touch display is used to operate the ventilation unit. Operation is easy and intuitive. The most important settings and readings are very easy to make. The user-friendly handling provides for automatic or manual setting of the ventilation levels. In automatic mode, the system works according to programmable time programmes, or it can be started with an optional presence detector. The air volume is then controlled in a fully automatic fashion, depending on the CO_2 content of the extract air. Furthermore, a temperature- and time-controlled night cooling function can be enabled via a separate time programme in the automatic mode. The night cooling function serves to reduce the room temperature and helps the structure and fixtures to cool down. Further functions are the changeover function between summer and winter operation and the setting for the volume flows. The operating mode, temperatures, a required filter change and possible faults are displayed in plain text. The control unit also has an integrated temperature sensor that can be used as a room temperature sensor if required. Installation is carried out on a flush-mounted box (not included in the scope of supply).

Advantages of control:
- Simple display of the current operating parameters
- Individually adjustable air volumes
- Programs based on the time of day and day of the week

Item	Item number
TOUCH control unit for LG 1000 SKS (optional)	08LG350450T

EASY OPERATION WITH THE PICHLER APP

User-friendly: The floor unit for classrooms can be operated easily with the free smartphone app for Android and iOS, whether you are at home or out and about.

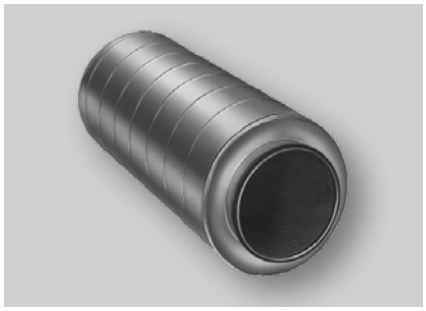
REMOTE ACCESS / PICHLER CONNECT

Operational safety: Remote access allows the Pichler customer service to respond quickly and easily in the event of faults.

PICHLER connect.

Presence detector

Modbus/KNX Gateway



Duct silencer SL for outdoor air and exhaust air

Accessories

SPARE FILTERS

Ensure perfect hygiene and air quality given regular replacement, also proper functionality and efficient operation of the equipment.

Item	Item number
ETA filter ISO ePM10 75 % (extract air)	40LG050300
ODA filter ISO ePM1 55% (outdoor air)	40LG0500026A

PRESENCE AND MOTION DETECTOR FOR FLUSH-MOUNTED, SURFACE-MOUNTED AND CEILING INSTALLATION

The flush-mounted presence detector for ceiling installation is ideally suited for presence areas in offices, conference rooms, lounges, cellar rooms, etc.

Technical specifications:
Voltage: 230 V AC
Potential-free normally open contact 10 A

DETECTION ZONE:
Ceiling height: 3 m
2 detection zones: Presence detector: detects seated or other stationary activities = 4 x 4 m. Motion detector: detects movements of objects with body temperature = 8 x 8 m
Detection zone: 360°
Degree of protection: IP40 indoor installation
Visible dimensions: W x H x D: 88 x 88 x 35 mm
Dimensions: W x H x D: 84 x 84 x 35,1 mm

Item	Item number
Presence detector	07UPPM360

MODBUS/KNX GATEWAY

The Modbus/KNX gateway provides for the connection of a ventilation unit to a KNX bus system. In this case, the gateway serves as a connective link between the two bus systems. Note that the gateway always acts as the master for the Modbus. On the KNX side, however, it responds like a standard KNX TP-1 unit. This makes it possible to centrally control and monitor the ventilation unit using a KNX system.
A "Config Tool" (a DCA or Device Configuration App) is provided to facilitate configuration of the ETS. With this, it is possible to adopt any existing configurations for the gateway.

Dimensions: L x W x D = 18 x 100 x 60 mm
Weight: approx. 50 g
Mounting: Top hat rail DIN serial mounting 1TE
Permissible ambient temperature: -5 to 45 °C
Permissible storage temperature: -25 to 70°C
Permissible rel. humidity: 5 – 93 % non-condensing
Protection class: IP 20
Power supply: KNX bus, approx. 8 mA
Interfaces: EIA-485, KNX-TP1

Item	Item number
Modbus/KNX-Gateway (optional)	08KNXGAC

DUCT SILENCER SL FOR OUTDOOR AIR AND EXHAUST AIR

Duct silencer made of galvanized sheet steel. Outer jacket made of a spiro tube; inner jacket made of galvanised perforated plate, with intermediate 50 mm acoustic packing made from mineral wool as well as abrasion-resistant glass silk cover. Pipe ends with connection piece for plug-in mounting.

Connection diameter: 315 mm
(nipple size, with double lip seal)
Outside diameter: 450 mm
Length: 600 mm
Weight: 12.7 kg
Damping at 250 Hz: 7 dB

Item	Item number
Duct silencer SL for outdoor air and exhaust air	11SL3005031506

BACNET GATEWAY

The BACnet-GATEWAY gateway allows to connect the floor unit LG 1000 SKS for classrooms to a BACnet bus system. In this process, the gateway serves as a connective link between the two bus systems.

Item	Item number
BACnet GATEWAY	08BACGAES2020

Installation example for a classroom

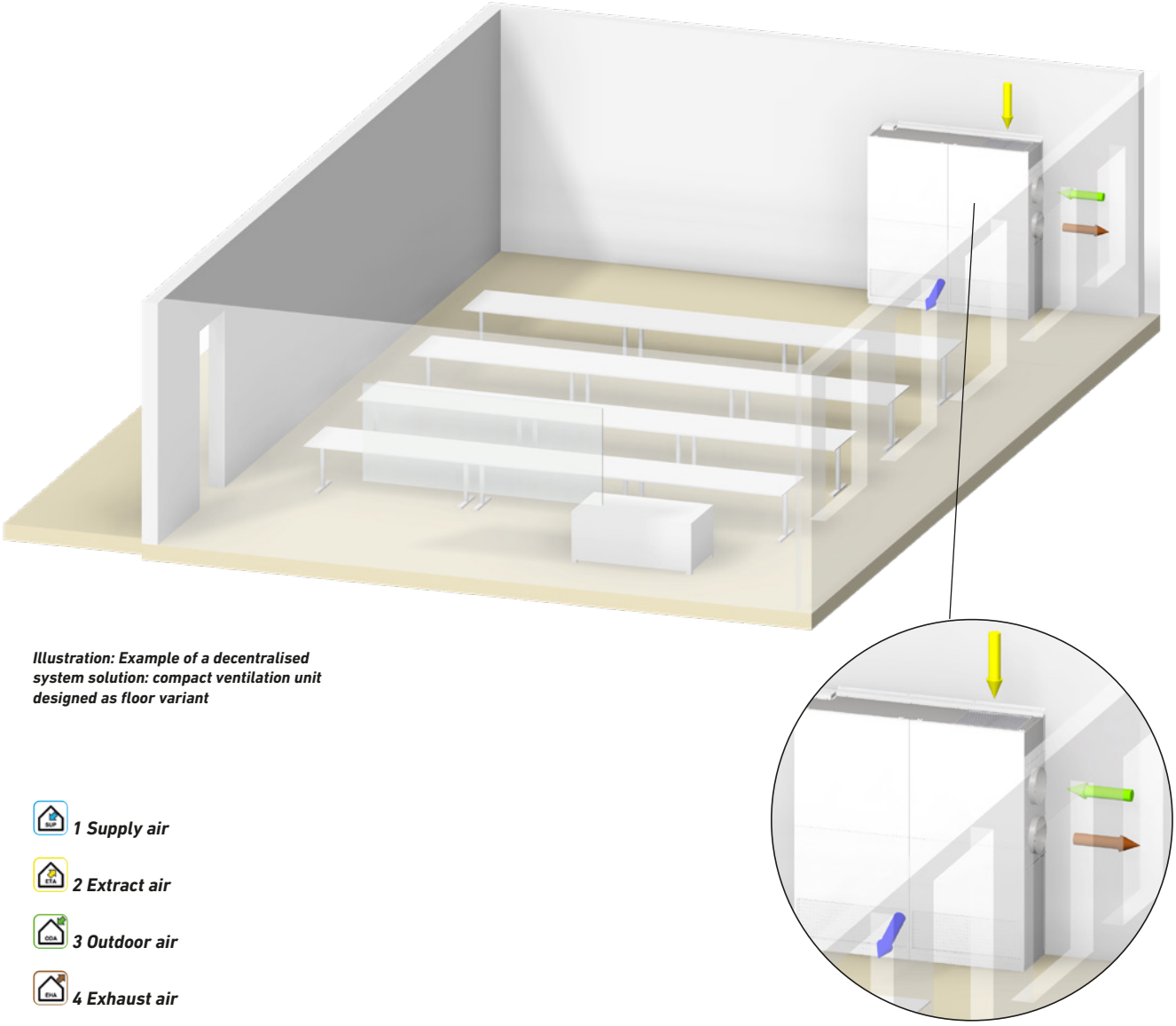


Illustration: Example of a decentralised system solution: compact ventilation unit designed as floor variant

1 Supply air

2 Extract air

3 Outdoor air

4 Exhaust air

LG 1000 SKS at a glance

Fans:
Energy-saving radial fans with DC technology (the latest EC motor technology).

Counterflow heat exchanger:
Highly efficient heat recovery system with enthalpy exchanger for heat and moisture recovery with an automatic bypass

Air flow volume:
Up to approx. 1000 m³/h with external pressure up to 100 Pa

Filters:
ODA filter ISO ePM1 55% for outdoor air, ETA filter ISO ePM10 75% for extract air

Electric pre- and re-heating coil for frost protection:
1000 W each, with infinitely variable control, integrated

Integrated CO_2 sensor:
Demand-controlled operation via integrated CO_2 measurement

Housing:
Made of galvanised steel sheet, powder-coated in RAL 9003 matt with thermal insulation

Air connections:
Left-hand and right-hand version.
Outdoor air and exhaust air: Ø 315 mm, sleeve size

Installation position: Free standing

Summer changeover:
Integrated bypass flap

Electrical connection:
400 V / 50 Hz / 16 A

Maximum and nominal output:
225 W / 3100 W

Operation:
Centrally via the building control system using Modbus RTU or the optional TOUCH control unit and when connected to the Internet (LAN connection) via the PICHLER Connect system

Service – Maintenance – Commissioning

OUR LG 1000 SKS FLOOR UNIT FOR CLASSROOMS IS COMPLIANT WITH

- the hygienic requirements of VDI 6022

Notes

ErP 2018

ErP 2018

Fulfils the requirements of the Ecodesign Directive, in accordance with EU Regulation 1253/2014.

Your partner/installer:

klimaaktiv Partner

PASSIVHAUS Austria

Mitglied NETZWERK PASSIVHAUS www.passivhaus.at

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