

SCHOOL VENTILATION UNIT LG 1000 SKDE

**SCHOOL
VENTILATION**



 **PICHLER**

Systematic ventilation.

Product description

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

It has a highly efficient heat recovery system with an enthalpy exchanger for heat and moisture recovery, an automatic 100% 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 serves to reduce the room temperature and 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 CO₂ 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.

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

the extract air ducts. Each controller is equipped with a LAN interface to establish a connection to the Internet. The filters can be changed easily via the inspection flaps at the bottom side of the unit.

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 included. Furthermore every unit is provided with a LAN interface allowing for easy connection to the PICHLER Connect system.

The ceiling unit LG 1000 SKDE for classrooms is suitable for ceiling installation in frost-free rooms.

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

Scope of application

The ceiling unit LG 1000 SKDE for classrooms is used as a ceiling unit for the controlled mechanical ventilation of classrooms and schoolrooms.

Its scope of application covers a maximum adjustable air volume flow of 1000 m³/h. The specially developed condensate avoidance function in

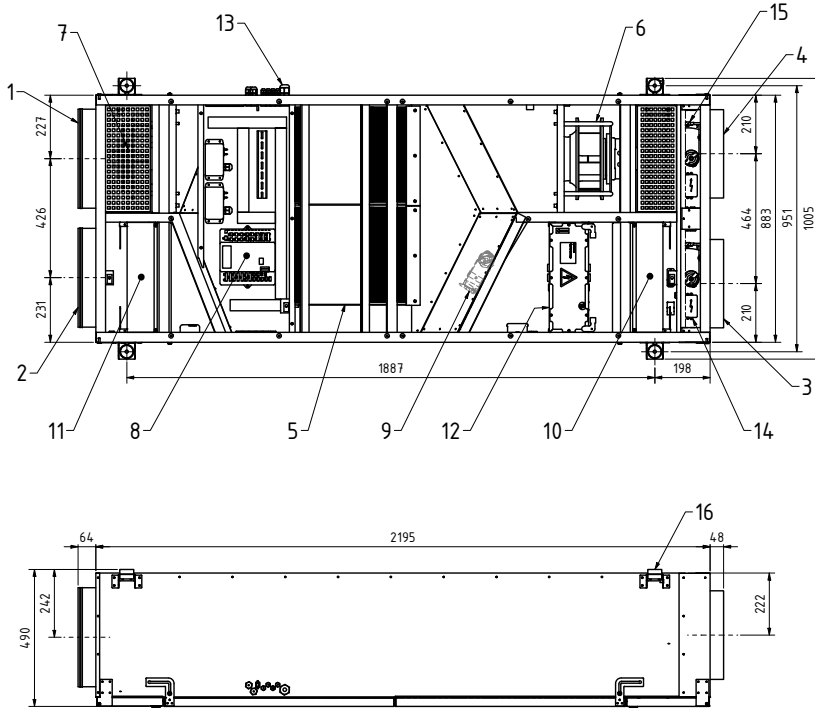
combination with an enthalpy exchanger and a humidity sensor enables condensate-free operation of the ventilation unit.



Design drawing (ceiling installation, right-hand version)

Dimensions: (W x H x L) 1005 x 490 x 2195 mm

Air duct connection: Outdoor air, exhaust air: Ø 315 mm, sleeve size
 Supply air, extract air: Ø 355 mm, nipple size, with double lip seal SAFE system



- 1 Supply air Ø 355 nipple size SAFE
- 2 Extract air Ø 355 nipple size SAFE
- 3 Outdoor air Ø 315 sleeve size
- 4 Exhaust air 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 Cable inlets
- 14 Outdoor air flap
- 15 Exhaust air flap
- 16 Anti-vibration mounting

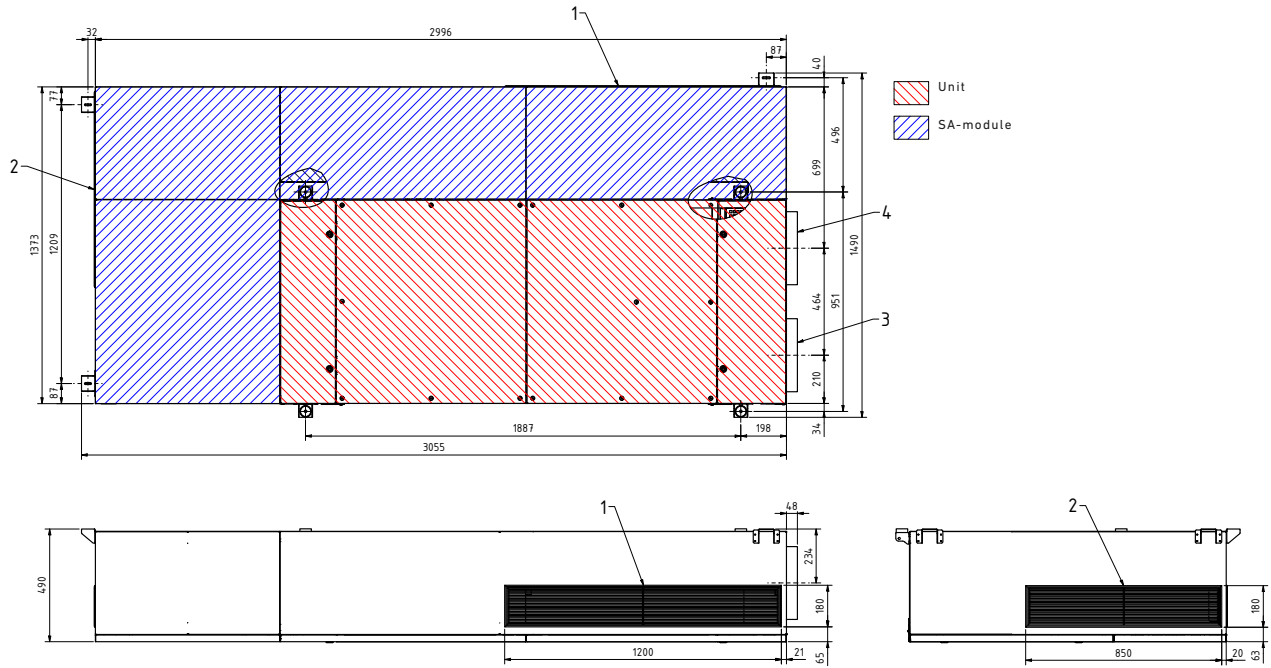
Illustration:
 LG 1000 SKDE (right-hand version)



Design drawing with SA module (ceiling installation, right-hand version)

Dimensions: (W x H x L) 1490 x 490 x 3055 mm

Air duct connection: Outdoor air, exhaust air: Ø 315 mm, sleeve size
 Supply air, extract air: Adjustable grille



- 1 Supply air emission via adjustable grille
- 2 Extract air inflow via adjustable grille
- 3 Outdoor air Ø 315 sleeve size
- 4 Exhaust air Ø 315 sleeve size

Illustration:
 LG 1000 SKDE with SA module
 (right-hand version)





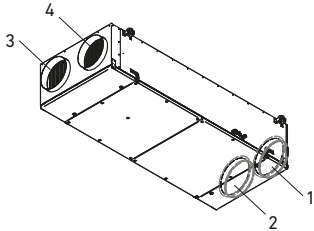
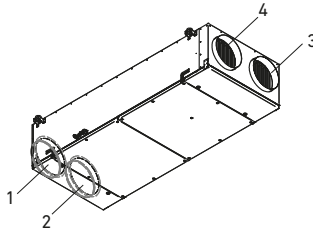




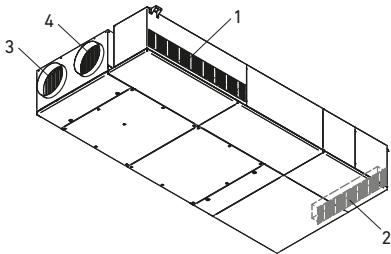
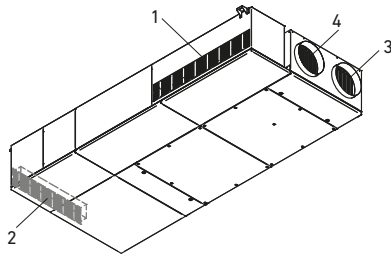


Versions

The ventilation unit is available in two versions: with or without an attached sound-absorbing (SA) module.



By using the version with the sound-absorbing supply air/extract air module (SA module) which is attached directly to the unit you will achieve low-noise

operation and perfect air distribution. For this purpose, the fins of the supply air grid can be adjusted horizontally and vertically.

Ceiling installation version LG 1000 SKDE	Left-hand version	Right-hand version
Article no. without SA module	0810FKNSDLHVE	0810FKNSDRHVE
 1 Supply air  2 Extract air  3 Outdoor air  4 Exhaust air		
Article no. with SA module	0810FKNSDLHVES2	0810FKNSDRHVES2
 1 Supply air  2 Extract air  3 Outdoor air  4 Exhaust air		



Technical specifications

Unit type	LG 1000 SKDE
Heat exchanger	Enthalpy exchanger
Air volume flow min.– max. (adjustable in 3 steps)	Up to 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	0.33 Wh/m ³
Thermal efficiency	75.9%
Moisture transfer rate	64.7%
Sound pressure level at a distance of 1 m without SA module (housing radiation)	30 dB(A)
Sound pressure level at a distance of 1 m with SA module (housing radiation)	35 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	230 V / L/N/PE / 50 Hz / 16 A
IP classification	IP40 with connected air ducts
Max. power with pre-heating coil	3000 W
Materials	
Inner part	Sheet steel, galvanised
Housing	Galvanised sheet steel and powder-coated in RAL 9003
Enthalpy exchanger	Aluminium and polymer membrane counterflow exchanger
Housing	
Air line connections for outdoor air / exhaust air	2 x Ø 315 mm, sleeve size
Air duct connections for supply air / extract air	2 x Ø 355 mm, nipple size, with SAFE double lip seal (are omitted with the SA module)
Condensate drainage	Not required
Dimensions (W x H x L)	1005 x 490 x 2195 mm
Dimensions with SA module (W x H x D)	1490 x 490 x 3055 mm
Weight without SA module	220 kg
Weight with SA module	350 kg



ACOUSTIC SPECIFICATIONS

LG 1000 SKDE without SA module		Item	Outdoor air connector			Exhaust air connector			Supply air inlet			Extract air outlet		
		m ³ /h	300	700	1000	300	700	1000	300	700	1000	300	700	1000
Midband frequency	125 Hz	L _w in dB	32	46	44	44	52	55	41	52	56	30	45	49
	250 Hz		33	53	56	47	58	64	46	60	65	30	52	57
	500 Hz		23	37	45	41	55	62	40	56	64	20	40	48
	1000 Hz		22	37	44	47	61	67	46	61	69	14	41	44
	2000 Hz		14	39	44	45	60	67	43	59	67	12	35	41
	4000 Hz		17	33	41	34	51	59	32	50	59	8	28	34
	8000 Hz		16	11	24	21	41	49	14	41	50	6	18	23
	Total L_{WA} in dB(A)		37	54	57	53	65	72	51	66	73	34	53	58

Sound pressure level at a distance of 1 m without SA module (housing radiation): 30 dB(A)

LG 1000 SKDE with SA module		Item	Outdoor air connector			Exhaust air connector		
		m ³ /h	300	700	1000	300	700	1000
Midband frequency	125 Hz	L _w in dB	32	46	44	44	52	55
	250 Hz		33	53	56	47	58	64
	500 Hz		23	37	45	41	55	62
	1000 Hz		22	37	44	47	61	67
	2000 Hz		14	39	44	45	60	67
	4000 Hz		17	33	41	34	51	59
	8000 Hz		16	11	24	21	41	49
	Total L_{WA} in dB(A)		37	54	57	53	65	72

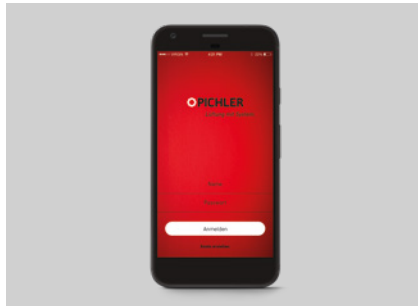
Sound pressure level at a distance of 1 m with SA module (housing radiation): 35 dB(A)

Note: Tolerances for sound data ±2 dB, measured in compliance with EN ISO 9614-2





TOUCH control unit



Pichler app

Operation

BYPASS FOR HEAT EXCHANGER

The 100% 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 included. 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 CO₂ sensor in the extract air. An integrated humidity sensor for moisture monitoring is used to prevent condensate formation.

TOUCH CONTROL UNIT

The 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 CO₂ 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 SKDE	08LG740T

EASY OPERATION WITH THE PICHLER APP

User-friendly: The ceiling 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.





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)	40LG0500027A
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 allows for the connection of the ventilation unit to a KNX bus system. In this process, the gateway serves as a connective link between the two bus systems. Note that the master is always on the Modbus. On the KNX side, however, it responds like a common KNX TP-1 unit. This makes it possible to centrally control and monitor the ventilation unit by a KNX system. In order to facilitate the configuration, ETS template projects are provided for download for a variety of ventilation units.

Dimensions: L x W x D = 18 x 100 x 60 mm

Mounting: top hat rail or wall

Permissible ambient temperature: -5 to 45 °C

Permissible humidity: 5 – 93 % non-condensing

Protection class: IP20

Voltage: 12...24V DC

Interfaces: Ethernet, EIA-485, KNX-TP1

Item	Item number
Modbus/KNX Gateway	08KNXGAB

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

SHEET-METAL COVERING FOR DUCT SILENCER SL FOR OUTDOOR AIR AND EXHAUST AIR

Made of galvanised steel sheet, powder-coated from the outside in RAL 9003

Item	Item number
Sheet-metal covering for duct silencer SL for outdoor air and exhaust air	08LG1000SKDEBV

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	Article number
BACnet GATEWAY	08BACGAES2020



Installation example for a classroom

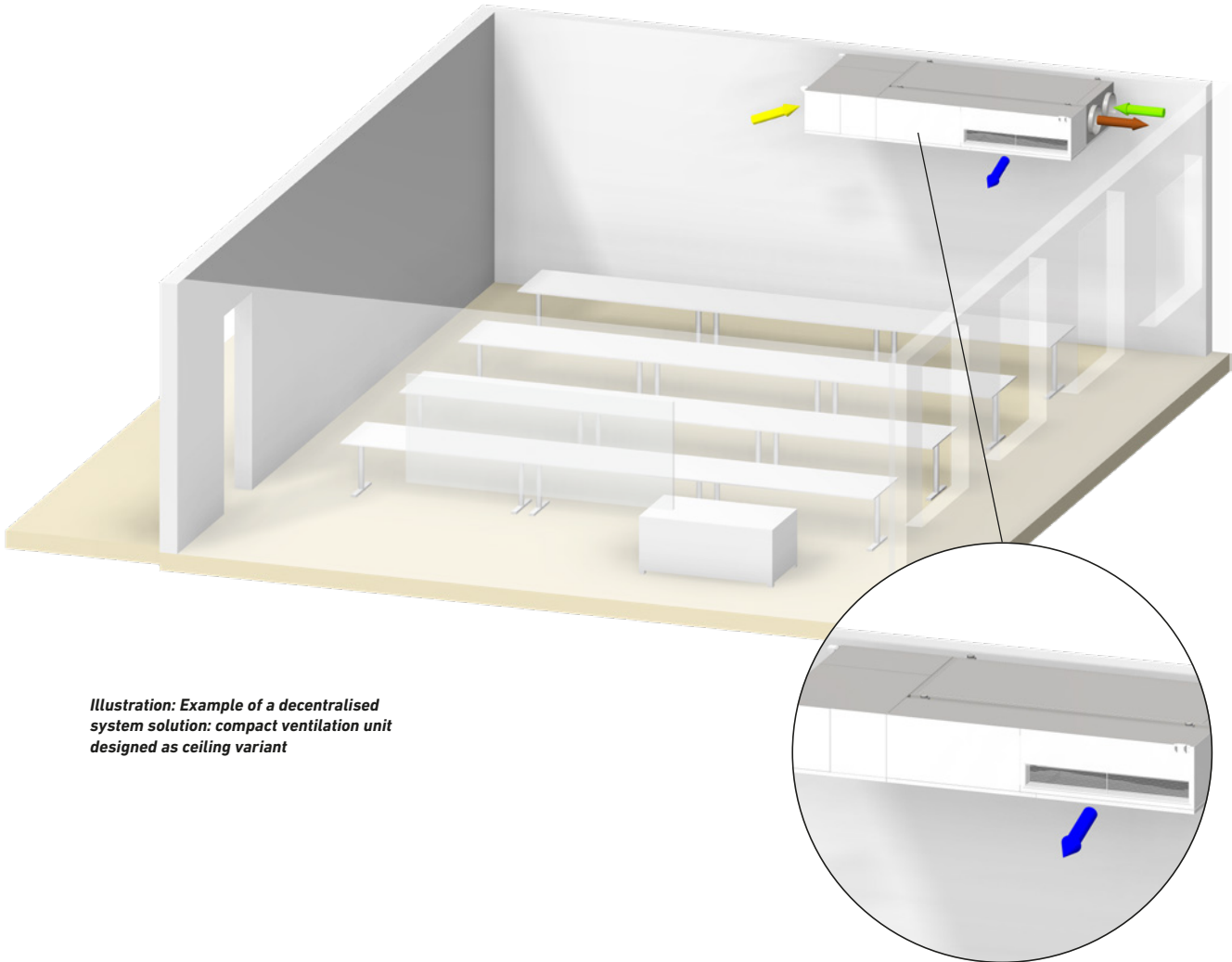


Illustration: Example of a decentralised system solution: compact ventilation unit designed as ceiling variant



LG 1000 SKDE 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 100% 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-heating coil for frost protection:

1900 W, with infinitely variable control, integrated

Integrated CO₂ sensor:

Demand-controlled operation via integrated CO₂ measurement

Housing:

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

Air connections:

Left-hand and right-hand version.

Outdoor air and exhaust air:

Ø 315 mm, sleeve size

Supply air and extract air:

Ø 355 mm, nipple size, with double lip seal SAFE system (are omitted with SA module)

Installation position:

Ceiling installation

Summer changeover:

Integrated 100% bypass flap

Electrical connection:

230 V / 50 Hz / 16 A

Rated output:

3000 W

Operation:

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

Service – Maintenance – Commissioning

OUR CEILING UNIT LG 1000 SKDE FOR CLASSROOMS IS COMPLIANT WITH

- the hygienic requirements of VDI 6022





ErP 2018

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



Your partner/installer:



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