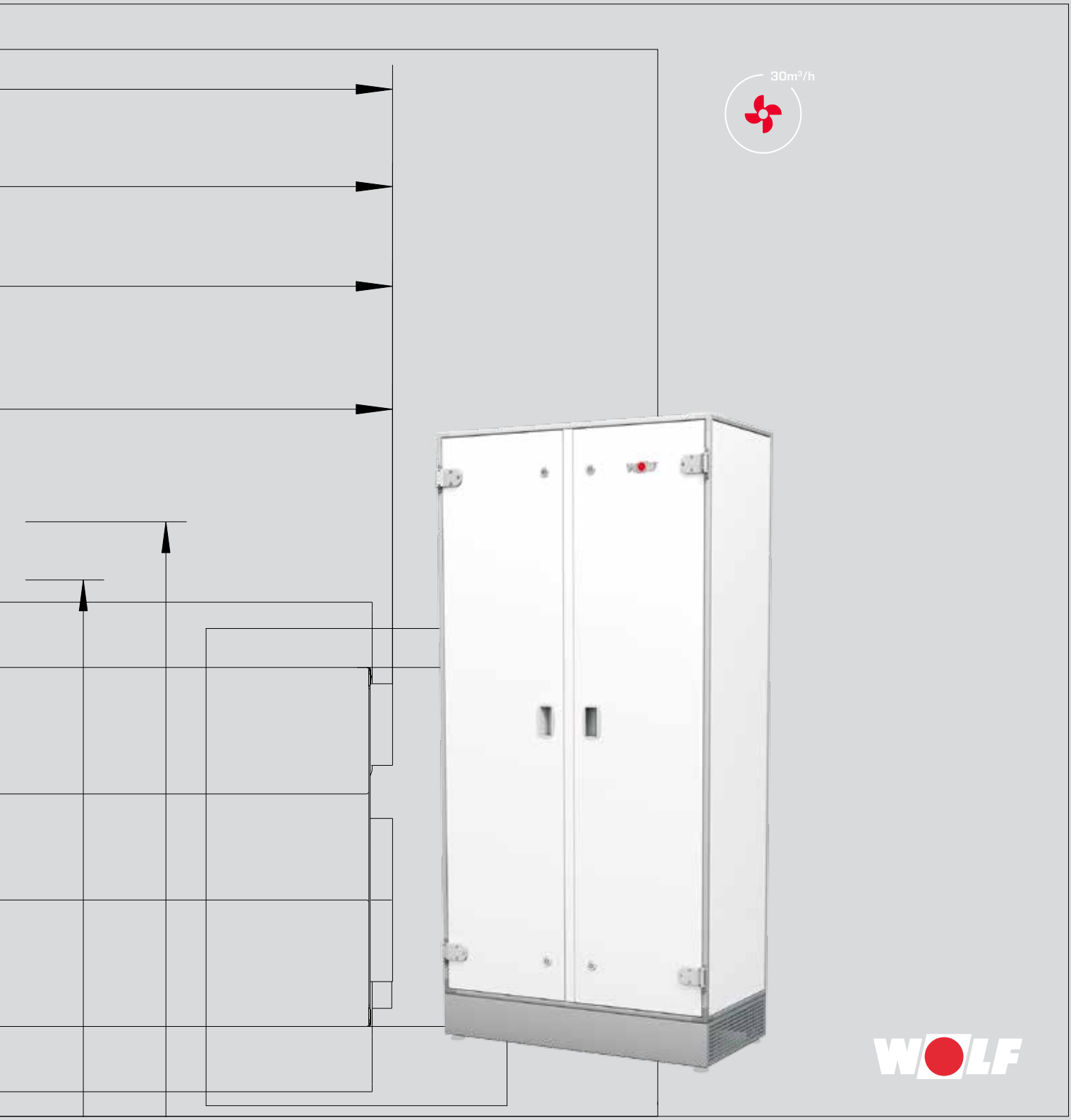
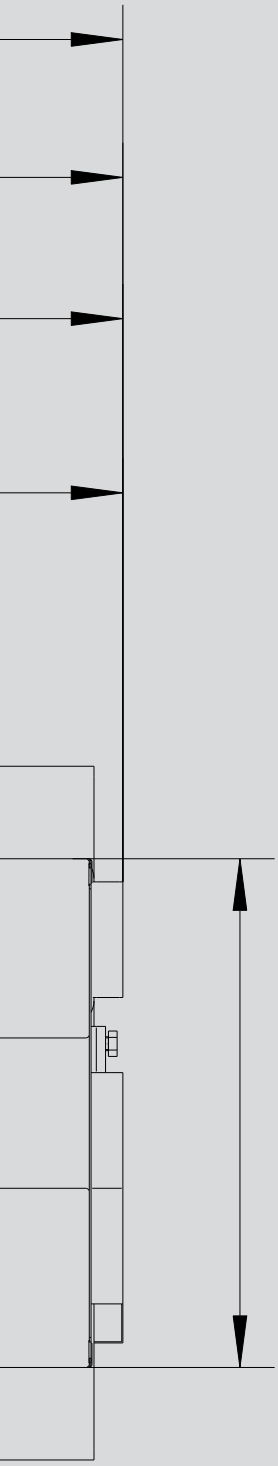
TECHNICAL DOCUMENTATION

WOLF
COMFORT LARGE AREA
VENTILATION UNIT

CGL





THE EXTENSIVE
EQUIPMENT RANGE

from system supplier WOLF offers the ideal solution for commercial and industrial buildings, new build and modernisation projects alike.
The range of WOLF control units can meet any requirement for heating convenience.
All equipment is easy to operate, highly energy efficient and reliable.
Solar thermal systems can be swiftly integrated into existing systems.

WOLF equipment is easy and quick to install and maintain.

COMFORT LARGE AREA VENTILATION UNIT CGL	04
SPECIFICATION / VERSIONS / DIMENSIONS	05
OUTPUT DIAGRAMS	06-07
UNIT LAYOUT	08
COMPONENT DESCRIPTION	09
CONTROL ACCESSORIES	10
TECHNICAL INFORMATION	11-14
INTAKE / DISCHARGE ACCESSORIES	15
ACCESSORIES	16
FUNCTIONAL ILLUSTRATION	17

COMFORT LARGE AREA VENTILATION UNIT CGL

Wolf CGL Comfort large area ventilation units are designed as internal units for controlled ventilation in individual rooms. Alongside their main use in classrooms and kindergartens, the units are also ideal for use in meeting rooms, pubs, restaurants, offices and canteens.
Wolf CGL Comfort large area ventilation units channel an appropriate, controllable amount of filtered outdoor air into the rooms. At the same time, a corresponding volume of stale indoor air containing CO2 is removed and expelled as exhaust air. This results in other pollutants such as odours, fine dust, moisture, etc. being removed effectively as well. Heat is recovered via an aluminium countercurrent plate heat exchanger with efficiency levels up to and exceeding 90 %.

Decentralised installation
in the relevant living space or an adjoining room

The units meet
the high requirements relating to sound emissions for use in the living space itself

Low energy consumption
for air transfer thanks to decentralised installation at the place of use

State of the art EC motors
minimise power consumption

Demand-dependent ventilation
using a CO2 sensor (accessories)

Recommended application range
of 300 m³/h to 800 m³/h

6 BENEFITS OF THE WOLF LARGE AREA VENTILATION UNIT CGL

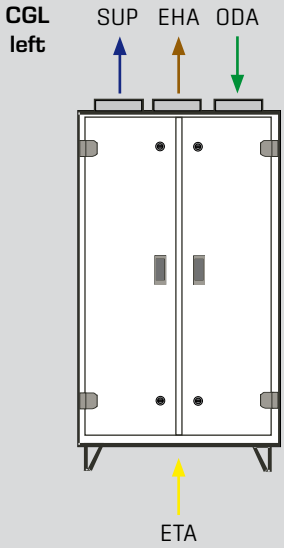
The units meet all relevant directives and standards:

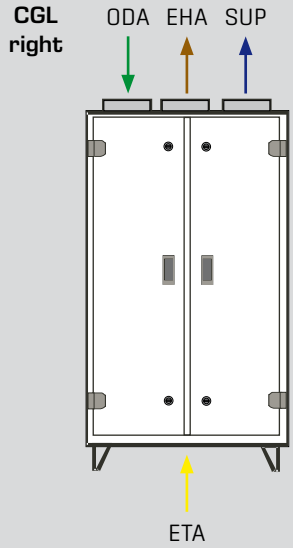
- VDI 6022	Hygienic requirements for ventilation and air-conditioning systems
- VDI 3803	Air-conditioning systems - Structural and technical principles
- EN 13779	Ventilation for non-residential buildings - Performance requirements
- 2014/35/EU	Low Voltage Directive
- 2014/30/EU	EMC Directive
- 2006/42/EC	Machinery Directive
- 2009/125/EC	ErP Directive

SPECIFICATION
(free intake / discharge)

TYPE		CGL		
Air volume	m^3/h	500	600	800
Power consumption	W	100	150	255
Supply voltage		230 V (50/60 Hz)		
Sound pressure level 1 m away from unit	dB(A)	37	40	45
Height incl. feet and flanged collar	mm	2137		
Width	mm	1017		
Depth	mm	508		
Weight	kg	250		

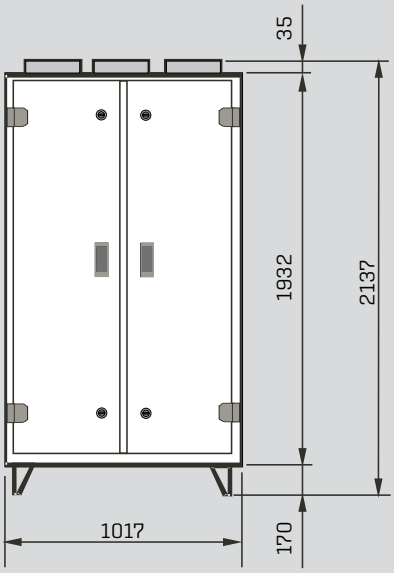
VERSIONS



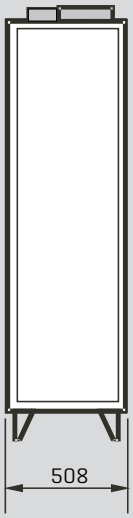


DIMENSIONS

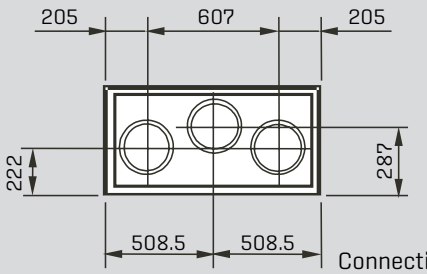
Front view



Side view



Top view



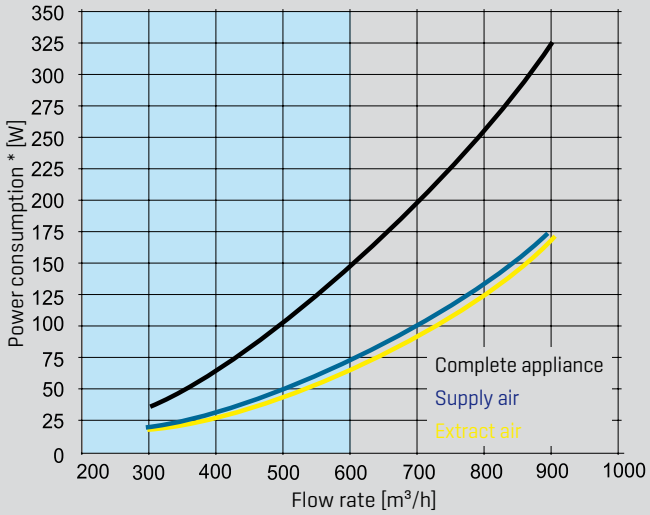
Connections for
- Supply air
- Exhaust air
- Outdoor air

Ø 250 mm

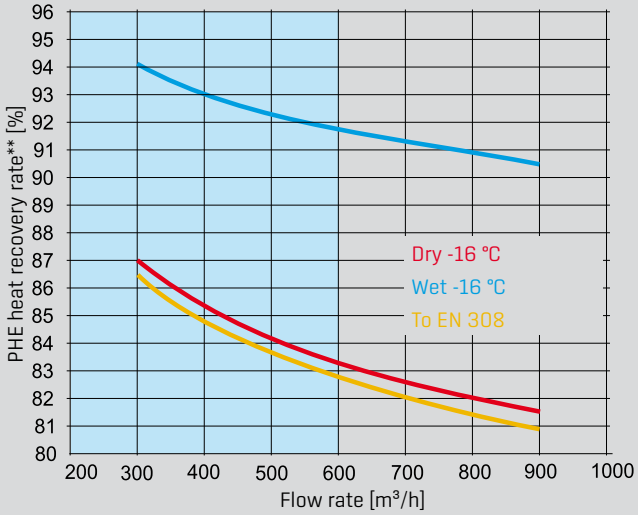
OUTPUT DIAGRAMS
(BLUE CORRESPONDS TO THE RECOMMENDED RANGE)

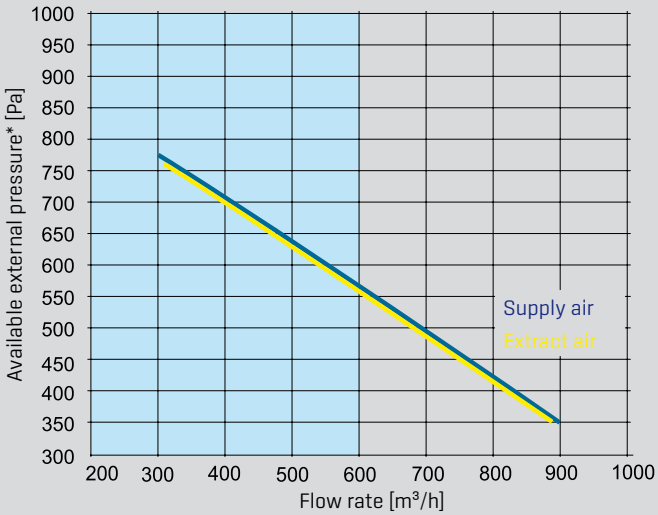
Exact technical data can only be supplied specific to each project.

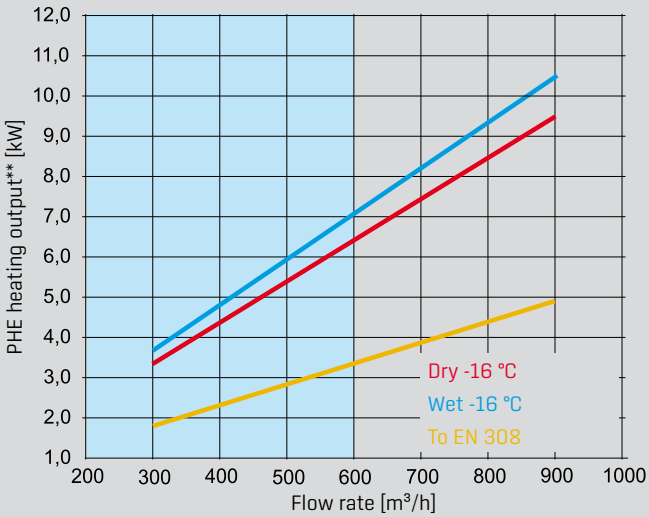
OUTPUT DIAGRAMS EC MOTOR - FAN UNIT

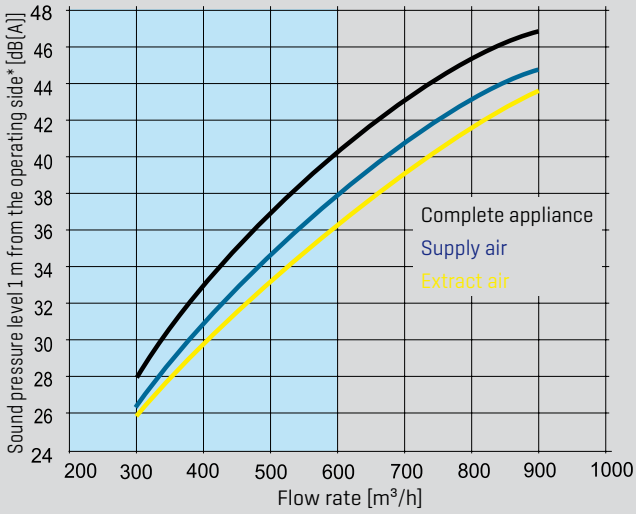


OUTPUT DIAGRAMS PHE HEAT RECOVERY









** Operating conditions:
ETA +22 °C 40 % RH
ODA -16 °C

m 1:1
Conditions EN 308
ETA +25 °C 25 % RH
ODA +5 °C

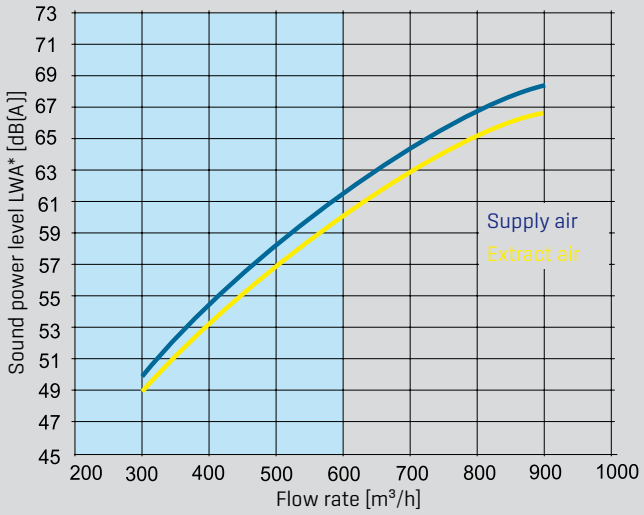
TYPE		CGL		
Air volume	m³/h	500	600	800
Sound power level of SUP/ETA air fans	dB[A]	57	61	66

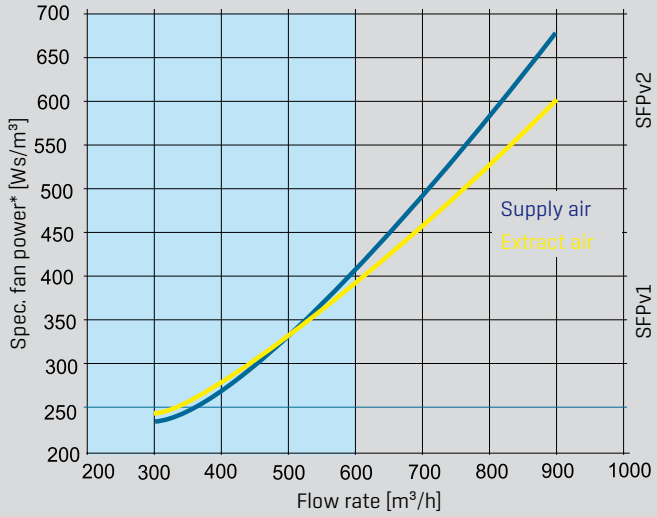
* With free intake and free discharge

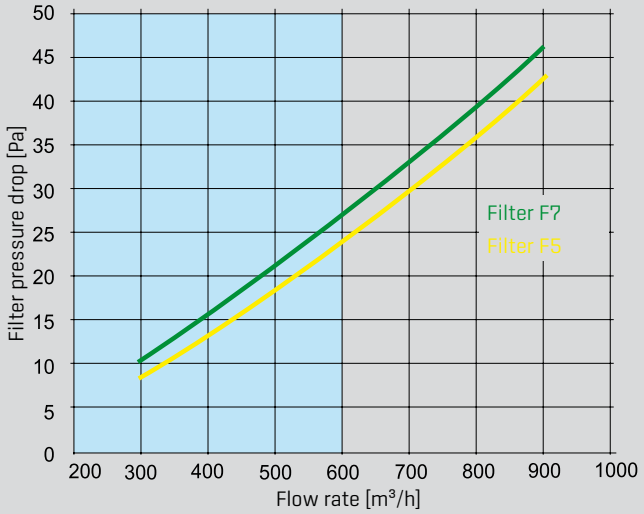
OUTPUT DIAGRAMS
(BLUE CORRESPONDS TO THE RECOMMENDED RANGE)

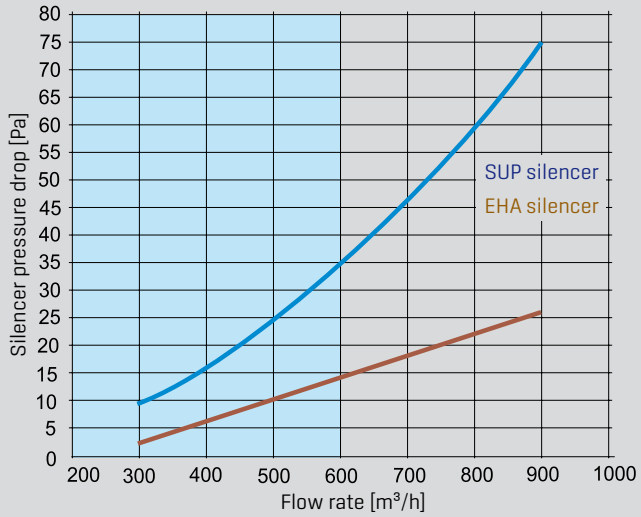
Exact technical data can only be supplied specific to each project.

OUTPUT DIAGRAMS FOR COMPONENTS



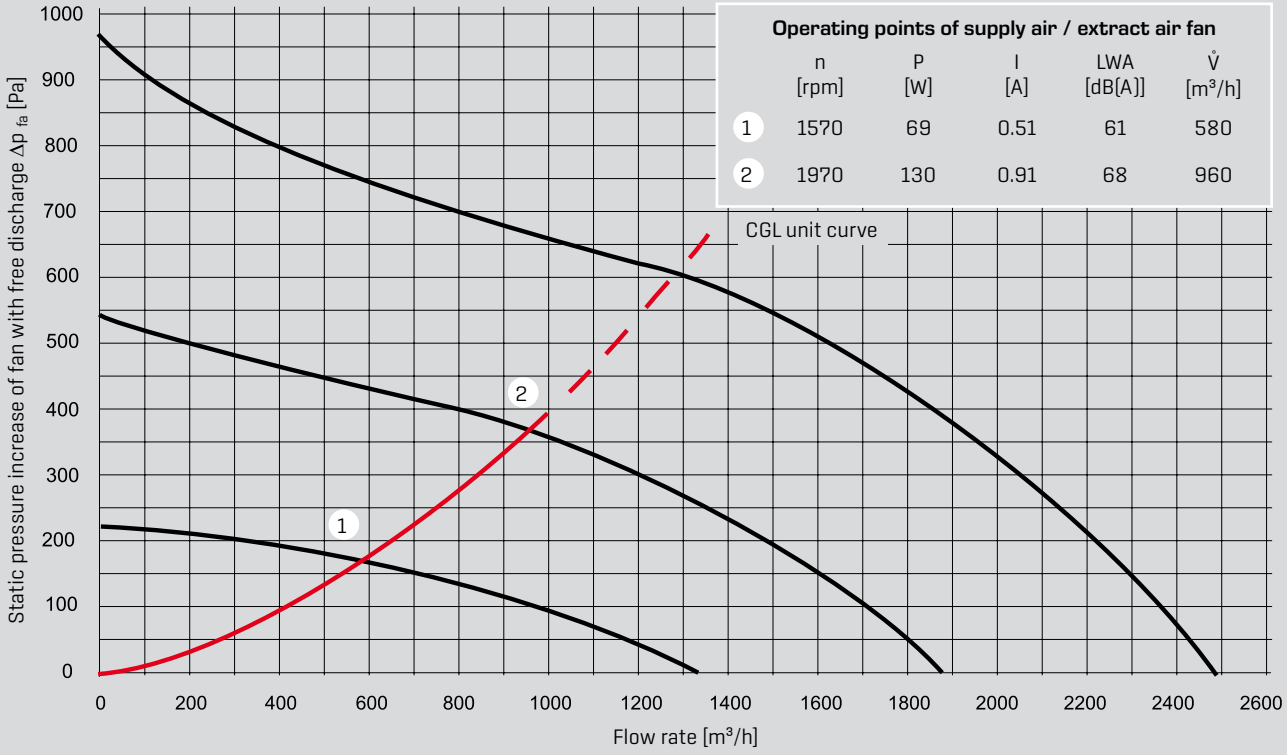






* With free intake and free discharge

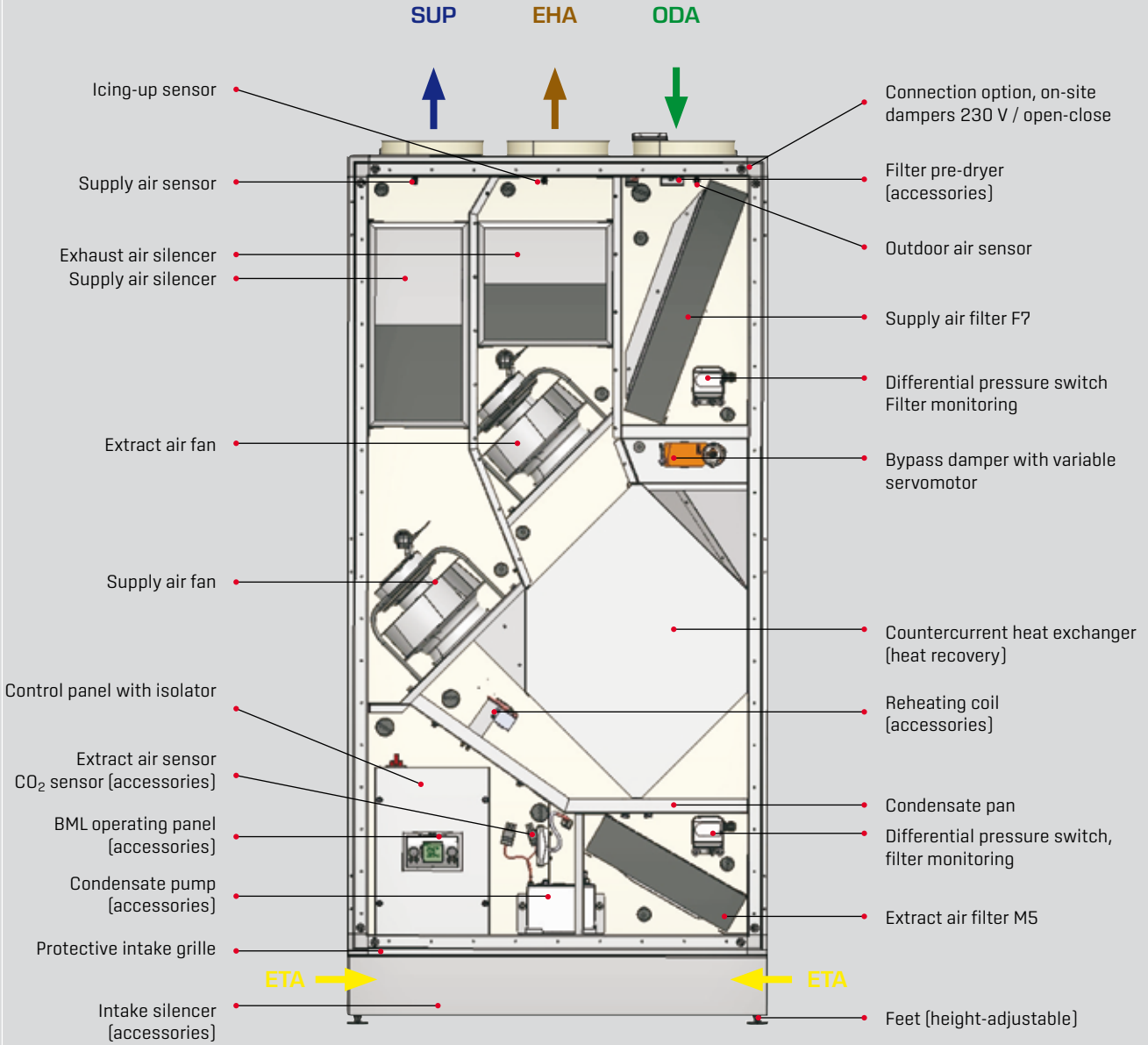
SUPPLY AIR / EXTRACT AIR fan diagram



Operating points of supply air / extract air fan

	n [rpm]	P [W]	I [A]	LWA [dB(A)]	$\dot{V}$ [m³/h]
1	1570	69	0.51	61	580
2	1970	130	0.91	68	960

UNIT LAYOUT – SUPPLY AIR LEFT
(SUPPLY AIR RIGHT: MIRROR IMAGE)



NOTE
CONDENSATE DRAIN:

The unit can be retrofitted with a condensate pump if it is not possible to install a free condensate drain on site.

The condensate pump features a float switch with ON/OFF and ALARM functions.

The pump can be used to pump the condensate into a drain pipe further away or higher up.

CASING

- Compact, inherently stable, height-adjustable casing.
  Casing frame powder-coated in RAL 9006 silver.
- Duplex casing structure made of powder-coated sheet steel,
  RAL 9016 (traffic white) with core of 50 mm thick thermal insulation.
- Optimum sound and thermal insulation using mineral wool;
  material class A1, non-flammable to DIN 4102.
  Inspection doors extending across the entire operating height
  of the unit ensure excellent access to fitted parts.

MOTOR/FAN UNIT FOR SUPPLY AND EXTRACT AIR

Highly efficient free-running fans with single-sided intake, directly connected to the EC motor with low energy consumption, variable speed.

Complete motor/fan unit statically and dynamically balanced.

Fan/motor combination with very low noise levels.

HEAT RECOVERY

Heat recovery via high performance countercurrent heat exchanger.

Heat exchanger made from high grade, corrosion-resistant aluminium.

Very low air resistance.

Heat recovery rates over 90 % to EN 308.

BYPASS

A bypass is built into the unit as standard.

Consequently, the bypass is able to take full care of night time cooling during the summer.

FILTERS

Easy-to-replace cassette filters.

Supply air: class F7 (fine dust filter and pollen filter)

Extract air: class F5 (fine dust filter)

SILENCER

Splitter silencers integrated as standard, for supply air and exhaust air.

CONTROL UNIT

Fully wired control unit as standard, 230 V / 50 Hz, with an isolator in the unit.

The microprocessor control unit switches and regulates the fans, heat recovery units, temperature, flow rates and operating times, as well as a variety of internal functions and alarms.

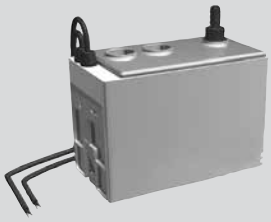
CONTROL ACCESSORIES

BML PROGRAMMING UNIT

(Always required)
Up to 7 CGL ventilation units can be controlled with one BML
(Switching times, temperatures, speed, etc. separately adjustable for each unit)

WALL MOUNTING BASE

For programming unit



CONDENSATE PUMP

Includes float switch and alarm contact

CO_2 SENSOR

(Required for CO_2-dependent operation)

ISM 5 LON INTERFACE MODULE

For connecting LM1 and LM2 fan modules to a building management system using LON standard network variables

INDOOR AIR QUALITY

The indoor air quality is influenced by the following three factors (see also EN 15251 and EN 13779):

- **Emissions from persons and their activities**
  Carbon dioxide emissions from a person's respiration, biological vapours, smoking, personal hygiene products, etc.
- **Emissions from the room**
  Vapours from furniture, carpets, paint, adhesives, etc.
- **Outdoor air conditions**
  Rural areas, urban areas, dust, fine dust, pollen, etc.

DESIGN CRITERIA

In accordance with EN 15251,
various categories are used for indoor air quality and ventilation rate criteria.

DESCRIPTION OF THE APPLICABILITY OF THE VARIOUS CATEGORIES

CATEGORY	DESCRIPTION
1	High level of expectation. Recommended for spaces occupied by very sensitive and fragile persons with special needs, such as disabled or sick persons, very young children and elderly persons.
2	Standard level of expectation. Recommended for new and renovated buildings.
3	Acceptable, moderate level of expectation. Can be applied to existing buildings.
4	Values outside the above categories. This category should only be applied for a limited part of the year.

As the carbon dioxide concentration rises, the ability to concentrate and perform declines, tiredness increases and people feel uncomfortable.

Carbon dioxide is a natural constituent of the earth's atmosphere and is found in outdoor air in concentrations ranging from approx. 350 ppm (rural areas) to approx. 500 ppm (urban areas).

TECHNICAL INFORMATION

CO_2 LEVEL IN INDOOR ENVIRONMENTS to EN 15251 or EN 13779

The following table from EN 13779 shows the recommended minimum values for the outdoor air flow rate per person. The design air flow rate also takes emissions from other sources into account, such as building materials and furniture.

			Outdoor air flow rate							
			Non-smoking area				Smoking area			
Category	Unit		Standard area		Standard value		Standard area		Standard value	
1	l/s/person	m³/h/person	> 15	> 54	20	72	> 30	> 108	40	144
2	l/s/person	m³/h/person	10 - 15	36 - 54	12.5	45	20 - 30	72 - 108	25	90
3	l/s/person	m³/h/person	6 - 10	21.6 - 36	8	28.8	12 - 30	43.2 - 108	16	57.6
4	l/s/person	m³/h/person	<6	<21.6	5	18	<12	<43.2	10	36

MINIMUM AIR VOLUMES PER STUDENT

(based on max. CO_2 requirement)

	Age-dependent rates		
For approx. age	Target 1200 ppm	Target 1000 ppm	Target group
0 - 6	19 m³/h	25 m³/h	Kindergarten
6 - 10	19 m³/h	25 m³/h	Primary school
10 - 14	23 m³/h	30 m³/h	Secondary school
14 - 19	24 m³/h	33 m³/h	College
Over 19	25 m³/h	34 m³/h	HE institute, university
Teacher	28 m³/h	37 m³/h	

EXAMPLE CALCULATIONS

l/s x 3.6 = m³/h

Example 1:

School with 30 children aged 6 - 10 years and one teacher.

Required air volume per room, acc. to max. CO_2 requirement of 1200 ppm

Calculation:	30 people x 19 m³/h	= 570 m³/h
	1 teacher x 28 m³/h	= 28 m³/h
	Required outdoor air volume:	= 598 m³/h

Example 2:

Desired interior category: 3 - Non-smoking area, 20 people

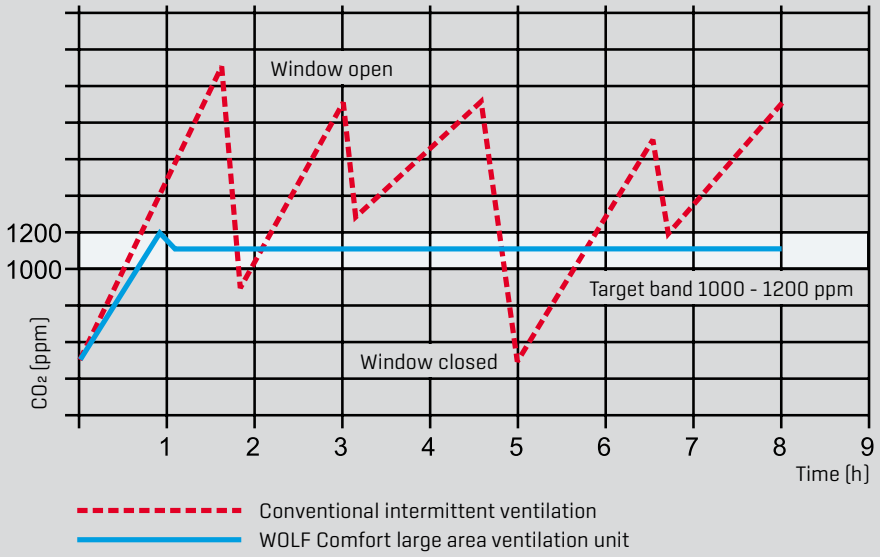
Air volume per room:

Calculation:	20 people x 8 l/s	=	160 l/s	
	Required outdoor air volume:	=	160 l/s	= 576 m³/h

NOTES:

If larger air volumes are required, then units from our KG Compact or KG Top range of air handling units can be used.

COMPARISON WITH INTERMITTENT VENTILATION

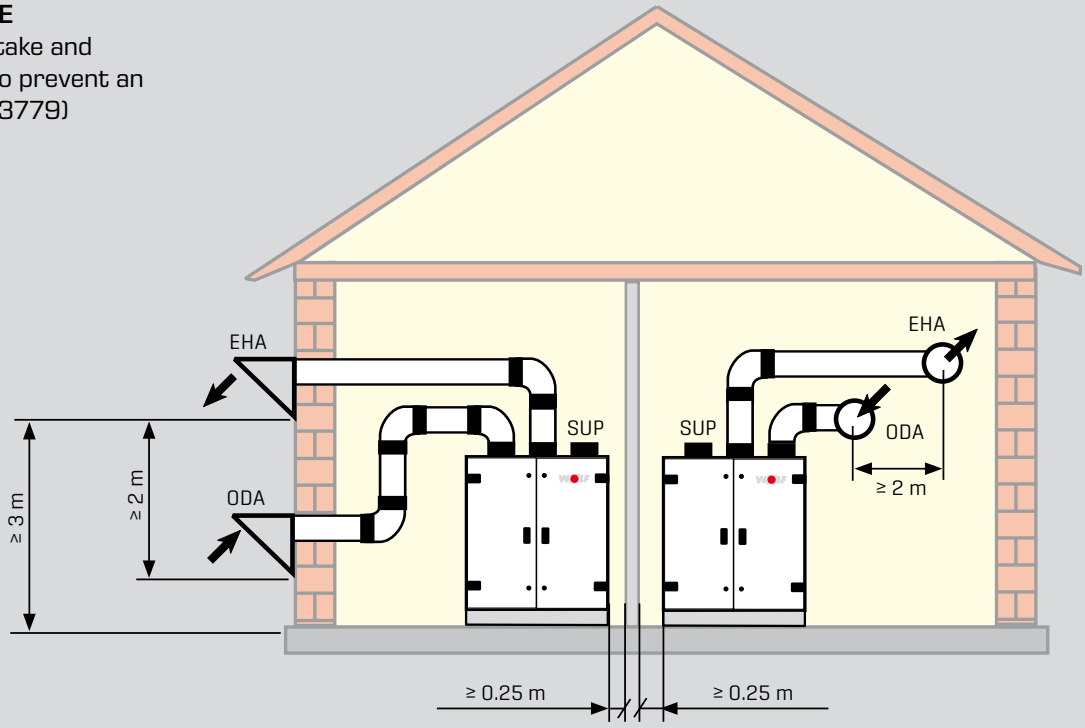


NOISE LEVEL IN INDOOR ENVIRONMENTS to EN 15251 or EN 13779

TYPE OF BUILDING / ROOM	RECOMMENDED SOUND PRESSURE RANGE (DBA)
Open-plan office	35 - 45
Conference room	30 - 40
Classroom, kindergarten	35 - 45
Cafeterias / Restaurants	35 - 50
Shops	35 - 50

MINIMUM CLEARANCE

between outdoor air intake and exhaust air discharge to prevent an "air short circuit" (EN 13779)



AIR DISTRIBUTION IN THE ROOM:

Depending on the local conditions and optical requirements, the supply air can be distributed in the room by a wide range of on-site systems.

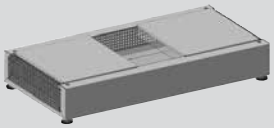
Suspended ceiling:

- Perforated ceiling
- Perforated ceiling with textile outlet

No suspended ceiling:

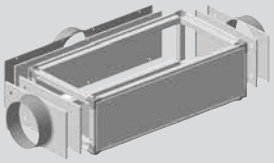
- Swirl outlet / slotted outlet
- Plasterboard box with outlets
- Textile outlet
- Combination outlet (air outlet + light)
- Perforated metal duct
- Longitudinally grooved metal duct / folded spiral-seam pipe

EXAMPLE TEXTILE OUTLET
Top: in suspended ceiling
Bottom: suspended in room
(Photo credits: AirQuell GmbH)



INTAKE SILENCER

For intake noise attenuation by up to 5 dB, with height-adjustable feet.
Reduction of the overall sound level 1 m in front of the CGL by up to 3 dB.
Intake: lateral left and right, or at the back



UNIVERSAL INTAKE SECTION

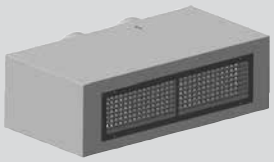
With height-adjustable feet.
Intake: lateral left, right, back Ø 250 mm, lateral left, right 205 x 408 mm, back 205 x 915 mm

VERTICAL DISCHARGE SECTION WITH PIPE DAMPERS

With sound-absorbing casing, plus horizontally and vertically adjustable discharge grille. Pipe damper connection Ø 250 mm with servomotors 230 V open/close 5 Nm.

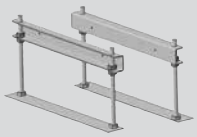
VERTICAL DISCHARGE SECTION

With sound-absorbing casing, plus horizontally and vertically adjustable discharge grille. Terminal box (230 V) for pipe closing-off dampers fitted downstream. Pipe connection Ø 250 mm



HORIZONTAL DISCHARGE SECTION

With sound-absorbing casing, plus horizontally and vertically adjustable discharge grille. Terminal box (230 V) for any pipe closing-off dampers fitted downstream. Pipe connection Ø 250 mm



LIFTING FACILITY

For retrofitting the intake silencer

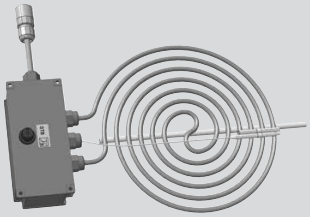
CASSETTE FILTER M5 Fine dust filter

372 mm x 393 mm x 96 mm

CASSETTE FILTER F7 Fine dust and pollen filter

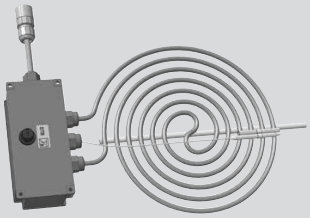
404 mm x 592 mm x 96 mm

ACCESSORIES



ELECTRIC PREHEATING COIL

Recommended for optimum unit operation.
Fully wired electric coil with high limit safety cut-out and panel to protect the outdoor air filter against moisture penetration or as frost protection for heat recovery. Output 1000 W



ELECTRIC REHEATING COIL, VARIABLE

For increasing the supply air temperature at low outside temperatures.
Can be integrated into the unit as an option; electrical plug-in design.
Output 1000 W

PIPE CLOSING-OFF DAMPER

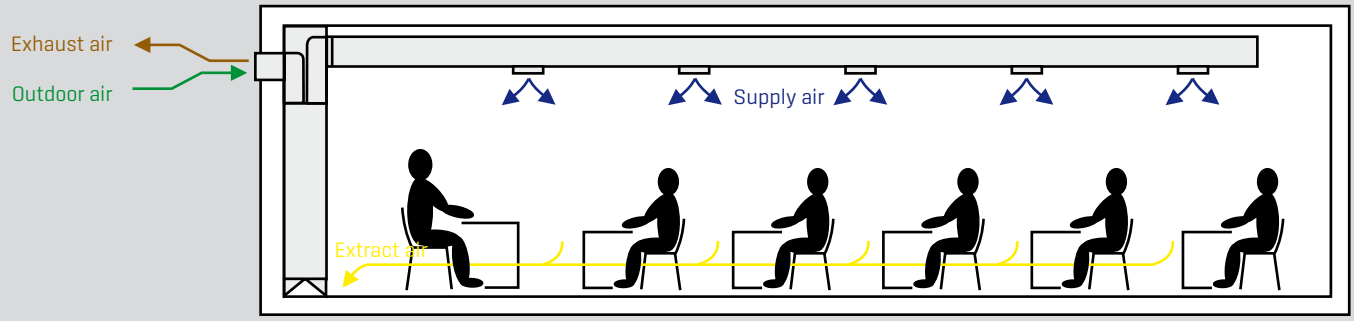
DN 250, motor-driven (230 V; open/close) servomotor for on-site connection

PIPE SILENCER

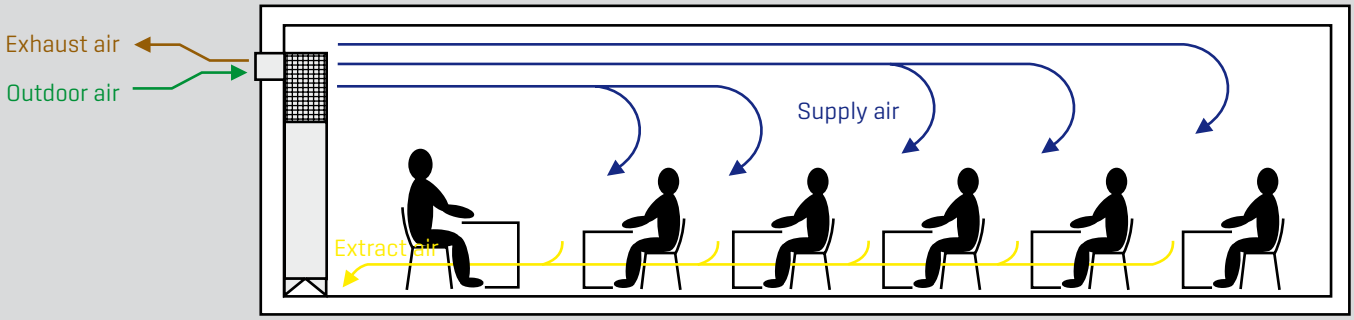
DN 250 Length: 600 mm, all-round insulation 50 mm (attenuation 6 dB / 250 Hz)

FUNCTIONAL ILLUSTRATION OF AIR INFLOW:

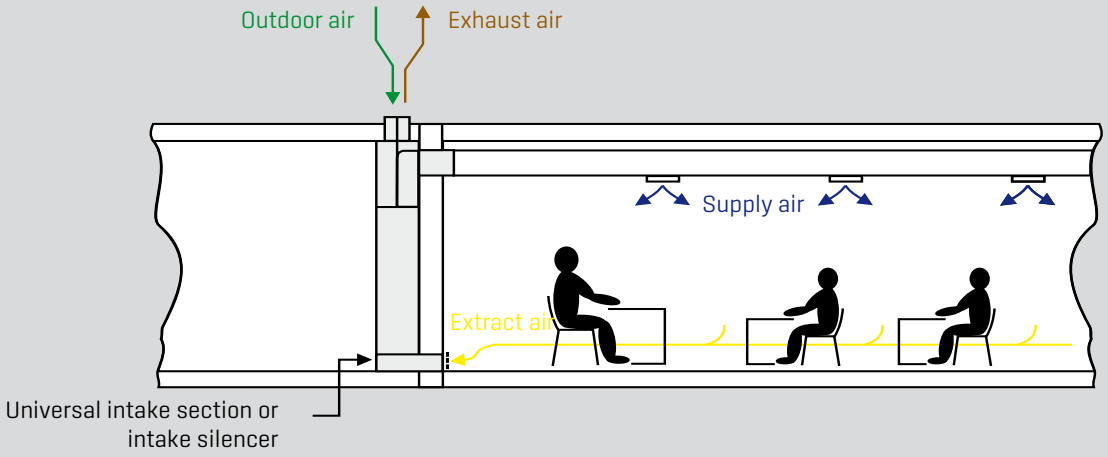
Via ductwork and suspended ceiling



Via induction effect, secondary air effect



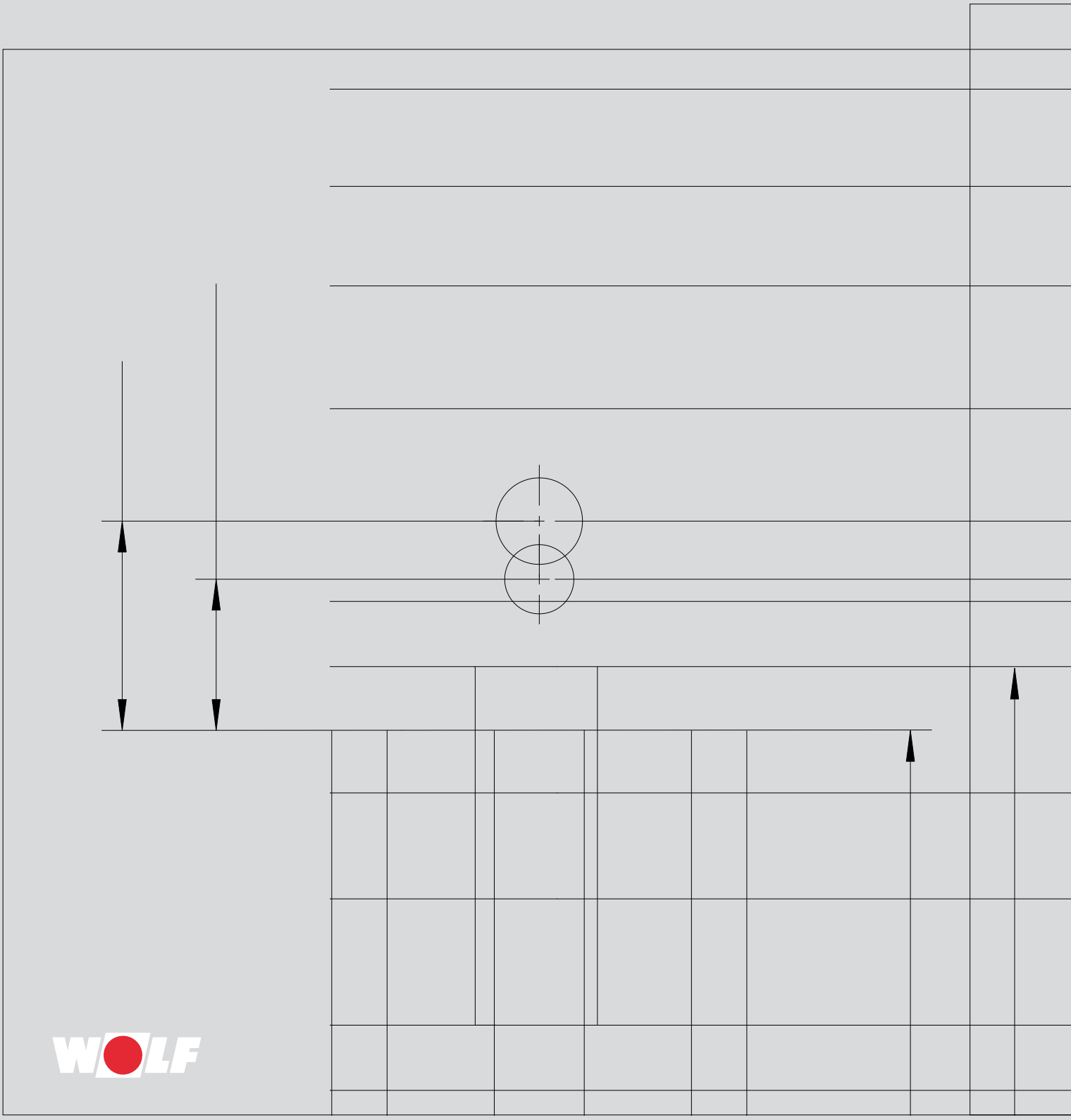
Unit positioned in adjoining room



NOTES

Dealer address

WOLF GMBH / P.O. BOX 1380 / D-84048 MAINBURG / TEL. +49.0.875174-0 / FAX +49.0.875174-1600 / www.WOLF.eu



Part no. 4800638 GB 2017/06