



CIVIC EC LB V.2 **CIVIC EC DB V.2**

Single-room air handling units

INTRODUCTION

SINGLE-ROOM AIR HANDLING UNITS

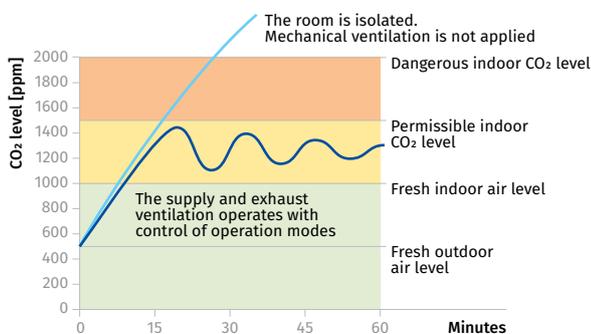
Problem №1: poor air quality

- Inadequate ventilation of classrooms, offices and conference halls leads to poor air quality – specifically: elevated humidity and CO₂ levels and reduced oxygen content. These effects can cause eye dryness and irritation, poor concentration and fatigue.
- It has been scientifically proven that poor air quality reduces work capacity of adults by 5–10 %. Poor air quality can have even more pronounced effect on children and have adverse effects on concentration and potential academic achievement.
- The normal practice of classroom ventilation by opening windows only provides a short-term solution for the problem of poor air quality and it is at the cost of the warm air that is lost in the process. As a result, the CO₂ concentration in spaces that are intermittently ventilated by airing exceeds acceptable levels by several times.
- Unlike this conventional approach, single-room ventilation ensures consistently high air quality in classrooms whilst maintaining the air temperature



Problem №2: heat losses

- Most retrofit projects of schools and community buildings are focused towards the reduction of heat and energy costs. Fitting modern windows and doors is an essential part of the process as well as removing any airbricks and trickle vents in order to try and create an airtight living environment and prevent any heat losses through gaps. This newly created, airtight environment, however, can create new issues with regards to air quality and the reduction of CO₂ and VOCs which would normally be removed passively by the property's air permeability. Airtight spaces can be ventilated very efficiently and effectively using mechanical ventilation with heat recovery.



Problem №3: lack of space for ventilation facilities in retrofitting projects

- Retrofitting existing structures presents a host of engineering challenges which often require creative solutions. Ensuring efficient ventilation in such projects is no exception. Some buildings completely lack free space for air ducts and ventilation equipment. In such cases central ventilation systems are not a realistic option.
- However, such engineering challenges can be met by fitting the treated spaces with single-room ventilation systems which do not require dedicated air ducts.
- High levels of humidity promote mould and germs which may trigger asthma and other allergies. Proper ventilation is essential in order to eliminate this problem. Chemical compounds known as VOCs (volatile organic compounds) released by furniture, paint, carpets, cleaning products and a variety of other household items all contribute to indoor air pollution. Carbon dioxide is a natural component of the Earth's atmosphere with outdoor air concentration ranging from 350 ppm in the country to 500 ppm in the city.

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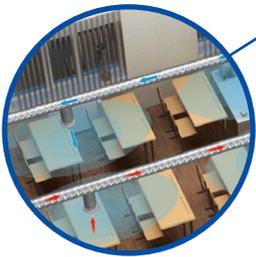
Advantages of single-room ventilation systems

- Unit air flow and type are selected based on the individual requirements of each particular space.
- Each space is ventilated on demand.
- The speed of **CIVIC** units is set automatically.
- Single-room ventilation systems are much easier to design due to the absence of air ducts.
- Fresh air is supplied through a short wall duct. No energy is wasted pushing air through long air ducts.
- Single-room ventilation improves fire safety due to the absence of air ducts between individual spaces.

Disadvantages of central ventilation systems

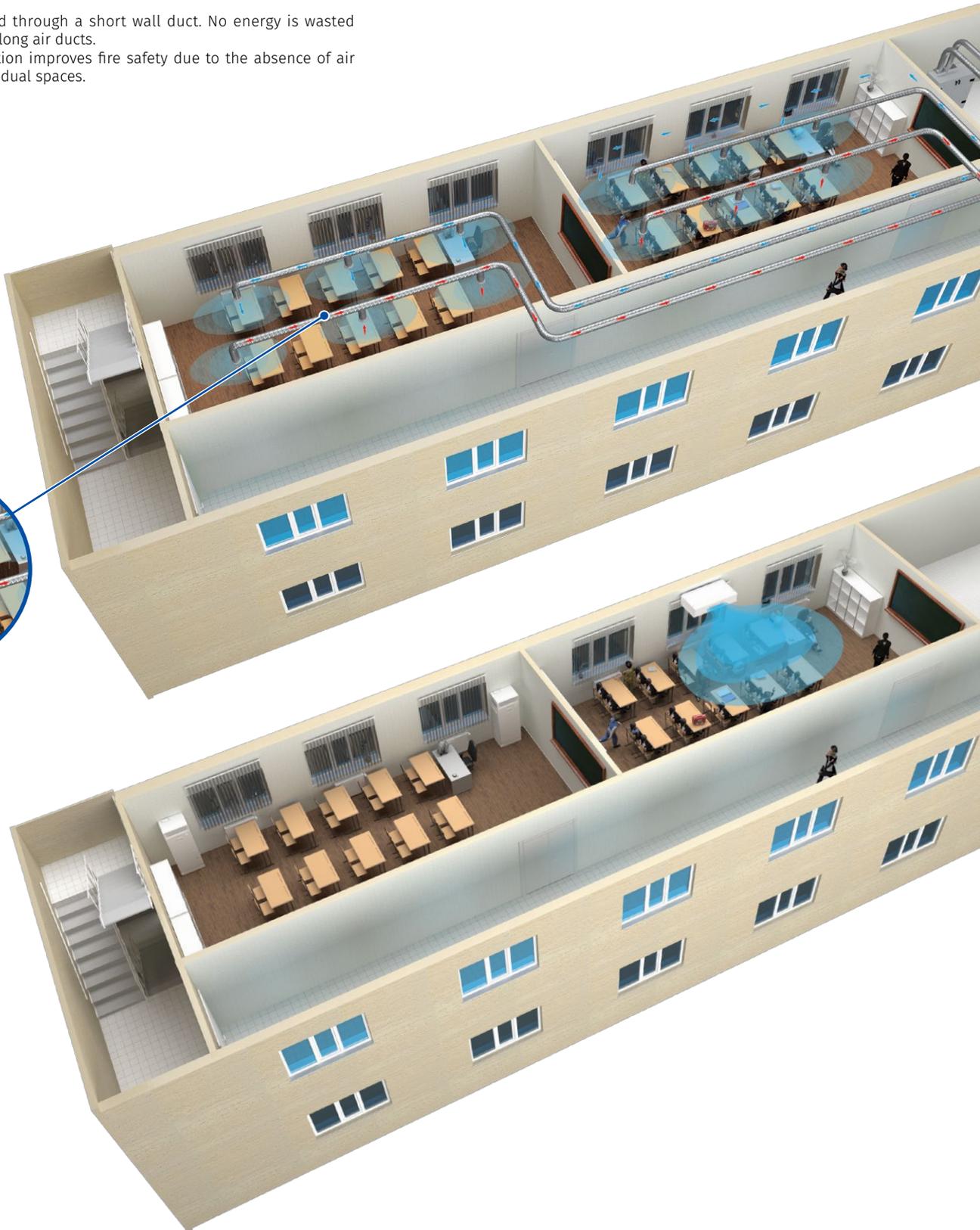
- Central ventilation units can be large and require a dedicated space for installation.
- As a retrofit solution there can be some difficulties with installing ducting between floors or through existing ceiling voids

CENTRAL VENTILATION SYSTEM EXAMPLE



Hyperventilation in the empty room

SINGLE-ROOM VENTILATION SYSTEM EXAMPLE



DESIGN GUIDELINES

SINGLE-ROOM AIR HANDLING UNITS

DIN EN 15251 standard specifies indoor environmental input parameters for design and assessment of energy performance of buildings addressing indoor air quality, thermal environment, lighting and acoustics.

Category	Description
1	High standard. Recommended for rooms used by sensitive occupants with special needs (e.g. people with disabilities or patients undergoing medical treatment, infants, elderly people etc.).
2	Normal standard. Recommended for newly erected and renovated buildings.
3	Targeted/moderate standard. Can be applied to existing buildings.
4	Parameters beyond the above categories. This category can only be applied during a limited period.

The following table contains recommended ventilation system air flow per person as per DIN EN 13779. The aforementioned airflow is given in consideration of the contaminants released by furniture and construction materials.

Category	Measurement unit		Outdoor airflow							
			Non-smoking space				Smoking space			
			Range		Standard value		Range		Standard value	
1	l/s	m³/h	> 15	> 54	20	72	> 30	> 108	40	144
2	l/s	m³/h	10–15	36–54	12.5	45	20–30	72–108	25	90
3	l/s	m³/h	6–10	21.6–36	8	28.8	12–30	43.2–108	16	57.6
4	l/s	m³/h	< 6	< 21.6	5	18	< 12	< 43.2	10	36

The minimum ventilation air flow per pupil based on maximum allowable concentration of CO₂ is as follows.

Approximate age	Age group norm		Target audience
	Reference value 1200 ppm	Reference value 1000 ppm	
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	Vocational school
Over 19	25 m³/h	34 m³/h	University
Teacher	28 m³/h	37 m³/h	

Noise level requirements as per DIN EN 15251 and DIN EN 13779:

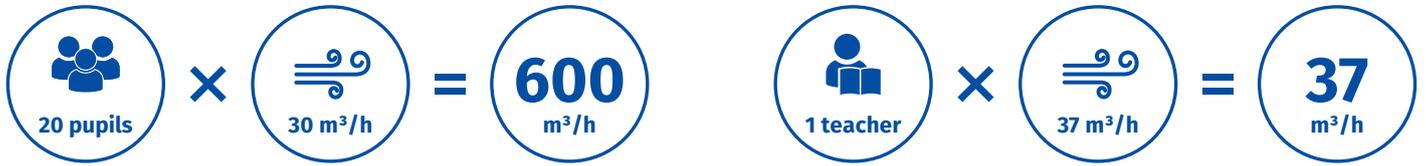
Building/room type	Sound pressure recommended range [dBA]
Open-space office	35–40
Conference hall	30–40
Classroom, kindergarten	35–45
Cafeterias/restaurants	35–50
Retail store	35–50

DESIGN GUIDELINES

SINGLE-ROOM AIR HANDLING UNITS

Calculation example

Let us calculate a classroom ventilation system. The classroom is to accommodate 20 children aged 10-14 and one adult teacher. The CO₂ concentration must be maintained at 1000 ppm.



Required fresh airflow rate: 637 m³/h



CIVIC EC LB V.2

SINGLE-ROOM AIR HANDLING UNITS

Features

- The **CIVIC EC LB V.2** units are designed for singleroom ventilation of schools, offices and other public and commercial premises. Offer the ideal simple and efficient ventilation solutions for existing and renovated buildings and require no layout of air ducts.
- Efficient supply and extract ventilation for separate premises.
- EC motors with low energy consumption.
- Low-noise operation.
- Simple mounting.



Air flow:
up to 1240 m³/h
344 l/s



Heat recovery efficiency:
up to 96 %

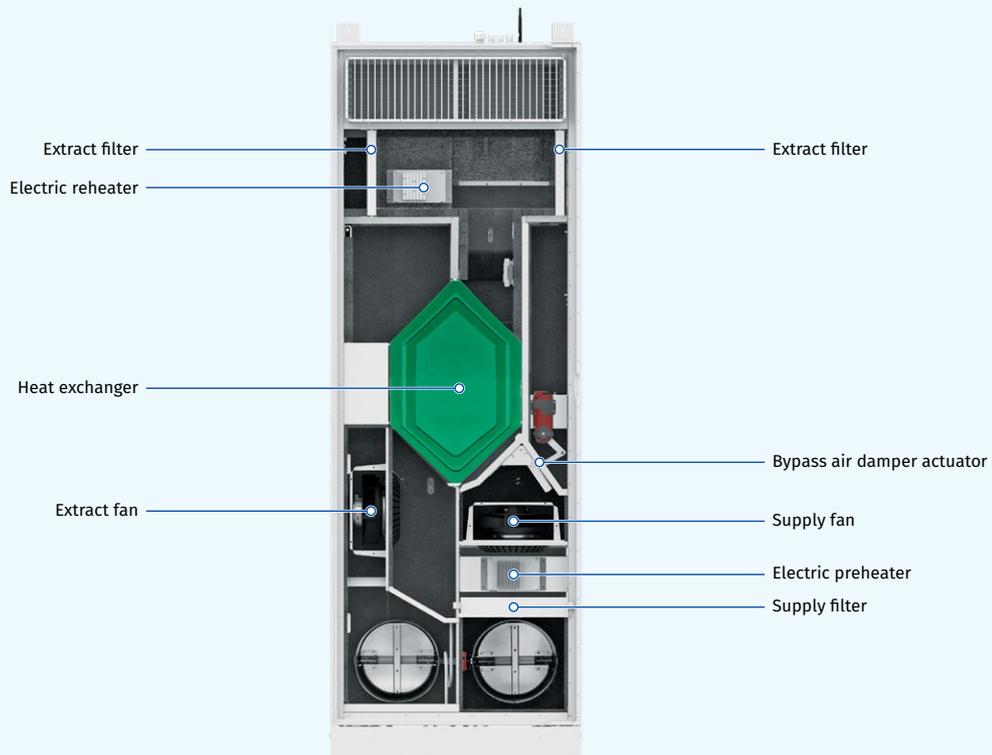


Design

- Made of high-quality polymer coated steel, internally lined with heat- and sound insulation of mineral wool, cellular synthetic rubber or other materials.
- Built-in preheater and reheater modifications available for cold climate conditions.

Motors

- High efficient electronically commutated motors with external motor and impeller with forward curved blades. Such motors are the most state-of-the-art energy saving solution.
- EC motors are featured with high performance and total speed controllable range. High efficiency reaching 90 % is the premium advantage of the electronically commutated motors.



Designation key

Model	Motor type	Mounting	Bypass	Heater	Drain pump	Rated air flow [m ³ /h]	Heat exchanger type	Service side (for Civic...1200)	Control	Modernization
CIVIC	EC: synchronous electronically commutated motor	L: floor mounting	B: with bypass	_: without heater E: preheating E2: preheating + reheating	_: without drain pump CP: with drain pump	300; 500; 1200	_: heat recovery -E: energy recovery	L: Left R: Right	S21	V.2: second modernized generation

CIVIC EC LB V.2

SINGLE-ROOM AIR HANDLING UNITS

Air filtration

- o Exhaust cassette filter: ISO Coarse >60 % (G4).
- o Supply cassette filter: ISO ePM1 60 % (F7)

Bypass

- o The units are equipped with a bypass. The bypass damper opens for free cooling ventilation mode in summer.

Air dampers

- o The automatic supply and extract air dampers are used to prevent uncontrollable air draughts during the unit standstill.

Heaters

PREHEATING

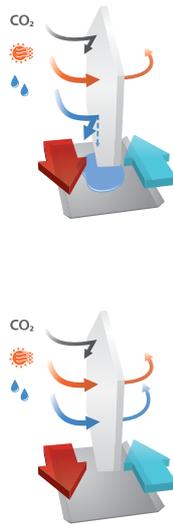
- o CIVIC EC LBE V.2 and CIVIC EC LBE2 V.2 units are equipped with an electric preheater which protects the heat exchanger from freezing.

REHEATING

- o CIVIC EC LBE2 V.2 units feature an electric reheater to raise the supply air temperature.

Heat exchanger

- o The CIVIC EC LB V.2 unit has a counter-flow heat exchanger made of polystyrene.
 - **In cold season** the heat energy of the extract air flow is absorbed by intake air flow, thus decreasing the heat losses caused by ventilation. Condensate generated during heat recovery is collected in a drain pan and removed to the sewage system.
 - **In warm season** the heat of the outdoor air is absorbed by extract air flow. This way the supply air temperature decreases and heat recovery reduces operation loads for the air conditioner.
- o The CIVIC EC LB... -E V.2 unit is equipped with a counter-flow heat exchanger made of enthalpy membrane.
 - **In cold season** the heat and moisture of the extract air are absorbed by supply air through the enthalpy membrane, thus decreasing the heat losses caused by ventilation.
 - **In warm season** the heat and humidity of the outdoor air is absorbed by extract air flow through the enthalpy membrane. This way the supply air temperature and humidity decreases and heat recovery reduces operation loads for the air conditioner.



Functioning

- o **Cold outside air** flows through the filters and heat exchanger and is moved to the room with a supply centrifugal fan.
- o **Warm polluted air from the premise** flows through the filter and the heat exchanger and is exhausted outside with an extract centrifugal fan through an air duct in the wall.



Control and automation

- o The CIVIC EC LB... S21 V.2 units are equipped with an integrated automation system.
- o The S21 controller allows integrating the unit into the **BMS (Building Management System)**.
- o The unit can be controlled by the **Blauberg Home** mobile application via Wi-Fi.



Download the **Blauberg Home** app for Android



Download the **Blauberg Home** app for iOS



Automation functions

Functions	Description
Unit control via Wi-Fi using the mobile application	+
Unit control via remote control panel	S22 control panel (option) 
Unit control via remote wireless control panel	S22 Wi-Fi control panel (option) 
Unit control via a wired remote LCD control panel	S25 control panel (option) 
BMS (Building Management System)	RS-485 Wi-Fi Ethernet MODBUS (RTU, TCP)
Speed switch	+
Filter replacement indication	by filter timer
Alarm indication	full alarm description in the mobile application
Week scheduled operation	+
Bypass	automatic manual
Timer	+
Boost mode	+
Fireplace mode	+
Freeze protection	using cyclical stops of the supply fan using preheating (option)
Reheater connection	option
Cooler connection	option
Minimum supply air temperature control	+
Humidity control	option
CO ₂ control	option
VOC control	option
PM2.5 control	option
Fire alarm sensor connection	option

Option: the functionality is available when purchasing the appropriate accessory (see the "Accessories" section)

CIVIC EC LB V.2

SINGLE-ROOM AIR HANDLING UNITS

Technical data

Parameters	Civic EC LB 300 S21 V.2	Civic EC LBE 300 S21 V.2	Civic EC LBE2 300 S21 V.2	Civic EC LB 300-E S21 V.2	Civic EC LBE 300-E S21 V.2	Civic EC LBE2 300-E S21 V.2
Voltage [V / 50 (60) Hz]	1~230	1~230	1~230	1~230	1~230	1~230
Max. power consumption without an electric heater [W]	96	96	96	96	96	96
Preheater power [W]	-	1050	1050	-	1050	1050
Reheater power [W]	-	-	700	-	-	700
Max. current without an electric heater [A]	0.75	0.75	0.75	0.75	0.75	0.75
Max. current with an electric heater [A]	-	7	11	-	7	11
Maximum air flow [m³/h (l/s)]	320 (89)	320 (89)	320 (89)	320 (89)	320 (89)	320 (89)
Sound pressure level at 1 m [dBA]	47	47	47	47	47	47
Sound pressure level at 3 m [dBA]	37	37	37	37	37	37
Max. transported air temperature [°C]	-25...+40	-25...+40	-25...+40	-25...+40	-25...+40	-25...+40
Casing material	polymer coated steel	polymer coated steel	polymer coated steel	polymer coated steel	polymer coated steel	polymer coated steel
Insulation	40 mm, mineral wool	40 mm, mineral wool	40 mm, mineral wool	40 mm, mineral wool	40 mm, mineral wool	40 mm, mineral wool
Extract filter	ISO Coarse >60 % (G4)	ISO Coarse >60 % (G4)	ISO Coarse >60 % (G4)	ISO Coarse >60 % (G4)	ISO Coarse >60 % (G4)	ISO Coarse >60 % (G4)
Supply filter	ISO ePM1 60 % (F7)	ISO ePM1 60 % (F7)	ISO ePM1 60 % (F7)	ISO ePM1 60 % (F7)	ISO ePM1 60 % (F7)	ISO ePM1 60 % (F7)
Connected air duct diameter [mm]	200	200	200	200	200	200
Weight [kg]	100	101	103	100	101	103
Heat recovery efficiency* [%]	85...94	85...94	85...94	73...89	73...89	73...89
Heat exchanger type	counter-flow	counter-flow	counter-flow	counter-flow	counter-flow	counter-flow
Heat exchanger material	polystyrene	polystyrene	polystyrene	enthalpic membrane	enthalpic membrane	enthalpic membrane
SEC class	A	A	A	A	A	A

*Heat recovery efficiency is specified in compliance with EN 13141-8.

Parameters	Civic EC LB 500 S21 V.2	Civic EC LBE 500 S21 V.2	Civic EC LBE2 500 S21 V.2	Civic EC LB 1200 S21 V.2	Civic EC LBE 1200 S21 V.2	Civic EC LBE2 1200 S21 V.2
Voltage [V / 50 (60) Hz]	1~230	1~230	1~230	1~230	3~400	3~400
Max. power consumption without an electric heater [W]	370	370	370	345	345	345
Preheater power [W]	-	1050	1050	-	3150	3150
Reheater power [W]	-	-	700	-	-	2110
Max. current without an electric heater [A]	2.5	2.5	2.5	2.3	2.3	2.3
Max. current with an electric heater [A]	-	9.1	13.3	-	12	18.7
Maximum air flow [m³/h (l/s)]	580 (161)	580 (161)	580 (161)	1240 (344)	1240 (344)	1240 (344)
Sound pressure level at 1 m [dBA]	47	47	47	40	40	40
Sound pressure level at 3 m [dBA]	38	38	38	30	30	30
Max. transported air temperature [°C]	-25...+40	-25...+40	-25...+40	-25...+40	-25...+40	-25...+40
Casing material	polymer coated steel	polymer coated steel	polymer coated steel	polymer coated steel	polymer coated steel	polymer coated steel
Insulation	40 mm, mineral wool	40 mm, mineral wool	40 mm, mineral wool	40 mm, mineral wool	40 mm, mineral wool	40 mm, mineral wool
Extract filter	ISO Coarse >60 % (G4)	ISO Coarse >60 % (G4)	ISO Coarse >60 % (G4)	ISO Coarse >60 % (G4)	ISO Coarse >60 % (G4)	ISO Coarse >60 % (G4)
Supply filter	ISO ePM1 60 % (F7)	ISO ePM1 60 % (F7)	ISO ePM1 60 % (F7)	ISO ePM1 60 % (F7)	ISO ePM1 60 % (F7)	ISO ePM1 60 % (F7)
Connected air duct diameter [mm]	250	250	250	400	400	400
Weight [kg]	139	140	142	352	358	363
Heat recovery efficiency* [%]	75...94	75...94	75...94	84...96	84...96	84...96
Heat exchanger type	counter-flow	counter-flow	counter-flow	counter-flow	counter-flow	counter-flow
Heat exchanger material	polystyrene	polystyrene	polystyrene	polystyrene	polystyrene	polystyrene
SEC class	A	A	A	-	-	-

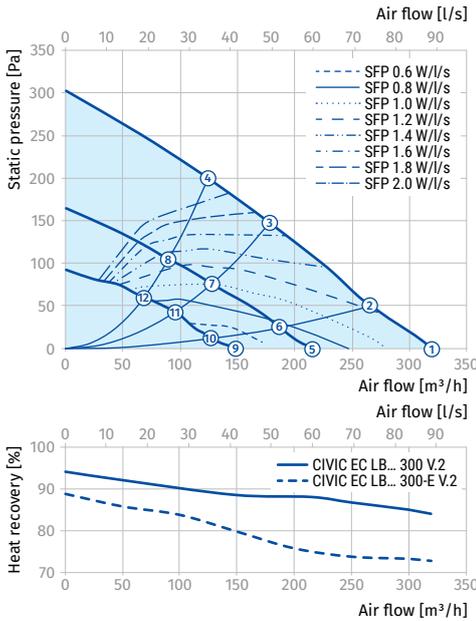
*Heat recovery efficiency is specified in compliance with EN 13141-8.

CIVIC EC LB V.2

SINGLE-ROOM AIR HANDLING UNITS

CIVIC EC LB/LBE/LBE2 300 V.2

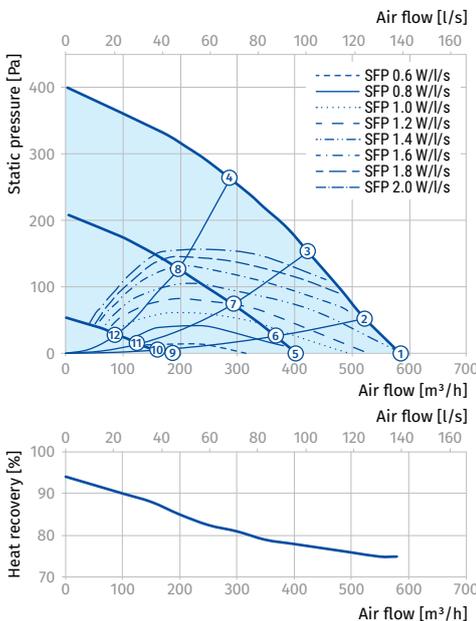
Sound-power level, A - weighted	Total	Octave frequency band [Hz]										LpA 3 m	LpA 1 m								
		200	250	315	400	500	630	800	1000	1250	1600			2000	2500	3150	4000	5000	6300	8000	10000
L _{WA} to environment @ point 1 [dBA]	58	46	50	48	44	49	48	43	46	46	47	48	45	39	32	27	24	26	25	37	47
L _{WA} to environment @ point 5 [dBA]	49	29	39	34	40	41	39	35	38	38	39	39	35	28	22	20	20	23	24	29	38
L _{WA} to environment @ point 9 [dBA]	42	30	33	31	29	36	32	26	31	30	30	30	26	21	19	19	19	23	24	22	31
L _{WA} to environment @ point 3 [dBA]	58	46	50	47	44	49	48	44	46	46	47	47	44	39	33	28	24	25	25	37	47
L _{WA} to environment @ point 4 [dBA]	58	46	50	48	45	50	48	43	46	46	47	48	45	39	32	27	23	25	25	38	47



Point	Total power of the unit [W]	Total sound pressure level at 3 m (1 m) [dBA]
1	92	37 (47)
2	91	-
3	85	37 (47)
4	75	38 (47)
5	40	29 (38)
6	38	-
7	35	-
8	32	-
9	19	22 (31)
10	18	-
11	17	-

CIVIC EC LB/LBE/LBE2 500 V.2

Sound-power level, A - weighted	Total	Octave frequency band [Hz]										LpA 3 m	LpA 1 m								
		200	250	315	400	500	630	800	1000	1250	1600			2000	2500	3150	4000	5000	6300	8000	10000
L _{WA} to environment @ point 1 [dBA]	57	47	52	51	48	47	44	45	45	44	46	48	45	38	30	27	25	26	27	38	47
L _{WA} to environment @ point 5 [dBA]	49	44	37	36	42	38	38	37	38	37	39	41	37	29	24	23	22	25	26	28	39
L _{WA} to environment @ point 9 [dBA]	37	28	27	26	31	29	28	28	29	27	27	28	25	21	20	21	22	25	27	17	27
L _{WA} to environment @ point 3 [dBA]	55	47	46	42	47	46	43	43	43	43	43	45	42	35	29	27	24	26	27	35	45
L _{WA} to environment @ point 4 [dBA]	47	49	48	49	52	51	50	50	49	48	46	46	44	38	33	30	27	28	28	28	37



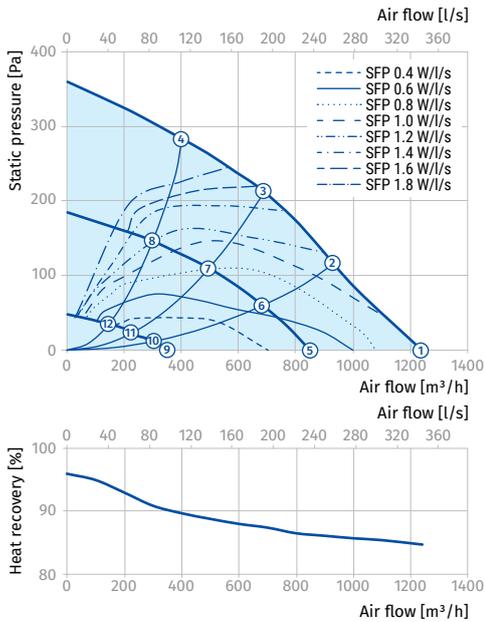
Point	Total power of the unit [W]	Total sound pressure level at 3 m (1 m) [dBA]
1	236	37 (47)
2	236	-
3	234	35 (45)
4	234	28 (37)
5	80	28 (39)
6	78	-
7	76	-
8	75	-
9	21	17 (27)
10	19	-
11	20	-

CIVIC EC LB V.2

SINGLE-ROOM AIR HANDLING UNITS

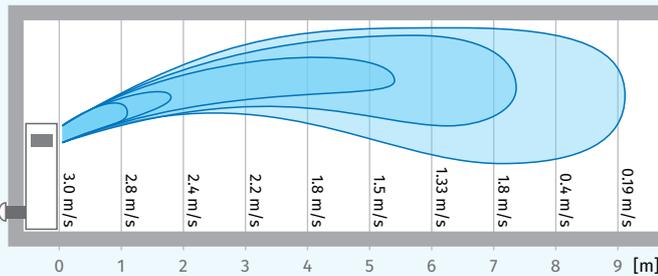
CIVIC EC LB/LBE/LBE2 1200 V.2

Sound-power level, A - weighted	Total	Octave frequency band [Hz]								LpA 3 m	LpA 1 m
		63	125	250	500	1000	2000	4000	8000		
LWA to environment @ point 1 [dBA]	50	31	35	40	37	36	36	28	17	30	40
LWA to environment @ point 5 [dBA]	47	27	31	33	29	30	27	22	13	26	36
LWA to environment @ point 9 [dBA]	32	21	27	21	25	17	19	24	16	11	21

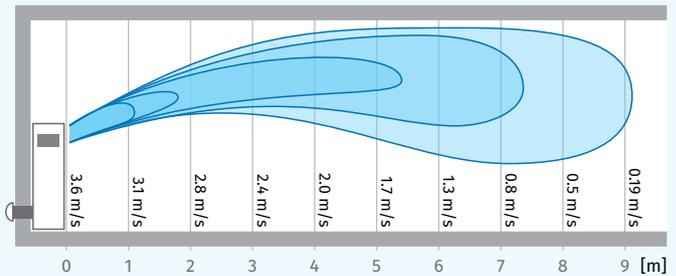


Point	Total power of the unit [W]	Total sound pressure level at 3 m (1 m) [dBA]
1	315	30 (40)
2	312	-
3	311	30 (40)
4	308	26 (36)
5	122	15 (25)
6	121	-
7	120	-
8	118	-
9	24	11 (21)
10	23	-
11	22	-

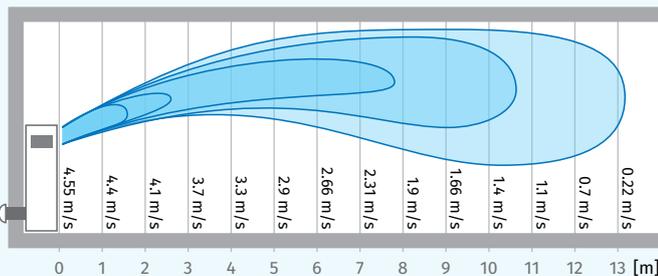
Fresh air flow distance for CIVIC EC LB 300 V.2



Fresh air flow distance for CIVIC EC LB 500 V.2



Fresh air flow distance for CIVIC EC LB 1200 V.2



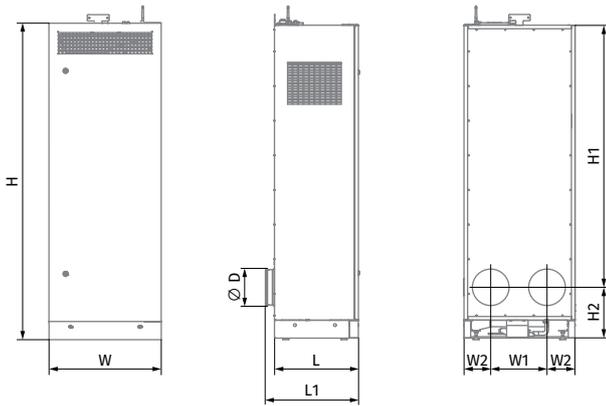
The unit is rated for indoor application with the ambient temperature ranging from +1 °C to +40 °C and relative humidity up to 80%.

CIVIC EC LB V.2

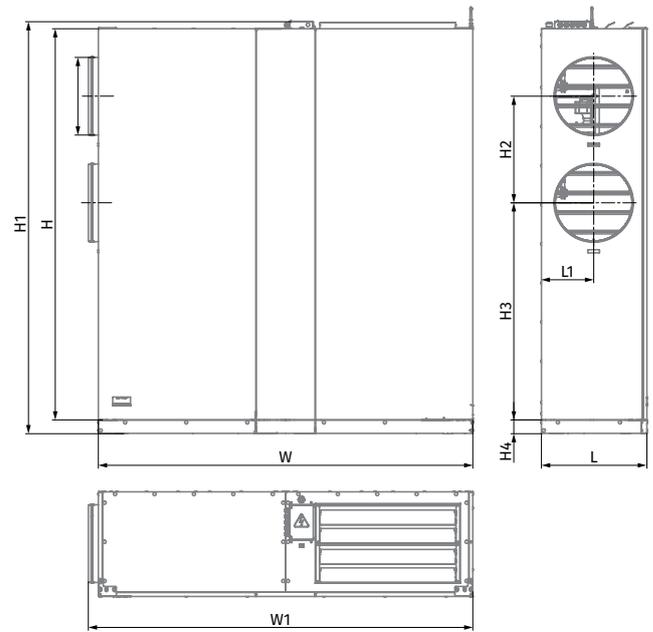
SINGLE-ROOM AIR HANDLING UNITS

Overall dimensions [mm]

Model	∅ D	H	H1	H2	H3	H4	L	L1	W	W1	W2
CIVIC EC LB 300 V.2	200	1775	1485	285	-	-	470	520	620	310	155
CIVIC EC LB 500 V.2	250	2170	1865	305	-	-	535	585	750	350	200
CIVIC EC LB 1200 V.2	400	2000	2106	545	1110	70	535	265	1900	1951	-



CIVIC EC LB 300 V.2 / CIVIC EC LB 500 V.2



CIVIC EC LB 1200 V.2

CIVIC EC LB V.2

SINGLE-ROOM AIR HANDLING UNITS

Accessories

		Civic EC LB... 300 S21 V.2	Civic EC LB... 500 S21 V.2	Civic EC LB... 1200 S21 V.2
Outer ventilation hood made of brushed stainless steel		AH Civic 300 LB chrome	AH Civic 500 LB chrome	AH Civic 1200 LB chrome
Outer ventilation hood made of white coated stainless steel		AH Civic 300 LB white	AH Civic 500 LB white	AH Civic 1200 LB white
Extract filter ISO Coarse >60 % (G4)		FP 203x308x20 G4 (2 pcs.)	FP 255x448x25 G4 (2 pcs.)	FP 450x395x48 G4
Supply filter ISO ePM1 60 % (F7)		FP 384x273x60 F7	FP 449x318x60 F7	FP 540x450x48 F7
Control panel		S22	S22	S22
Wi-Fi control panel		S22 Wi-Fi	S22 Wi-Fi	S22 Wi-Fi
LCD Control panel		S25	S25	S25
VOC sensor		DPWQ30600	DPWQ30600	DPWQ30600
Humidity sensor		DPWC11200	DPWC11200	DPWC11200
CO ₂ sensor		DPWQ40200	DPWQ40200	DPWQ40200
CO ₂ sensor with indication		CD-1	CD-1	CD-1
CO ₂ sensor		CD-2	CD-2	CD-2
CO ₂ sensor		CD-3	CD-3	CD-3

CIVIC EC LB V.2

SINGLE-ROOM AIR HANDLING UNITS

		Civic EC LB... 300 S21 V.2	Civic EC LB... 500 S21 V.2	Civic EC LB... 1200 S21 V.2
Internal humidity sensor		FS2	FS2	FS2
Humidity sensor		HR-S	HR-S	HR-S
Syphon kit		SFK 20x32	SFK 20x32	SFK 20x32
Drain pump		CP-2	CP-2	CP-2

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Features

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- Efficient supply and extract ventilation for separate premises.
- EC motors with low energy consumption.
- Low-noise operation.
- Simple mounting.



Air flow:
up to 1000 m³/h
278 l/s



Heat recovery efficiency:
up to 96 %

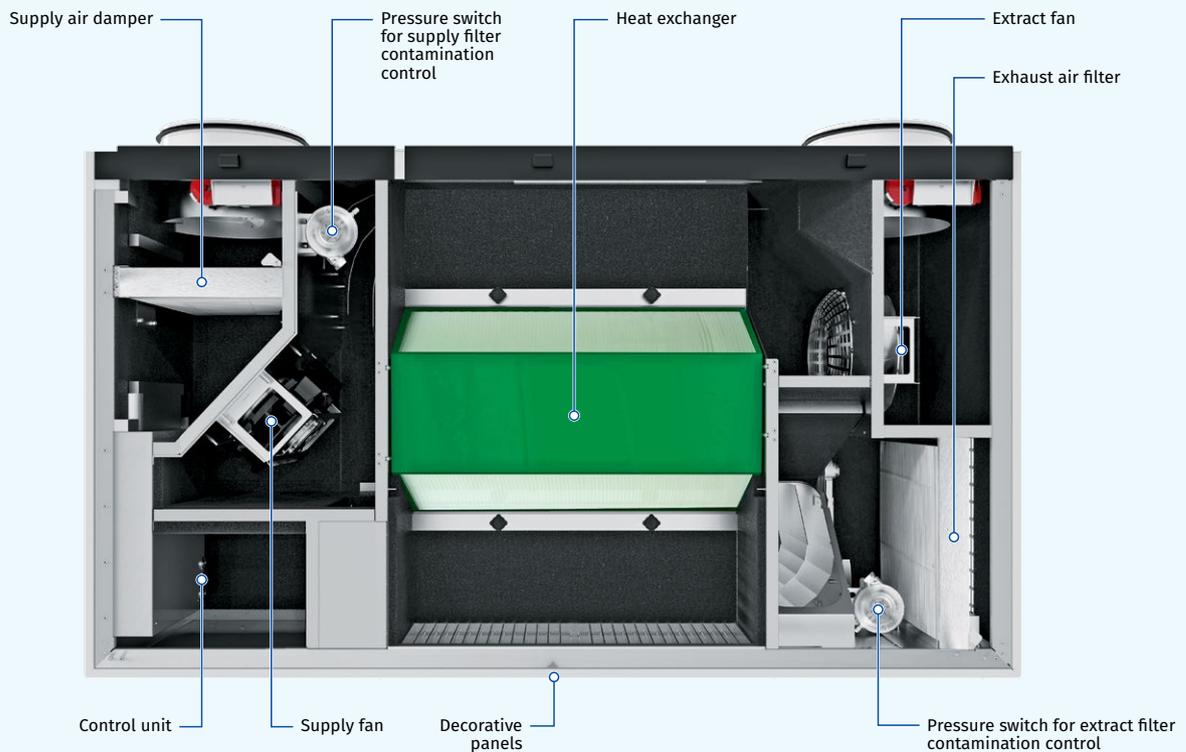


Design

- Made of high-quality polymer coated steel, internally lined with heat- and sound insulation of mineral wool, cellular synthetic rubber or other materials.
- Available modifications with an integrated preheater and reheater for cold climate applications.

Motors

- High efficient electronically commutated motors with external motor and impeller with forward curved blades. Such motors are the most state-of-the-art energy saving solution.
- EC motors are featured with high performance and total speed controllable range. High efficiency reaching 90% is the premium advantage of the electronically commutated motors.



Designation key

Model	Motor type	Mounting	Bypass	Heater	Drain pump*	Rated air flow [m ³ /h]	Control	Modernization
CIVIC	EC: synchronous electronically commutated motor	D: Suspended mounting, horizontally oriented spigots; D1: Suspended mounting, vertically oriented spigots	B: with bypass	_: without heater E: preheating E2: preheating + reheating	_: without drain pump CP: with drain pump	300; 500; 1000	S21	V.2: second modernized generation

* The CIVIC EC DB... 1000 S21 V.2 units are equipped with a drain pump by default.

CIVIC EC DB V.2

SINGLE-ROOM AIR HANDLING UNITS

Air filtration

- o Exhaust cassette filter: ISO Coarse >60 % (G4).
- o Supply cassette filter: ISO ePM1 60 % (F7)

Bypass

- o The units are equipped with a bypass. The bypass damper opens for free cooling ventilation mode in summer.

Air dampers

- o The automatic supply and extract air dampers are used to prevent uncontrollable air draughts during the unit standstill.

Heater

PREHEATING

- o CIVIC EC DBE V.2 and CIVIC EC DBE2 V.2 units are equipped with an electric preheater which protects the heat exchanger from freezing.

REHEATING

- o CIVIC EC DBE2 V.2 units feature an electric reheater to raise the supply air temperature.

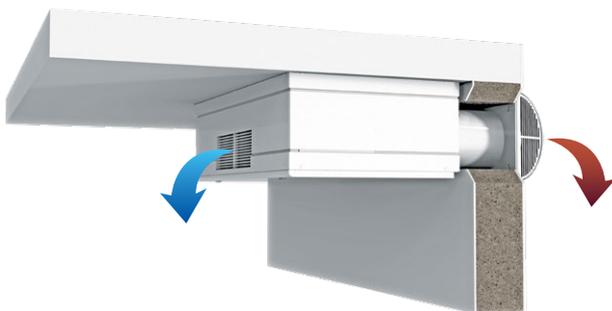
Heat exchanger

- o The CIVIC EC DB V.2 unit has a counter-flow heat exchanger made of polystyrene.
 - **In cold season** the heat energy of the extract air flow is absorbed by intake air flow, thus decreasing the heat losses caused by ventilation. Condensate generated during heat recovery is collected in a drain pan and removed through the drain pipes to the sewage system.
 - **In warm season** the heat of the outdoor air is absorbed by extract air flow. This way the supply air temperature decreases and heat recovery reduces operation loads for the air conditioner.



Functioning

- o Cold outside air flows through the filters and heat exchanger and is moved to the room with a supply centrifugal fan.
- o Warm polluted air from the premise flows through the filter and the heat exchanger and is exhausted outside with an extract centrifugal fan through an air duct in the wall.



Control and automation

- o The CIVIC EC DB S21 V.2 units are equipped with an integrated automation system.
- o The S21 controller allows integrating the unit into the BMS (Building Management System).
- o The unit can be controlled by the Blauberg Home mobile application via Wi-Fi.



Download the **Blauberg Home** app for Android



Download the **Blauberg Home** app for iOS



Automation functions

Functions	Description
Unit control via Wi-Fi using the mobile application	+
Unit control via remote control panel	S22 control panel (option) 
Unit control via remote wireless control panel	S22 Wi-Fi control panel (option) 
Unit control via a wired remote LCD control panel	S25 control panel (option) 
BMS (Building Management System)	RS-485 Wi-Fi Ethernet MODBUS (RTU, TCP)
Speed switch	+
Filter replacement indication	by filter timer
Alarm indication	full alarm description in the mobile application
Week scheduled operation	+
Bypass	automatic manual
Timer	+
Boost mode	+
Fireplace mode	+
Freeze protection	using cyclical stops of the supply fan using preheating (option)
Reheater connection	option
Cooler connection	option
Minimum supply air temperature control	+
Humidity control	option
CO ₂ control	option
VOC control	option
PM2.5 control	option
Fire alarm sensor connection	option

Option: the functionality is available when purchasing the appropriate accessory (see the "Accessories" section)

CIVIC EC DB V.2

SINGLE-ROOM AIR HANDLING UNITS

Technical data

Parameters	CIVIC EC DB 300 S21 V.2	CIVIC EC DBE 300 S21 V.2	CIVIC EC DBE2 300 S21 V.2	CIVIC EC DB 500 S21 V.2	CIVIC EC DBE 500 S21 V.2	CIVIC EC DBE2 500 S21 V.2
Voltage [V / 50 (60) Hz]	1~ 230	1~ 230	1~ 230	1~ 230	1~ 230	1~ 230
Max. power consumption without an electric heater [W]	204	204	204	238	238	238
Preheater power [W]	-	1050	1050	-	1050	1050
Reheater power [W]	-	-	700	-	-	700
Max. current without an electric heater [A]	1.5	1.5	1.5	1.7	1.7	1.7
Max. current with an electric heater [A]	-	7.7	11.7	-	9.3	12.6
Maximum air flow [m³/h (l/s)]	300 (83)	300 (83)	300 (83)	510 (142)	510 (142)	510 (142)
Sound pressure level at 1 m [dBA]	44	44	44	44	44	44
Sound pressure level at 3 m [dBA]	34	34	34	34	34	34
Max. transported air temperature [°C]	-25...+40	-25...+40	-25...+40	-25...+40	-25...+40	-25...+40
Casing material	polymer coated steel					
Insulation	25 mm, EPDM (polyurethane foam)					
Extract filter	ISO Coarse >60 % (G4)					
Supply filter	ISO ePM1 60 % (F7)					
Connected air duct diameter [mm]	200	200	200	250	250	250
Weight [kg]	78	79	80	95	95	96
Heat recovery efficiency* [%]	83...92	83...92	83...92	83...96	83...96	83...96
Heat exchanger type	counter-flow	counter-flow	counter-flow	counter-flow	counter-flow	counter-flow
Heat exchanger material	polystyrene	polystyrene	polystyrene	polystyrene	polystyrene	polystyrene
SEC class	A+	A+	A+	A+	A+	A+

*Heat recovery efficiency is specified in compliance with EN 13141-8.

Parameters	CIVIC EC DB 1000 S21 V.2	CIVIC EC DBE 1000 S21 V.2	CIVIC EC DBE2 1000 S21 V.2
Voltage [V / 50 (60) Hz]	1~ 230	3~400	3~400
Max. power consumption without an electric heater [W]	267	267	267
Preheater power [W]	-	3150	3150
Reheater power [W]	-	-	2100
Max. current without an electric heater [A]	1.85	1.85	1.85
Max. current with an electric heater [A]	-	12	18
Maximum air flow [m³/h (l/s)]	1000 (278)	1000 (278)	1000 (278)
Sound pressure level at 1 m [dBA]	34	34	34
Sound pressure level at 3 m [dBA]	24	24	24
Max. transported air temperature [°C]	-25...+40	-25...+40	-25...+40
Casing material	polymer coated steel	polymer coated steel	polymer coated steel
Insulation	45 mm, EPDM (polyurethane foam)	45 mm, EPDM (polyurethane foam)	45 mm, EPDM (polyurethane foam)
Extract filter	ISO Coarse >60 % (G4)	ISO Coarse >60 % (G4)	ISO Coarse >60 % (G4)
Supply filter	ISO ePM1 60 % (F7)	ISO ePM1 60 % (F7)	ISO ePM1 60 % (F7)
Connected air duct diameter [mm]	315	315	315
Weight [kg]	252	258	268
Heat recovery efficiency* [%]	83...93	83...93	83...93
Heat exchanger type	counter-flow	counter-flow	counter-flow
Heat exchanger material	polystyrene	polystyrene	polystyrene
SEC class	A+	A+	A+

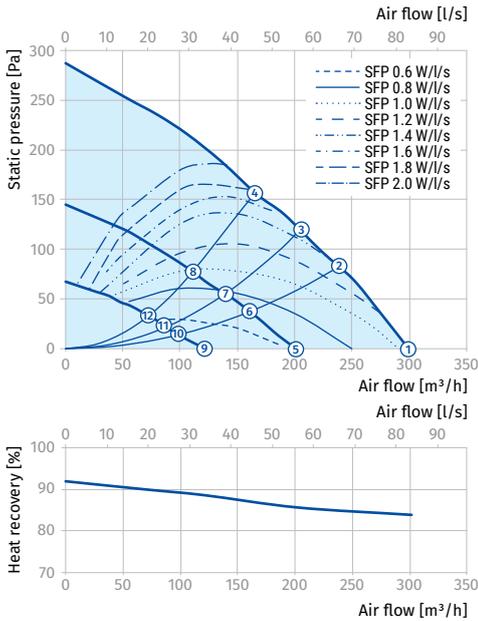
*Heat recovery efficiency is specified in compliance with EN 13141-8.

CIVIC EC DB V.2

SINGLE-ROOM AIR HANDLING UNITS

CIVIC EC DB/DBE/DBE2 300 V.2

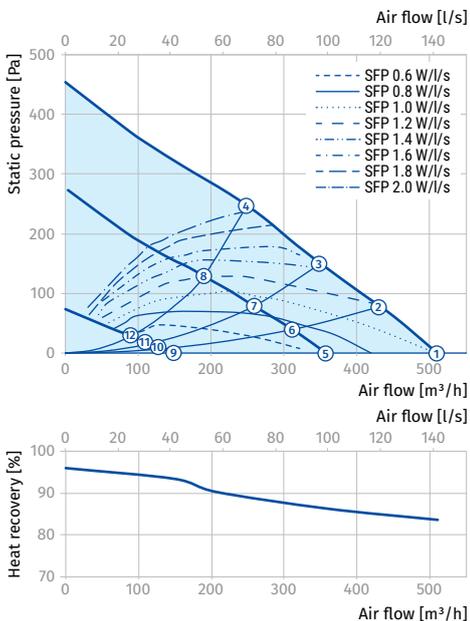
Sound-power level, A - weighted	Total	Octave frequency band [Hz]										LpA 3 m	LpA 1 m								
		200	250	315	400	500	630	800	1000	1250	1600			2000	2500	3150	4000	5000	6300	8000	10000
LWA to environment @ point 1 [dBA]	54.9	45.3	47.5	47.8	41.0	46.2	42.0	40.1	40.3	40.7	40.8	43.5	42.3	35.2	27.4	23.8	21.6	24.6	24.6	43.9	34.4
LWA to environment @ point 5 [dBA]	48.2	46.3	35.4	33.2	35.5	33.9	31.5	31.1	31.2	32.6	33.1	34.1	30.7	23.4	19.6	19.3	19.7	23.3	24.4	37.3	27.7
LWA to environment @ point 9 [dBA]	37.2	29.3	29.7	26.0	27.4	26.6	24.3	23.2	23.0	22.6	21.3	22.3	20.0	18.2	18.0	18.5	19.3	23.0	24.3	26.2	16.6
LWA to environment @ point 3 [dBA]	55.3	46.5	49.5	49.9	40.5	43.2	39.9	38.2	39.1	40.0	39.9	42.3	41.4	34.6	27.2	24.0	21.7	24.6	24.4	44.4	34.8
LWA to environment @ point 4 [dBA]	55.1	45.2	50.0	48.6	40.7	43.2	40.3	38.6	39.1	40.3	40.1	42.5	41.5	34.8	27.2	24.0	21.7	24.8	24.6	44.1	34.5



Point	Total power of the unit [W]	Total sound pressure level at 3 m (1 m) [dBA]
1	125	34 (44)
2	116	34 (44)
3	104	-
4	86	35 (44)
5	48	28 (38)
6	44	-
7	42	-
8	36	-
9	17	17 (26)
10	17	-
11	16	-
12	16	-

CIVIC EC DB/DBE/DBE2 500 V.2

Sound-power level, A - weighted	Total	Octave frequency band [Hz]										LpA 3 m	LpA 1 m								
		200	250	315	400	500	630	800	1000	1250	1600			2000	2500	3150	4000	5000	6300	8000	10000
LWA to environment @ point 1 [dBA]	54.7	44.7	48.8	46.3	45.7	41.3	38.8	40.9	40.4	40.2	42.8	43.0	40.0	32.8	27.7	23.6	25.9	25.8	43.7	34.1	
LWA to environment @ point 5 [dBA]	48.2	44.7	37.8	37.3	38.6	32.7	31.5	32.8	33.0	32.8	35.3	35.1	31.2	23.8	20.7	20.2	19.8	23.2	24.2	37.2	27.7
LWA to environment @ point 9 [dBA]	33.6	22.9	21.9	27.0	24.3	17.8	17.1	17.6	16.9	16.4	17.2	17.6	17.1	17.5	17.8	18.7	19.5	23.0	24.1	22.6	13.0
LWA to environment @ point 3 [dBA]	61.2	55.0	53.5	53.5	52.1	46.5	45.2	46.1	46.1	45.6	46.8	45.9	43.9	39.1	36.4	47.1	40.1	39.9	35.2	50.2	40.7
LWA to environment @ point 4 [dBA]	55.4	47.7	47.7	47.2	46.4	42.0	39.4	40.7	41.3	41.2	43.8	44.0	41.5	33.8	29.0	26.8	23.9	25.2	24.9	44.4	34.8



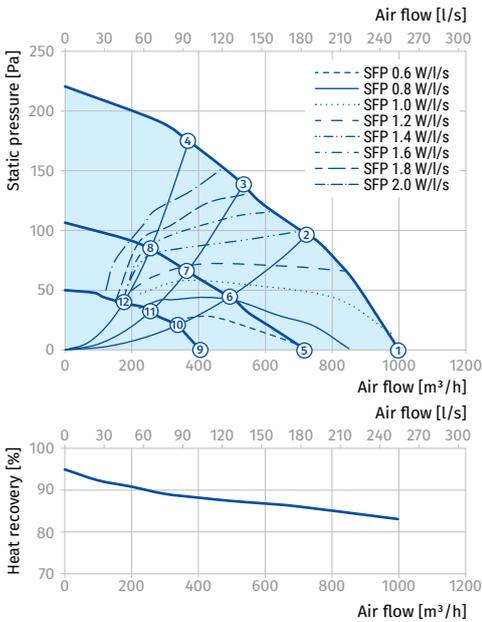
Point	Total power of the unit [W]	Total sound pressure level at 3 m (1 m) [dBA]
1	170	34 (44)
2	153	-
3	135	34 (44)
4	116	35 (44)
5	95	28 (37)
6	86	-
7	80	-
8	68	-
9	25	17 (26)
10	24	-
11	24	-
12	22	-

CIVIC EC DB V.2

SINGLE-ROOM AIR HANDLING UNITS

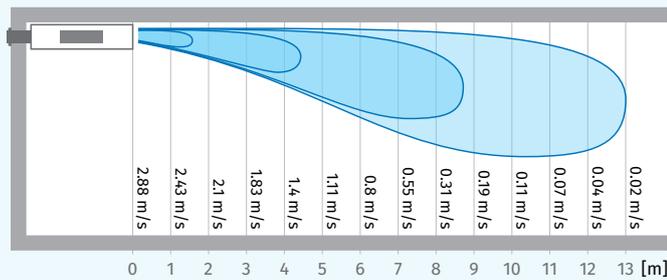
CIVIC EC DB/DBE/DBE2 1000 V.2

Sound-power level, A - weighted	Total	Octave frequency band [Hz]								LpA 3 m	LpA 1 m
		63	125	250	500	1000	2000	4000	8000		
LWA to environment @ point 1 [dBA]	45	31	37	40	37	36	36	29	18	24	34
LWA to environment @ point 5 [dBA]	37	26	29	32	29	29	29	24	15	17	27
LWA to environment @ point 9 [dBA]	32	21	26	20	25	19	20	25	18	11	21

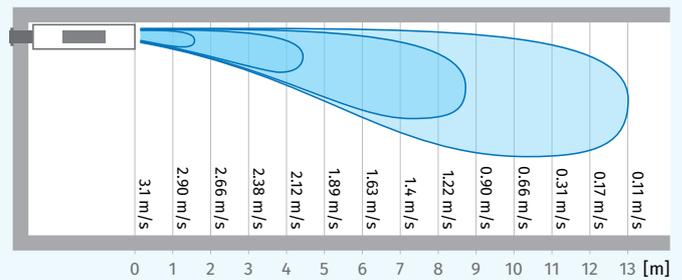


Point	Total power of the unit [W]	Total sound pressure level at 3 m (1 m) [dBA]
1	260	24 (34)
2	251	23 (33)
3	235	23 (33)
4	221	22 (32)
5	136	17 (27)
6	130	17 (27)
7	125	16 (27)
8	120	16 (27)
9	47	11 (21)
10	45	11 (21)
11	44	11 (21)
12	42	11 (21)

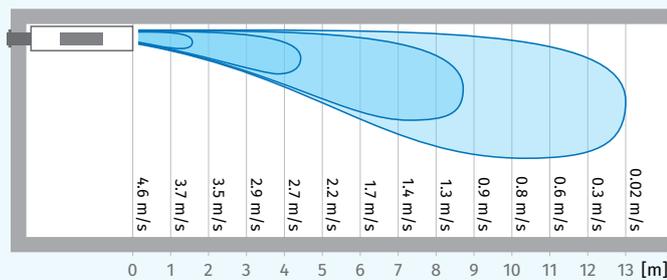
Fresh air flow distance for CIVIC EC DB 300 V.2



Fresh air flow distance for CIVIC EC DB 500 V.2



Fresh air flow distance for CIVIC EC DB 1000 V.2



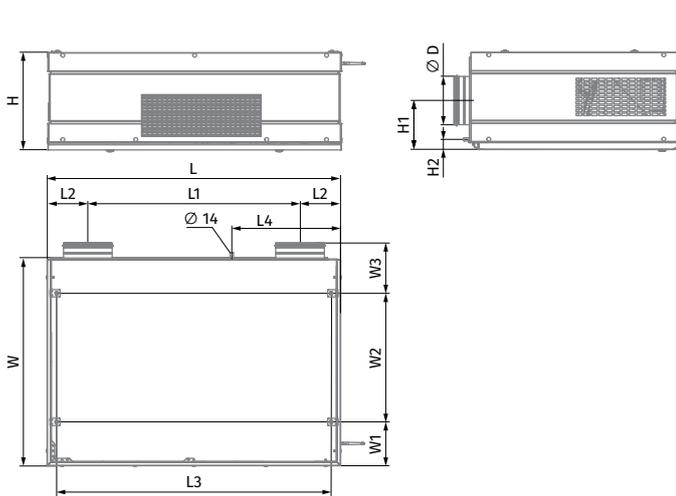
The unit is rated for indoor application with the ambient temperature ranging from +1 °C to +40 °C and relative humidity up to 80%

CIVIC EC DB V.2

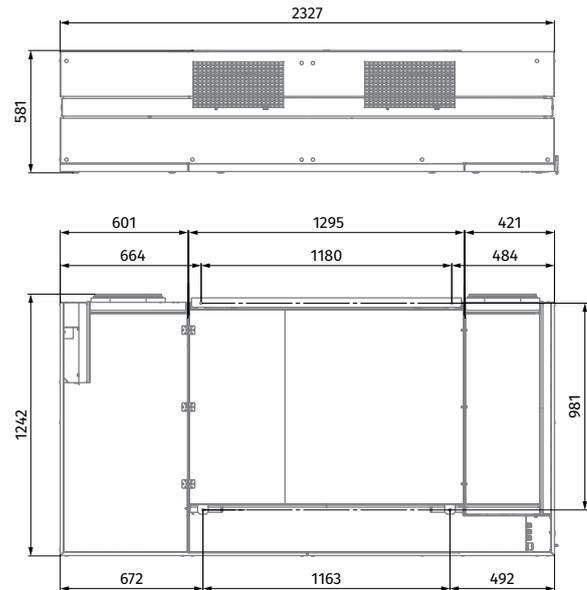
SINGLE-ROOM AIR HANDLING UNITS

Overall dimensions [mm]

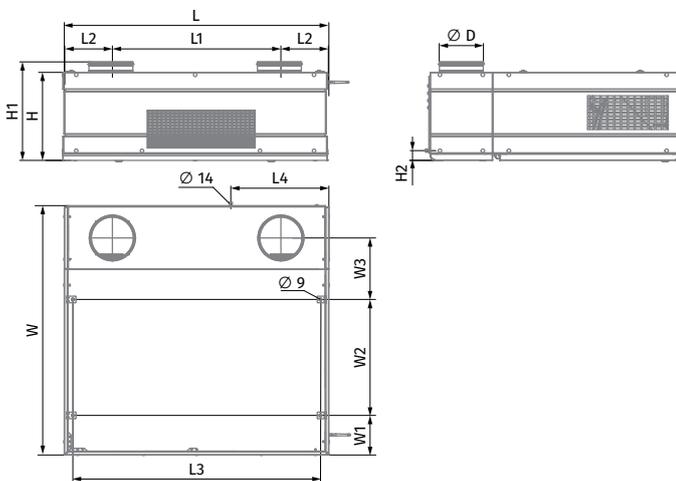
Model	∅ D	H	H1	H2	L	L1	L2	L3	L4	W	W1	W2	W3
CIVIC EC DB... 300 S21 V.2	200	402	202	41	1200	867	166	1122	445	850	181	530	207
CIVIC EC D1B... 300 S21 V.2	200	402	450	45	1200	764	218	1122	445	1139	181	530	281
CIVIC EC DB... 500 S21 V.2	250	458	221	41	1500	1135	186	1422	504	850	181	530	207
CIVIC EC D1B... 500 S21 V.2	250	458	509	45	1500	964	268	1422	504	1186	181	530	304



CIVIC EC DB 300 S21 V.2 / CIVIC EC DB 500 S21 V.2



CIVIC EC DB 1000 S21 V.2



CIVIC EC D1B 300 S21 V.2 / CIVIC EC D1B 500 S21 V.2

CIVIC EC DB V.2

SINGLE-ROOM AIR HANDLING UNITS

Accessories

		CIVIC EC DB 300 S21 V.2 CIVIC EC DBE 300 S21 V.2 CIVIC EC DBE2 300 S21 V.2	CIVIC EC DB 500 S21 V.2 CIVIC EC DBE 500 S21 V.2 CIVIC EC DBE2 500 S21 V.2	CIVIC EC DB 1000 S21 V.2 CIVIC EC DBE 1000 S21 V.2 CIVIC EC DBE2 1000 S21 V.2
Extract filter ISO Coarse >60 % (G4)		FP 320x373x48 G4	FP 379x334x48 G4	FP 654x480x48 G4
Supply filter ISO ePM1 60 % (F7)		FP 320x211x48 F7	FP 379x254x48 F7	FP 654x480x48 F7
Outer grill		VDA 200 CFn Al	VDA 250 CFn Al	VDA 315 CFn Al
Control panel		S22	S22	S22
Wi-Fi control panel		S22 Wi-Fi	S22 Wi-Fi	S22 Wi-Fi
LCD Control panel		S25	S25	S25
VOC sensor		DPWQ30600	DPWQ30600	DPWQ30600
CO ₂ sensor		DPWQ40200	DPWQ40200	DPWQ40200
CO ₂ sensor with indication		CD-1	CD-1	CD-1
CO ₂ sensor		CD-2	CD-2	CD-2
CO ₂ sensor		CD-3	CD-3	CD-3
Humidity sensor		DPWC11200	DPWC11200	DPWC11200
Internal humidity sensor		FS2	FS2	FS2

CIVIC EC DB V.2

SINGLE-ROOM AIR HANDLING UNITS

		CIVIC EC DB 300 S21 V.2 CIVIC EC DBE 300 S21 V.2 CIVIC EC DBE2 300 S21 V.2	CIVIC EC DB 500 S21 V.2 CIVIC EC DBE 500 S21 V.2 CIVIC EC DBE2 500 S21 V.2	CIVIC EC DB 1000 S21 V.2 CIVIC EC DBE 1000 S21 V.2 CIVIC EC DBE2 1000 S21 V.2
Humidity sensor		HR-S	HR-S	HR-S
Syphon kit		SFK 20x32	SFK 20x32	SFK 20x32
Drain pump		CP-2	CP-2	CP-2
Modul of vertical duct connection		VDC Civic 300 DB	VDC Civic 500 DB	VDC Civic 1000 DB

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