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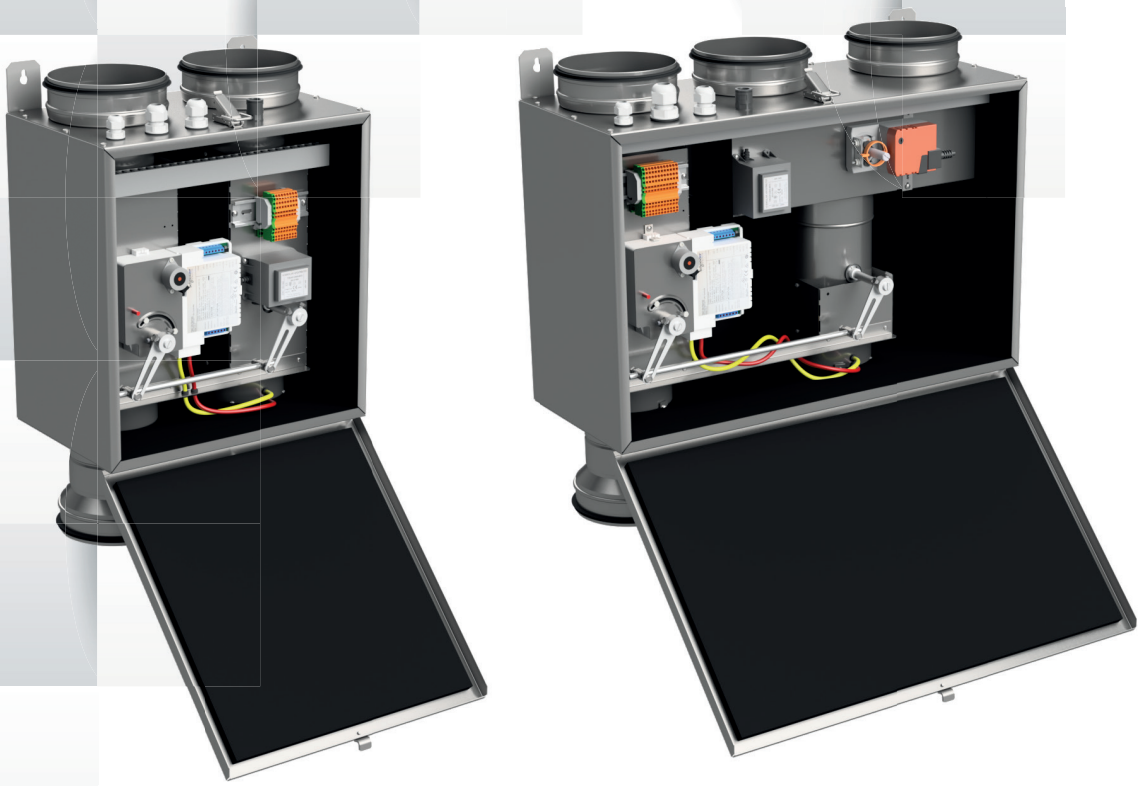


TOTAL VENTILATION CONCEPT FOR STACKED HOUSING
CO_2 CONTROLLED FRESH OUTSIDE AIR VENTILATION SYSTEM

TYPE NXOJOOB

BARCOL-AIR
AIR DISTRIBUTION

CERA | System features

- CERA: **C**entral **E**nergy **R**ecovery **A**ir flow
- Total ventilation concept for stacked housing
- CO_2 controlled fresh outside air ventilation system
- CO_2 controlled fresh outside air ventilation system
- Low energy consumption
- Airtight class C & damper leakage class 2 accoriding to EN 1751
- Pressure independent control
- Low pressure loss
- Individual room control (up to 6 nos. rooms)
- High accurate air flow control (Flo-Cross® air flow sensor)
- Plug & Play including factory calibrated BACnet controller
- Maintenance free for user & building owner (no filters)
- Low noise system (no fan & internally insulated)
- Compact in size | More effective m²
- CE certified
- Suitable for building transformation (e.g. offices to housing)
- The CERA system has been developed by Barcol-Air and Hiensch Engineering
- Low in energy consumption due to the central heat recovery system | Nominal fan power use very low
- Low energy according to BENG, NTA8800 calculation

CERA units | type NXOJOOB

Type designation

Composition type designation:

N - X - O - J - O - O - B

N Position 1: **Product group**

N = air volume control units

X Position 2: **Function**

X = CERA control unit
1 = non standard, specify separately

O Position 3: **Controls (manufacturer)**

O = without controls, specify separately

J Position 4: **Outlet**

J = circular outlets
1 = non standard, specify separately

O Position 5: **Reheat coil**

O = without reheat coil

O Position 6: **Controls (type and function)**

O = without controls

B Position 7: **Sensor**

O = not applicable
B = Flo-Cross® 2 x 12 point averaging and signal amplifying air flow sensor
1 = non standard, specify separately

Ordering example:

N	X	O	J	O	O	B	1	2	5	R	C	E	R	A	1
Type							Model			Right or Left	CERA type 1 or 2				

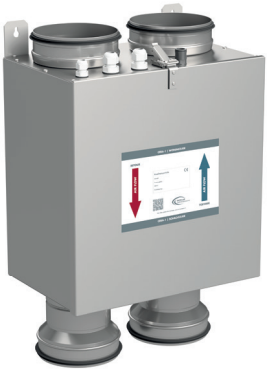
Ordering information:

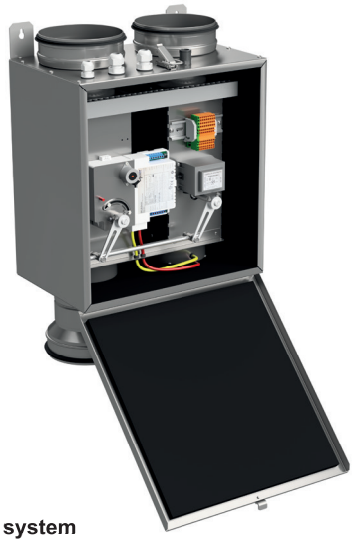
Standard units:

- quantity of units
- complete 7 digit code
- unit size / model
- air flow (V_{min} - V_{min} - $V_{max\ increased}$)
- handing (standard right side)

Non standard units:

- For non standard units a full description and/or drawing are/is requested.





CERA-1 | 1 zone system

CERA-2 | 2 zone system

Application

- CERA units are pressure-independent fresh outside air volume control units (ventilation units) suitable for stacked housing. The units have been designed particularly for systems with low noise criteria and for the accurate measurement and control of air volumes courtesy of the patented air flow sensor type Flo-Cross®.

The CERA unit controls the amount of fresh air supplied to the room based on the measured CO_2 level and features override options using switches, all of which save energy. The CERA unit controls the amount of fresh air supplied to the room based on the measured CO_2 levels between a factory calibrated minimum and maximum set-point. It will provide increased air volumes when the ‘cooking’ function or ‘bathroom’ function is activated. When the ‘night’ function is active it will provide reduced but sufficient fresh air for the occupants. This way the CERA is a very energy conscious system, which will contribute to your green building certification.

The units take up very little space and are suitable for use in new or refurbishment projects (renovations/transformation). The units are maintenance free and do not contain filters or a fan.

BENG calculation
BENG stands for Nearly Zero Energy Buildings and is applicable since 01-01-2021 and did replace the EPC calculation. The BENG calculation is required for applying for a new building environmental permit and calculate the Energy Performance component.
The energy performance of a building is determined with the new determination method NTA 8800.

Technical information

The compact, low-noise units are internally lined; the air flow does not come into contact with the insulating material and the units do have supply and return spigots. The supply and return air run synchronously with each other and ensure air balance in the apartment. Two versions of the CERA system are available: the one-zone system (CERA-1) and the two-zone system (CERA-2).

The CERA-2 unit has an extra air damper which controls the air flow more accurately between the different rooms. On the air side, it features a specially-designed servo-actuated 3-way valve that directs air to the main zones & the sub zones depending on the need.

The CERA PLUS system can be connected to several CO_2 sensors for several bedrooms and/or other rooms. The highest CO_2 value measured will be used in the air volume calculation. The CERA PLUS system is available for the CERA-1 (up to 5 sensors) and the CERA-2 (up to 6 sensors).

The units and the system are not suitable for direct connection to a motorless or motorised kitchen hood.

CERA units | type NXOJOOB

Technical information & delivery format

Technical information

Construction:
- Unit casing: single wall, air-thight construction made of galvanized sheet steel (non spiral), internally insulated with 13 mm MS30UL insulation material (complying to UL 94 HF1 flamability).
- Cover fitted with piano hinge and a locking mechanism.
- Duct-sleeve connections suitable for DIN 24 145 or DIN 24 146.
- The units feature three mounting brackets with slotted holes.

Damper:
- Damper blade made of galvanized sheet steel, sandwich construction of twin blade and neoprene gasket (low leakage).
- Damper shaft: aluminium, ø12 mm with self lubricating Nylon bearings.

Motorised air side 3-way valve:
- The CERA-2 unit features a specially-designed 3-way air valve made of steel, sandwich construction and neoprene gaskets for low air leakage.

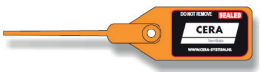
Flo-Cross®:
- Flo-Cross® 2 x 12 point averaging and signal amplifying air flow sensor made of extruded aluminium.

Controls:
- The units feature a DDC BACnet® controller.
- Controller and transformer are factory fitted, wired and calibrated. The wiring to the switches and sensors in the apartment, which has to be connected by a qualified electrician, is internally pre-wired to the controller.
- Internal wiring including power supply cable + plug (halogen free).
- The controller is supplied with dedicated CERA-1 or CERA-2 software.
- Upon request, the system can be set up and remotely controlled. It is recommended to opt for the optional remote setup and monitoring, please contact our Technical Advisors for additional information.

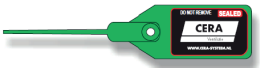
Delivery format

- The CERA unit will be supplied with dust caps over the spigots. Applying these dust caps is done to prevent any construction waste in the units or to prevent unnecessary draft in high-rise buildings as much as possible.
- Plug & play units equipped with CERA software.
- The specified Barcol-Air controls are fully factory fitted, wired and pre-calibrated. The calibration data is mentioned on a product sticker.
- This product sticker also features required housing information (e.g. block, home and house numbers).
- All controls will be mounted, as standard, on the right hand side of the unit when looking in the direction of air flow, unless otherwise requested. The unit cover is provided with a sticker indicating the air flow direction.
- Left-hand versions of the units available upon request.
- CERA-2 unit divides the air supply into 2 zones; the left connection connects to the living zone by default.
- I/O connector for CERA plus variant: optional delivery possible (surcharge) If you have any questions, please contact our technical advisors.

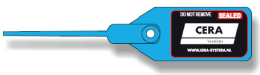
CERA unit seal colour codes:



Orange seal:
Status: factory setting
CERA unit ready for installation
(The CERA unit is delivered with an orange seal)

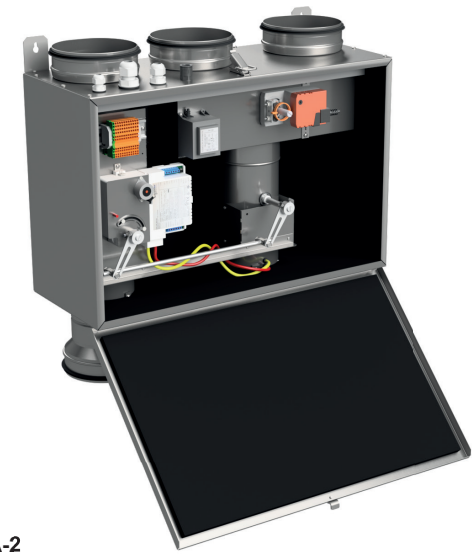


Green seal:
Status: after commissioning
CERA unit ready for operation
(Green seal is in the CERA unit on delivery)



Blue seal:
Status: after service/maintenance
Maintenance has been performed on the CERA unit

CERA-1



CERA-2

Example CERA-1:

CERA units for CO_2 controlled ventilation for stacked housing, made of galvanized sheet steel. Casing leakage EN 1751 and duct-sleeve connections suitable for DIN 24 145 or DIN 24 146.

Units provided with double skin, oval shaped damper blades with neoprene gaskets and damper shafts made of aluminium with self lubricating Nylon bearings. Completed with Flo-Cross® 2x12 points averaging and signal amplifying air flow sensors, better than 2,5% accuracy even with irregular duct approach.

Units supplied with DDC controllers which correspond to BACnet® MSTP protocol. Controls are factory fitted, wired and calibrated according to dedicated CERA software with the following specifications:

- Increased max. air volume: 253 m^3/h
- Max. volume: 180 m^3/h
- Minimum air volume: 65 m^3/h
- Unit size: 125 mm / connections: 160 mm
- Δp_s: 42 Pa
- Max. discharge sound index: NC 25 at a pressure drop of 150 Pa
- Max. radiated sound index: < NC 20 at a pressure drop of 150 Pa

Manufacturer: Barcol-Air

Ordering example:

type – model – connection = NXOJOOB-125R-CERA1

CERA units | type NXOJOOB

Assembly and installation intructions

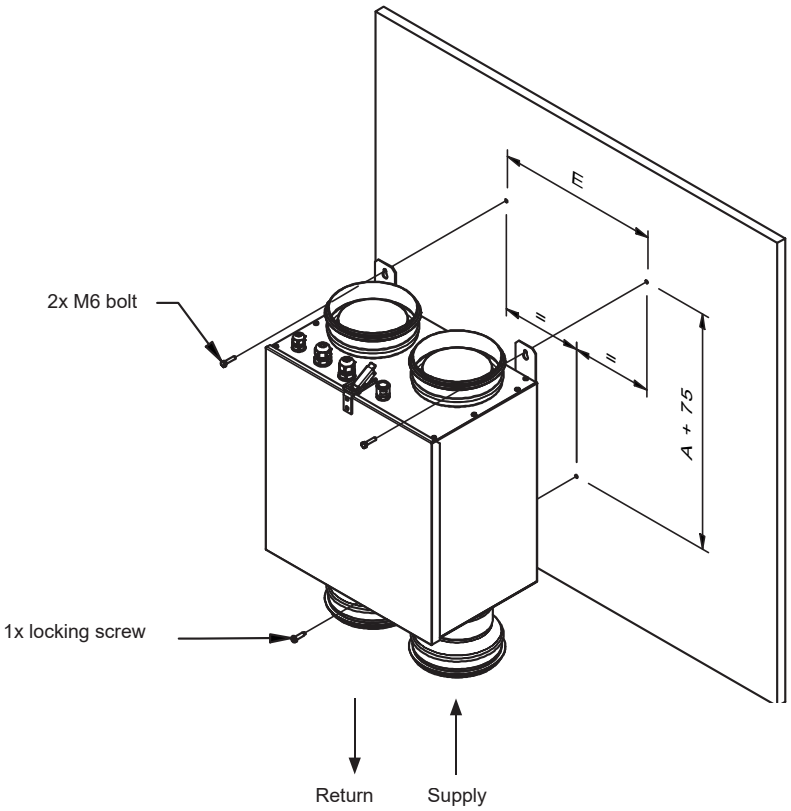
The CERA units shall be installed with 3 no. bolts/screws according to the following installation drawing.

Wall plugs and screws are not supplied. Good quality wall plugs and screws must be used. The weights of the units are mentioned on page 9 (CERA-1) and page 13 (CERA-2).

Connecting the units to the power must be carried out by qualified staff. The required diagrams are available upon request.

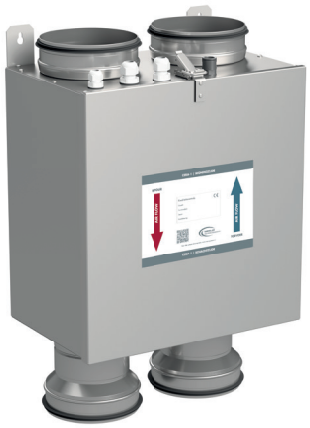
Point of attention:
- The wall on which CERA is mounted must have a minimum weight capacity of 150kg/ m2.
- High mechanical stresses in the CERA unit casing must be avoided as these may cause damage to the structure.
- The CERA unit must never be twisted as this could have a negative impact on the operation of the damper valves.
- Built-in controller components, electronics and measuring tubes must be accessible at all times; control equipment is mounted on the inner side and can be reached via a hinged flap.
- The unit must be clean, dust-free and dry when fitted and connected.
- A power supply point, wall socket, must be present at the CERA unit. The unit is standard equipped with a 1.5 meter power cable with a plug.
- After installation and adjustment, the unit must be fused. (see page 6).

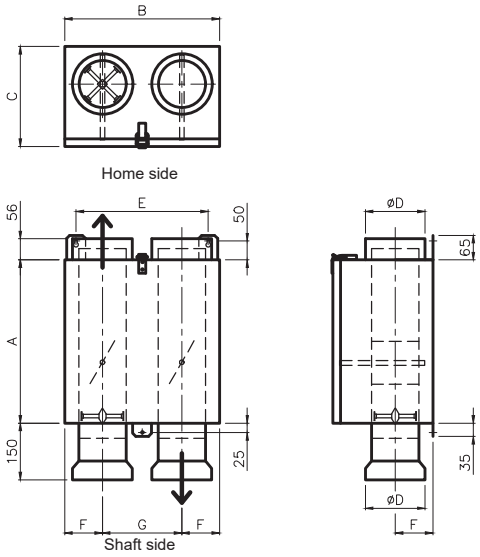
Recommendation:
- For sustainability reasons as well as for sound technical reasons, you should take into account the lowest possible resistance in the total duct system. The system pressure for the operation of the CERA units should be a minimum of 100-150 Pa. The secondary resistance (after the CERA unit) should be as low as possible, preferably <35 Pa.
- Installing an acoustic flexible duct of at least 0.5 meter on the shaft side and at least 1.0 meter downstream.
- For adjustment work and maintenance purposes/aftercare of the CERA units, it is recommended to have communication cable between the CERA units. In this way, the CERA units can be accessed from 1 central point.



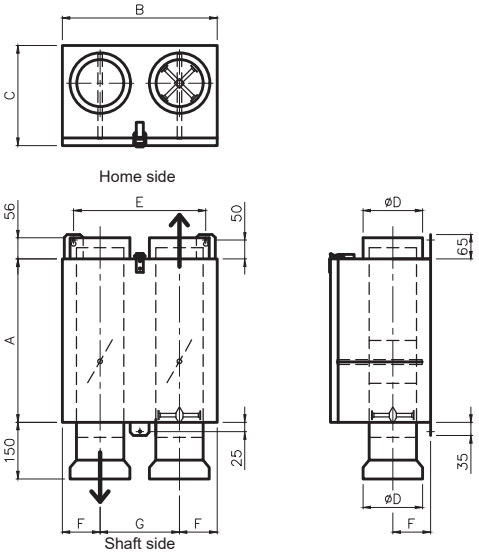
Installation drawing type NXOJOOB | CERA-1

Remark:
1. For A and E dimensions we refer to page 9 (CERA-1) and page 13 (CERA-2).

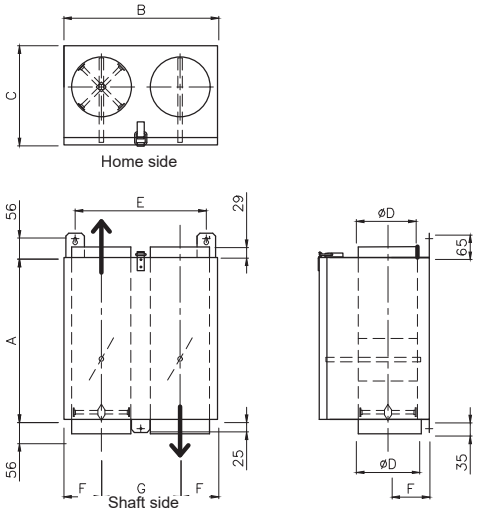




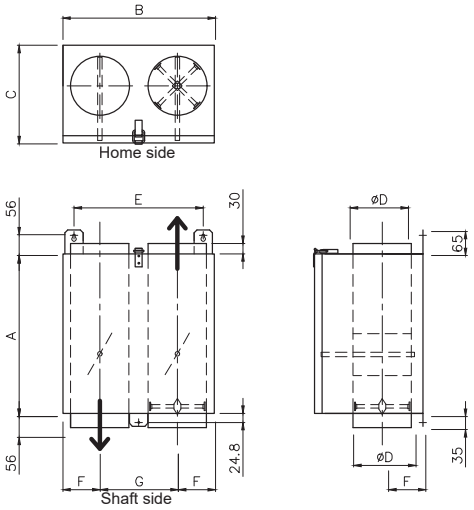
Type NXOJOOB-125 **L** CERA-1



Type NXOJOOB-125 **R** CERA-1



Type NXOJOOB-160 **L** CERA-1
NXOJOOB-200 **L** CERA-1



Type NXOJOOB-160 **R** CERA-1
NXOJOOB-200 **R** CERA-1

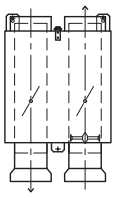
Dimensions and weight CERA-1

	CERA-1		
Model	125	160	200
A	432	432	432
B	410	410	490
C	265	293	333
ØD	158	158	198
E	350	350	430
F	100	100	120
G	210	210	250
Kg	14,4	14,8	17,0

Remarks dimensions:
1. *All dimensions are in mm.*
2. *Other dimensions available on request.*

CERA-1 | type NXOJOOB

Performance data



Sound data (pressure drop ∆ 100 Pa)

Model	Data referring to inlet-spigot				min. ΔPs	Discharge sound (supply)									Discharge sound (return)									Radiated sound								
	Velocity	Air Volume				Lw in dB/Oct. (re 1pW)						Lp values			Lw in dB/Oct. (re 1pW)						Lp values			Lw in dB/Oct. (re 1pW)						Lp values		
						125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR
	m/s	l/s	CFM	m³/h	Pa	dB									dB									dB								
125	2	23	50	84	5	63	53	48	44	33	25	21	-	-	57	49	43	35	29	18	-	-	-	29	19	-	-	-	-	-	-	-
	4	47	99	168	20	65	57	51	49	40	31	25	-	-	63	55	48	42	36	27	22	-	-	32	27	22	21	-	-	-	-	-
	6	70	149	253	42	67	59	53	51	44	35	27	-	20	67	58	51	46	40	32	26	-	21	34	32	27	24	19	-	-	-	-
	8	94	198	337	71	68	60	55	53	47	38	28	-	22	70	61	53	49	43	36	29	22	24	35	35	30	27	22	17	22	-	-
	10	117	248	421	108	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
160	2	39	82	139	2	62	49	45	39	30	20	-	-	-	49	45	43	35	27	17	-	-	-	27	-	-	-	-	-	-	-	-
	4	77	164	279	8	68	57	53	49	40	32	26	-	22	58	54	50	44	37	29	20	-	-	33	27	24	22	-	-	-	-	-
	6	116	246	418	18	71	62	58	54	46	39	30	24	26	64	59	55	49	43	36	26	-	-	36	34	31	27	21	19	23	-	-
	8	155	328	558	30	74	65	61	58	50	44	33	27	28	68	63	58	53	47	41	29	20	23	38	39	36	31	25	23	27	-	-
	10	194	410	697	46	76	68	63	61	53	47	36	29	31	71	66	60	56	50	45	32	24	27	40	43	39	34	28	25	30	-	-
200	2	61	129	219	1	54	48	44	39	31	21	-	-	-	52	45	40	34	30	22	-	-	-	21	-	-	-	-	-	-	-	-
	4	122	258	439	4	61	56	53	49	41	33	23	-	-	56	51	45	39	34	27	-	-	-	27	26	22	21	-	-	-	-	-
	6	183	388	658	9	66	61	58	54	48	40	28	-	22	59	54	48	42	37	30	-	-	-	30	32	30	27	21	19	22	-	-
	8	244	517	878	16	69	65	62	58	52	45	32	24	26	61	56	50	45	39	32	22	-	-	33	37	35	31	25	22	26	-	-
	10	305	646	1097	25	71	67	64	62	55	48	35	27	30	62	58	52	46	40	33	23	-	-	34	41	39	34	28	25	30	-	-

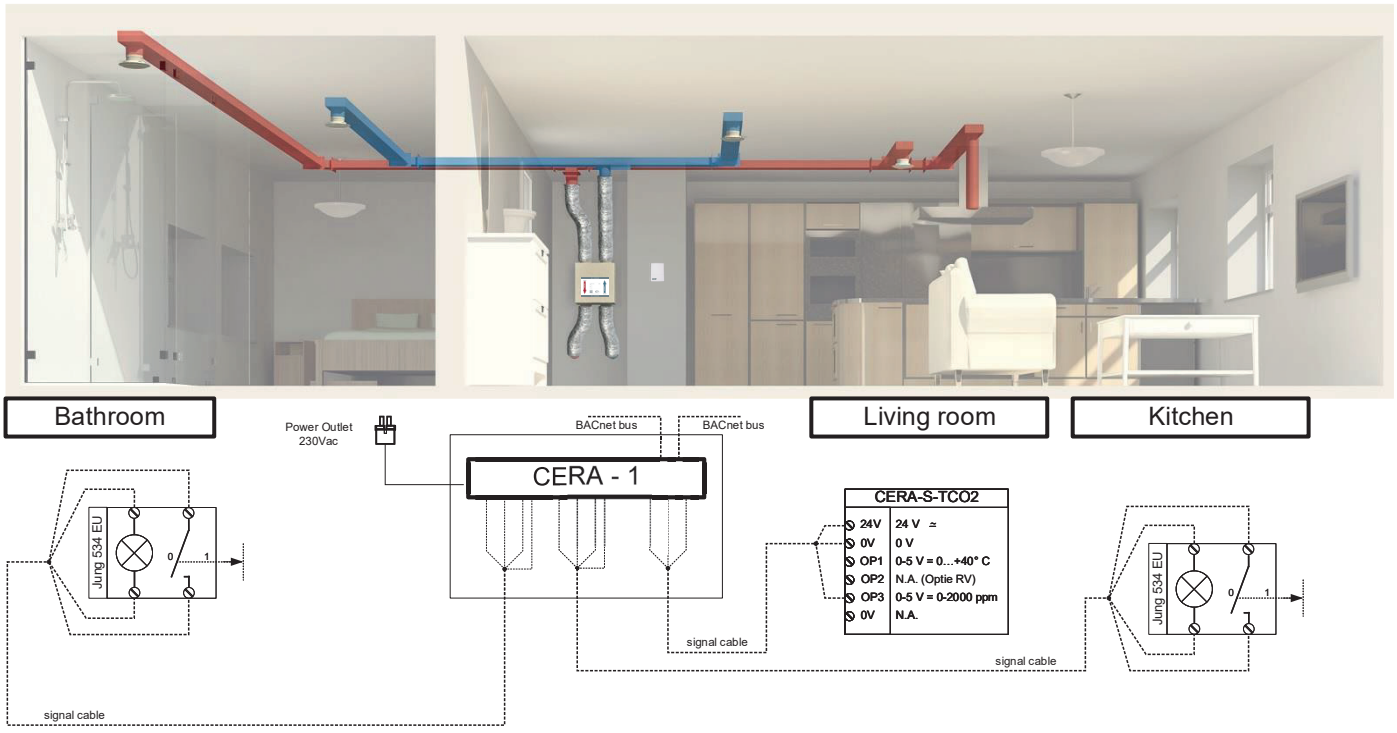
Sound data (pressure drop ∆ 150 Pa)

Model	Data referring to inlet-spigot				min. ΔPs	Discharge sound (supply)									Discharge sound (return)									Radiated sound								
	Velocity	Air Volume				Lw in dB/Oct. (re 1pW)						Lp values			Lw in dB/Oct. (re 1pW)						Lp values			Lw in dB/Oct. (re 1pW)						Lp values		
						125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR
	m/s	l/s	CFM	m³/h	Pa	dB									dB									dB								
125	2	23	50	84	5	64	56	51	47	38	31	24	-	-	57	51	46	40	35	23	-	-	-	30	20	-	18	-	-	-	-	-
	4	47	99	168	20	69	61	56	53	45	37	29	22	23	66	58	52	46	41	31	25	-	-	35	29	24	24	19	-	-	-	-
	6	70	149	253	42	72	64	58	56	49	41	32	25	27	71	62	55	50	44	36	29	23	25	37	34	29	27	23	19	22	-	-
	8	94	198	337	71	74	66	60	59	52	44	34	28	29	74	65	57	52	47	40	33	27	29	39	37	33	30	25	22	25	-	-
	10	117	248	421	108	76	68	61	61	54	46	36	30	31	77	67	59	54	49	42	35	31	32	41	40	36	32	28	23	28	-	-
160	2	39	82	139	2	63	52	48	42	35	26	22	-	-	51	47	45	39	34	25	-	-	-	29	-	-	-	-	-	-	-	-
	4	77	164	279	8	70	60	56	51	44	36	29	22	24	61	56	52	47	42	34	23	-	-	34	27	25	23	19	-	-	-	-
	6	116	246	418	18	73	65	60	56	50	43	33	26	28	66	62	57	52	46	40	28	-	21	37	34	31	28	24	21	24	-	-
	8	155	328	558	30	76	68	64	60	54	47	36	30	31	70	65	60	55	49	44	32	23	25	39	39	36	32	28	25	28	-	-
	10	194	410	697	46	78	71	66	63	57	50	38	32	33	73	68	63	57	52	47	34	26	28	40	42	40	35	30	28	31	-	-
200	2	61	129	219	1	57	52	46	41	36	27	-	-	-	52	46	43	38	35	28	-	-	-	23	-	-	-	-	-	-	-	-
	4	122	258	439	4	64	59	55	51	46	37	26	-	-	58	53	49	44	39	33	-	-	-	29	26	23	22	19	-	-	-	-
	6	183	388	658	9	68	64	60	56	51	43	31	23	25	62	57	52	47	42	35	23	-	-	32	32	30	27	24	21	23	-	-
	8	244	517	878	16	72	67	64	60	55	48	35	27	29	65	60	54	49	43	37	26	-	-	34	36	35	31	28	24	27	-	-
	10	305	646	1097	25	74	69	66	63	58	51	37	30	32	67	62	56	50	45	39	28	-	20	36	40	39	34	31	27	30	-	-

Additional sound absorption of Sonodec acoustic hose (1 meter)

Hz	125	250	500	1000	2000	4000
dB	17	22	22	27	19	14

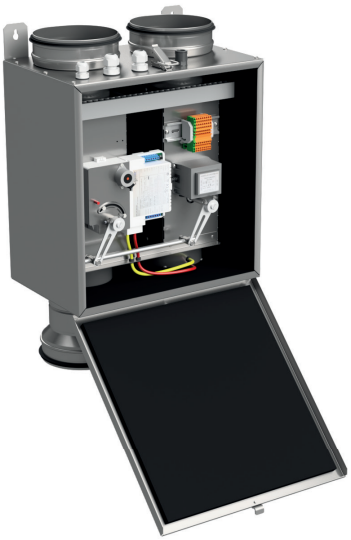
1. *Sound data is determined in a reverberation room at an independent sound laboratory, according to ISO 3741 en ISO 5135 standards.*
2. *Lw/Oct. (re. 1pW) are sound power levels for discharge and radiated sound. Values < 17 dB are indicated by "-".*
3. *The values for insertion loss L_w do not include end reflection.*
4. *dB(A), NC and NR index values are sound pressure levels. Sound pressure levels < 20 are indicated by "--".*
5. *The sound pressure levels for discharge sound include the values for an acoustic hose in accordance with table 1.*
6. *Lp values are including a room absorption of 10 dB/Oct.*
7. *Δp_s is the static pressure loss in the CERA unit with the damper fully open.*
8. *Where an "X" is shown in the table, the unit's own resistance is > 100 Pa, which means sound levels at 100 Pa are not available.*
9. *For non standard applications and/or selections please contact our technical staff.*



Remark:
Wiring between the CERA-1 unit and the sensor(s)/switch(es) by third party.

CERA-1 | type NXOJOOB

Control sequence of operation (standard)

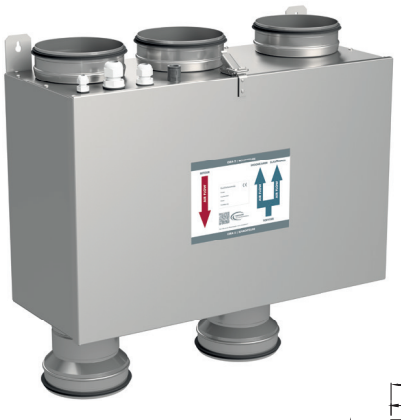


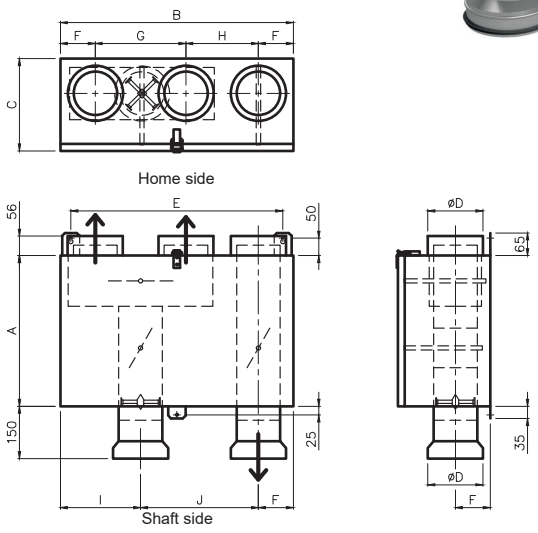
CO_2-sensor
Type: CERA-S-TCO2

Sequence of operation of the CERA-1 one-zone system (standard model):

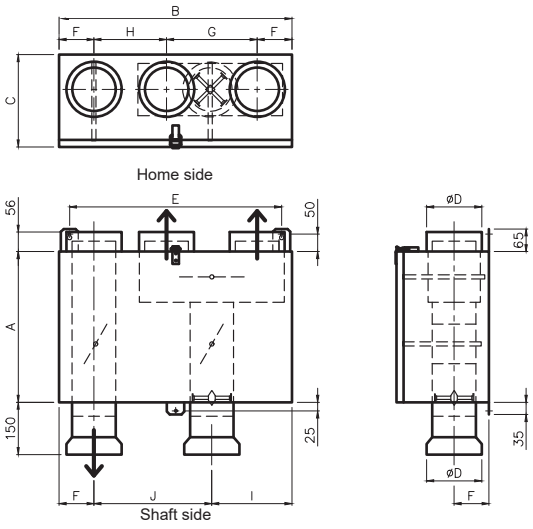
- The CERA-1 unit has a supply and return duct with built-in air valve that regulate the air volume. The Flo-Cross® air flow measuring sensor is built into the supply duct to measure the air flow.
- A central AHU provides fresh air and ensures static pressure in the system. The distribution of air in the home will be determined by the manual setting of the air diffusers. The central AHU unit must function 24/7.
- In normal operation, the measured CO_2 value (living room) will be used to calculate the required air volume between a minimum air volume (MinFlow) at 800 ppm and a maximum required air volume (MaxFlow) at 950 ppm. If the CO_2 value ≤ 800 ppm, then the air volume will be equal to the MinFlow.
- By actuating the pulse switches (kitchen/bathroom) with LED feedback, the air volume in the home can be temporarily set to an increased or reduced mode (night/sleep mode).
- In increased mode, the required air volume will be maximum regardless of the measured CO2 value; after 60 minutes, the control sequence will automatically return to the demand-driven CO_2 control.
- In reduced mode (night-/sleep mode), the required air volume will be set to a fixed value of 75% MaxFlow, regardless of the CO_2 reading. After 13 hours (night/sleep setting), the control sequence will automatically return to normal operation.
- In the increased mode, the LED indicator on the transmitter will be on continuously and in the reduced mode it will flash slowly.
- CERA-1 is also suitable for integration with the bathroom light; the CERA-1 unit will automatically switch to the increased mode after a 5-minute delay. After the light in the bathroom is switched off, the increased mode will revert to the previous setting after a 30-minute delay.
- Deviations on this control sequence of operation can be discussed; please contact our technical staff.
- CERA-1 PLUS is available for monitoring CO_2 levels in multiple bedrooms. A CERA-S-TCO2 CO_2 sensor can be installed in a total of 4 bedrooms and the living room. The highest CO_2 value measured will be used in the calculation of the desired air volume.
- Optionally a humidity sensor can be used in the bathroom/bedroom, which ensures that the CERA unit automatically switches to elevated increased mode the moment the humidity rises above a preset percentage. As standard for this type CERA-KLH100-HD-R5V sensor a percentage of 70% is used.

Hygrostat
Type: CERA-KLH100-HD-R5V

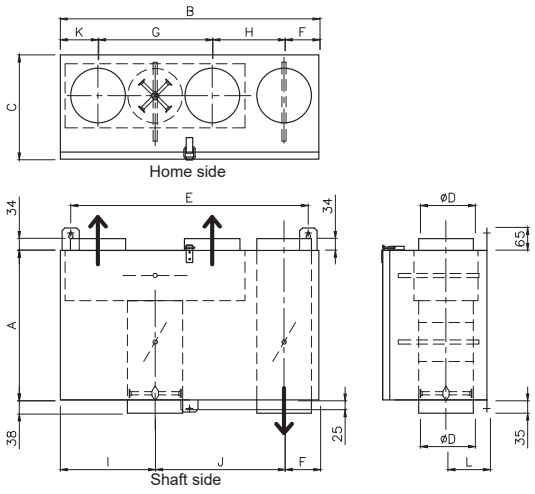




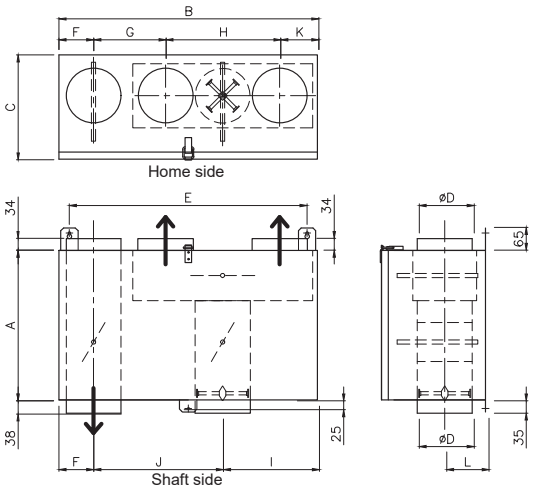
Type NXOJOOB-125 **L** CERA-2



Type NXOJOOB-125 **R** CERA-2



Type NXOJOOB-160 **L** CERA-2
NXOJOOB-200 **L** CERA-2



Type NXOJOOB-160 **R** CERA-2
NXOJOOB-200 **R** CERA-2

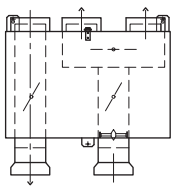
Dimensions en weight CERA-2

Model	CERA-2		
	125	160	200
A	432	432	432
B	668	747	907
C	265	301	341
ØD	158	158	198
E	608	687	847
F	100	100	120
G	260	330	410
H	208	208	248
I	230	274	334
J	338	373	453
K	x	109	129
L	x	118	138
Kg	21,2	23,4	29,2

Remarks dimensions:
1. *All dimensions are in mm.*
2. *Other dimensions available on request.*

CERA-2 | type NXOJOOB

Performance data



Sound data (pressure drop Δ 100 Pa)

Model	Data referring to inlet-spigot				min. ΔPs	Discharge sound (supply)									Discharge sound (return)									Radiated sound								
	Velocity	Air Volume				Lw in dB/Oct. (re 1pW)						Lp values			Lw in dB/Oct. (re 1pW)						Lp values			Lw in dB/Oct. (re 1pW)						Lp values		
						125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR
	m/s	l/s	CFM	m³/h	Pa	dB									dB									dB								
125	2	23	50	84	10	63	57	52	41	29	26	23	-	-	57	49	43	35	29	18	-	-	-	29	19	-	-	-	-	-	-	-
	4	47	99	168	29	66	60	55	46	35	31	26	-	-	63	55	48	42	36	27	22	-	-	32	27	22	21	-	-	-	-	-
	6	70	149	253	56	68	61	56	49	39	34	28	20	22	67	58	51	46	40	32	26	-	21	34	32	27	24	19	-	-	-	-
	8	94	198	337	88	69	62	57	50	42	36	29	22	24	70	61	53	49	43	36	29	22	24	35	35	30	27	22	17	22	-	-
	10	117	248	421	125	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
160	2	39	82	139	5	62	59	51	43	36	34	23	-	-	49	45	43	35	27	17	-	-	-	27	24	-	-	-	17	-	-	-
	4	77	164	279	18	66	63	56	50	43	39	28	-	21	58	54	50	44	37	29	20	-	-	32	31	26	22	17	20	-	-	-
	6	116	246	418	41	69	65	58	53	47	43	30	22	24	64	59	55	49	43	36	26	-	-	34	36	31	26	22	22	23	-	-
	8	155	328	558	74	71	66	60	56	50	45	32	24	26	68	63	58	53	47	41	29	20	23	36	40	35	29	25	24	27	-	-
	10	194	410	697	116	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
200	2	61	129	219	6	62	55	50	43	39	32	22	-	-	52	45	40	34	30	22	-	-	-	27	20	-	-	-	-	-	-	-
	4	122	258	439	22	67	61	54	49	45	39	27	-	21	56	51	45	39	34	27	-	-	-	32	30	24	21	19	19	-	-	-
	6	183	388	658	50	70	65	57	52	48	42	31	22	24	59	54	48	42	37	30	-	-	-	34	36	29	24	22	21	22	-	-
	8	244	517	878	89	72	67	59	54	50	45	33	25	27	61	56	50	45	39	32	22	-	-	36	39	33	27	24	22	25	-	-
	10	305	646	1097	139	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

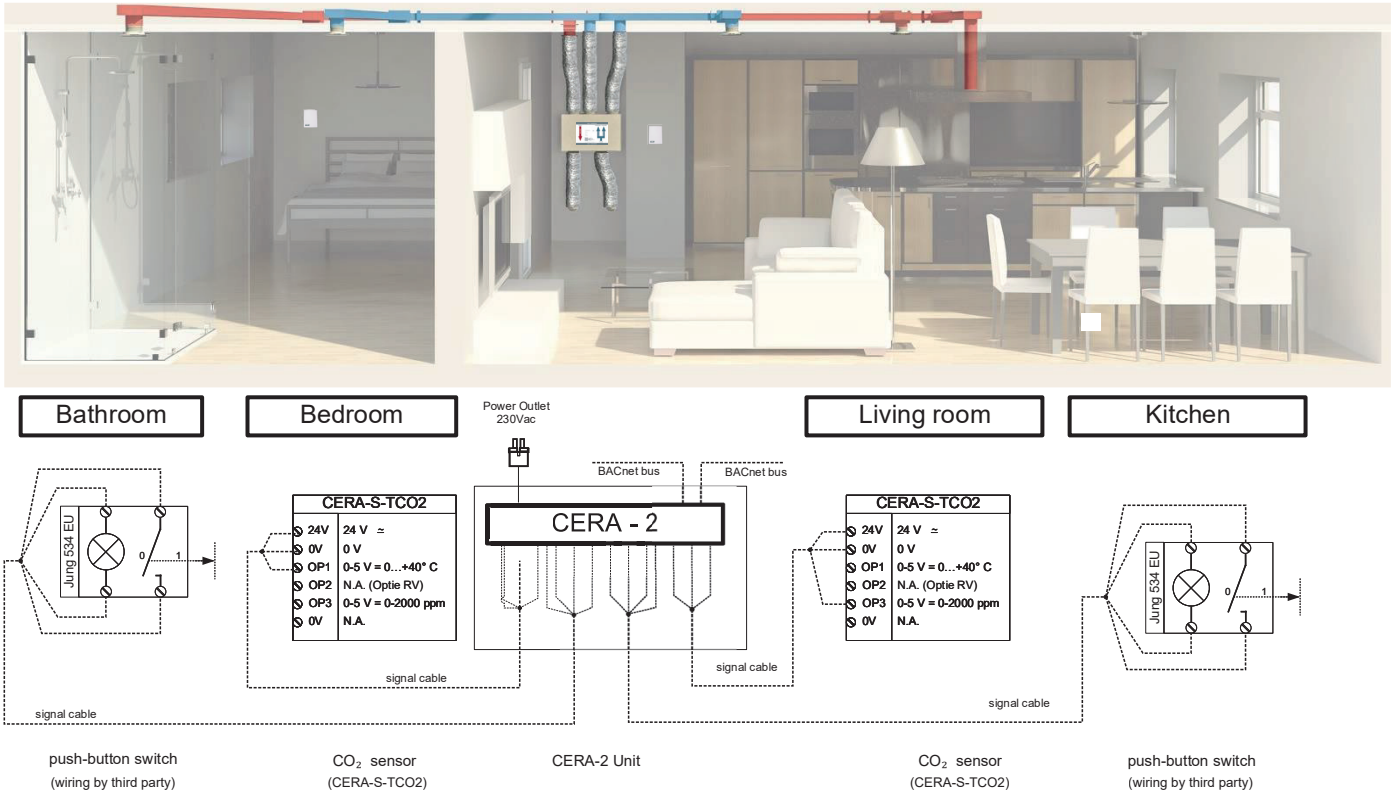
Sound data (pressure drop Δ 150 Pa)

Model	Data referring to inlet-spigot				min. ΔPs	Discharge sound (supply)									Discharge sound (return)									Radiated sound								
	Velocity	Air Volume				Lw in dB/Oct. (re 1pW)						Lp values			Lw in dB/Oct. (re 1pW)						Lp values			Lw in dB/Oct. (re 1pW)						Lp values		
						125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	dB(A)	NC	NR
	m/s	l/s	CFM	m³/h	Pa	dB									dB									dB								
125	2	23	50	84	10	65	60	57	45	33	31	26	-	20	57	51	46	40	35	23	-	-	-	30	20	-	18	-	-	-	-	-
	4	47	99	168	29	70	64	60	50	40	36	30	22	24	66	58	52	46	41	31	25	-	-	35	29	24	24	19	-	-	-	-
	6	70	149	253	56	73	66	61	53	44	39	33	26	28	71	62	55	50	44	36	29	23	25	37	34	29	27	23	19	22	-	-
	8	94	198	337	88	75	68	63	56	46	42	35	29	30	74	65	57	52	47	40	33	27	29	39	37	33	30	25	22	25	-	-
	10	117	248	421	125	77	69	64	57	48	43	36	31	32	77	67	59	54	49	42	35	31	32	41	40	36	32	28	23	28	-	-
160	2	39	82	139	5	64	63	56	47	40	39	27	-	20	51	47	45	39	34	25	-	-	-	30	25	20	18	-	18	-	-	-
	4	77	164	279	18	70	66	60	53	47	44	32	23	25	61	56	52	47	42	34	23	-	-	35	32	28	24	21	22	21	-	-
	6	116	246	418	41	74	69	62	57	51	47	34	27	28	66	62	57	52	46	40	28	-	21	37	37	33	28	24	24	25	-	-
	8	155	328	558	74	76	70	64	59	53	49	37	30	31	70	65	60	55	49	44	32	23	25	39	40	37	31	27	26	28	-	-
	10	194	410	697	116	78	71	65	61	55	50	38	32	33	73	68	63	57	52	47	34	26	28	40	43	39	33	29	28	30	-	-
200	2	61	129	219	6	65	60	54	47	44	39	26	-	20	52	46	43	38	35	28	-	-	-	30	22	18	18	-	18	-	-	-
	4	122	258	439	22	70	66	59	52	49	44	31	23	25	58	53	49	44	39	33	-	-	-	34	31	26	23	22	22	20	-	-
	6	183	388	658	50	74	69	61	56	52	47	34	27	28	62	57	52	47	42	35	23	-	-	37	37	31	26	25	24	24	-	-
	8	244	517	878	89	76	71	63	58	54	49	37	30	31	65	60	54	49	43	37	26	-	-	38	40	35	29	27	26	27	-	-
	10	305	646	1097	139	78	73	64	59	56	51	38	32	33	67	62	56	50	45	39	28	-	20	39	43	37	30	29	27	29	-	-

Additional sound absorption of Sonodec acoustic hose (1 meter)

Hz	125	250	500	1000	2000	4000
dB	17	22	22	27	19	14

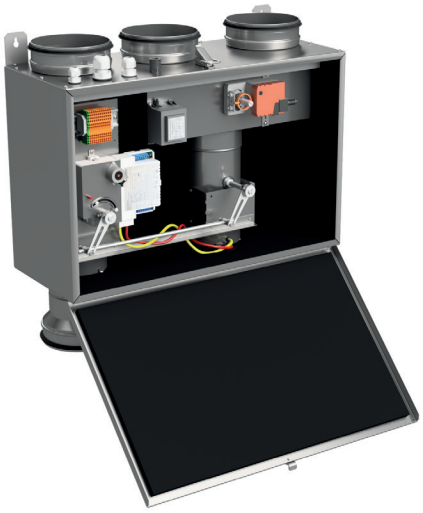
1. *Sound data is determined in a reverberation room at an independent sound laboratory, according to ISO 3741 en ISO 5135 standards.*
2. *Lw/Oct. (re. 1pW) are sound power levels for discharge and radiated sound. Values < 17 dB are indicated by "-".*
3. *The values for insertion loss L_w do not include end reflection.*
4. *dB(A), NC and NR index values are sound pressure levels. Sound pressure levels < 20 are indicated by "--".*
5. *The sound pressure levels for discharge sound include the values for an acoustic hose in accordance with table 1.*
6. *Lp values are including a room absorption of 10 dB/Oct.*
7. *Δp_s is the static pressure loss in the CERA unit with the damper fully open.*
8. *Where an "X" is shown in the table, the unit's own resistance is > 100 Pa, which means sound levels at 100 Pa are not available.*
9. *For non standard applications and/or selections please contact our technical staff.*



Remark:
Wiring between the CERA-2 unit and the sensor(s)/switch(es) by third party.

CERA-2 | type NXOJOOB

Control sequence of operation (standard)



CO_2-sensor
Type: CERA-S-TCO2

Sequence of operation of the CERA-2 two-zone system (standard model):

- The CERA-2 unit features two supply connections on the home side and one return duct with built-in air valves to control the air volume. The Flo-Cross® air flow measuring sensor is built into the supply duct to measure the air flow.Type CERA-2 measures the CO_2 content in two zones (living room and bedroom). A specially-designed, motorised-sided 3-way air valve controls the supply air between the two zones.
- A central AHU unit provides fresh air and ensures static pressure in the system. The distribution of air in the home will be determined by the manual setting of the air diffusers. The central AHU unit must function 24/7.
- In normal operation, the measured CO_2 value (living room) will be used to calculate the required air volume between a minimum air volume (MinFlow) at 800 ppm and a maximum required air volume (MaxFlow) at 950 ppm. If the CO_2 value ≤ 800 ppm, then the air volume will be equal to the MinFlow. Depending on the difference between each of the readings, the motorised 3-way air valve divides the supply air between the two zones.
- By actuating the pulse switches (kitchen/bathroom) with LED feedback, the air volume in the home can be temporarily set to an increased or reduced mode (night/sleep mode).
- In increased mode, the required air volume will be maximum regardless of the measured CO_2 value; it will be equally (50/50) divided between the two zones. After 60 minutes, the control sequence will automatically return to the demand-driven CO_2 control.
- In reduced mode (night-/sleep mode), the required air volume will be set to a fixed value of 75% MaxFlow, regardless of the CO_2 reading. After 13 hours (night/sleep setting), the control sequence will automatically return to normal operation.
- In the increased mode, the LED indicator on the transmitter will be on continuously and in the reduced mode it will flash slowly.
- CERA-2 is also suitable for integration with the bathroom light; the CERA-2 unit will automatically switch to the increased mode after a 5-minute delay. After the light in the bathroom is switched off, the increased mode will revert to the previous setting after a 60-minute delay.
- Deviations on this control sequence of operation can be discussed; please contact our technical staff.
- CERA-2 PLUS is available for monitoring CO_2 levels in multiple bedrooms. In total, a maximum of two sensors in the living room zone and four in the bedroom zone can be fitted with a CERA-S-TCO2 CO_2 sensor. For each separate zone, the highest measured CO_2 value will be used in calculating the required air volume and how it is divided.
- Optionally a humidity sensor can be used in the bathroom/bedroom, which ensures that the CERA unit automatically switches to elevated increased mode the moment the humidity rises above a preset percentage. As standard for this type CERA-KLH100-HD-R5V sensor a percentage of 70% is used.

Hygrostat
Type: CERA-KLH100-HD-R5V

EC DECLARATION OF CONFORMITY

This Declaration of Conformity is issued under the sole responsibility of the manufacturer

MANUFACTURER

Company name:	Barcol-Air BV
Full address:	Cantekoogweg 10-12
Postal code:	1442 LG
Place:	Purmerend
Country:	The Netherlands

DESCRIPTION AND IDENTIFICATION OF THE MACHINERY

Generic name:	Fresh air control system for residential applications.
Function:	To control the correct amount of fresh air based on measured CO2 levels and/or manually controlled by one or more switches.
Type:	NXOJOOB
Model:	Cera-1 and Cera-2 125, 160 and 200.
Commercial name:	Quiet, compact, demand based fresh air control system for residential applications.

COMPLIANCE

The manufacturer declares that the above mentioned machinery fulfills all relevant provisions of

Machinery Directive 2006/42/EC
Low Voltage Directive 2014/35/EU
EMC Directive 2014/30/EU
RoHS Directive 2011/65/EU
Construction Products Regulation (EU) No. 305/2011

In conjunction with the following harmonised standards and where appropriate other technical standards and specifications

EN-ISO 12100:2010; NEN 8087:2001; NEN 1087:2001; EN 60204-1:2006+C11:2010
EN 55014-1:2017; EN 61000-6-3:2006+A1:2011

Place:	Purmerend The Netherlands	Name: Function:	Ir. T.L. Wiersma Technical Director
Date:	November 6, 2018	Signature:	

BARCOL-AIR
AIR DISTRIBUTION

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