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**zehnder**

## Ventilation Unit

## Zehnder ComfoAir 160

### Use

The ComfoAir 160 ventilation unit was developed for residential and small commercial buildings. It combines maximum comfort, simple operation and very high efficiency. The CA160 moves up to 92 cfm of air at 0.80" wc

### Efficiency

The integrated cross-counterflow heat exchanger achieves efficiencies of up to 88% (according to testing by the Passive House Institute). For user comfort this means no unpleasant cold drafts, because the supply air is heated nearly to room temperature, even when external temperatures are very low.

### Fans

The supply fan and extract fan are driven by efficient DC motors. Differential pressures in the supply and extract air distribution systems can be adjusted thanks to individual control. The especially quiet fans can be adjusted to the required volumetric flow in 1% increments. The air volumes of the selectable stages can be set to between 19 cfm and 92 cfm.

### Filters

The CA160 is equipped with two class G4 filters (MERV 7/8). An optional class F7 pollen filter (MERV 13) is available for fresh air intake.

### Installation

The CA160 can be wall-mounted (vertically) or ceiling-mounted (horizontally). Connections for air and wiring are on the top of the unit. The insulated, sound-absorbing pipe connections help acoustically decouple the CA160 from the air distribution system. The condensate drain is located on the bottom of the unit.

### Operation

The CA160 is controlled by the ComfoSense controller, typically installed in the living area. Optional, wired boost switches can be installed in bathrooms for timed boost mode.

### Maintenance

Maintenance of the CA160 is limited to periodic cleaning or replacement of the filters accessible from the front of the unit. The exchanger core should be inspected and cleaned annually (depending on outside air quality). Please see the unit manual for additional servicing tasks.

### Frost protection

If the ventilation unit is operated without an optional geothermal heat exchanger, condensate in the extract air may freeze. The frost protection setting prevents this by variably reducing the supply air volume. An optional, integrated electric preheater warms incoming fresh air to prevent the heat exchanger from freezing even at very low temperatures. (Depending on climate, either the internal preheater or a more powerful external inline heater may be recommended.)



Filter G4



Filter F7



ComfoSense controller



Wired Boost Switch

### Bypass

During summer nights and in the “shoulder” seasons of spring and fall with strong sunshine, the house can become too warm, while the outside temperature remains pleasantly cool. In such cases, heat removal by what is known as “free cooling” helps: The CA160 is equipped with a standard automatic bypass for just this purpose, and diverts 100% of the relatively warm extract air from the heat exchanger, introducing cool supply air to the space. (Separate measures should be taken to assure this does not adversely affect humidity levels in the home.)

### Options

- **Humidity recovery with the Zehnder enthalpy exchanger**

When the CA160 is fitted with an enthalpy exchanger core, humidity is partly transferred from the more humid air stream to the dryer airstream. This helps from overdrying in the winter and helps make rise in humidity more manageable in summer. Additionally, the enthalpy exchanger makes it very unlikely that condensate must be drained from the ComfoAir. Therefore a condensation drain is optional with an enthalpy exchanger. Although the Zehnder enthalpy exchanger allows for transfer of water vapor between the supply and extract air flows, there is no transfer of odors or bacteria.

- **Pollen filter (F7/MERV 13)**

A pollen filter installed in the intake air line (upstream of the heat exchanger) keeps the inside of the house pollen-free and reduces particulates, spores and germs so occupants can breathe freely in times of increasing allergies.

- **Wired Boost Switch**

The wired boost switch (connected to the the CA160 via low voltage cable) can be used to trigger a high-speed boost cycle from a location other than the main control panel. Boost switches are typically located in bathrooms and default setting is 30 minutes.

- **Open fire program**

The ventilation system can be installed in a home with a fireplace, wood stove, etc. but must be accounted for in the control unit. By indicating in the ComfoSense controller the presence of a fireplace, negative pressure and possible back-drafting of unpleasant fumes and/or harmful gases can be avoided.

**Benefits**

- Comfort ventilation up to 92 cfm
- Heat recovery with an efficiency of 88% (according to PHI)
- Moisture recovery with optional Zehnder enthalpy exchanger
- Low power consumption DC motors
- Automatic summer bypass
- Frost protection function
- Quick, safe installation, maintenance and servicing
- Simple operation
- Optional, integrated electric pre-heater
- Optional wired boost switch
- Filter replacement reminder
- Electric and hydronic post-heater integration possible
- Optional 0-10V demand control (CO2, RH, etc.)

**Article Numbers**

All ComfoAir 160 units ship as

"Right-hand" units, but can be

field-changed to Left"

VV = integrated electric pre-heater

Product	Article Number	Reference Number
CA160 HRV	471 218 950	9420-00
CA160 HRV-VV	471 218 905	9431-00
CA160 ERV	471 218 980	9421-00
CA160 ERV-VV		9595-00

Accessories	Article Number	Reference Number
ComfoSense 67 control unit	655 010 215	9257-01
Wired boost switch		9556-00
Waterless P-Trap		9637-00
Condensate drain (horiz.)	990 202 050	9450-00

Filters	Article Number	Reference Number
G4 (MERV 7/8) 1 pc	400 100 023	9425
F7 (MERV 13) 1pc	400 100 024	9426

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### Technical Specifications

Heat Exchanger:	Polystyrene
Fans:	ECM direct current, radial fans
Filters:	(2) Class G4 (MERV 7/8), F7 (MERV 13) optional
Condensate Connection:	32mm
Air Duct Connections:	5" inside diameter (nominal); (2) top; (2) bottom.
Electrical Connection:	230v, 50-60Hz
Acoustic Performance:	Extract air (min – max): 27 - 52 dB(A) Supply air (min – max): 26 - 49 dB(A)
Heat Recovery:	88% (according to PHI)
Volumetric Flow:	19cfm - 92cfm
Power Consumption:	10W – 67W
Dimensions:	Height: 34" Width: 26.4" Depth: 10.6"
Weight:	66.2 pounds (30kg)
Versions:	CA160 HRV CA160 HRV-VV CA160 ERV
Manufacturer:	Zehnder Group Nederland B.V. Lingenstraat 2 8028 PM Zwolle NETHERLANDS

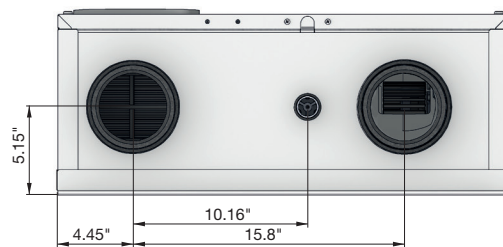
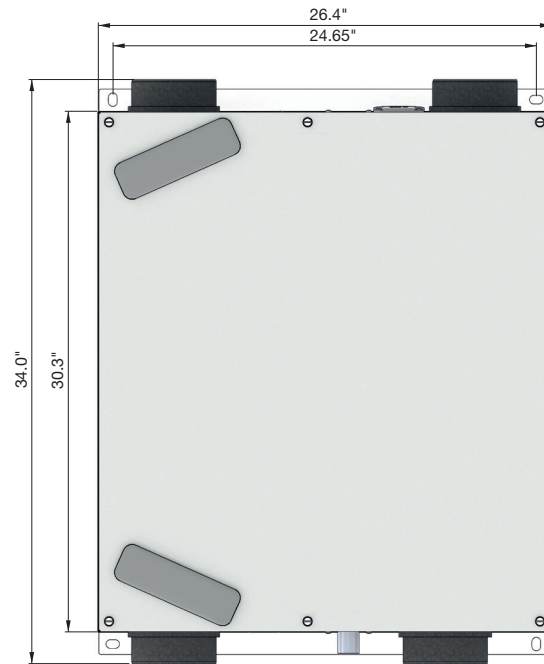
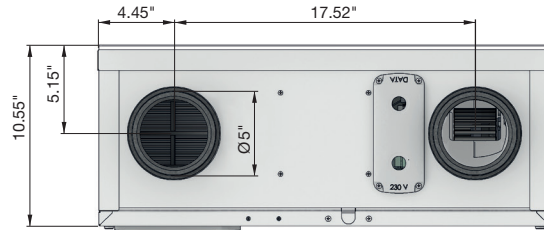
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Ventilation Unit

Zehnder ComfoAir 160

Dimensional drawing



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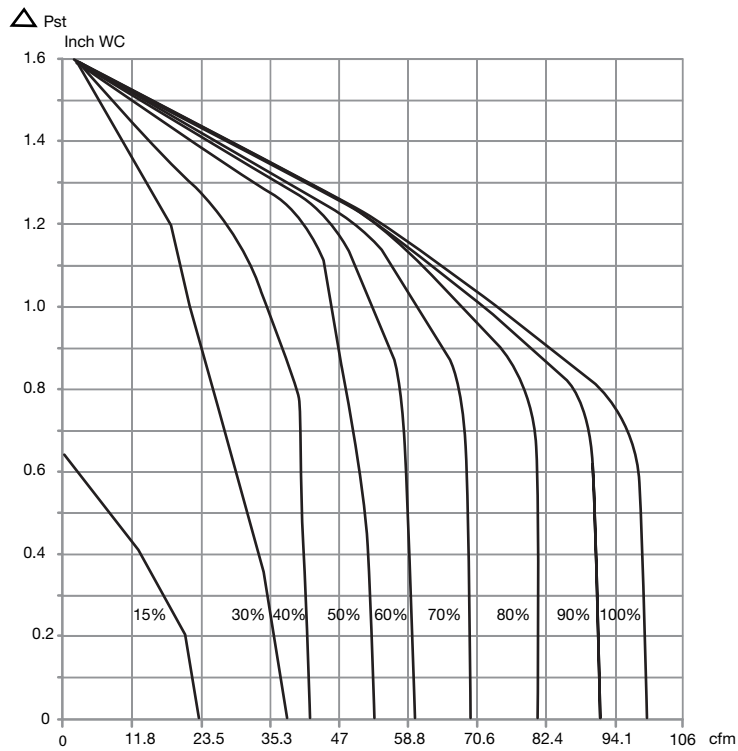


Ventilation Unit

Zehnder ComfoAir 160

### Technical Specifications

Switch settings	Air volume	Pressure	Power consumption	Cos $\phi$
Factory setting (rpm %)	Qv cfm	$\Delta P_{st}$ "WC	W	(-)
<b>ComfoAir 160</b>				
15	19	0.02	10	0,53
20	22.3	0.03	11	0,53
30	30.6	0.05	13	0,53
35	34.1	0.06	14	0,54
40	38.2	0.08	16	0,54
50	47.7	0.12	19	0,55
60	55.3	0.17	24	0,54
70	71.8	0.24	32	0,55
80	74.1	0.30	41	0,55
90	85.9	0.38	56	0,55
100	94.1	0.46	67	0,56



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**Sound, supply air**

Zehnder ComfoAir 160									
Speed	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dB(A)
15 %	65,7	49,4	40,3	32,9	27,6	13,8	14,3	20,3	42
30 %	69,3	54,9	48,2	41,7	38,1	26,3	19,5	21	47
40 %	72	59,1	53,1	46	43,7	33,5	26,8	22,4	51
50 %	74,1	63,2	57	49,2	48,6	39,3	33,5	25,3	55
60 %	75,9	66,5	60,5	52,1	52,6	43,7	39,1	31,8	58
70 %	79,3	69,7	65	55,9	57,1	48,1	44,7	38,6	62
80 %	82,2	71,7	67,6	57,7	58,9	50,7	47,7	42,5	65
90 %	84,1	74,8	70,3	62	61,4	54,6	51,8	47,8	68
100 %	86,2	75,8	72	63,3	62,8	57,1	54,1	50,8	69

**Sound, extract air**

Zehnder ComfoAir 160									
Speed	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dB(A)
15 %	52	34,3	25,2	14,9	3,3	4,6	4,2	3,6	27
30 %	55,6	39,9	33	23,8	13,8	10,8	8,3	6,7	32
40 %	58,3	44,1	37,9	28,1	19,4	14,4	11,9	8,3	36
50 %	60,4	48,1	41,8	31,3	24,3	17,3	15,3	9,8	39
60 %	62,3	51,4	45,3	34,2	28,2	19,5	18,1	13,1	42
70 %	65,6	54,6	49,8	38	32,8	21,7	10,9	16,5	42
80 %	68,5	56,7	52,4	39,8	34,6	23	22,4	18,4	48
90 %	70,5	59,7	55,1	44,1	37	25	24,4	21,1	51
100 %	72,5	60,8	56,9	45,3	38,5	26,2	25,6	22,6	52

**Sound, unit emission**

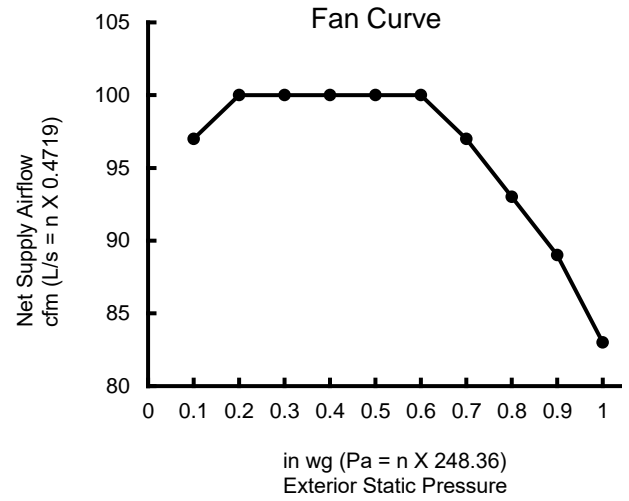
Zehnder ComfoAir 160									
Speed	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dB(A)
15 %	37,9	30,0	24,7	19,5	11,0	9,2	15,9	23,7	25,8
30 %	40,0	32,9	30,7	26,9	18,1	13,4	16,2	23,7	29,0
40 %	42,5	35,7	32,6	28,2	22,8	18,3	17,4	23,7	30,9
50 %	42,1	38,7	34,2	30,8	27,5	23,0	20,2	23,9	33,6
60 %	42,0	40,1	38,1	33,8	32,0	27,2	24,2	24,6	37,1
70 %	44,6	42,2	42,6	36,3	35,8	31,4	25,6	26,7	40,8
80 %	44,8	46,5	43,3	40,7	38,2	34,8	31,9	28,2	43,6
90 %	47,3	45,5	46,9	45,7	39,6	37,8	35,3	32,7	46,8
100 %	47,7	46,7	47,2	47,2	41,3	40,1	37,6	35,2	48,5

# Zehnder ComfoAir 160 ERV

Volts	Amps	EATR 50	EATR 100
240	0.52	3.43	2.92

## Airflow Rating

Ext. Static Press. (Pa)	Ext. Static Press. (in. wg)	Net Supply Airflow (L/s)	Net Supply Airflow (cfm)	Gross Airflow Supply (L/s)	Gross Airflow Supply (cfm)	Gross Airflow Exhaust (L/s)	Gross Airflow Exhaust (cfm)
25	0.1	46	97	48	102	48	102
50	0.2	47	100	48	102	48	102
75	0.3	47	100	48	102	48	102
100	0.4	47	100	48	102	48	102
125	0.5	47	100	48	102	49	104
150	0.6	47	100	48	102	49	104
175	0.7	46	97	47	100	49	104
200	0.8	44	93	46	97	49	104
225	0.9	42	89	44	93	47	100
250	1.0	39	83	41	87	44	93



## Energy Rating

Brand Name	Model	Temp. Mode	Deg C	Deg F	Net Airflow (L/s)	Net Airflow (cfm)	Power Consumed (Watts)	Rated Efficacy (cfm/W)	SRE	ASRE	Latent Recovery/ Moisture Transfer	TRE	ATRE
Zehnder	CA160 ERV	Htng.	0	32	23	49	20	2.4	78	80	0.66		
Zehnder	CA160 ERV	Htng.	0	32	30	64	24	2.6	75	78	0.60		
Zehnder	CA160 ERV	Htng.	0	32	44	93	44	2.1	70	73	0.51		
Zehnder	CA160 ERV	Cool	35	95	23	49	18	2.7			0.61	63	65
Zehnder	CA160 ERV	Cool	35	95	30	64	26	2.4			0.54	58	60

