

## Ventilation Unit

## Zehnder ComfoAir 350

### Use

The ComfoAir 350 ventilation unit was developed for residential and small commercial buildings. It combines maximum comfort, simple operation and very high efficiency. The CA350 moves up to 218 cfm of air at 0.80" wc

### Efficiency

The integrated cross-counterflow heat exchanger achieves efficiencies of up to 84% (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 29 cfm and 218 cfm.

### Filters

The CA350 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 CA350 can be wall-mounted or floor-mounted (with optional base). Connections for air and wiring are on the top of the unit. The insulated, sound-absorbing pipe connections can be rotated to optimize the location of the ventilation tubes while acoustically decoupling the CA350 from the air distribution system. The condensate drain is located on the bottom of the unit.

### Operation

The CA350 is controlled by the ComfoSense control unit, typically installed in the living area.

### Maintenance

Maintenance of the CA350 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.



Filter G4



Filter F7



ComfoSense controller

### 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 CA350 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.

### Options

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

When the CA350 is fitted with an enthalpy exchanger core, the humidity from the extracted air is partly transferred to the fresh supply air. In this case, the process of drying out the house in dry winter months is delayed. Additionally, there is no condensate that must be drained from the ComfoAir. Therefore a condensation drain is not necessary with an enthalpy exchanger.

The Zehnder enthalpy exchanger provides the ideal hygienic solution.

Supply and extract air flows are kept completely separate so 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.

- **Zehnder ComfoFond-L ground-coupled heat exchanger**

The ComfoFond-L uses the ground as passive storage via a brine (glycol) loop. In summer, it transfers heat from intake air to the ground and in winter it withdraws heat from the ground to warm the incoming supply air.

- **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 control unit the presence of a fireplace, negative pressure and possible back-drafting of unpleasant fumes and/or harmful gases can be avoided.

**Benefits**

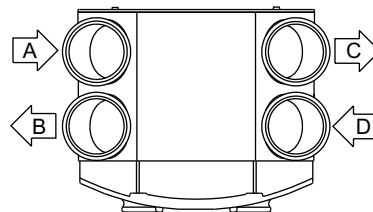
- Comfort ventilation up to 218 cfm
- Heat recovery with an efficiency of 84% (according to PHI)
- Moisture recovery with optional Zehnder enthalpy exchanger
- Low power consumption thanks to DC motors
- Automatic summer bypass
- Frost protection function
- Quick, safe installation, maintenance and servicing
- Simple operation
- Optional, integrated electric pre-heater
- Can be coupled with ComfoFond geothermal heat exchanger
- Integrated controller for geothermal heat exchanger
- Filter replacement indicator
- CO2 control (optional)
- Relative humidity control (optional)

**Article Numbers**

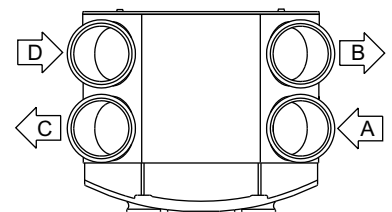
L = supply air left

R= supply air right

VV = integrated electric pre-heater



Version supply air left (L)



Version supply air right (R)

- A = Return Air OUT
- B = Supply Air IN
- C = Exhaust Air Out
- D = Out side air IN

| Product        | Article Number | Reference Number |
|----------------|----------------|------------------|
| CA350 HRV-L    | 471 236 710    | 9244             |
| CA350 HRV-R    | 471 236 715    | 9245             |
| CA350 HRV-VV-L | 471 236 730    | 9304             |
| CA350 HRV-VV-R | 471 236 735    | 9452             |
| CA350 ERV-L    | 471 236 840    | 9246             |
| CA350 ERV-R    | 471 236 845    | 9247             |
| CA350 ERV-VV-L | 471 238 540    | 9428             |
| CA350 ERV-VV-R | 471 238 545    | 9429             |

| Accessories                | Article Number | Reference Number |
|----------------------------|----------------|------------------|
| ComfoSense control unit    | 655 010 215    | 9257             |
| ComfoAir 350 Assembly Base | 642 300 135    | 9286             |
| Waterless P-Trap           | 990 201 330    | 9362             |

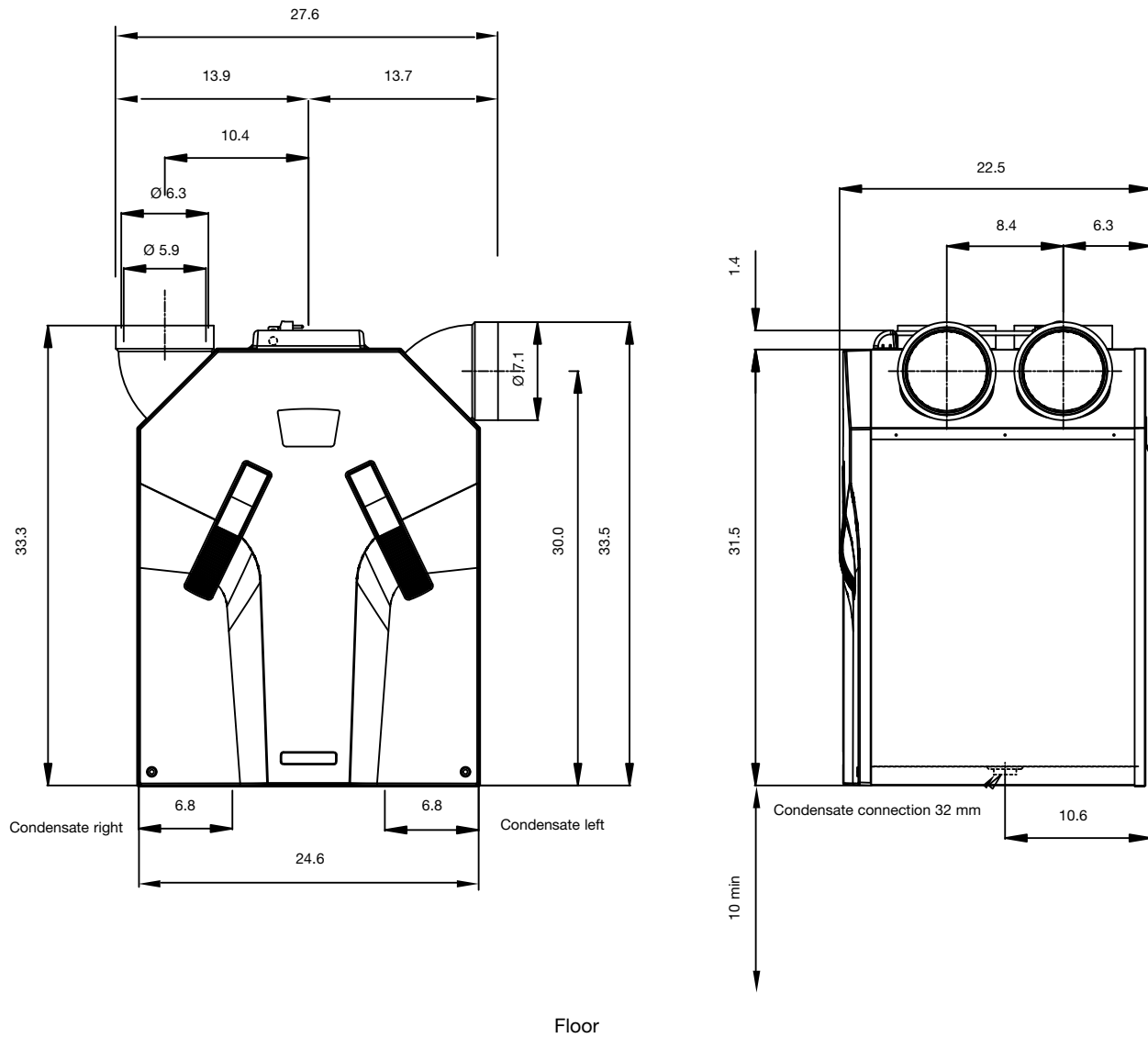
| Filters           | Article Number | Reference Number |
|-------------------|----------------|------------------|
| G4 (MERV 7/8) 1pc | 400 100 014    | 9240             |
| F7 (MERV 13) 1pc  | 400 100 013    | 9241             |

**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 Connection:   | 6" ID (nominal) (x4)   |
| Electrical Connection: | 230v, 50-60Hz  |
| Acoustic Performance:  | Extract air (min – max): 34 - 59 dB(A)<br>Supply air (min – max): 32 - 74 dB(A)  |
| Heat Recovery:         | 84% (according to PHI)   |
| Volumetric Flow:       | 29cfm - 218cfm   |
| Power Consumption:     | 10W – 198W   |
| Dimensions:            | Height: 33.9"<br>Width: 24.6"<br>Depth: 22.5"  |
| Weight:                | 77.2 pounds (35kg)   |
| Versions:              | ComfoAir HRV 350-L<br>ComfoAir HRV 350-R<br>ComfoAir HRV 350-VV-L<br>ComfoAir HRV 350-VV-R<br>ComfoAir ERV 350-L<br>ComfoAir ERV 350-R<br>ComfoAir ERV 350-VV-L<br>ComfoAir ERV 350-VV-R |
| Manufacturer:          | Zehnder Group Nederland B.V.<br>Lingenstraat 2<br>8028 PM Zwolle<br>NETHERLANDS  |

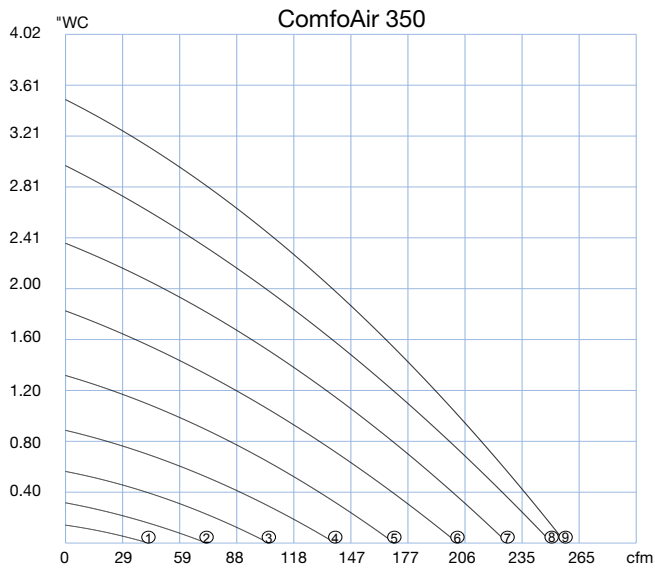
Ventilation Unit **Zehnder ComfoAir 350**

Dimensional drawing



Ventilation Unit Zehnder ComfoAir 350

| Switch settings<br>Factory setting<br>(speed) | Speed<br>% | Air volume<br>Qv<br>cfm | Pressure<br>$\Delta P_{st}$<br>"WC | Power<br>consumption<br>W | Current<br>consumption<br>A | (-)  | Acoustic performance |                     |      |
|---|------------|-------------------------|------------------------------------|---------------------------|-----------------------------|------|----------------------|---------------------|------|
|   |            |                         |                                    |                           |                             |      | Extract air<br>dB(A) | Supply air<br>dB(A) | lb   |
| <b>ComfoAir 350</b>                           |            |                         |                                    |                           |                             |      |                      |                     |      |
| (1)   | 15         | 24                      | 0.016                              | 10                        | 0.08                        | 0.50 | 34                   | 32                  | 77.2 |
| (2)   | 30         | 59                      | 0.080                              | 17                        | 0.13                        | 0.57 | 37                   | 45                  |      |
| (3)   | 40         | 82                      | 0.161                              | 27                        | 0.21                        | 0.56 | 43                   | 53                  |      |
| (4)   | 50         | 106                     | 0.261                              | 44                        | 0.35                        | 0.55 | 47                   | 59                  |      |
| (5)   | 60         | 132                     | 0.402                              | 70                        | 0.55                        | 0.55 | 52                   | 64                  |      |
| (6)   | 70         | 153                     | 0.562                              | 105                       | 0.81                        | 0.56 | 54                   | 68                  |      |
| (7)   | 80         | 177                     | 0.703                              | 145                       | 1                           | 0.58 | 57                   | 71                  |      |
| (8)   | 90         | 191                     | 0.863                              | 198                       | 1.42                        | 0.60 | 59                   | 74                  |      |



## Sound, supply air

Acoustic performance at the intake air connection

| Ventilation unit |       |        |        |        |         |         |         |         |
|------------------|-------|--------|--------|--------|---------|---------|---------|---------|
| Type             | Speed | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz |
| ComfoAir350      | 1     | 46     | 35     | 23     | 11      | 4       | 5       | 13      |
| ComfoAir350      | 2     | 55     | 49     | 40     | 33      | 22      | 12      | 12      |
| ComfoAir350      | 3     | 60     | 59     | 49     | 43      | 35      | 25      | 12      |
| ComfoAir350      | 4     | 66     | 64     | 56     | 50      | 43      | 34      | 22      |
| ComfoAir350      | 5     | 71     | 68     | 62     | 56      | 49      | 42      | 29      |
| ComfoAir350      | 6     | 74     | 70     | 66     | 60      | 53      | 47      | 35      |
| ComfoAir350      | 7     | 76     | 73     | 69     | 64      | 57      | 51      | 39      |
| ComfoAir350      | 8     | 78     | 76     | 72     | 68      | 61      | 55      | 43      |
| ComfoAir350      | 9     | 79     | 76     | 74     | 69      | 62      | 57      | 45      |

## Sound, extract air

Acoustic performance at the extract air connection

| Ventilation unit |       |        |        |        |         |         |         |         |
|------------------|-------|--------|--------|--------|---------|---------|---------|---------|
| Type             | Speed | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | 8000 Hz |
| ComfoAir350      | 1     | 50     | 34     | 3      | 23      | 10      | 7       | 12      |
| ComfoAir350      | 2     | 51     | 41     | 30     | 30      | 12      | 7       | 12      |
| ComfoAir350      | 3     | 53     | 49     | 39     | 39      | 22      | 10      | 11      |
| ComfoAir350      | 4     | 55     | 54     | 45     | 45      | 29      | 19      | 7       |
| ComfoAir350      | 5     | 57     | 56     | 51     | 51      | 34      | 25      | 13      |
| ComfoAir350      | 6     | 60     | 60     | 54     | 54      | 38      | 29      | 19      |
| ComfoAir350      | 7     | 63     | 61     | 57     | 57      | 42      | 33      | 23      |
| ComfoAir350      | 8     | 65     | 64     | 59     | 59      | 44      | 36      | 27      |
| ComfoAir350      | 9     | 65     | 65     | 61     | 61      | 46      | 38      | 29      |

## Sound, unit emission

| Ventilation unit |       |        |        |        |         |         |        |
|------------------|-------|--------|--------|--------|---------|---------|--------|
| Type             | Speed | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | dB (A) |
| ComfoAir350      | 1     | 27     | 17     | 17     | 14      | 4       | 19     |
| ComfoAir350      | 2     | 32     | 29     | 24     | 19      | 16      | 26     |
| ComfoAir350      | 3     | 36     | 36     | 32     | 29      | 27      | 35     |
| ComfoAir350      | 4     | 41     | 40     | 39     | 36      | 35      | 41     |
| ComfoAir350      | 5     | 46     | 44     | 44     | 42      | 41      | 47     |
| ComfoAir350      | 6     | 50     | 47     | 50     | 46      | 45      | 52     |
| ComfoAir350      | 7     | 52     | 49     | 52     | 50      | 49      | 55     |
| ComfoAir350      | 8     | 53     | 52     | 55     | 54      | 52      | 58     |
| ComfoAir350      | 9     | 53     | 53     | 56     | 55      | 54      | 59     |