

**zehnder**

always the  
best climate

# Zehnder ComfoAir E350

Technical specification for comfort ventilation unit



## General

Whether you are working on a new build or a renovation project, the Zehnder ComfoAir E350 comfort ventilation unit's maximum air volume flow of 350<sup>3</sup>/h at an external pressure of 150 Pa makes it suitable for single-family houses and apartment buildings.

Zehnder ComfoAir E350 guarantees a comfortable, healthy and energy-efficient indoor climate due to its brand new technology – from the diamond-shaped heat exchanger and revolutionary fan technology all the way through to the optional pre-heater, which comes with a user-friendly operating concept.



Zehnder ComfoAir E350

\* Depending on the control unit/sensor technology chosen. Detailed information on page 10.



Zehnder  
three-stage switch



Zehnder  
three-stage switch

## Benefits

- Silent and efficient operation due to the latest fan technology with RadiCal impeller, Flow Ring and Flow Grid
- Unique, patented diamond heat exchanger – for maximum energy efficiency
- Fantastic heat recovery and frost protection system for supreme comfort in winter and 100% by-pass for balanced temperature control in summer
- Unit is easy to operate due to the integrated display with intuitive icons
- Highly efficient filter ensures room air is healthy and dust-free

## Technical specifications

### Zehnder ComfoAir E350 TR

Max. air volume	350 m <sup>3</sup> /h
Total height	870 mm
Overall width	725 mm
Total depth	560 mm
Weight	50 kg
Installation	Wall-mounted/ floor-mounted on mounting base
Temperature range	7 °C to 40 °C < 90% RF (without condensation) in installation room
Condensate drain	32 mm / DN 32 external thread
Nominal size of drain connection	160 mm internal 190 mm external
Supply voltage	230 V, 50 Hz
Power consumption without/with VEW	120 W / 1580 W
Current draw without/with VEW	1.03 A / 7.38 A
Cos φ	0.38 – 0.94
Protection class	IP41
Casing	Sheet steel, RAL 7045
Designer front panel	ABS, RAL 7024
Inner zone	EPP / ABS
Heat exchanger	PS

### Energy figures

#### EU Energy Consumption Label

Energy efficiency class	<b>A+</b> *
Maximum air volume flow [m <sup>3</sup> /h]	350
Sound power level L <sub>WA</sub> [dB]	40

\* depending on the control unit/sensor technology chosen.

## Article numbers

Comfort ventilation unit	Article number
ComfoAir E350 L	471 508 115
ComfoAir E350 R	471 508 120
ComfoAir E350 VL	471 508 125
ComfoAir E350 VR	471 508 130

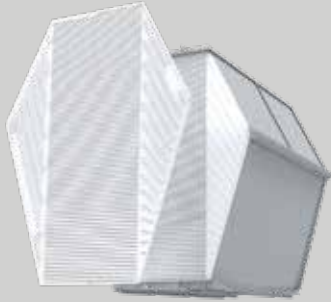
Accessories	Article number
Mounting base	471 502 008
Dry siphon 5/4"	990 201 330

Filters	Article number
Filter set for ComfoAir E350, ISO Coarse $\geq$ 65% / ISO ePM1 $\geq$ 65% (G4/F7), contents 2 pieces	400 502 013
Filter set for ComfoAir E350, ISO Coarse $\geq$ 65% / ISO ePM1 $\geq$ 65% (G4/F7), contents 10 pieces	400 502 015

Control units	Article number
Three-stage switch, in-wall, with 0 position	990 210 154
Three-stage switch, in-wall, without 0 position	659 000 120
Three-stage switch, in-wall, without 0 position, with fault indication	659 000 300
Surface-mounted housing for three-stage switch, suitable for 990 201 154	990 210 155
Surface-mounted housing for three-stage switch, suitable for 659 000 120 and 659 000 300	659 000 200
CO <sub>2</sub> sensor	528 007 250
Humidity sensor	659 000 330
Remote-controlled RF control panel	655 000 755

## Technologies

### Diamond heat exchanger



Unique, ultra-powerful heat exchanger – for maximum energy efficiency

The Paul diamond heat exchanger features an especially large surface, which allows it to achieve a higher level of efficiency. Variable duct heights ensure even flow and lower pressure losses, and thus optimal airflow. As a result, less energy is required to overcome the air resistance.

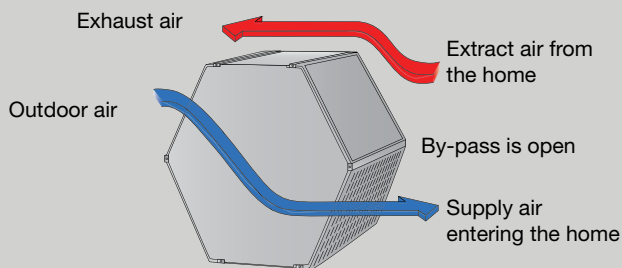
### Fans



State-of-the-art fan technology – for quiet, energy-saving operation

The Flow Grid, scroll housing and ebm-papst RadiCal impeller ensure the best possible air flow. This guarantees not only extremely quiet operation, but also particularly low power consumption. A high-quality, future-proof solution, based on tried-and-tested technology.

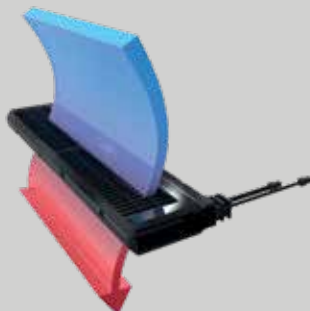
### By-pass



Comfortable indoor ventilation as a result of bypassing the heat recovery system using a 100% by-pass

Sometimes, it can be too hot in the house even though the outdoor air is pleasantly cool. This is where free cooling systems come in. They feature an automatic 100% by-pass that is integrated as standard: the cooler outdoor air passes through the heat exchanger and is supplied directly to the rooms in the living area, bypassing the heat recovery system.

### Pre-heater



Temperature control of the drawn-in outdoor air for the best possible energy efficiency

The electrical pre-heater also guarantees continuous, frost-free operation even at temperatures below freezing.

## Filters



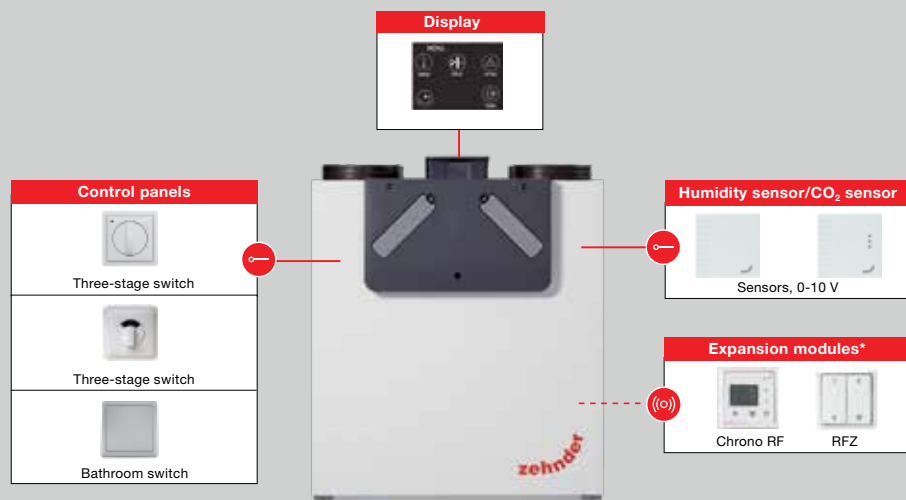
Optimum hygiene because of powerful filters

Completely sealed and maximised, the filters prevent dust from getting into the room air. There is also a warning indicator to show when it is time to replace the filters, ensuring the air is always clean and healthy. Zehnder ComfoAir E350 is equipped with Class G4/F7 filters as standard.

## Control options

### A range of control options

— Cable (co) - - Wireless signal



\* Chrono RF requires a 230 V mains power supply and a flush-mounted socket. RFZ is operated with a lithium battery (CR 2032).

Control panel	Description	Article number	Accessories required
Unit display	Display integrated ex works	-	-
External control panels	Three-stage switch, with 0 position	990 210 154	-
	Three-stage switch, without 0 position	659 000 120	
	Three-stage switch without 0 position, with fault indication	659 000 300	
Wireless remote control	RF control panel	655 000 755 655 002 120	RF board RF board
Sensors (wired, 0 – 10 V control output)	CO <sub>2</sub> sensor	528 007 250	-
	Humidity sensor	659 000 330	

## Control functions

### Comfort ventilation unit

Commissioning wizard  
 Filter change wizard  
 Constant air volume  
 3 positions  
 0 – 10 V input  
 Frost protection function  
 Open fire programme

### Options

Bathroom switch  
 Demand control (CO<sub>2</sub> sensor, humidity sensor)  
 Remote-controlled RF control panel

## Tender specification

### Zehnder ComfoAir E350 comfort ventilation unit with integrated display

The Zehnder ComfoAir E350 is a centralised, compact ventilation unit with heat recovery and integrated summer by-pass. This ventilation unit is ideal for new builds as well as for renovation projects.

The housing, made of coated sheet steel, is acoustically and thermally insulated. Economical DC fans with RadiCal impeller, Flow Ring and Flow Grid ensure economical operation and therefore permit a high level of electrical efficiency. Consistent volume control ensures a constant balance between the supply air and extract air.

The core of the Zehnder ComfoAir E350 is the diamond-shaped plastic counterflow heat exchanger with over 90% heat recovery.

The ventilation stages can be adjusted via an external three-stage switch. Additional settings can be adjusted using the integrated display. Users can select options conveniently with the help of various icons shown on the display.

The filters can be replaced easily from the front by the user without opening the unit. The Zehnder ComfoAir E350 can be either wall-mounted or floor-mounted with an optional base mount. It is connected via 4 fixed DN 160 connectors at the top of the unit.

- ComfoAir E350 ventilation unit
- Automatic and temperature-controlled by-pass
- Automatic frost protection
- Heat exchanger: Plastic
- Pre-heater (optional)
- Open fire programme
- Fans: EC DC fans, radial, suction side
- Condensate drain: DN 32 external thread
- Air duct connections: 4 x DN 160 (internal) at top of unit
- Mains power supply: 230 V, 50 Hz
- Temperature range: 7 °C to 40 °C with less than 90% relative humidity (without condensation) in installation room
- Waste heat recovery: > 90%
- Volume flow:
  - Max. 350 m<sup>3</sup>/h at 150 Pa external
  - Min. 50 m<sup>3</sup>/h at 5 Pa external
- Power consumption:
  - Max. 120 watts (without pre-heater) Max. 1580 watts (with pre-heater)

- Electrical efficiency: 0.21 Wh/m<sup>3</sup> at 245 m<sup>3</sup>/h
- Automatic filter replacement display
  - Filter for extract air: ISO Coarse ≥ 65% (G4)
  - Filter for outdoor air: ISO Coarse ≥ 65% (G4), optional pollen filter ISO ePM1 ≥ 65% (F7)
- Dimensions:
  - Height: 870 mm (with connectors)
  - Width: 725 mm
  - Depth: 560 mm
- Type: ZE ComfoAir E350 ventilation unit with integrated display
- Brand: Zehnder Comfosystems
- Article number:
  - Air supply connector, left, without pre-heater: 471508115
  - Air supply connector, right, without pre-heater: 471508120
  - Air supply connector, left, with pre-heater: 471508125
  - Air supply connector, right, with pre-heater: 471508130

## Sound specifications

### Sound, pressure side (supply air/exhaust air)\*

Measurement point	[m³/h]	[Pa]	125 Hz [dB]	250 Hz [dB]	500 Hz [dB]	1000 Hz [dB]	2000 Hz [dB]	4000 Hz [dB]	8000 Hz [dB]	Total [dB(A)]
1	150	25	58	53	47	40	33	23	19	49
2	200	50	60	57	52	44	39	30	23	53
3	245	50	62	60	54	47	43	34	26	56
4	250	100	64	63	57	50	46	38	29	59
5	300	100	65	66	60	53	50	42	32	62
6	350	100	67	69	63	56	54	47	35	65
7	250	150	65	65	59	52	49	41	31	61
8	250	200	66	68	61	54	52	44	33	63
9	300	200	68	70	63	57	55	47	35	65
10	350	200	69	73	66	59	58	51	38	68

### Sound, suction side (extract air/outdoor air)\*

Measurement point	[m³/h]	[Pa]	125 Hz [dB]	250 Hz [dB]	500 Hz [dB]	1000 Hz [dB]	2000 Hz [dB]	4000 Hz [dB]	8000 Hz [dB]	Total [dB(A)]
1	150	25	47	41	30	24	21	15	20	36
2	200	50	50	45	34	27	23	18	20	40
3	245	50	52	48	37	29	25	19	20	42
4	250	100	53	50	39	31	27	20	20	44
5	300	100	55	53	41	33	28	22	20	47
6	350	100	57	56	44	35	30	23	20	49
7	250	150	55	52	41	32	28	21	20	46
8	250	200	56	55	43	34	29	23	20	48
9	300	200	57	57	45	36	31	24	20	50
10	350	200	59	59	47	38	32	25	20	52

### Housing radiation, installation room\*

Measurement point	[m³/h]	[Pa]	125 Hz [dB]	250 Hz [dB]	500 Hz [dB]	1000 Hz [dB]	2000 Hz [dB]	4000 Hz [dB]	8000 Hz [dB]	Total [dB(A)]
1	150	25	41	38	32	26	22	16	19	34
2	200	50	45	42	36	30	27	21	20	38
3	245	50	47	45	39	32	30	24	21	41
4	250	100	48	47	41	35	32	26	21	43
5	300	100	50	50	44	37	35	29	22	46
6	350	100	53	53	47	40	39	32	23	49
7	250	150	50	49	43	37	35	28	22	45
8	250	200	51	51	45	38	37	30	22	47
9	300	200	53	53	47	40	39	32	23	49
10	350	200	55	56	50	43	42	35	23	52

\* Lw in dB(A) at reference area 10<sup>-12</sup>W

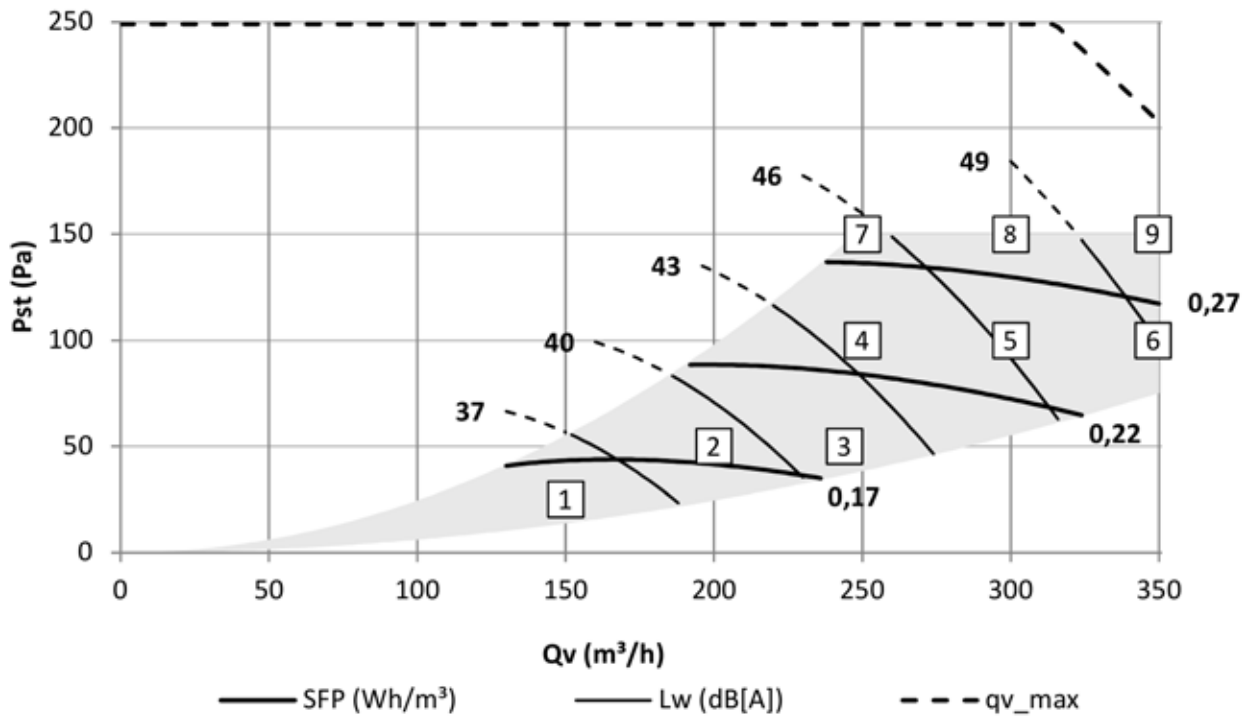
Housing radiation measured per ISO 3741:2010

Noise, suction side/pressure side, measured per ISO 5135:1997

## Performance data

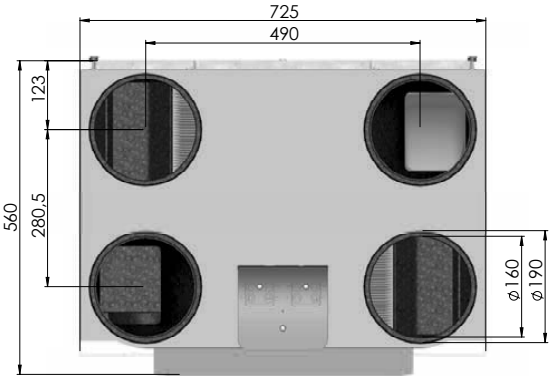
Performance data*								
Measurement point	[m³/h]	[Pa]	P [W]	cos φ	SFP [Wh/m³]	Lw, pressure side [dB(A)]	Lw, suction side [dB(A)]	Lw, housing [dB(A)]
1	150	25	23	0.42	0.15	49	36	34
2	200	50	39	0.46	0.19	53	40	38
3	245	50	51	0.47	0.21	56	42	41
4	250	100	65	0.49	0.26	59	44	43
5	300	100	84	0.50	0.28	62	47	46
6	350	100	105	0.51	0.30	65	49	49
7	250	150	78	0.50	0.31	61	46	45
8	250	200	90	0.50	0.36	63	48	47
9	300	200	111	0.52	0.37	65	50	49
10	350	200	134	0.52	0.38	68	52	52

\* SFP in Wh/m³ calculated per EN 13141-7:2010  
cos phi with pre-heater deactivated

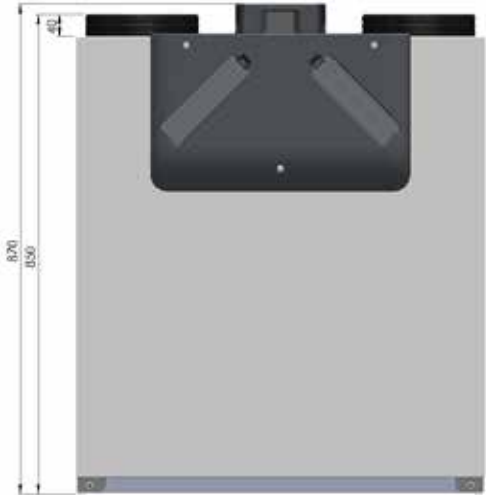




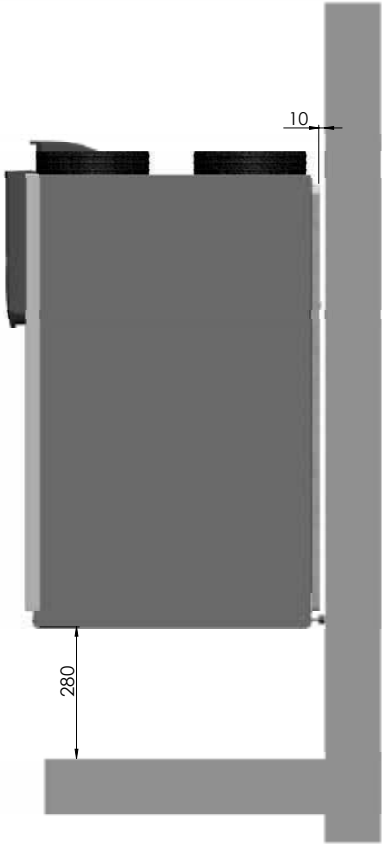
# Dimensional drawings



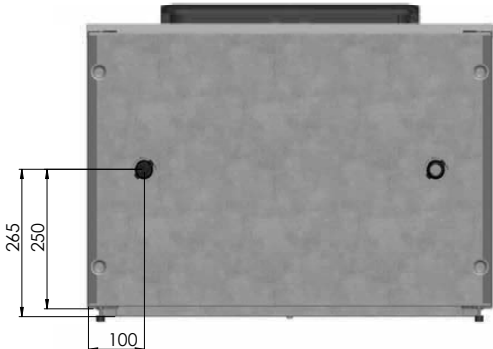
Top



Front

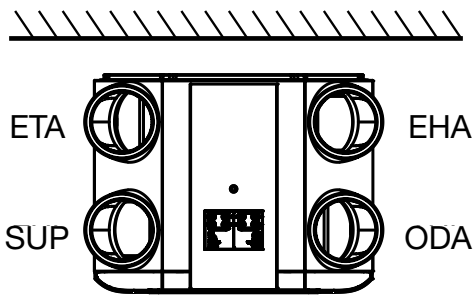


Side

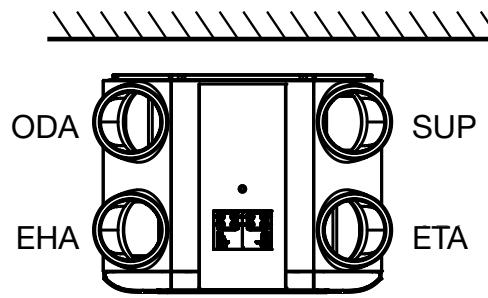


Bottom

## Air directions



Supply and extract air to left



Supply and extract air to right

## Energy efficiency classes

Energy efficiency classes in accordance with EU Regulation no. 1254/2014.

Energy efficiency classes		Article number	Control according to site requirements	Central demand control	Manual control	
ComfoAir E350	471 508 115	1 x CO <sub>2</sub> sensor 528 007 250 and 1 x expansion set (incl. CO <sub>2</sub> sensor) 528 007 290	1 x humidity sensor 659 000 330 and 1 x expansion set (incl. CO <sub>2</sub> sensor) 528 007 290	2 x humidity sensor 659 000 330 and 1 x expansion set (incl. CO <sub>2</sub> sensor) 528 007 290	1 x CO <sub>2</sub> sensor 528 007 250 or 1 x humidity sensor 659 000 330	No further accessories
	471 508 120					
	471 508 125					
	471 508 130					
			<b>A+</b>	<b>A+</b>	<b>A</b>	

## ComfoAir E350 declaration of performance

Information requirement for RVUs as per EU Regulation no. 1254/2014 Zehnder ComfoAir E350 heat recovery unit												
Supplier's name or trade mark	Zehnder Group			Zehnder Group			Zehnder Group			Zehnder Group		
Supplier's model identifier	ComfoAir E350			ComfoAir E350			ComfoAir E350			ComfoAir E350		
SEC [kWh/(m <sup>2</sup> a)] specific energy consumption (cold, average, warm)	-79.1	-40.4	-15.5	-79.8	-40.9	-16.0	-81.4	-42.3	-17.2	-84.2	-44.4	-19.1
SEC class	A+	<b>A</b>	E	A+	<b>A</b>	E	A+	<b>A+</b>	E	A+	<b>A+</b>	E
Type of ventilation unit	Bidirectional RVU			Bidirectional RVU			Bidirectional RVU			Bidirectional RVU		
Type of drive installed	Multi-speed drive			Multi-speed drive			Variable speed drive			Variable speed drive		
Type of heat recovery system	Recuperative			Recuperative			Recuperative			Recuperative		
Thermal efficiency [%]	91			91			91			91		
Maximum flow rate [m <sup>3</sup> /h]	350			350			350			350		
Electric power input [W]	131			131			131			131		
Sound power level [dB(A)]	40			40			40			40		
Reference flow rate [m <sup>3</sup> /h]	245			245			245			245		
Reference pressure difference [Pa]	50			50			50			50		
SPI [W/(m <sup>3</sup> /h)]	0.17			0.17			0.17			0.17		
Control factor and typology	1 Manual control			0.95 Clock-controlled			0.85 Central demand control			0.65 Local demand control		
Declared maximum internal and external leakage rates [%]	Internal: 0.8			Internal: 0.8			Internal: 0.8			Internal: 0.8		
	External: 1.1			External: 1.1			External: 1.1			External: 1.1		
Mixing rate	- - - -											
Position and description of visual filter warning	Warning on the display of the unit or room controller			Warning on the display of the unit or room controller			Warning on the display of the unit or room controller			Warning on the display of the unit or room controller		
Internet address for assembly and disassembly instructions	www.international.zehnder-systems.com			www.international.zehnder-systems.com			www.international.zehnder-systems.com			www.international.zehnder-systems.com		
Airflow sensitivity to pressure variations [%]	-			-			-			-		
Indoor/outdoor air tightness [m <sup>3</sup> /h]	-			-			-			-		
AEC [kWh/a] annual electricity consumption (cold, average, warm)	795	258	213	779	242	197	736	199	154	672	135	90
AHS [kWh/a] annual heating energy saved (cold, average, warm)	9026	4614	2086	9054	4628	2093	9110	4657	2106	9222	4714	2132

