

Application

Zehnder ComfoAir 70 is a decentralised comfort ventilation unit with heat and humidity recovery using synchronous supply and extract air operation. It is often used in apartment renovations as well as in new residential builds. The comfort ventilation unit is particularly suited for one- and two-room apartments, vacation and student apartments.

An additional room can be connected to the twin-room connections for supply or extract air using Zehnder air distribution (optional). An enthalpy exchanger, which ensures a high degree of heat and humidity recovery, is standard on the unit, which therefore provides a comfortable indoor climate, especially in winter.

Level of efficiency

The generously proportioned enthalpy exchanger, the core of the ventilation unit, functions particularly energy-efficiently. It uses both the sensitive and the latent energy in the extract air. Heat recovery of up to 90% and humidity recovery of up to 84% are possible. Using humidity recovery, the unit functions at temperatures as low as -5 °C without the need for a pre-heater or frost protection. This also saves energy and provides a comfortable indoor climate.

Fans

Supply and extractor fans are driven by energy-efficient EC direct-current motors. The high-quality radial fans are particularly resistant to wind loads. The unit operates very quietly due to the arrangement of the fans in the wall opening and the use of a special insulation material.

The fans can be set to any of four speeds.

Filters

Standard equipment on Zehnder ComfoAir 70 includes G4 supply and extract air filters (coarse dust filters).

After the expiry of a certain interval, an indicator on the control panel indicates that the filter must be replaced. The filter should then be replaced as soon as possible.

A Class F7 pollen filter (optional) can be installed in the supply air inlet.

Installation

The comfort ventilation unit is installed in an outside wall. No condensate forms in the unit, therefore there is no condensate drain; the façade of the house always remains clean and dry. Installation of the unit is quick and easy.

The wall installation tube (accessory) is fitted to the core hole in the outside wall. Zehnder ComfoAir 70 is then inserted from inside the room and screwed into place. A 230 VAC mains power supply can be installed, for instance, in a junction box behind the unit. After the insulated tube is adjusted, the weather-resistant outside wall panel is fixed to the outside wall. It is that easy to install the unit and have it ready for operation without great intrusion into the living space.



Zehnder ComfoAir 70

Operation

Zehnder ComfoAir 70 has a built-in control panel with a capacitive button on its front. This facilitates easy, uncomplicated operation of the unit. Pressing the button increases the fan speed successively through 4 levels and switches the unit off. Fault messages are displayed and an indicator lets you know when it is time to replace the filter.

The energy-saving mode ensures the control panel will consume minimal electricity. The LED indicator on the control panel turns off after approx. 60 seconds. The status of the unit can be displayed by briefly pressing the button. When the ventilation unit is switched off and in the event of a power failure, built-in shutters seal off the outdoor and exhaust air openings on the ventilation unit. The comfort ventilation unit has automatic frost protection regulation.



ComfoAir 70 control panel

Maintenance

Routine maintenance of Zehnder ComfoAir 70 is easy to carry out and should be performed regularly to keep the ventilation unit operating in a flawlessly hygienic manner.

After the cover is removed, the filters can be pulled out of the housing without tools. The enthalpy exchanger can also be removed from the housing after the upper insulation element is taken off. The enthalpy exchanger can be washed out with water.

Please see the user manual for information about servicing tasks.

Frost protection

Using the enthalpy exchanger for humidity recovery, the unit functions at temperatures as low as -5 °C without need of a pre-heater. Should the outside temperature fall below that level, frost protection is activated to regulate the supply of cold outdoor air. If the outside temperature falls further, the unit switches to standby mode at -15 °C. Unit operation is regulated by a temperature sensor. The unit begins to work automatically when the outside temperature rises again. Frost protection prevents the unit from freezing.

Twin-room connection

Twin-room connections (optional) can be mounted on the back (in-wall) or on the side of Zehnder ComfoAir 70. An additional room is connected to the supply or extract air with joining piece 90 flat 51 and thus integrated into the ventilation system. In order to minimise pressure losses, distances should be kept to a minimum. For instance, the unit can be installed in the bathroom and fresh air supplied to the living or sleeping areas. The unit emits no noise in the living/sleeping areas and the rooms are optimally supplied with fresh air.

Benefits

- Enthalpy exchanger for especially good indoor climate and a high degree of energy efficiency
- Particularly quiet operation due to high-quality radial fans and good insulation
- Synchronous supply/extract air operation for continuous heat and humidity recovery
- Minimal intrusion into the living space
- Plastic outside wall panel can be painted over to match the colour of the wall
- Intuitive operation with capacitive button
- No condensate to dispose of down the façade of the house and no condensate container
- Hygienically flawless, enthalpy exchanger is washable
- Simple and quick installation
- Twin-room connection for good airflow and flexible planning

Article numbers

Description	Article number
Zehnder ComfoAir 70, white aluminium outside wall panel, without wall installation tube	527 005 770
Zehnder ComfoAir 70, plastic outside wall panel, without wall installation tube	527 005 780
Zehnder ComfoAir 70, stainless steel outside wall panel, without wall installation tube	527 005 790

Accessories

Round wall installation tube, made of plastic, Ø 250 mm, length = 600 mm, with 2 blanking plugs, for retrofitting	527 005 200
Sealing tape for Zehnder ComfoAir 70, for a twin-room connection	521 000 580

Filters

Filter set for Zehnder ComfoAir 70 G4 (2 pieces)	527 005 180
Filter set for Zehnder ComfoAir 70 G4/F7 (2 pieces)	527 005 190
Filter set for Zehnder ComfoAir 70 G4 (10 pieces)	527 005 160
Filter set for Zehnder ComfoAir 70 G4/F7 (10 pieces)	527 005 170

Scope of delivery

To install Zehnder ComfoAir 70 into the wall, a wall installation tube is required which must be ordered separately. The unit is delivered ready to install with the chosen outside wall panel and power supply for a 230 V connection.


ComfoAir 70 with white aluminium outside wall panel

ComfoAir 70 with plastic outside wall panel

ComfoAir 70 with stainless steel outside wall panel

Tender specifications

Zehnder ComfoAir 70 is a decentralised, compact comfort ventilation unit with heat recovery and a large enthalpy exchanger. The ventilation unit is perfectly suited for use in the renovation of one- and two-room apartments, student and vacation apartments, and for new builds.

The housing is made of powder-coated aluminium and is designed without thermal bridges. The interior lining is made of expanded polypropylene (EPP) to provide heat and sound insulation. The outside wall panel is made of high-quality plastic and can be painted over to match the colour of the wall.

Radial fans with direct-current motors are particularly resistant to wind loads and allow economical operation with a high degree of electrical efficiency.

Supply and extractor fans can be controlled separately and, in conjunction with a twin-room connection, can be precisely adjusted to the balance air volume.

The core of Zehnder ComfoAir 70 is its generously proportioned plastic cross-counterflow enthalpy exchanger. With heat recovery of up to 90% and humidity recovery of up to 84%, it ensures the maximum in energy recovery. No condensate forms in the unit. It functions at temperatures as low as -5 °C without need of a pre-heater or frost protection. The unit is controlled by means of a built-in control panel on the front of the unit. A capacitive button allows four fan speeds to be selected and switches the unit off. The display shows fault messages and lets you know when it is time to replace the filter.

Zehnder ComfoAir 70 is delivered ready to connect to the 230 VAC mains power supply with outside wall panel.

The wall installation tube must be ordered separately. The filters are located at the front and can be easily replaced by the user without tools after removing the cover.

Zehnder ComfoAir 70 is mounted on the inner side of an outside wall and vents outdoor and exhaust air directly via an insulated wall tube.

- Four fan speeds, manual selection
- Control panel with energy-saving function
- Automatic frost protection controller
- Automatic shutter fastener
- Time-controlled filter replacement indicator
- Fault indicator

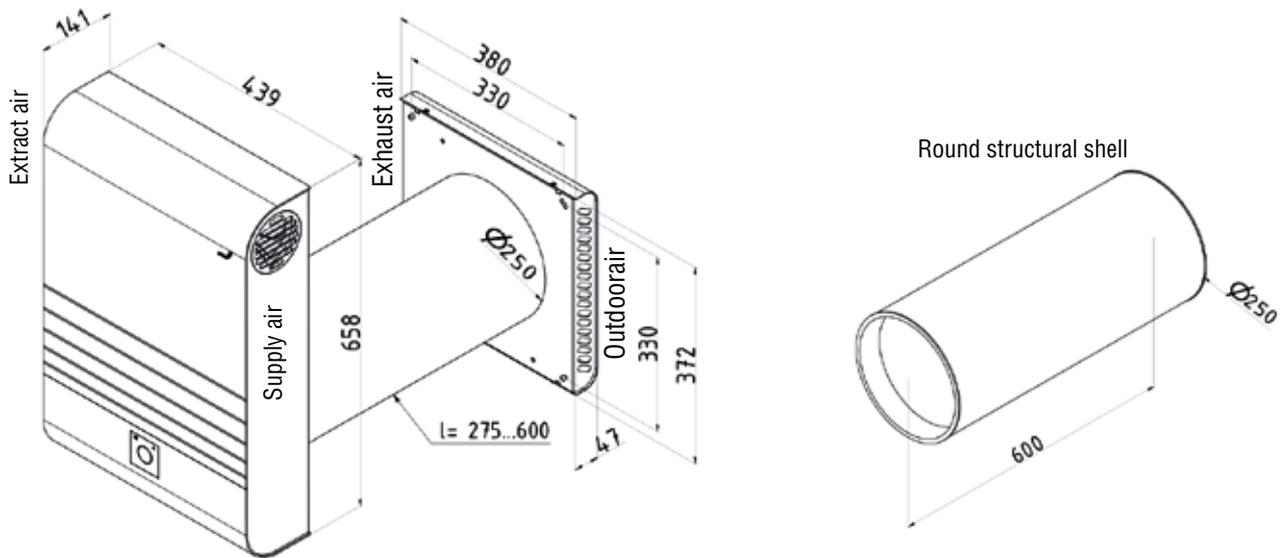
Options

- Class F7 pollen filter
- Units with white aluminium and stainless steel outside wall panel
- Twin-room connection for supply or extract air
- Round wall installation tube, made of plastic, Ø 250 mm, length = 600 mm with 2 blanking plugs, for retrofitting

Technical specifications

Ventilation unit model	Decentralised comfort ventilation unit
Unit dimensions (H x W x D)	660 x 440 x 145 mm
Outside wall thickness	Min. 280 to 600 mm
Wall installation tube	Ø 250 mm, 600 mm long
Core hole drilling	Ø approx. 270 mm
Fans	DC radial fan
Filter class	G4 supply/extract air (optional F7 supply air)
Heat exchanger	Cross-counterflow enthalpy exchanger
Housing	Powder-coated aluminium, RAL 9016, fine structure, matt
Unit core	Expanded polypropylene (EPP)
Electrical connection	To power supply 230 VAC / 50–60 Hz – 24 VDC
Operating voltage	24 VDC
Max. current draw	0.75 A
Power consumption	4 W to 17 W (standby: 3 W)
Protection class	SELV Class III
Degree of protection	IP30
Volume flow	15–25–40–60 m ³ /h
Energy efficiency	Up to 90% heat recovery Up to 84% humidity recovery
Weight	22 kg
Application	-20 °C to 40 °C
Frost protection control	From -5 to -15 °C, unit then switches to standby mode
Control	4 fan speeds, unit off, filter message, fault message, shutters seal when unit switched off and in the event of power failure
Leakage (in acc. with DIN 13141 Part 8 – 2006)	Internal: 0.1% External: 0.9%

Dimensional drawing



Sound specifications

Noise level at a distance of 3 m, open space

	Unit without twin-room connection	Unit with one twin-room connection	Unit with two twin-room connections
Resting state			
Fan speed 1	11.0 dB(A)	9.2 dB(A)	2.9 dB(A)
Fan speed 2	23.6 dB(A)	16.3 dB(A)	16.0 dB(A)
Fan speed 3	29.4 dB(A)	24.3 dB(A)	16.2 dB(A)
Fan speed 4	36.4 dB(A)	31.2 dB(A)	22.7 dB(A)

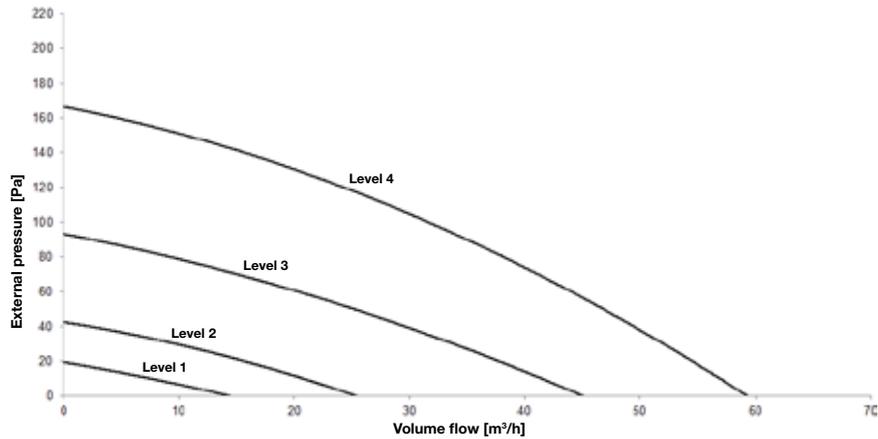
Sound transmission

	Weighted sound reduction index R_w [dB]	Weighted normalised level difference D_n [dB]
Shutter open	17	40
Shutter closed	25	48

Operation data

	Volume flow [m ³ /h]	Thermal efficiency [%]	Humidity efficiency [%]	Power consumption [W]
Resting state				3
Fan speed 1	15	90	84	4
Fan speed 2	25	83	73	5
Fan speed 3	40	76	61	9
Fan speed 4	60	71	54	17

Pressure loss graph



Energy efficiency classes

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

Comfort ventilation unit	Article number	Manual control		
		Unit without twin-room connection	Unit with one twin-room connection	Unit with two twin-room connections
ComfoAir 70	527 005 770 527 005 780 527 005 790	B	A	A

ComfoAir 70 Declaration of Performance

Information requirement for RVUs as per EU Regulation No. 1253/2014 Zehnder heat recovery unit ComfoSpot 50												
Supplier name or trade mark	Zehnder Group											
Supplier's model identifier	ComfoSpot 50											
SEC in [kWh/(m ² a)] for each applicable climate zone (cold, average, warm)	-62,6	-29,5	-7,9									
SEC class	A	B	F									
Type of ventilation unit	RVU, bidirectional											
Type of drive installed	multi-speed drive											
Type of heat recovery system ¹⁾	recuperative											
Thermal efficiency ²⁾	79%											
Thermal efficiency as per PHI ³⁾	-											
Maximum flow rate [m ³ /h] ⁴⁾	55											
Electric power input [W] ⁵⁾	15											
Sound power level (L _{WA}) [dB(A)] ⁶⁾	43											
Reference flow rate [m ³ /h] ⁷⁾	38,5											
Reference pressure difference [Pa]	0											
SPI [W/(m ³ /h)] ⁸⁾	0,30											
Control factor and control typology	1 manual control											
Declared maximum internal and external leakage rates [%] ⁹⁾	not yet determined											
Mixing rate ¹⁰⁾	not yet determined											
Position and description of visual filter warning	Symbolized message "filter run-time expired" on control panel											
Internet address for pre-/dis-assembly instructions	www.international.zehnder-systems.com											
Airflow sensitivity to pressure variations [%] ¹¹⁾	not yet determined											
Indoor/outdoor air tightness [m ³ /h] ¹²⁾	not yet determined											
AEC (in kWh electricity/a) for each climate zone (cold, average, warm)	16,2	10,8	10,3									
AHS (in kWh primary energy/a) for each climate zone (cold, average, warm)	78,7	40,2	18,2									

1) Type of heat recovery: recuperative or regenerative acc. EN 13141-7:2010 or acc. EN 13141-8:2014 for non-ducted units
2) Thermal efficiency at reference flow rate: acc. EN 13141-7:2010 or acc. EN 13141-8:2014 for non-ducted units
3) Heat recovery as per alternative standard (country-specific, e.g. as per PHI regulations, EN 308 for BE, or NEN 5138 for NL)
4) Maximum flow rate acc. EN 13141-7:2010; acc. EN 13141-8:2014 for non-ducted units
5) Electric power input at maximum flow rate
6) Noise emitted from housing at reference flow rate
7) Reference flow rate: 70 % of maximum flow rate (at 50 Pa acc. EN 13141-7:2010; at 0 Pa acc. EN 13141-8:2014 for non-ducted units)
8) As per EN 13141-7:2010 or EN 13141-8:2014 for non-ducted units each at reference flow rate
9) As per EN 13141-7:2010; as per EN 13141-8:2014 for non-ducted units
10) As per EN 13141-8:2014 for non-ducted units
11) As per EN 13141-8:2014 for non-ducted units: airflow sensitivity to pressure variations at +20 Pa and -20 Pa
12) As per EN 13141-8:2014 for non-ducted units
SPI: specific power input
SEC: specific energy consumption
AEC: annual electricity consumption
AHS: annual heating saved

Passive house certification

Certificate

Certified Passive House Component

For cool, temperate climates, valid until 31 December 2016

Category: **Heat recovery unit**
 Manufacturer: **Zehnder Group AG
 Paul Wärmerückgewinnung GmbH
 08141 Reinsdorf, GERMANY**
 Product name: **ComfoAir 70 with second room
 connection**

This certificate was awarded based on the following criteria:

Thermal comfort	$\theta_{\text{supply air}} \geq 16.5 \text{ °C}$ at $\theta_{\text{outdoor air}} = -10 \text{ °C}$
Effective heat recovery rate	$\eta_{\text{HR,eff}} \geq 75 \%$
Electric power consumption	$P_{\text{el}} \leq 0.45 \text{ Wh/m}^3$
Airtightness	Interior and exterior air leakage rates of 3 % of nominal air flow rate met
Balancing and adjustability	Air flow balancing possible: yes Automated air flow balancing: no
Sound insulation	Sound pressure level in functional rooms $\leq 30 \text{ db(A)}$
Indoor air quality	Outdoor air filter at least F7 Extract air filter at least G4
Frost protection	frost protection for the heat exchanger with continuous fresh air supply down to $\theta_{\text{outdoor air}} = -15 \text{ °C}^2)$

- 1) The required sound pressure level in the installation room can be exceeded in demand operation mode.
- 2) Frost protection strategy suitable for outdoor air temperatures down to -10°C.

Further information can be found in the appendix of this certificate.

www.passivehouse.com

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Certified for air flow rates of

15 - 25 m³/h
(continuous operation)

15 - 40 m³/h¹⁾
(on-demand operation)

**$\eta_{\text{HR,eff}}$
85 %**

**Average moisture recovery
 $\eta_x = 0,64$**

**Electric power consumption
0.24 Wh/m³**



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