

# Zehnder ComfoAir Q Ventilation System

Installer manual



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## Foreword

### **Read this document carefully before use.**

With this document you can install the ComfoAir Q in a safe and optimal manner. In this document the ComfoAir Q will be referred to as “the unit”. The unit is subject to continuous development and improvement. Thus the unit may be slightly different from the given descriptions.

### **The following pictograms are used in the Zehnder documents:**

Symbol	Meaning
	Point of interest.
	Risk of compromised performance or damage of the ventilation system.
	Risk of personal injury.

### **!?** Questions

Please contact your local Zehnder representative if you have any questions or would like to order a new document, filters or spare parts, as specified in the Installer manual. The contact details of your Zehnder representative can be found on the final page of this document.

#### Information found in the user manual

General information about the ventilation system.  
CE / UKCA certification and warranty.  
How to replace the filters in the unit.  
How to clean the valves and/or grilles in the ventilation system.  
How to use the display on the unit.

#### Information found in the service manual

Commissioning procedures.  
Maintenance procedures.  
Malfunction procedures.  
Available service parts.  
Possible combinations RF controls.  
Extensive technical data.

## 1 Safety instructions

- Always obey the safety regulations, warnings, comments and instructions given in this document. When the safety regulations, warnings, comments and instructions in this document are not obeyed personal injury or damage to the unit can occur.
- Always obey the general and locally applicable construction, safety and installation instructions of the local council, electricity and water boards or other agencies.
- The entire installation must comply with the applicable (safety) regulations as stated in:
  - Local EU Standard on safety provisions for low-voltage installations;
  - Manufacturer's assembly/installation manual.
- Always connect air ducts of at least 900 mm to the unit before you connect power to the unit. This ensures the motor cannot be touched while the unit is active.
- Do not turn on the power of the unit until the complete mechanical installation is finished. After installation all parts that can cause personal injury are secured inside the casing. Tools are required to open the casing.
- The installation, commissioning and maintenance must be carried out by a certified engineer unless the instructions state otherwise. A non-certified engineer can be personally injured or damage the performance of the ventilation system.
- Do not modify the unit or the specifications given in this document. A modification can cause personal injury or damage the performance of the ventilation system.
- Always disconnect all poles of the power supply to the unit and optional connected ComfoSplitter before you start working on the ventilation system. The unit can cause personal injury when it is open while running. Make sure the unit cannot switch back on by accident.
- Only install a post-heater with a SELV (Safety Extra Low Voltage) 0-10V connection with its own temperature safety control.
- If the power supply cord is damaged, it must be replaced with the original cord by the manufacturer, its service agent or similarly qualified persons in order to prevent accidents.
- Always take ESD protective measures when you work with electronics, such as wearing an antistatic wristband. Static electricity can cause damage to the electronics.

## 2 Installation conditions

- Always install the equipment according to the latest regulations for installation of your country.
- Install the unit on a 230V~ 50Hz mains connection. Any other power connection will damage the unit.
- The unit is designed for residential use. The unit is not made for industrial use, such as swimming pools or saunas. Installation in an industrial environment can damage the unit.
- Check if the installation area will remain in the permitted temperature range throughout the year. You can find the permitted temperature range in the chapter “Technical specifications”.
- It is recommended not to install the unit in areas with a higher than average humidity (such as bathroom or w.c.). This will prevent condensation on the outside of the unit.
- Check if the temperature of the moved air will remain in the permitted temperature range throughout the year. You can find the permitted temperature of the moved air in the chapter “Technical specifications”.
- Check if the electrical installation is suitable for the maximum power of the unit. You can find the maximum power values in the chapter “Technical specifications”.
- Check if the electrical installation is suitable for the maximum power of the desired optional ancillaries. You can find the technical specifications of the desired optional ancillaries in their associated manuals.
- Check if the installation area of the unit has sufficient room for the following:
  - The unit (no additional room needed on the side)
  - Carrying out maintenance activities in front of the unit (at least 1m);
  - The condensation drain below the unit (optional);
  - The air duct system including sound attenuators;
  - The wiring for an external wired controller (optional);
  - The desired optional ancillaries and when needed its easily accessible electrical power connection;
  - The easily accessible electrical power connection of the unit. You can find the length of the power cable in the chapter “Technical specifications”.
- Within a distance of 1 metre or at most the length of the fixed (or supplied) power cable (both 3-core and 5-core), an earthed wall outlet must be available.
- Always use the fixed (or supplied) power cable (both 3-core and 5-core).
- For safety reasons, do not use an extension cable.








## 3 Transport and unpacking

You can find the permitted transport and storage temperature in the chapter “Technical specifications”.

Transport and unpack the unit with care. Discard the packing material in an environmentally friendly manner.

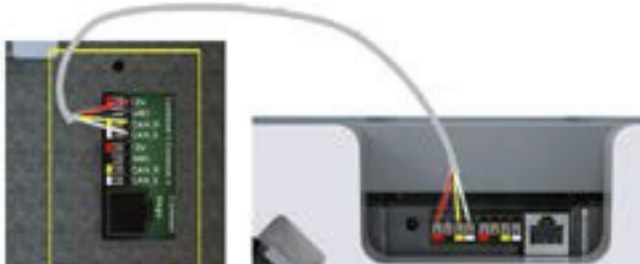
### Checking the delivery

Speak to your supplier immediately in case of damage or an incomplete delivery. The delivery should at least include:

Appearance example	Name
	The unit Check the identification plate to ensure that it is the correct type
	Mounting bracket
	Condensation drain set  Unit with standard heat exchanger: <ul style="list-style-type: none"> <li>■ Condensation drain adapter 32mm pipe;</li> <li>■ Condensation drain adapter 1/4" thread pipe;</li> <li>■ Condensation drain sealing cap.</li> </ul> Unit with enthalpy exchanger: <ul style="list-style-type: none"> <li>■ 2 condensation drain sealing caps.</li> </ul>
	Power cord
	Documentation
	Dust cover   <b>Only remove the dust cover just before you install the air ducts.</b>

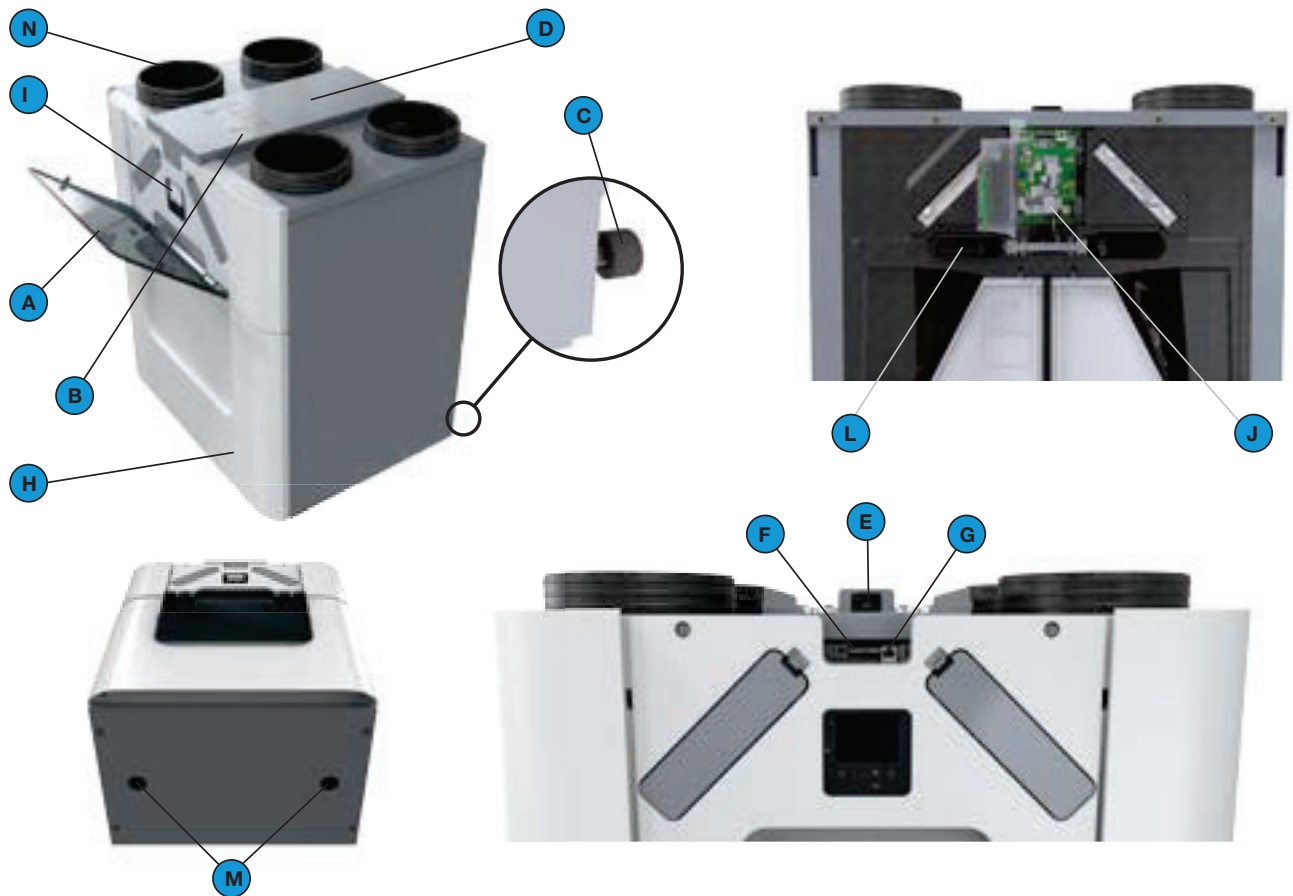
Information found on the identification plate	
Suffix	Meaning
ComfoAir	Product family name.
Q	Product type name.
350	Maximum air volume of 350 m <sup>3</sup> /h.
450	Maximum air volume of 450 m <sup>3</sup> /h.
600	Maximum air volume of 600 m <sup>3</sup> /h.
GB	Country code of the unit.
R	The unit has been set with the supply and extract air on the right side as default.
L	The unit has been set with the supply and extract air on the left side as default.
ST	The unit has four fixed air connections.
PH	The unit has a pre-heater installed as default.
ERV	The unit has an enthalpy exchanger installed as default.

## 4 Technical specifications


	Q 350		Q 450		Q 600	
<b>Performance</b>						
Minimal airflow when pre-heater is off	75 m <sup>3</sup> /h		75 m <sup>3</sup> /h		75 m <sup>3</sup> /h	
Minimal airflow when pre-heater is on	100 m <sup>3</sup> /h		100 m <sup>3</sup> /h		100 m <sup>3</sup> /h	
Maximal airflow	350 m <sup>3</sup> /h		450 m <sup>3</sup> /h		600 m <sup>3</sup> /h	
Thermal Efficiency (According to EN 13141-7:2010)	92%		90%		89%	
<b>Electrical data</b>						
Maximal power including pre-heater (At -15°C and max airflow)	1850W	10.00A	2240W	10.80A	2620W	12.70A
Maximal power excluding pre-heater	180W	1.42A	250W	1.98A	350W	2.77A
Power Supply	230V±10%, single phase, 50Hz, 2.5m					
Cos φ	0.36 - 0.54		0.32 - 0.57		0.4 - 0.62	
Internal fuse	F5010 (10A)		F5015 (16A)		F5015 (16A)	
<b>Connection data</b>						
Air connection size (Ø)	Inside: 160 mm Outside: 190 mm		Inside: 180 mm Outside: 200 mm		Inside: 180 mm Outside: 200 mm	
Condensation drain size (Ø)	Pipe version: 32 mm Thread version: 1¼"					
<b>ComfoNet data</b>						
Maximal power	400mA@12V					
Maximal non powered devices	4					
Cable type	2x unshielded twisted pair, stiff (solid) wires 0,6 mm <sup>2</sup> (max 50 m)					
Colour code	12V: red GND: black CAN_H: yellow CAN_L: white					
						
<b>Material specifications</b>						
Housing	Coated Sheet Steel					
Interior	EPP and ABS					
Heat Exchanger	Polystyrene					
Enthalpy Exchanger	Polyethylene-polyether-copolymer					
<b>General</b>						
IP classification	IP40					
ISO classification	B					
Temperature range during transport and storage	-40°C up to +60°C					
Temperature range moved air	-20°C up to +60°C					
Temperature range installation area	0°C up to 45°C					
Relative air humidity installation area	<90%; non-condensing					
Weight	50 kg					

Filter type	Remarks
Iso Coarse / ISO ePM1	ISO 16890 compliant

## 4.1 Unit configuration

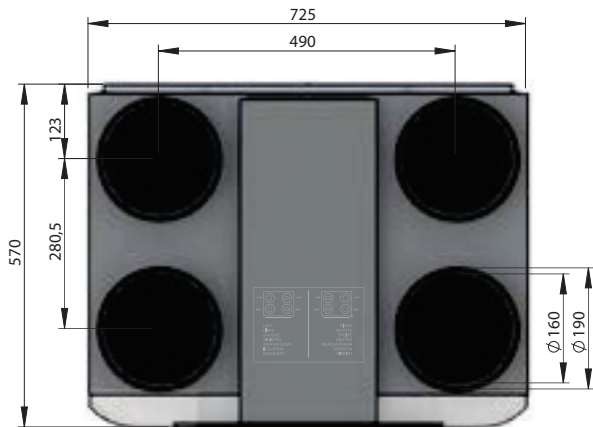


Position	Part
A	Semi-transparent visor for access to the display and the filter caps.
B	Engraving of the air connections on the cable tray cover.
C	2 level adjusters.
D	Cable tray cover for cover and protection of the connected cables.
E	Mains power connection and identification plate detailing information on the unit (not visible).
F	2 ComfoNet plug-in connections.
G	ComfoNet RJ45 connection.
H	Front cover for an air tightseal.
I	Display behind a display cover to operate the unit.
J	Main board behind the display cover.
K	RF PCB on the main board
L	Pre-heater for frost protection. (optional; standard in unit version "VV" )
M	2 condensation drains to drain the condensation of the warm extract air.
N	4 connections for the air ducts.

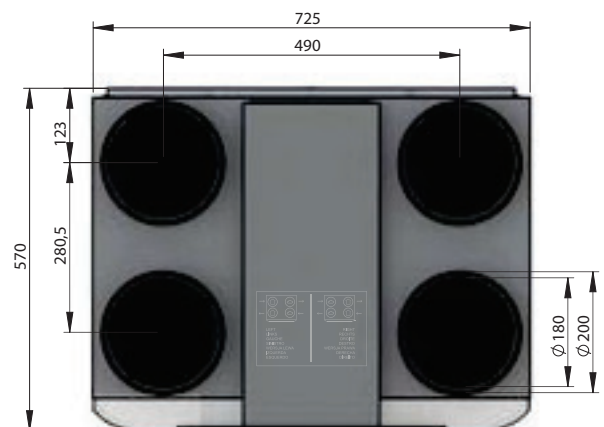
 The available service parts can be ordered as a special service set from Zehnder. Each set will be supplied with its own service instruction explaining how to replace the part. Please contact your local representative, details of which can be found on the final page, for the article codes and prices of all available sets.



## 4.2 Dimension sketch



**ComfoAir Q 350**



**ComfoAir Q 450 / ComfoAir Q 600**

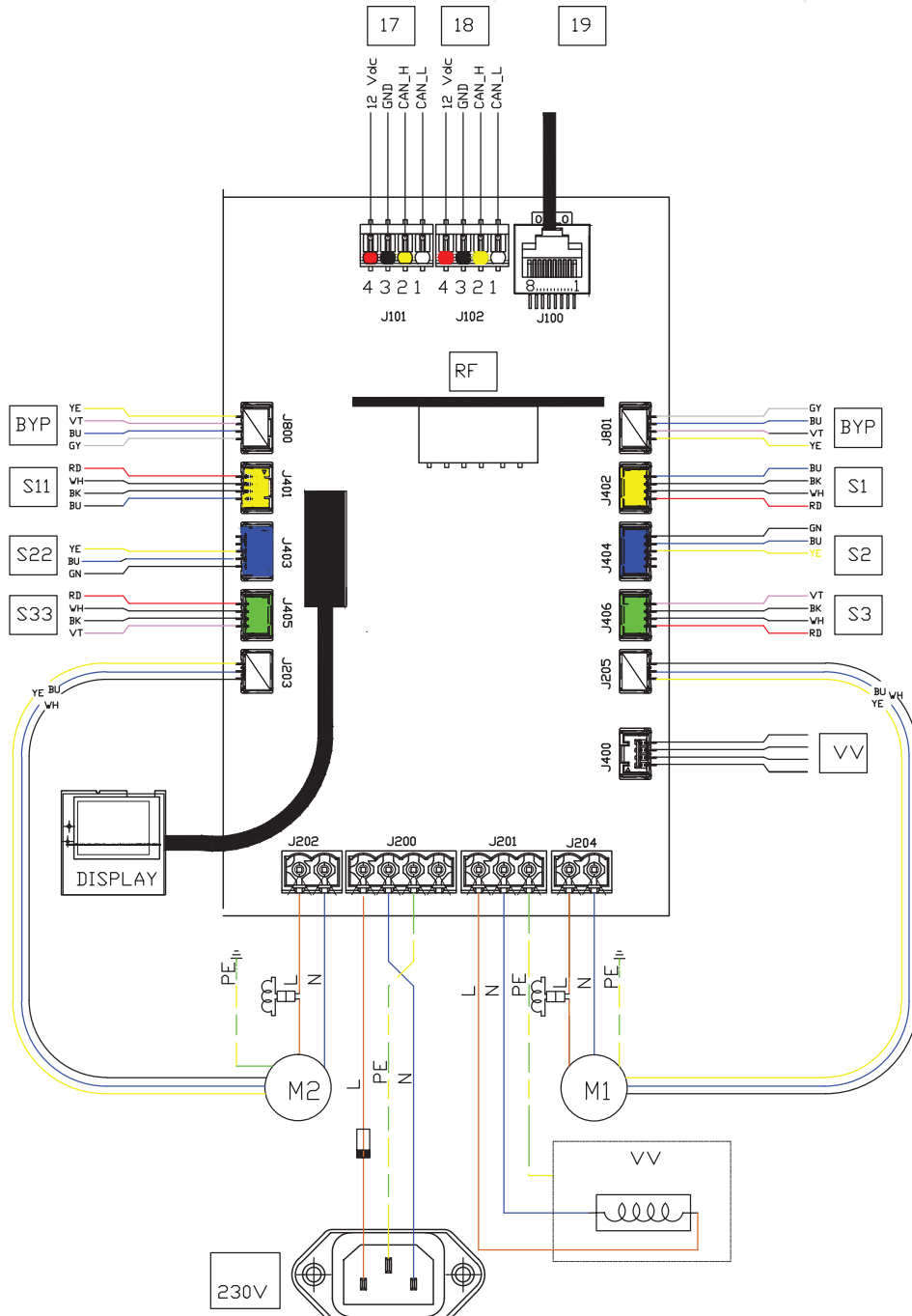


### 4.3 Wiring diagram main board

**⚠ If the power supply cord is damaged, it must be replaced with the original cord by the manufacturer, its service agent or similarly qualified persons in order to prevent accidents.**

#### Legend

Code	Meaning	Meaning	
		Orientation: Right	Orientation: Left
PE	Green / Yellow	DISPLAY	Display screen
N / BU	Blue	RF	Not applicable
L / BK	Brown or Black	VV	Pre-heater
WH	White	BYP	Modulating by-pass actuator
RD	Red	M1	Exhaust motor
GN	Green	M2	Supply motor
YE	Yellow	S1	Sensor outdoor air
GY	Grey	S2	Exhaust air pressure sensor
VT	Violet	S3	Sensor supply air
17 / 18	ComfoNet plug-in	S11	Sensor extract air
19	Not applicable	S22	Supply air pressure sensor
		S33	Sensor exhaust air

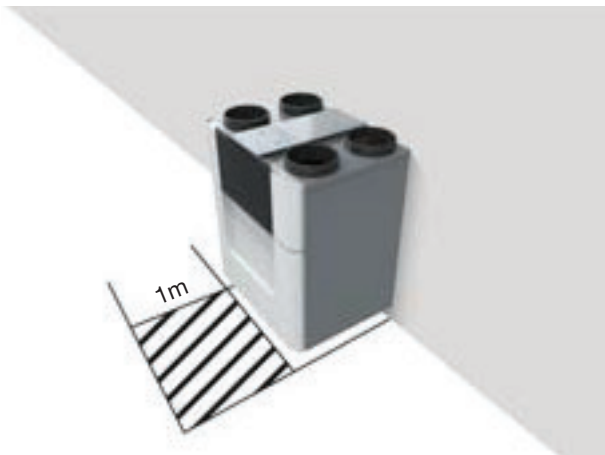


**⚠ Unplug the unit from the wall outlet to disconnect it from the power supply. If the unit does not have a plug, use a switch according to EN 60335-1 (with switch-off of all poles and 3 mm overvoltage category III).**

## 5 Installation procedures

**⚠ Do not turn on the power of the unit or optionally connected ComfoSplitter until the complete mechanical installation is finished. After installation all parts that can cause personal injury are secured inside the casing. Tools are required to open the casing.**

### Access for maintenance



Be aware of electromagnetic interference (EMC) during installation.

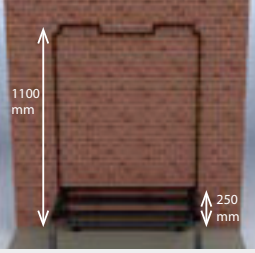

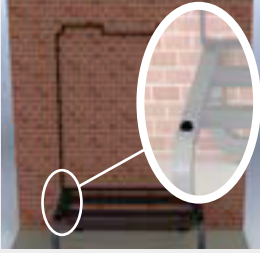
- Within a distance of 1 metre or at most the length of the fixed (or supplied) power cable (both 3-core and 5-core), an earthed wall outlet must be available.
- Always use the fixed (or supplied) power cable (both 3-core and 5-core).
- For safety reasons, do not use an extension cable.
- Make sure there is a barrier (e.g. separate channel or compartment) or minimum distance of 150 mm between power cables (e.g. 230V) and cables susceptible to interference (e.g. control, low voltage, interface, LAN, digital or analog signal).
- If interfering power cables and cables susceptible to interference need to intersect each other, make sure that this occurs perpendicularly.

These measures will minimise the EMC disturbance as much as possible and will provide the best communication.

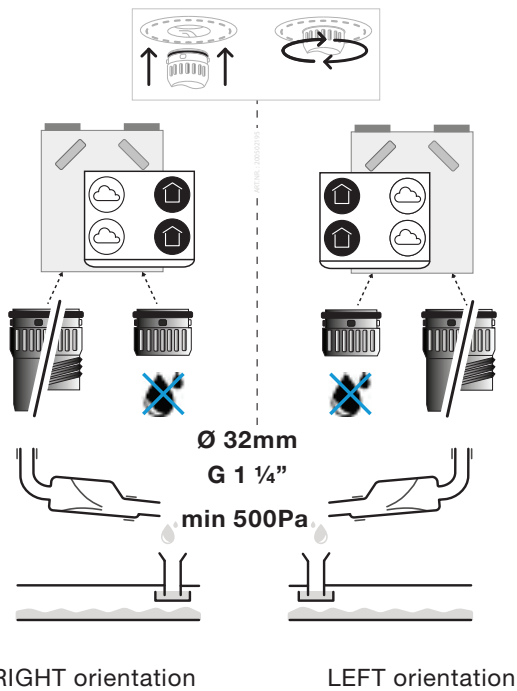
## 5.1 Installation on the wall

	<p><b>1</b></p> 	<p><b>2</b></p> 
<p><b>!</b> <b>Install the unit against a wall with a minimum mass of 200 kg/m<sup>2</sup>.</b></p> <p>The given height is an indication. The selected type of condensation drain will determine the exact height.</p>	<p>Attach the mounting bracket to the wall.</p> <ul style="list-style-type: none"> <li>■ Make sure the openings on the bracket are on the top;</li> <li>■ Make sure the bracket is level.</li> </ul>	<p>Hang the unit on the mounting bracket fixed to the wall.</p> <ul style="list-style-type: none"> <li>■ For Zehnder ComfoPipe Plus air ducts: use opening 1;</li> <li>■ For all other air ducts: use opening 2.</li> </ul>
<p><b>3</b></p> 	<p><b>4</b></p> 	<p><b>5</b></p> 
<p>Level the unit using the level adjusters.</p>	<p>Open the semi-transparent visor.</p>	<p>Pull the cable tray cover forwards.</p>
<p><b>6</b></p> <p>Example ancillaries</p> 	<p><b>7</b></p> <p>Example siphon</p> 	<p><b>8</b></p> <p>Example air duct</p> 
<p>Install the necessary ancillaries as instructed in their associated manuals.</p>	<p>Install the siphon to the bottom of the unit as instructed in the chapter "Installation of the condensation drain".</p>	<p>Install the air ducts to the unit as instructed in the installation chapter "Installation of the air ducts".</p> <p><b>!</b> <b>Only remove the dust cover just before you install the air ducts.</b></p>
<p><b>9</b></p> <p>Example valve Example grille</p> 	<p><b>10</b></p> 	<p><b>11</b></p> 
<p>Install the valves and grilles as instructed in the installation section of the valves and grilles.</p>	<p>Connect the power supply to the unit. Install all parts back in reverse order.</p>	<p>Commission the unit as instructed in the Service manual.</p> <p><b>!</b> <b>Run the first part (basic configuration) of the commissioning wizard immediately after turning on the power. These settings are necessary to protect the unit from frost and water damage.</b></p>

## 5.2 Installation on the floor

	<p><b>1</b> Example of instruction</p> 	<p><b>2</b></p> 
<p>Use a Zehnder mounting frame on the floor (available as an optional extra) for walls with a mass of less than 200 kg/m<sup>2</sup>. This will reduce contact noise as much as possible.</p>	<p>Install the mounting frame as instructed in its installation instructions.</p>	<p>Place the unit on the mounting frame.  <b>■</b> Make sure the unit is locked in place.</p>
<p><b>3</b> Continue at step 4 of the installation on the wall procedure.</p>		

## 5.3 Installation of the condensation drain



The condensation created by the unit must be drained off frost-free, at a gradient and incorporate an air seal. To drain the condensation from the unit, two Zehnder bayonet connections are located on the bottom of the unit. These connections are not airtight. Thus it is necessary to close off these connections with the separately delivered sealing cap(s) or with a dry siphon.

**!** Do not install a water lock (U-bend) on to the unit. On warm days the water can evaporate from the siphon.


### Enthalpy exchanger installed

When the unit is fitted with an enthalpy exchanger the humidity from the extracted air is partly transferred to the fresh supply air. In this case there is no condensate that must be drained from the unit. Thus a dry siphon is not necessary with an enthalpy exchanger.

When no dry siphon is installed, seal off both Zehnder bayonet connections with the separately delivered condensation drain sealing caps. The unit is not airtight if these connections are left open.

**☞** When desired you can always connect a dry siphon to any Zehnder bayonet connection.

1. Connect the supplied condensate drain sealing cap on the Zehnder bayonet connection to the supply / extract air side of the unit.  
(Left orientation = left side;  
Right orientation = right side).
2. Connect one of the supplied condensate drain adapters (or second condensate drain sealing cap) on the Zehnder bayonet connection on the outside / exhaust air side of the unit  
(Left orientation = right side;  
Right orientation = left side).
3. Connect a dry siphon to the condensate drain adapter. Please take into account the following issues:
  - The supplied condensate drain adapters are:
    - one smooth pipe with a diameter of 32 mm;
    - one threaded pipe with a diameter of 1 1/4".
  - Zehnder recommends using a sealing sleeve to make an airtight connection between the condensate drain pipe adapter. The condensate drain pipe adapter is not suitable for gluing.
  - Make sure the installed pipeline is never higher than the bottom of the unit.
  - Install a dry siphon suitable for negative (under) pressure of at least 500Pa. This will guarantee an airtight seal. When using a siphon with ball as a dry lock this can be achieved by placing a pipe or hose of at least 90mm between the dry lock and the Zehnder bayonet connection.
  - The dry siphon of the unit may not be connected directly to the domestic waste-water system. The dry siphon of the unit must have a free outlet to the siphon of the domestic waste-water system.


 **Make sure the water lock of the domestic waste-water system is always filled with water. This prevents sewer smells from entering the dwelling.**

## 5.4 Installation of the air ducts

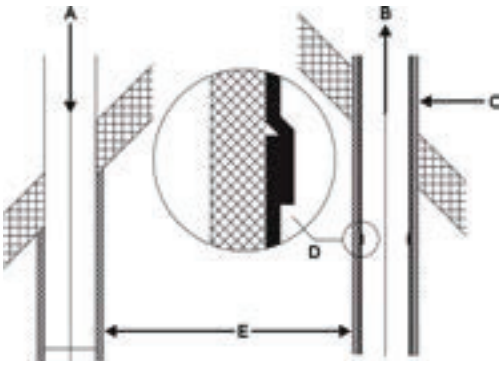


The unit can be installed with any standard non flexible air duct system or with a special Zehnder air duct system. When installing a Zehnder air duct system refer to its installation instructions first.

The next aspects must always be kept in mind during the installation of the air ducts:

 **Always connect air ducts of at least 900 mm to the unit before you connect the power to the unit. This ensures the motor cannot be touched while the unit is active.**

- Only remove the dust cover just before you install the air ducts.
- If necessary install a silencer directly onto the supply air and extract air connections and ensure it is straight.
- Do not install a flexible air duct system. These will disturb the basic operating principle of the balanced ventilation system. When a semi-rigid air duct system is desired only use a Zehnder approved system. Any other semi-rigid air duct will disturb the basic operating principle of the balanced ventilation system.

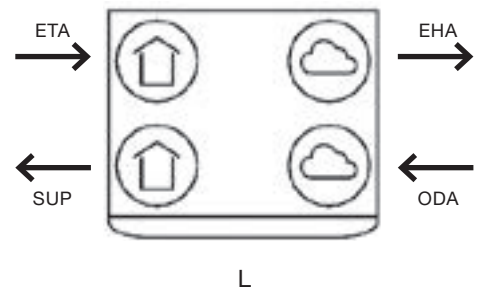
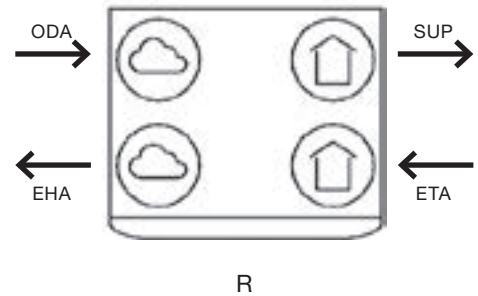


- The distance (E) between the opening of the outdoor air duct (A) and the opening of the exhaust air duct (B) must be at least 1.5 m.
- The position of the outdoor air opening (A) relative to other possible sources of stale air is very important (other exhaust-air outlets, street versus garden, etc.).
- Install thermal and vapour resistant insulation (C) to the exhaust air duct (B) from the unit to the end of the air duct.
- Install thermal and vapour resistant insulation to the outdoor air duct (A) from the unit up to the roof/wall. This prevents the formation of condensation on the outside of the ducts.
- Drain the exhaust duct (D) in the direction of the unit.
- Zehnder recommends that you fit thermal and vapour resistant insulation to the supply duct from the unit up to the supply valves and or grilles. This will prevent unnecessary temperature loss in the summer and winter.
- Make sure the inside of the air ducts do not have an obstruction of any sort. Air ducts must not have sharp bends, dents or long screws inside. Obstructions will compromise the performance and maintenance of the system.
- Install the air duct with as little air resistance as possible and free from air leakage.

Size	
350	160 mm
450	180 mm
600	200 mm

## Legend

Code	Meaning
ODA	Outdoor air
SUP	Supply air
ETA	Extract air
EHA	Exhaust air
R	Supply and extract air on the right side
L	Supply and extract air on the left side





## 5.5 Installation of the valves and/or grilles



Example valve

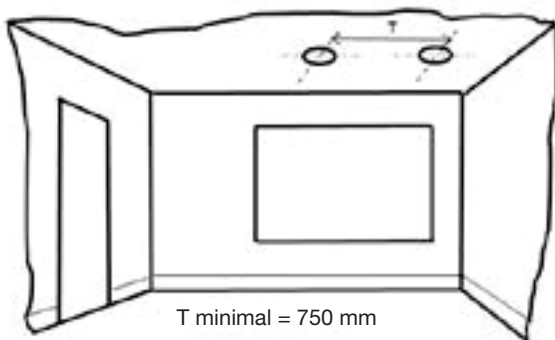


Example grille

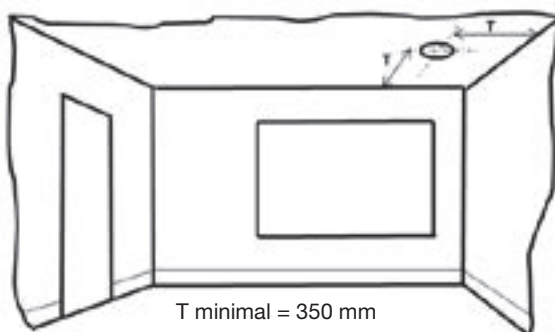
**!** Do not obstruct these openings. For instance with furniture, draught excluders or deep pile carpet, as the airflow in the house will stagnate.

For the best comfort it is recommended that you install the ventilation system with supply and extract valves made by Zehnder.

- Install supply and extract valves and/or supply and extract grilles (e.g. in an open living kitchen) at least 750 mm from each other. This will prevent the supply air short circuiting with the extract air;










- Install supply and extract valves and/or supply and extract grilles at least 350 mm from the wall, ceiling or floor next to it. If the valves and/or grilles are installed closer to the wall, ceiling or floor next to it use clean sector valves and/or grilles or an air blocker on the side of the wall, ceiling or floor next to it. This will keep the wall, ceiling or floor next to it clean;








- To ensure good transfer of air throughout the dwelling, there should be a grille or gap near the inside doors. This is equivalent to:
  - A gap under the inside doors of minimum area  $7600 \text{ mm}^2$  above the floor finish;
  - A gap under the inside doors of at least 10mm for a standard 760 mm width door.



## 6 Available operating devices

Appearance Example	Name	Remark
	Unit display	For manual and automatic control of the unit. The automatic control is based on the unit settings and adjustable scheduler.
	Zehnder ComfoSense C 67	You can connect the ComfoSense C directly to the unit via a ComfoNet connection.
	Zehnder ComfoSwitch C 67	You can connect the ComfoSwitch C directly to the unit via a ComfoNet connection.
	Zehnder ComfoControl App	The ComfoControl App is available for Android and IOS devices. An installed ComfoConnect LAN C is necessary to use the ComfoControl App.
	Zehnder Timer RF	A connected ComfoSense C is necessary to use the Timer RF.
	Zehnder CO <sub>2</sub> sensor	A connected option box is necessary to translate the signal from the CO <sub>2</sub> sensor.
	Bathroom switch	A connected option box is necessary to use the bathroom switch.

## 7 Optional ancillaries

Appearance Example	Name	Remark
	Zehnder ComfoSplitter	You can connect the ComfoSplitter directly to the unit via a ComfoNet connection.
	Zehnder ComfoConnect KNX C	You can connect a ComfoConnect KNX C directly to the unit via a ComfoNet connection.
	Zehnder ComfoConnect LAN C	You can connect a ComfoConnect LAN C directly to the unit via a ComfoNet connection. The Zehnder ComfoConnect LAN C is also available in a portable version for the service engineer. All required cables are supplied in the transport case.
	Zehnder ComfoCool Q600	You can connect the ComfoCool Q600 directly to the unit via a ComfoNet connection. You do need a separate power supply for the ComfoCool Q600.
	Zehnder Option box	You can connect the option box directly to the unit via a ComfoNet connection. You only need a separate power supply for the option box when you connect ancillaries to the option box which require a 230V supply from the option box.
	Zehnder ComfoFond-L Q	A connected option box is necessary to control the ComfoFond-L Q. You do need a separate power supply for the option box.
	Zehnder ComfoAir Q pre-heater	You can install the pre-heater on site into the unit.
	Post-heater	A connected option box is necessary to control the post-heater. You do need a separate power supply for the post-heater.  <b>⚠ Only install a post-heater with a SELV (Safety Extra Low Voltage) 0-10V connection and own temperature safety control.</b>
	External filter	A connected option box is necessary to use an external filter error sensor.
	Error contact / message	A connected option box is necessary to transmit an error signal.
	Standby switch	A connected option box is necessary to use the standby switch.
	Zehnder RF-PCB	You can install the RF-PCB on site into the unit.



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ventilation@zehnder.co.uk • www.zehnder.co.uk

The Zehnder logo is written in a bold, red, sans-serif font. The letters are slanted upwards from left to right, giving it a dynamic, curved appearance.