ComfoFond
Geothermal heat exchangers for whole house ventilation

For Eco Home Living
Continuous, efficient comfort for the health of both you and your home.

Zehnder Comfosystems offer a collection of indoor climate solutions which are suitable for every home. They are designed to provide efficient and economical comfort, supplying heating, cooling, ventilation and hot water, delivering comfort on every level whilst helping to reduce energy consumption for the homeowner.

**ComfoFond** ground source heat exchanger systems employ renewable energy sources to temper or cool supply air to your home when used with a whole house heat recovery ventilation system. This system provides benefits on several levels – to the environment, the building and the homeowner – by saving energy as well as providing an optimised indoor environment.

For Eco Home Living
ComfoFond – The Whole House System Explained

By integrating a ComfoFond ground source heat exchanger with whole house heat recovery ventilation, it is possible to create a comfortable and healthy environment which utilises energy derived from a renewable source – the heat that the earth retains from the input of the sun. At a depth of approximately one to one and a half metres, the temperature of the earth remains almost constant all year round at between 10 and 12°C. By utilising a system which has been designed to absorb this heat, you can either cool or warm air being supplied to your habitable rooms through your whole house ventilation system. Compatibility has been designed in ensuring that these two systems fit and work together easily to optimize the quality of ventilation in your home whilst minimising energy usage.

1. The induction system (dependent on the type of heat exchanger) draws fresh air in from outside the dwelling. This supply of air into the ComfoFond system will either come directly through a wall vent or via an air intake tower. The temperature of this fresh air is then modified (cooled or tempered depending on the season) by the temperature of the earth via either an earth-air heat exchanger (ComfoFond) or an earth-brine heat exchanger (ComfoFond L) which it passes through before entering the whole house ventilation system.

2. The Zehnder Comfosystems ComfoAir whole house heat recovery unit (CA350 or CA550) works to simultaneously extract moist and stale air from the wet rooms (kitchens and bathrooms) and supply fresh, filtered air to the habitable rooms of the house (bedrooms and living rooms). The ComfoAir unit recovers up to 90% of the, otherwise exhausted, heat from the extracted air and redistributes this heat in the supply air. A ‘summer bypass’ facility means that in the warmer months, the heat exchanger stops recovering heat from the exhausted air and redistributing it in the supply air, keeping the indoor temperature at a comfortable level. In addition, when used in conjunction with a ComfoFond system, this supply air will be further cooled as the earth temperature is lower than the air temperature in the summer months. During the winter, the reverse is the case when the earth temperature can be higher than the air temperature and used to temper supply air which will be further warmed by recovered heat from the exhaust air from kitchens and bathrooms.

3. The Zehnder ComfoFresh air distribution system is a comprehensive range of ducting and grilles designed to fit all Zehnder Comfosystems products. Its unique and innovative design ensures that system performance is optimised. ComfoFresh components allow fresh air to be delivered at the right temperature and flow rate to individual, habitable rooms in the dwelling.

4. ComfoFond L Installation – the earth-brine heat exchanger is simply connected to the ComfoAir whole house heat recovery ventilation unit on one side and connected to the ground loop (ground source heat exchanger) on the other side.

5. For use with the ComfoFond L/ComfoAir CA350 – PE pipe, DN 15, 60 linear metres for 250m³/hour airflow rate.
   For use with the ComfoFond L/ComfoAir CA550 – PE pipe, DN 20, 120 linear metres for 500m³/hour airflow rate.

6. For use with ComfoFond/ComfoAir 350 – ComfoTube 3 x 110 for 250m³/h For use with ComfoFond/ComfoAir 550 – ComfoTube 6 x 110 for 500m³/h
The Zehnder ComfoFond earth-air ground source heat exchanger uses the relatively constant annual temperature of the earth at a depth of one to one and a half metres. This ‘passive store’ remains at a temperature of 10 – 12°C all year round and can be used to temper air in winter months and cool air in summer months. An aesthetically designed air intake tower, like the one illustrated below, is connected to a buried ground loop. The intake tower draws air into the loop where its temperature is modified by that of the surrounding earth. This air is then filtered and passed to the inside of the dwelling via the whole house heat recovery ventilation unit.

In the spring, warm outdoor air can penetrate the, still cold, soil and the moisture held in the air can condense. It is important to ensure that a 2 – 3% gradient is created in the ground loop to allow this condensate to be collected. For this reason, the ComfoFond unit is only suitable for installation where these conditions can be satisfied (for example where the ComfoFond unit is housed below the surface of the earth in a basement) – where they cannot, we would recommend the use of the ComfoFond L.
# Benefits of a ComfoFond System

## Energy Efficiency

- Utilises energy derived from a renewable source – the sun's energy which has been stored in the soil.
- When coupled to a whole house heat recovery ventilation system, can also recover up to 90% of heat which would otherwise have been exhausted in air extracted from kitchens and bathrooms.
- Can provide a reduction in the amount of energy required to heat or cool your home when compared to standard market alternatives.
- Zehnder Comfosystems ComfoAir whole house heat recovery ventilation units are SAP Appendix Q Eligible which can help to reduce Dwelling Emission Rates (DER’s) in SAP for Building Regulation compliance.

## Health

- When used in conjunction with ComfoAir whole house heat recovery ventilation units, the system will improve the air quality in your home by:
  - Removing stale and moist air which can provide the ideal environment for allergens such as dust mites
  - Filtering supply air into the home and removing allergens such as pollen

## Comfort

- Provision of pre heated fresh, supply air in winter and pre cooled fresh, supply air in summer
- Continuous supply of fresh air.

## Simple to maintain

- Easy access from the air intake tower to the ground source heat exchanger for cleaning.
- Simple and fast filter replacement for the whole house heat recovery ventilation system.
- Simple and fast cleaning of the heat exchanger in the whole house heat recovery ventilation system.
Zehnder ComfoFond L Earth-brine Ground Source Heat Exchanger

Like the ComfoFond, the Zehnder ComfoFond L earth-brine ground source heat exchanger also uses the relatively constant annual temperature of the earth at a depth of one to one and a half metres. This 'passive store' remains at a temperature of 10 – 12°C all year round and can be used to temper air in winter months and cool air in summer months. A brine filled ground loop is buried one to one and a half metres below the surface of the ground. The temperature of this brine is then modified by the temperature of the surrounding earth. This brine loop is connected to the ComfoFond L which draws air in through an external wall. The heating/cooling energy of the brine loop is then passed to this air. This air is then filtered and passed to the inside of the dwelling via the whole house heat recovery ventilation unit.

The ComfoFond L is an easy to install ground source heat exchanger, which makes it suitable for a wide range of property types.
ComfoFond L Features

- Grade G4 dust filters
- Easy to fit and maintain
- When ground source heat exchanger used to pre-heat incoming air, can increase the efficiency of your heat exchanger by up to 5%
- Auto shutdown of brine pump should air and ground temperature be the same

ComfoFond Air intake tower Features

- Aesthetically designed, stainless steel air intake tower
- Easy to fit and maintain
- Passive product so does not require electrical input

ComfoFond L with CA350

ComfoFond L with CA550

Product Specification

<table>
<thead>
<tr>
<th>Case Size in mm (W x D x H)</th>
<th>587.5 x 516 x 705.5 (ComfoFond L for CA350) 589.5 x 516 x 705 (ComfoFond L for CA550)</th>
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<tbody>
<tr>
<td>Weight (kg)</td>
<td>25</td>
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<td>Spigot Size ID (mm)</td>
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<tr>
<td>Filters</td>
<td>G4</td>
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<tr>
<td>Condensate Drain ID (mm)</td>
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Electrical Specification

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<th>Wiring</th>
<th>230V – 50Hz Class I</th>
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<tr>
<td></td>
<td>Must comply with IEE or local wiring regulations</td>
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Zehnder Comfosystems
– Services and Support

Like our products, our support package is also fully integrated. We aim to weave together the requirements of both the homeowner and the installer throughout all elements of design, installation and after sales support to give you a service which exceeds your expectations.

Consultation, Design and Support
Our network of accredited partners undergo comprehensive training. This allows them to design effective and economical solutions in line with the Best Practice requirements for your build standard. By working with an accredited partner, you can be confident that you are dealing with people who understand the scope of the range and the technology and can give you added value.

Supply
Once your order has been placed, we will orchestrate the safe and timely supply of both your systems and ancillaries to site taking into account the needs of both the build plan and the installer.

Approved Installer Scheme
Our network of installers undergo rigorous training in order to attain their ‘Approved Installer’ status. By using someone with this status, you can be confident in the quality of the installation, ensuring that performance is optimised and as per the specification.

Onsite Support for Installers
As well as developing comprehensive and easy to follow instructions, we are available to come to site to support installers and ensure that it gets done right first time. This can extend to commissioning the systems so we can ensure that they deliver on both performance and comfort.

Post Installation Support
If, for any reason, you encounter a problem with your installation, we are available to offer advice and support whether this is over the telephone or face to face.

There is no 'one size fits all' solution. We treat everything as an individual project and make sure that it is fully tailored to a suit a household’s requirements. It is not our aim to just be a supplier of parts, but a provider of integrated systems... For Eco Home Living.

Zehnder Group
Based in Switzerland and with over 100 years experience in the production of radiators and 40 years in ventilation technology, Zehnder is a complete solution provider for heating cooling and fresh air around Europe. Today, Zehnder has factories on three continents and manufactures to the highest standards to ensure quality, comfort and satisfaction for all of its customers.