

# Zehnder ComfoFond-L Q

Technical specification for brine-earth heat exchangers



## Advantages

The Zehnder ComfoFond-L Q brine-earth heat exchanger has been developed for use in conjunction with the Zehnder ComfoAir Q350/450/600 comfort ventilation units. It combines the highest comfort with a very high level of efficiency in a compact installation. In winter, when the outdoor temperatures are low, it pre-heats the outdoor air to prevent freezing. This ensures optimum operation of the ComfoAir Q ventilation unit, even at outdoor temperatures below freezing. In summer, the ComfoFond-L Q sub-soil heat exchanger lowers the temperature of the outdoor air, and helps to support a conventional air-conditioning system.



Zehnder ComfoAir Q with  
ComfoFond-L Q

## Technical specifications

Zehnder ComfoFond-L Q	
Height (mm) *	760
Width (mm) *	480
Depth (mm) *	570
Weight ComfoFond-L Q TR	46 kg
Weight ComfoFond-L Q ST	47 kg
Outdoor air connection (mm)	180
Condensate drain	1¼ inch external thread with 32 mm adapter
Brine connection	DN 20 external thread
Operating temperature	-22 °C to +45 °C
Supply voltage	220/230 V AC, 50/60 Hz, 1-phase
Protection class	IP 44
Minimum power consumption	0.06 A
Maximum power consumption	0.58 A
Minimum power consumption	5 W
Maximum power consumption	70 W
Operating pressure	1.5 bar
Fluid volume	5 litres (excl. ground collector contents)

\*(Housing dimensions without connectors)

## Benefits

- Energy saving due to use of renewable energy from the ground
- Maximum comfort due to pre-heating of outdoor air in winter using geothermal energy and temperature control of outdoor air in summer and winter for a comfortable indoor climate.
- Compact, quick installation directly adjacent to the ventilation unit
- Simple and sustainable use of geothermal energy with a low power consumption
- Brine pump with energy efficiency class A
- Air exchange in spite of low outdoor temperatures

## Article numbers

TR = ComfoFond-L for ComfoAir Q350 /450 TR

ST= ComfoFond-L for ComfoAir Q600 ST

Description	Article number
ComfoFond-L Q L TR	471 310 082
ComfoFond-L Q R TR	471 310 083
ComfoFond-L Q L ST	471 310 084
ComfoFond-L Q R ST	471 310 085
ComfoFond-L Q TR floor stand	471 310 086
ComfoFond-L Q ST floor stand	471 310 087
ComfoAir Q350/450/600 Option Box	471 502 007
Dry siphon 5/4"	990 201 330
G4 filter for ComfoFond-L Q	400 100 066

## Equipment

- Brine pump energy efficiency A rated
- Safety valve: 3 bar
- Automatic air vent
- Filling and flushing system
- Expansion vessel: 2 litres
- Manometer: 0 to 10 bar
- Connection pipe of pump and temperature sensor
- DN 20 external thread connections for the brine pipes

## Tender specification

**Zehnder ComfoFond-L Q brine-earth heat exchanger** suitable for ComfoAir Q350/450/600 comfort ventilation units.

In winter, the ComfoFond-L Q preheats the outdoor air before it enters the ventilation unit; in summer, it cools and dehumidifies the outdoor air. It is used as an extension option to the ComfoAir Q comfort ventilation unit, and can be installed compactly directly adjacent to the comfort ventilation unit.

All necessary hydraulic components are included in the scope of delivery, such as the circulation pump, expansion tank, filling and flushing system, manometer and a safety valve. All components are pre-installed in the housing of the ComfoFond-L Q. The ground collector pipe/ground loop connection with wall duct as well as brine fill are not in the scope of delivery.

The upstream G4 filter protects the heat exchanger against contamination, meaning that it can replace the outdoor air filter in the ventilation unit. It can also be combined with a pollen filter in the ventilation unit.

The brine-earth heat exchanger is activated and controlled directly by the control unit of the Zehnder ComfoAir Q comfort ventilation unit.

## Filters

The ComfoFond-L Q brine-earth heat exchanger is equipped with a filter insert as standard. A class G4 coarse dust filter is included in the scope of delivery. Optionally, the filter can be combined with a pollen filter in the ventilation unit.

## Installation

The ComfoFond-L Q is characterised by its compact installation directly adjacent to the ventilation unit.

The connections for the outdoor air and the brine lines are arranged on the side. In a comfort ventilation unit with the connections for the supply air and extract air on the left, the ComfoFond-L Q is installed on the right next to the ventilation unit.

In comfort ventilation units with the supply and extract air connections on the right, installation is on the left correspondingly.

It can be wall-mounted or floor-mounted using the optionally available floor stands. If the specific wall mass is 200 kg/m<sup>2</sup> or less, the ComfoFond-L Q must be installed on the floor.

The condensate drain of the ComfoFond-L Q can be connected to the wastewater network via a dry siphon on site and a free drain.

## Operation

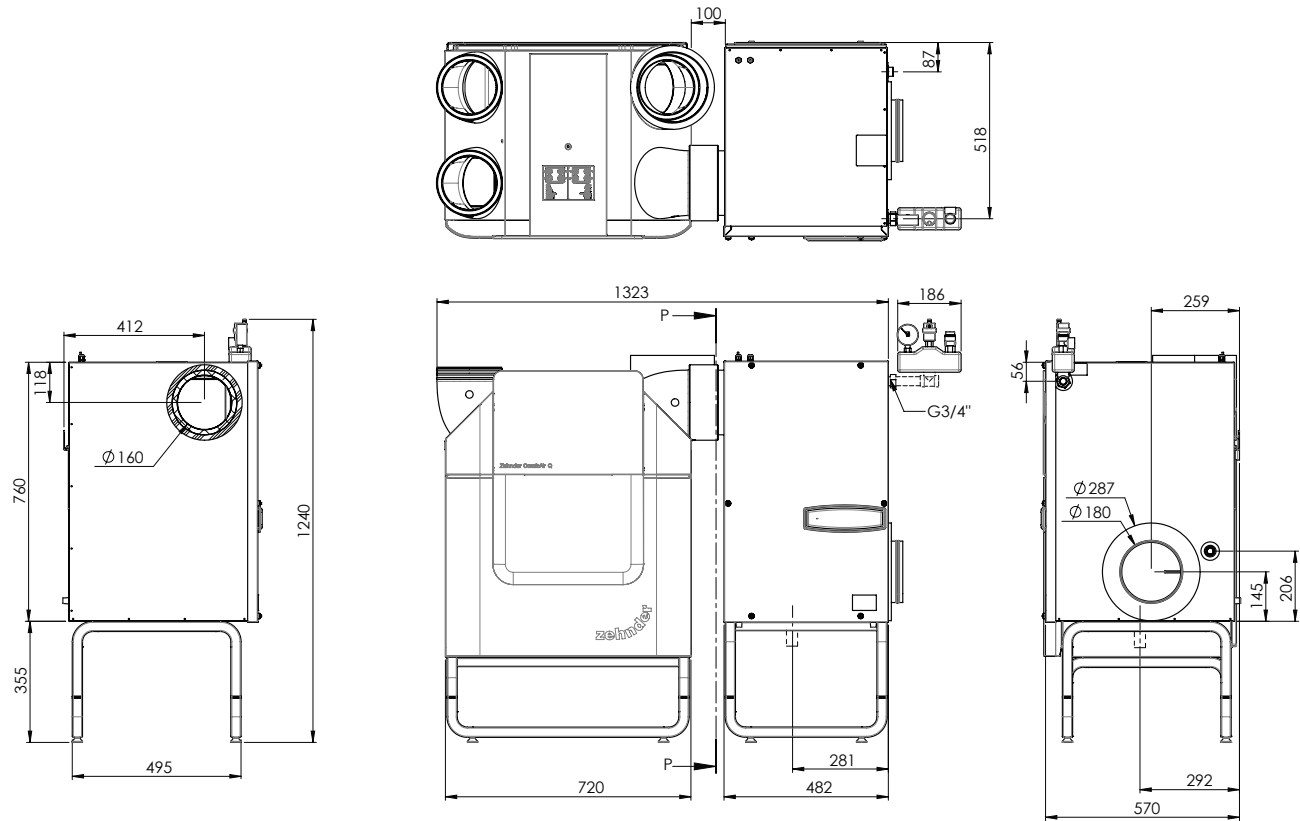
The ComfoFond-L Q is controlled via the electronics of the connected Option Box of the ComfoAir Q comfort ventilation unit. Lower and upper activation points are set, controlling the preheating and tempering functions.

## Maintenance

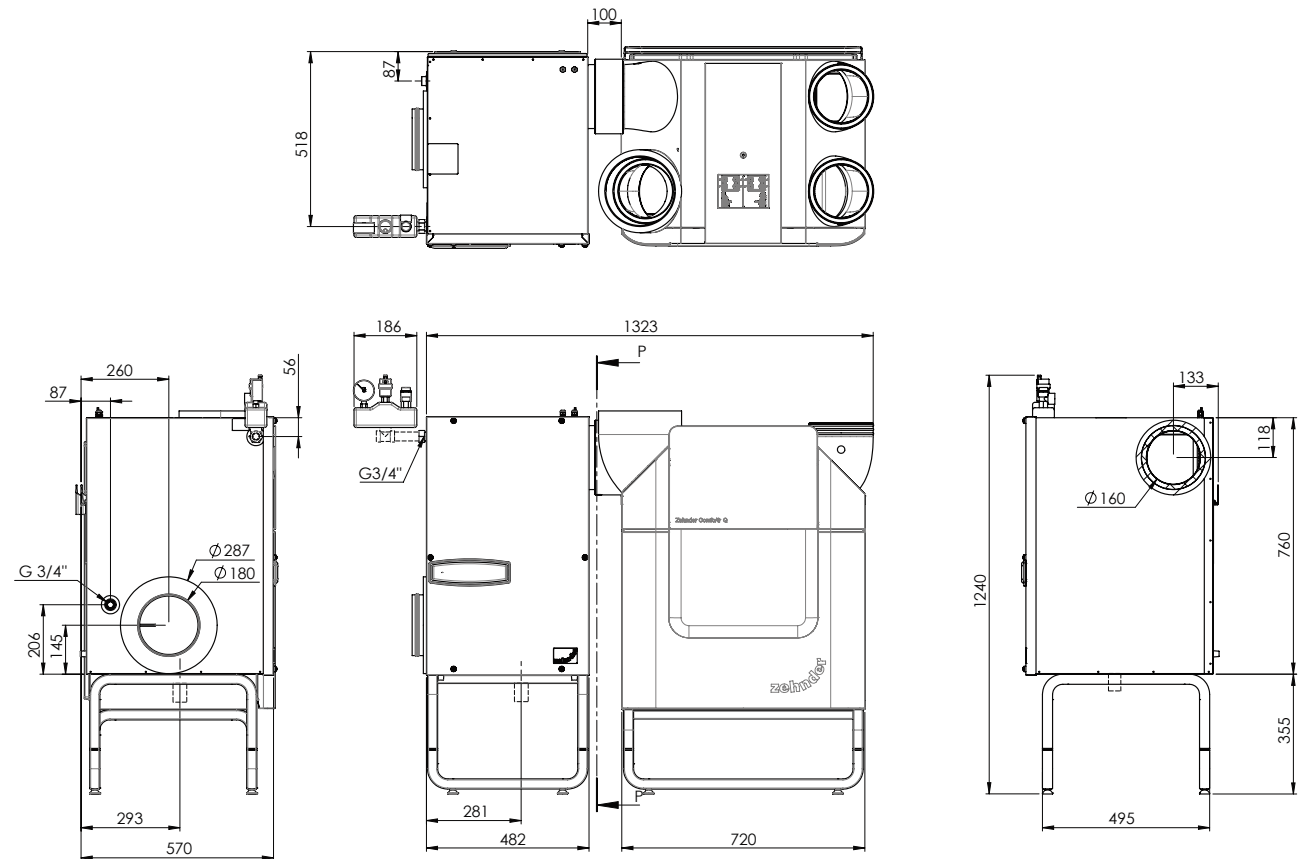
The only maintenance that the user needs to perform on the ComfoFond-L Q is to change the filters every six months, and to check the brine pressure. A specialist company should perform maintenance at regular intervals. This should involve cleaning the heat exchanger and the surfaces that come into contact with the air, leak tests in the hydraulic components and checking the function of the complete system. Please see the manual for additional servicing tasks.

## Dimensional drawings

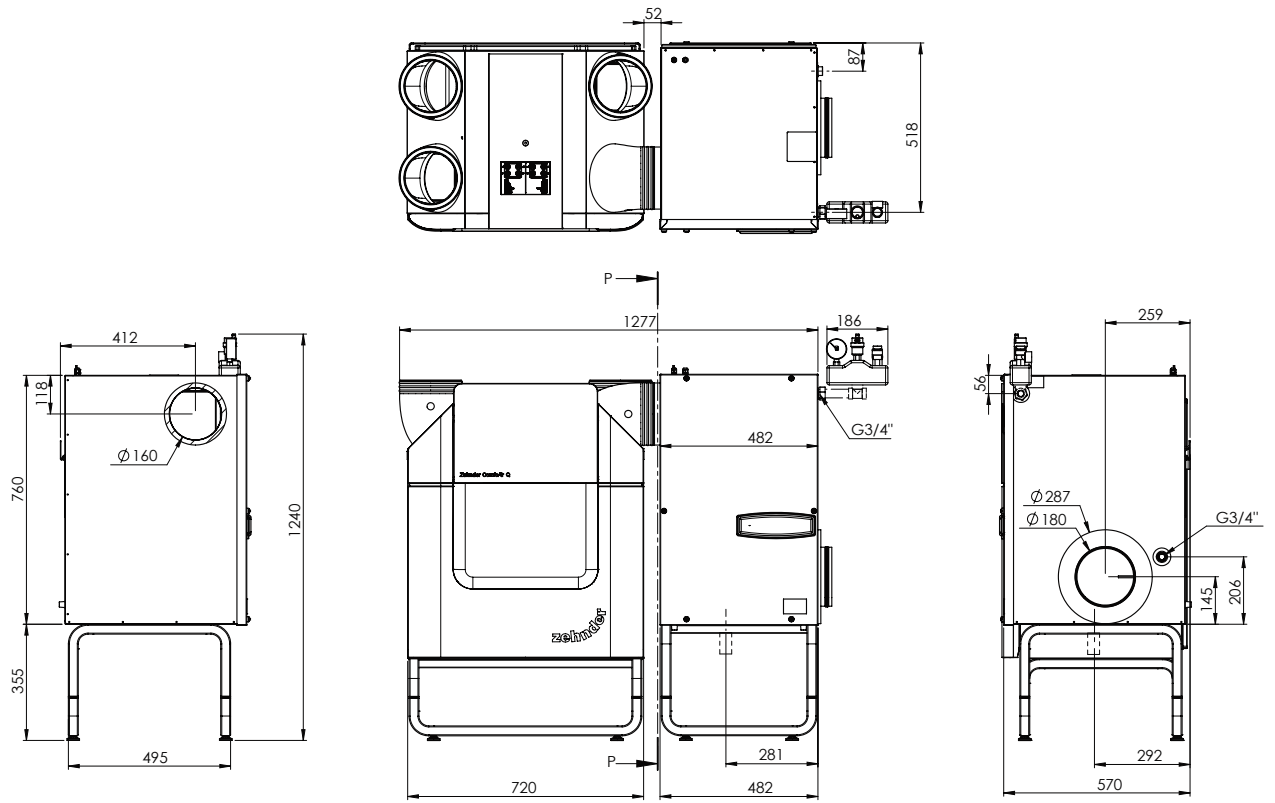
### ComfoFond-L Q L TR with ComfoPipe Plus



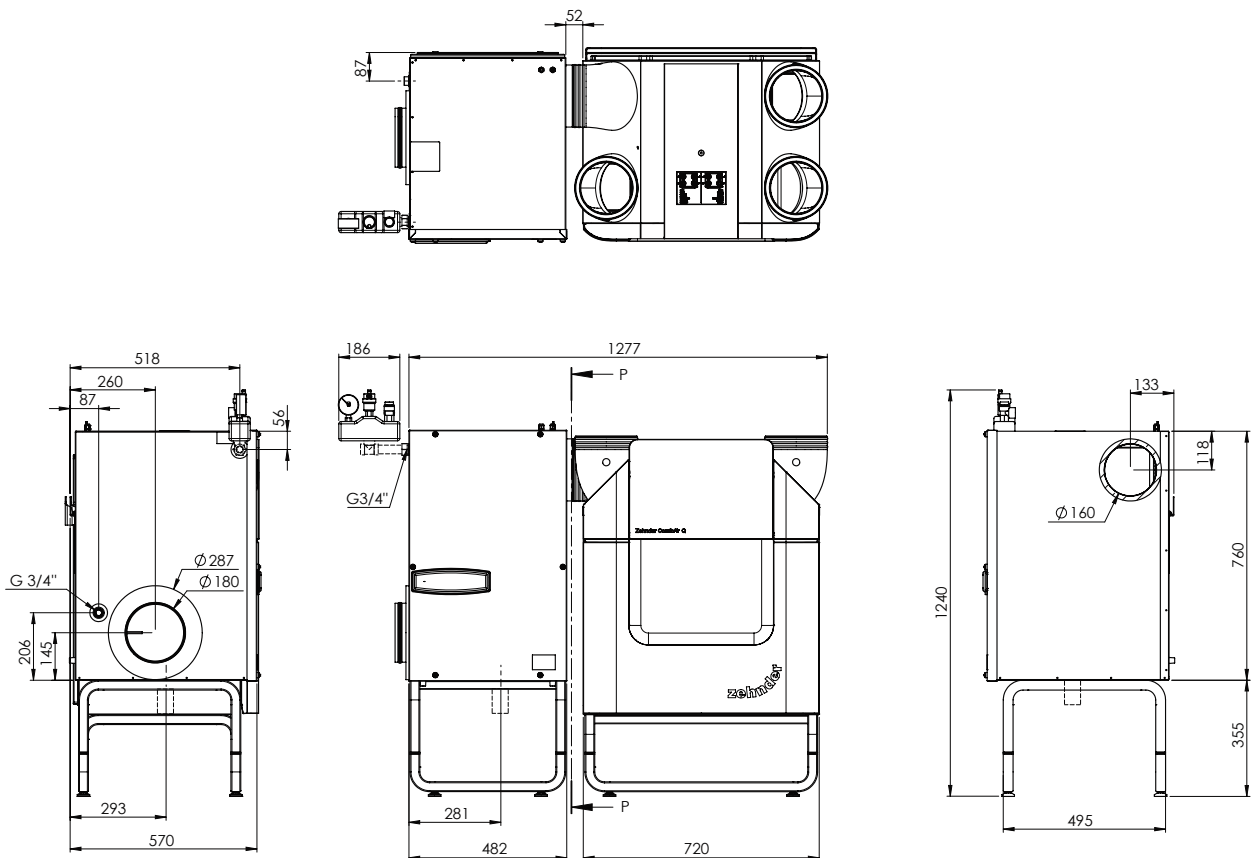
### ComfoFond-L Q R TR with ComfoPipe Plus



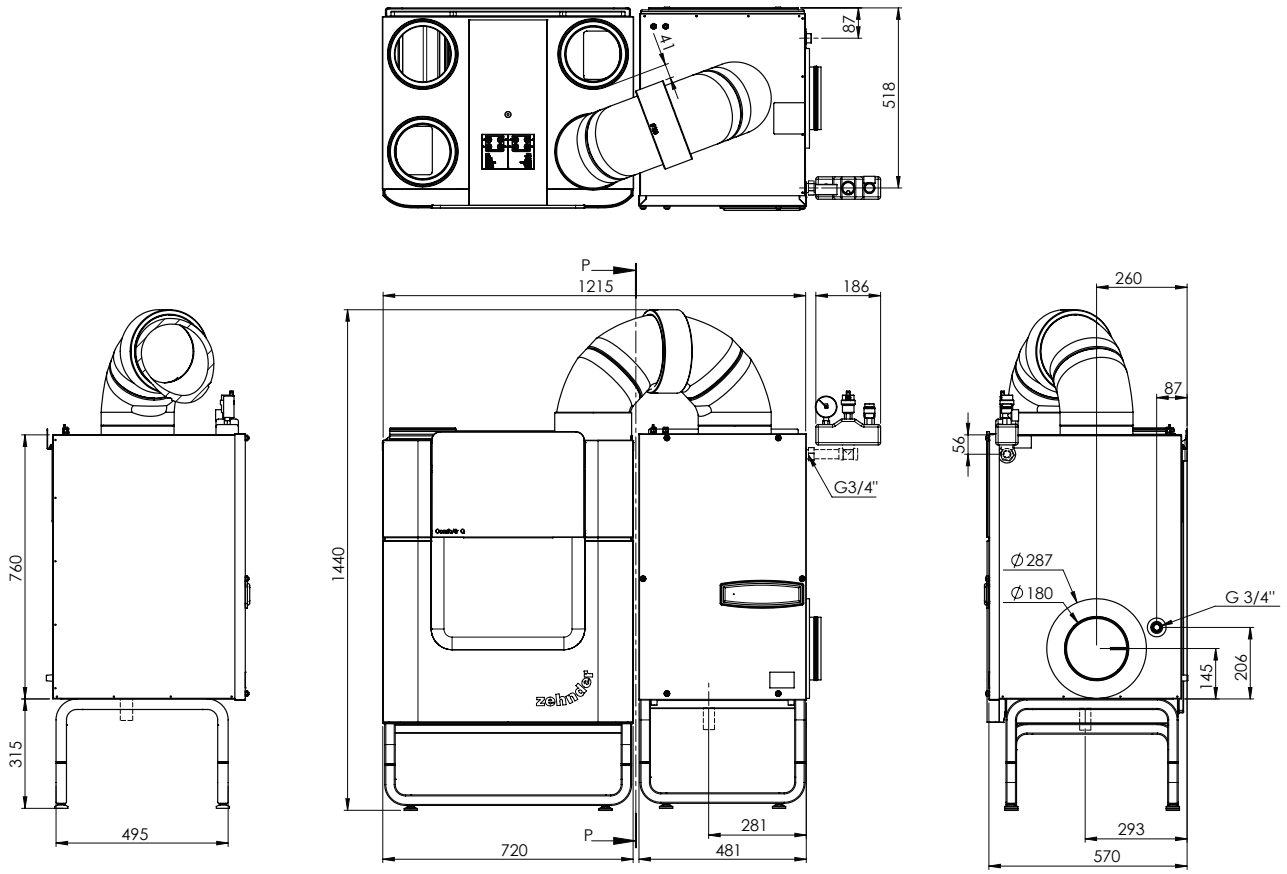
**ComfoFond-L Q L TR**



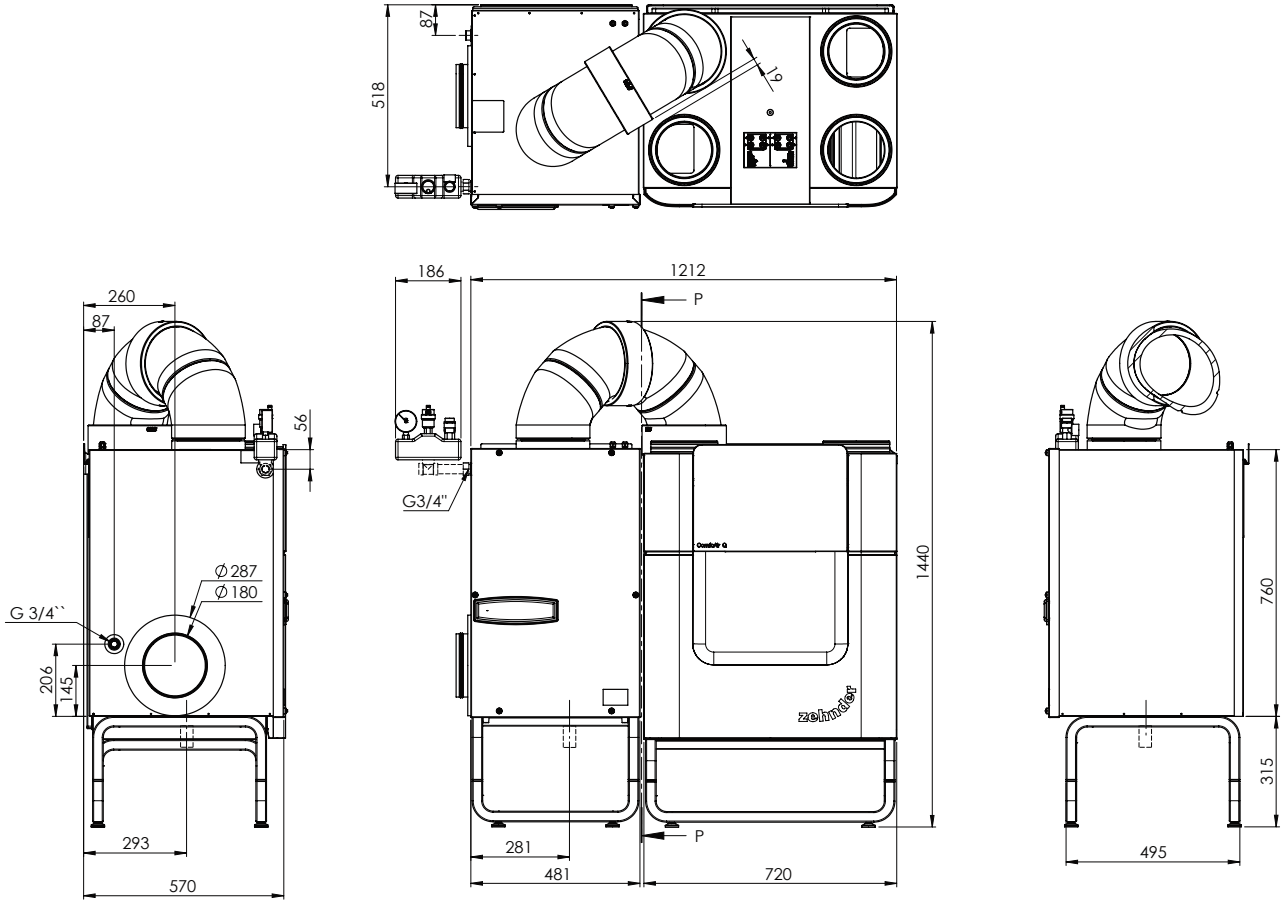
**ComfoFond-L Q R TR**



ComfoFond-L Q L ST

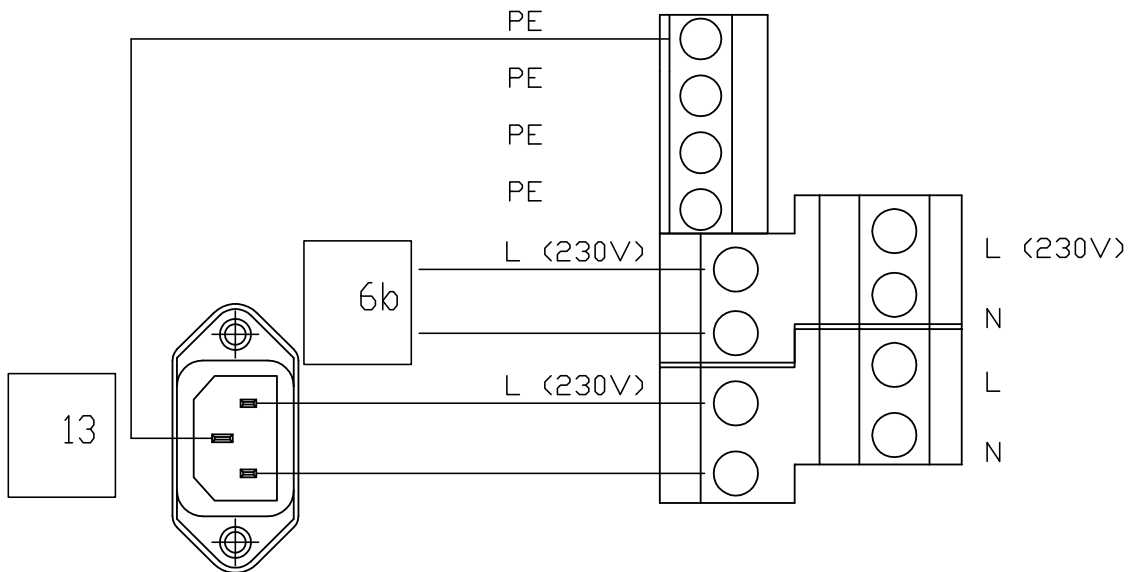
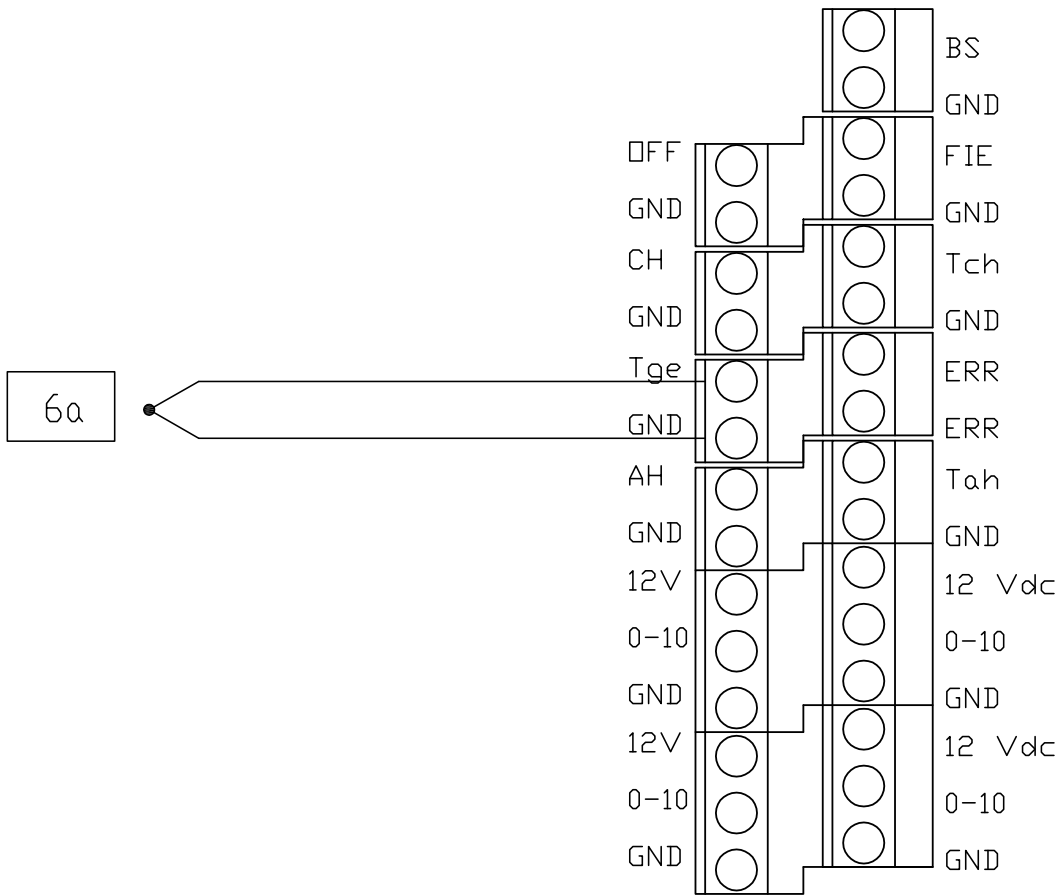


ComfoFond-L Q R ST



## Terminal diagram

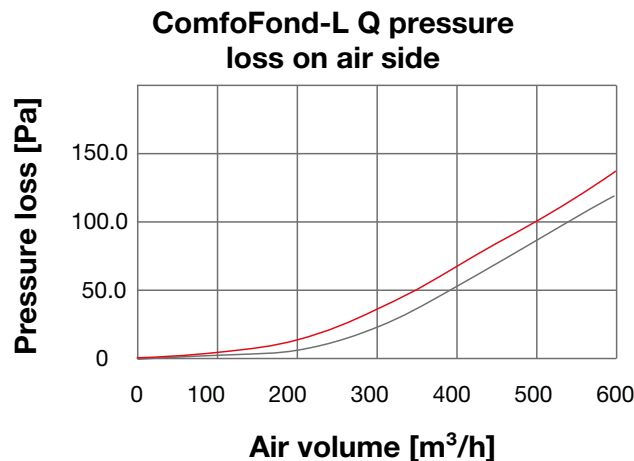
Zehnder ComfoAir Q350/450/600



6a = ComfoFond-L Q sensor  
 6b = ComfoFond-L Q pump  
 13 = Mains power supply



## Pressure losses and collector selection



- ComfoFond-L Q filter = G4;  
ComfoAir Q filter = No filter
- ComfoFond-L Q filter = G4;  
ComfoAir Q filter = No filter

## Minimal requirements on the ground collector for pre-heating the outdoor air

### Zehnder ComfoAir Q350 TR

Ground type	Collector length [m]	Pump stage	Pipe dimension [mm]	Content of brine moisture protection approx. [%]
Dry sand	110	3	DN 32 / 40 x 3.7	90
Damp sand	70	3	DN 25 / 32 x 2.9	40
Dry silt	90	3	DN 25 / 32 x 2.9	50
Damp silt	70	3	DN 25 / 32 x 2.9	40
Dry loam	80	3	DN 25 / 32 x 2.9	40
Damp loam	70	4	DN 20 / 25 x 2.3	40
Dry clay	70	4	DN 20 / 25 x 2.3	40
Damp clay	60	4	DN 20 / 25 x 2.3	30

### Zehnder ComfoAir Q450 TR

Ground type	Collector length [m]	Pump stage	Pipe dimension [mm]	Content of brine moisture protection approx. [%]
Dry sand	2 x 80	3	DN 32 / 40 x 2.3	160
Damp sand	100	3	DN 32 / 40 x 2.3	100
Dry silt	120	3	DN 32 / 40 x 2.3	120
Damp silt	100	3	DN 25 / 32 x 2.9	50
Dry loam	110	3	DN 32 / 40 x 2.3	110
Damp loam	100	3	DN 25 / 32 x 2.9	50
Dry clay	110	3	DN 25 / 32 x 2.9	60
Damp clay	90	3	DN 25 / 32 x 2.9	50

### Zehnder ComfoAir Q600 ST

Ground type	Collector length [m]	Pump stage	Pipe dimension [mm]	Content of brine moisture protection approx. [%]
Dry sand	2 x 90	3	DN 32 / 40 x 2.3	180
Damp sand	110	3	DN 32 / 40 x 2.3	110
Dry silt	130	3	DN 32 / 40 x 2.3	130
Damp silt	110	3	DN 25 / 32 x 2.9	60
Dry loam	120	3	DN 32 / 40 x 2.3	120
Damp loam	110	3	DN 25 / 32 x 2.9	60
Dry clay	120	3	DN 25 / 32 x 2.9	60
Damp clay	100	3	DN 25 / 32 x 2.9	50

The recommended collector examples named here are recommended minimum requirements, which may be increased depending on the location and operating mode of the system. We recommend having the ground inspected by an expert. Also, comply with the information in VDI 4640 regarding the use of shallow geothermal energy. The data assumes a minimum outside temperature of -20 °C and a laying depth of 1.2 m to maximum 2.0 m. The named pump stages are reference values, and may vary depending on the configuration of the pipework in the building. The ground collector pipes are not allowed to be spaced less than 0.6 m apart in all directions, and are also not allowed to be less than 1.0 m in any direction from pipes carrying water. It is not permitted for the collector field to be built over or sealed.

CDE-FLYERTS085, V1016, en, subject to change without notice