



RuralECO

GROUND
SOURCE
HEAT PUMP

4-18 kW

HOW THE PICOENERGY HEAT PUMP WORKS

In principle, the heat pump works like a refrigerator: the same technique, only reversed utility. The heat pump receives energy from the heat source side (earth, water or air) at a low temperature and releases heat with a higher temperature on the heating side.



2 / 5

A geothermal heat pump uses solar energy stored in the ground. This solar energy is available at any time. Day or night, summer or winter, even unlimited, because it renews itself over and over again. Due to its relatively constant ground temperature, the earth is a particularly good heat accumulator. Starting at a depth of approx. 1 m only very little temperature fluctuations occur, no matter how cold it is outside. We use either a flat collector (a large pipe system that is laid about 1 m below ground) or a geothermal probe, via deep drilling into the ground (30 to 150 m).



THE PHOTOVOLTAIC HEAT PUMP

The outstanding feature of the PicoEnergy heat pump is its efficiency. With its special heat pump technology, the heat pump converts a kilowatt hour of electricity into five kilowatt hours of heating energy, often even more. This results in exceptionally low operating costs compared to conventional heating systems.



Thanks to the sophisticated PicoEnergy controller with TouchScreen, self-generated electricity from the photovoltaic system can be used for heating and cooling of the house.

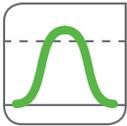
The speed control of the heat pump adapts itself to the photovoltaic power independently. The free photovoltaic electricity can thus be used as best as possible to heat the house, hot water and swimming pool.

ADVANTAGES

- Maximum self-consumption of free photovoltaic power
- Highest degree of comfort
- Long-term security of supply at the lowest cost
- Low maintenance



Touch control PicoEnergy
Touch panel AP420



INTELLIGENT POWER CONTROL

The PicoEnergy Power Inverter is a true innovation in the field of heat pump technology. The principle is very simple: The inverter adjusts the energy used to the actual needs of your home. The efficiency is thereby improved by approximately 20% and the life span of the compressor is prolonged due to significantly less switch-on cycles.



NEW INJECTION TECHNOLOGY

Due to the constantly changing parameters of an inverter heat pump, special attention must be paid to the overheating control. The absolutely new, model-based control is a product of years of experience. Proactive reactances are made to future speed changes and therefore the efficiency of the heat pump is maximized.



SMART GRID

PicoEnergy heat pumps are already "*Smart Grid Ready*" today. With this function, you can use the cost savings of future electricity networks. In times where generally less power is consumed, electricity is also cheaper. Therefore the operating time of the heat pump should be shifted to this period. This is fully automated by PicoEnergy's intelligent control system.



INTERNET INSIDE

All PicoEnergy heat pumps are already equipped with the future technology of "*Internet Inside*". This allows you as a customer to control your heat pump from your mobile phone, tablet or PC. If the heat pump is no longer working optimally, the heat pump automatically signals the problem to your selected heat pump installer. Via "*Internet Inside*", these adjustments can be made to the control settings, without having to be on site. This saves your time and money.



INTEGRATION OF EXTERNAL SYSTEMS

The integration of a photovoltaic system, solar system or house management system are possible thanks to the intelligent control of the PicoEnergy heat pump.

Photovoltaic integration can use the self-generated electricity for space heating as well as hot water preparation, preferably for own consumption. Feeding your own PV electricity to the grid will only occur when the hot water storage tank is charged and the house is comfortably warm.

TOP SYSTEM CONCEPT

The best heat pump is only as good as the designed system concept. PicoEnergy is always optimally oriented to this development!

This results in heating systems with maximum efficiency, which is permanently tested and confirmed by independent authorized testing institutes.



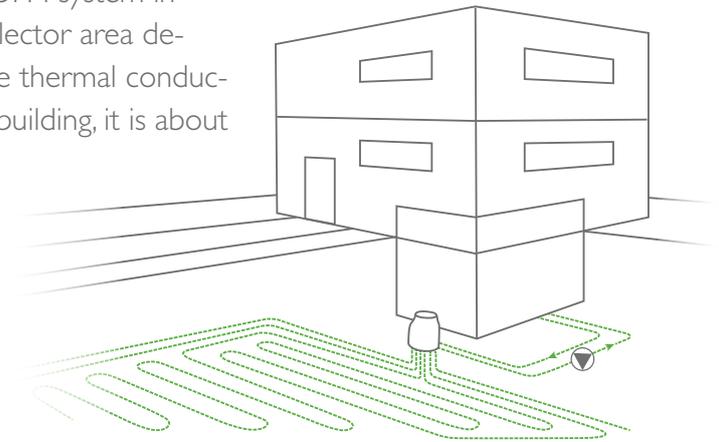
ADVANTAGES

- Intelligent power control
- Maximum efficiency of heat pump systems
- High innovative power also in the field of control technology
- Inverter technology
- Latest overheating control
- PV Self-consumption optimization
- Advanced "Smart Grid" functionality
- External systems can be integrated
- LAN interface in each heat pump
- Easy to use touch screen technology



ENERGY SOURCE GROUND COLLECTOR BRINE

The ground of your property is a free and inexhaustible source of energy. Thanks to sun, rain and geothermal energy, your garden is always recharged like an energy storage, and is available year-round free of charge. Flat collectors operate with a horizontal pipe system in the ground, which is laid in a similar way as an UFH system in snakes at a depth of approx. 1m. The required collector area depends on the heat demand of the building and the thermal conductivity of the soil. For an average single-family new building, it is about one and a half times the heated living space.



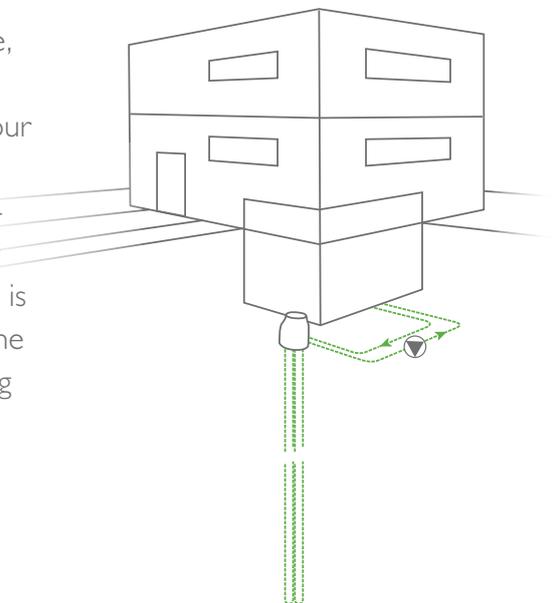
6 / 11

ENERGY SOURCE DEEP DRILLING GEOTHERMAL PROBE

In the case of geothermal probes, a frost-proof liquid, the brine, circulates through a plastic tube in a closed circuit.

A geothermal probe requires only a small area of land from your garden. Since, from a depth of 10 meters, the temperature of the soil is almost constant all year round, and is therefore independent of seasonal fluctuations, the geothermal probe is very effective especially in winter at low temperatures. In summer it is ideal for cooling. The necessary length of the probe and thus the depth of the bore depends on the heat demand of the building and the thermal conductivity of the soil.

With an average single-family new building it is about 100-120 meters.

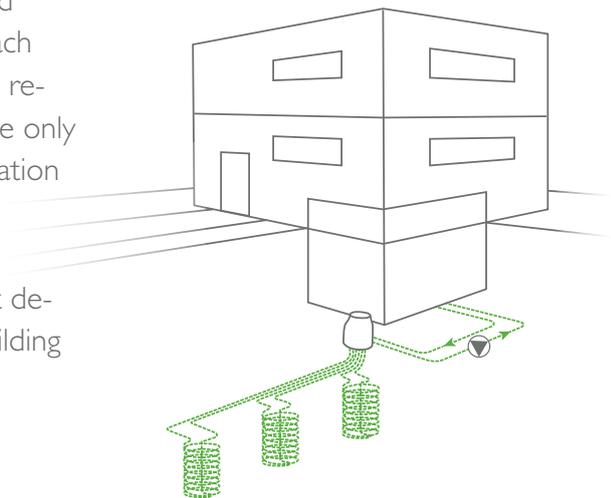


ENERGY SOURCE - HELICOIL SHALLOW GEOTHERMAL

The Helicoil is a hybrid system mixing techniques from the horizontal Ground collector and Deep Drilling. Thermal energy is extracted both horizontally and vertically.

Each Helicoil penetrates from 1 to 4 metres in the ground where the temperatures are very stable all year round. Each coil contains nearly 50 metres of pipe and has an average renewable energy extraction of 450 watts per coil, therefore only a small amount of area is required for the coils and installation can be made using standard auger drilling techniques.

The number of Helicoils required depends upon the heat demand of the building. For an average single-family new building about 15 Helicoils would be required.



INDIVIDUAL WARRANTY EXTENSIONS

Benefit from a specialist in geothermal energy with modern heat pump technology. PicoEnergy heat pumps are the product of over 35 years experience in heat pumps and a cooperation in the field of control technology with the global company KEBA.

Due to the high quality requirements, it is easy for us to offer extended warranties in addition to the guarantees.

It can be chosen between

3 years,

5 years or

10 years

Warranty-Extension

on all materials. *



* Prices according to valid PicoEnergy price list and valid warranty conditions

THE NEW GENERATION



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