



ecoFOREST
estufas | calderas | pellets | geotermia

20 years
leader in sustainable heating

geothermal

The heat of the earth





geothermal

Geothermal Energy

Geothermal energy is the most efficient and inexpensive renewable energy as it allows saving up to an 80% on energy bills and the integral air conditioning on our house, i.e. having a single installation of heating, hot water and air conditioning in summer.

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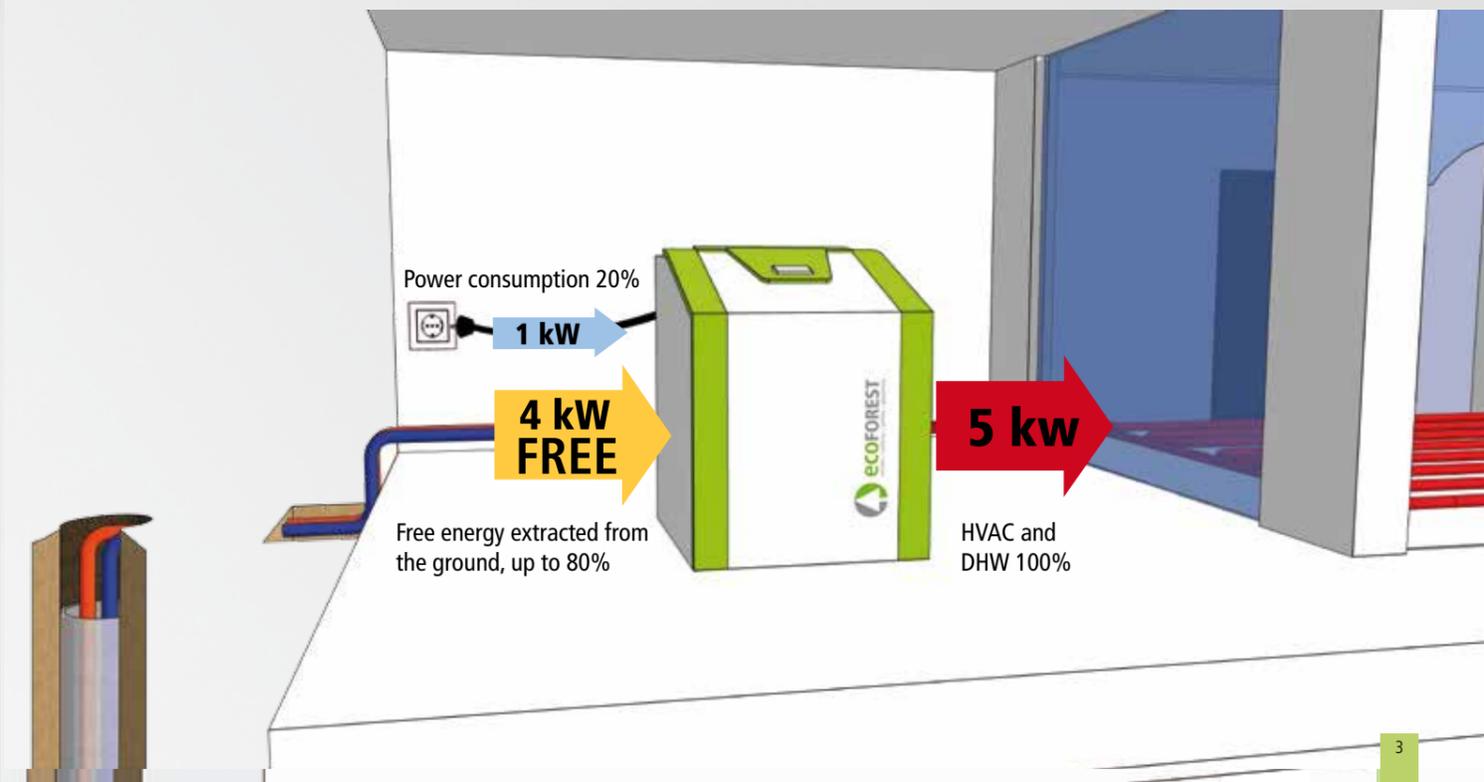
INTRODUCTION

WHY PAY FOR SOMETHING THAT NATURE OFFERS FOR FREE?

Our planet is changing and has already begun to give signs of the dangerous situation that we are subjecting it to, polluting our environment more and more while we burn its fuel reserves to increasing prices.

Meanwhile, an unlimited amount of energy, renewable and totally free, is stored at our feet, waiting to be exploited.

By using geothermal heat pumps we can capture this energy and use it to heat our homes in the most inexpensive way, while contributing to solve the serious problem of the environmental degradation of our planet. Thus, geothermal heat pumps clearly represent the future, a future that puts Ecoforest from now at your disposal.

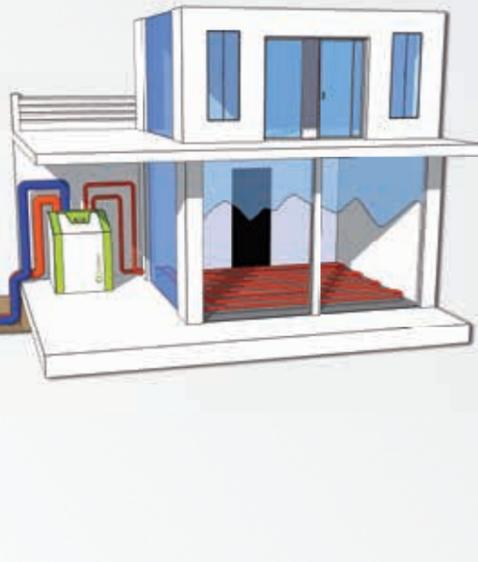
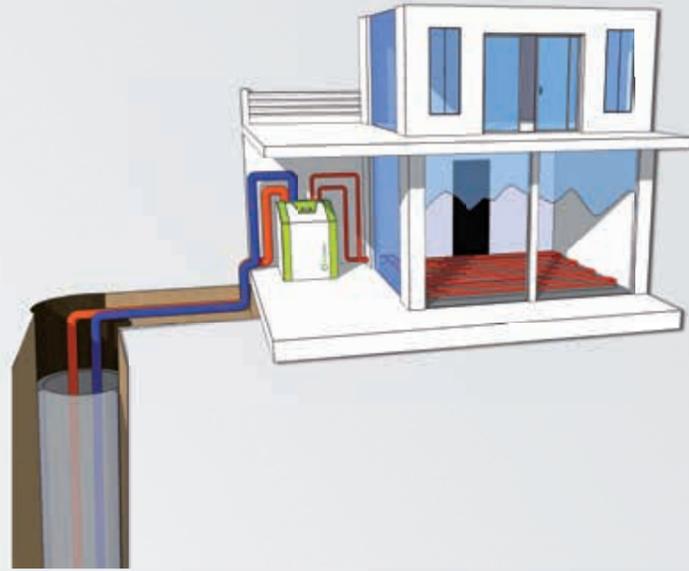


Heat extraction

1 Vertical Extraction

This consists of one or more vertical holes, whose depths range between 80 and 150 meters into which the exchangers are introduced.

Installation is a simple and inexpensive, widely used, as it requires very little ground space and efficiency is very high.



2 Horizontal Extraction

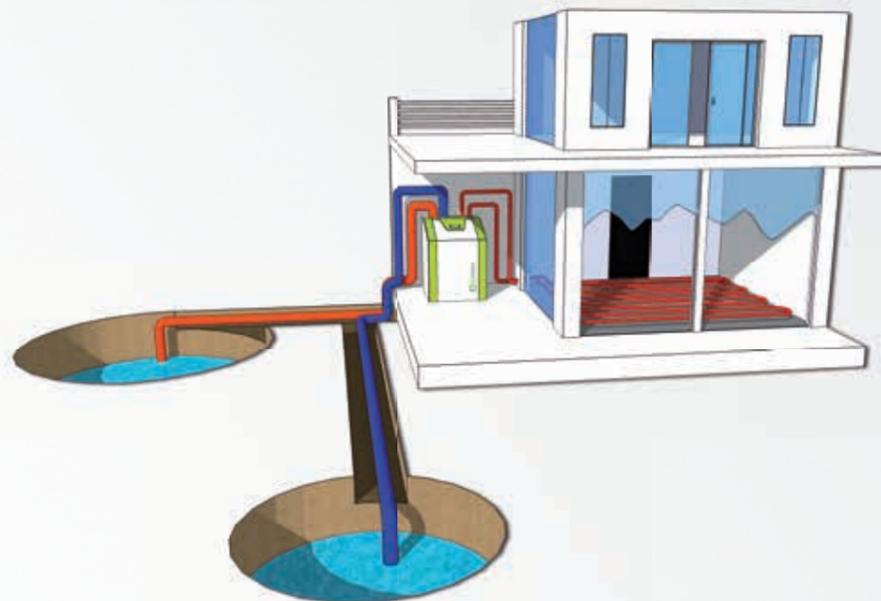
The exchanger, arranged horizontally, is buried at a depth that may vary between 1.2 and 2 meters.

This installation is also simple, but requires a greater amount of land than vertical systems.

3 Groundwater extraction

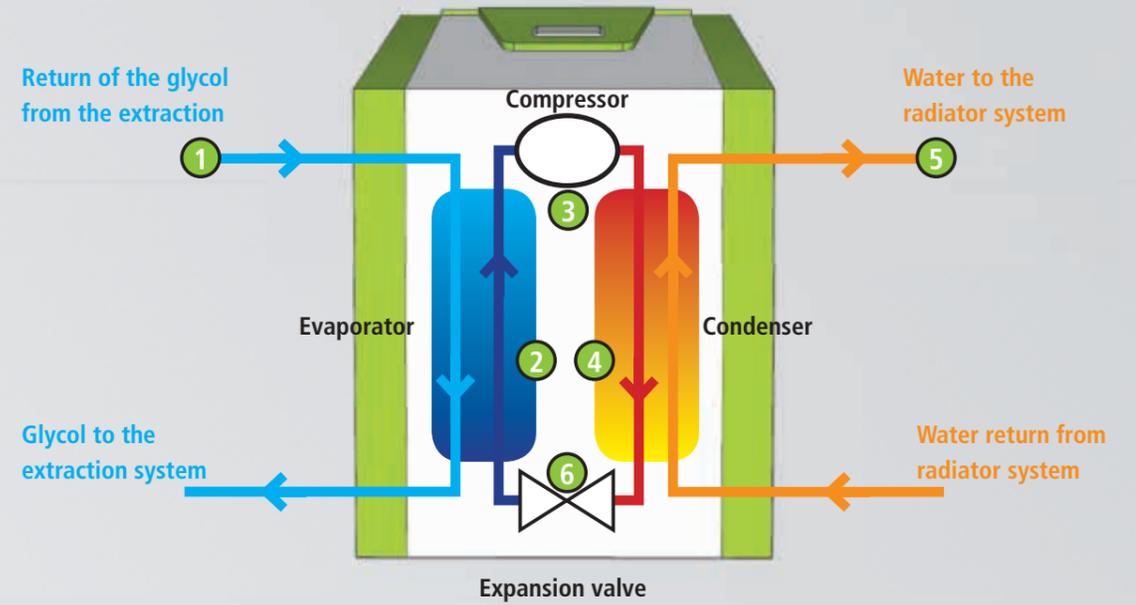
This type of extraction can be an option to consider when there is a well, spring or groundwater source.

In this case, water is pumped to the heat pump, the water's energy is transferred, and it is then subsequently returned to the ground through an injection well.



Operation

HOW DOES A GEOTHERMAL HEAT PUMP WORK?



- 1** Glycol* is pumped through the exchange system, which consists of a series of pipes buried in the ground, at a temperature below the ground temperature. This temperature difference causes a transfer of heat energy from the ground to the glycol.
- 2** In the heat pump evaporator, the glycol gives up the energy transferred from the ground to the refrigerant flowing through the refrigerator circuit, heating and boiling it.
- 3** The refrigerant, now in vapour form is sucked by the compressor, considerably increasing its pressure and therefore its temperature.
- 4** Then, this refrigerant, at high pressure and temperature goes to the condenser, where it cools and condenses giving up its heat to the water delivery system, which is heated.
- 5** The hot water is distributed through the radiator system (floor heating, fan-coils, etc.), thus heating the home.
- 6** Finally, the condensed refrigerant enters the expansion valve, which lowers its temperature and pressure in the evaporator so that it can again absorb heat captured by the glycol, thereby initiating a new cycle.

In short, the geothermal heat pump manages to extract and transfer heat from the ground into our home.

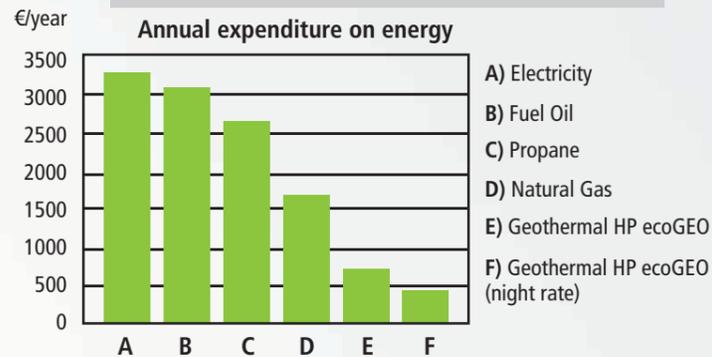
*Mixture of water with propylene glycol characterized by its low melting point, which allows it to remain liquid at temperatures below 0°C.

Advantages of geothermal heat pumps

Significant cost savings

The Ecoforest geothermal heat pump is up to five times more efficient than traditional fossil fuel or electrically powered heating and DHW systems. Yields are higher than 400%, so only 1 kW of electricity is needed to provide a home with between 4 and 5 kW of heat.

Therefore the subsoil becomes our main source of energy, and this energy is free, so the cost savings obtained in our bills every month are enormous.



Typical values for a house of 150 m² located in Navarra

Local Resource

No more worrying about the availability and price of fossil fuels, you'll never need them again. Your home's energy supply is secure from any spot in your own garden.

Integrated Climate-Control System

Geothermal heat pumps can provide heating in winter, cooling in summer and hot water all year round, so you get a full climate-control system with a single installation.

Safe

Not needing gas, oil tanks or other hazardous substances, completely does away with the potential risk inherent in the use of these products, such as intoxication, odours, pollution or explosion caused by leaks.

Minimal maintenance and long life

Although it may seem new, the technology used in geothermal heat pumps is widely known and completely reliable because it is identical to that used in the refrigerators we all have in our homes and know so well.

From the time of installation and commissioning, all you'll have to do is enjoy the comfortable environment at home all day.

No flames or smoke are generated

You do not need a chimney or to continuously ventilate the space, thus avoiding the cost, reliability and maintenance problems these systems can cause.

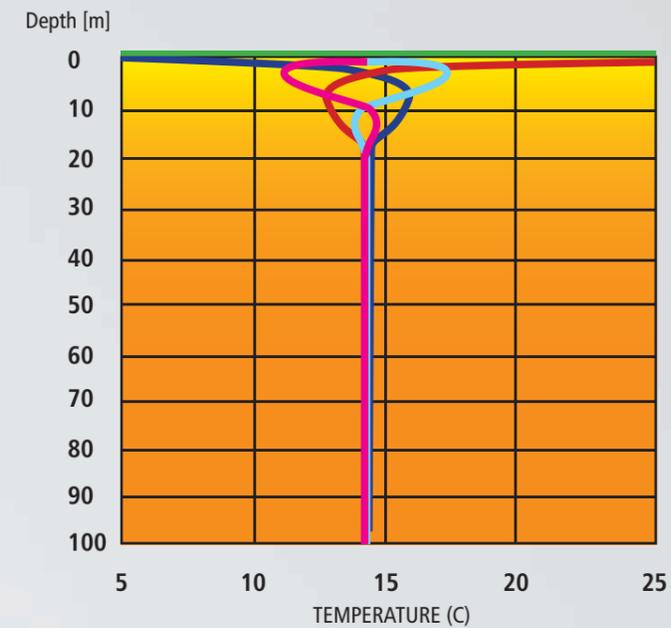
No visual impact

All heat pump components are buried or inside your home, giving it zero visual impact.

Advantages of geothermal heat pumps

Independent from external environment conditions

Below 20 meters in depth, the ground temperature remains practically constant throughout the year, which means that geothermal heat pumps provide a higher efficiency than other types of heat pumps whose operating conditions depend on external environment conditions. In Galicia (Spain), the ground temperature remains throughout the year at 14 °C, as shown in the chart.

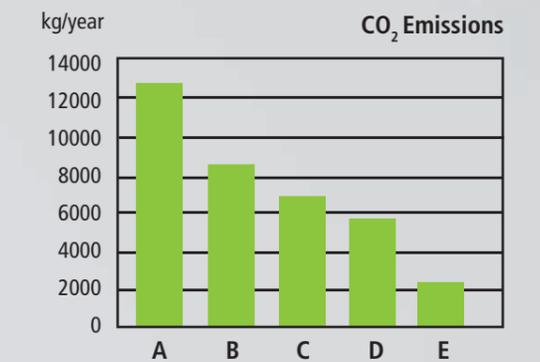


Subsoil temperature distribution for Galicia in different months of the year.

Reduction of CO₂ emissions

There is growing concern about this issue; climate change is a fact and in recent years, the governments of the world's most influential countries have reached commitments aimed precisely at achieving a significant reduction in emissions.

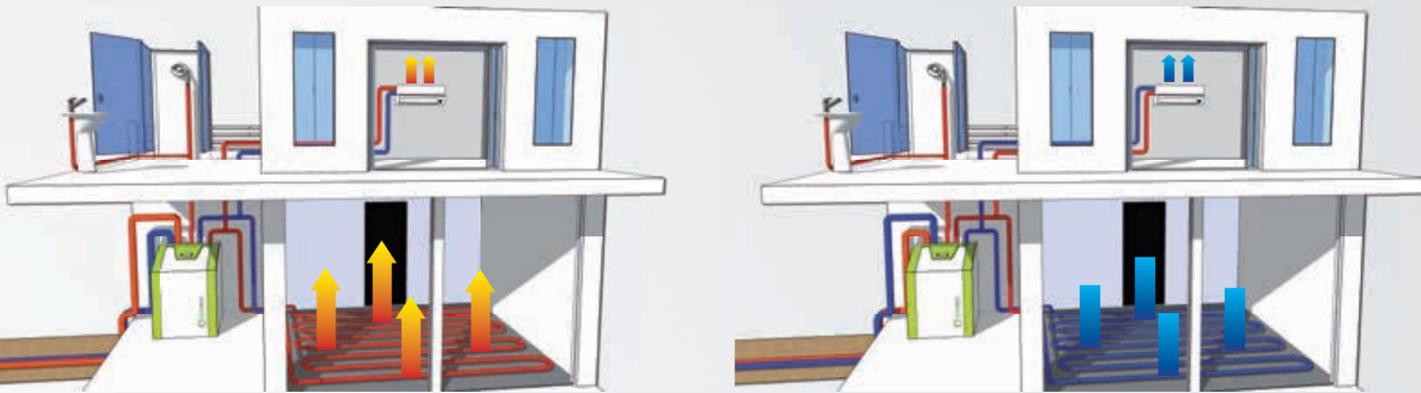
Installing a geothermal heat pump contributes to achieving this common goal, since the technology fully respects the environment by drastically reducing CO₂ emissions with respect to traditional technologies.



Typical values for a house of 150 m² located in Navarra

- A) Electricity
- B) Fuel Oil
- C) Propane
- D) Natural Gas
- E) Geothermal HP ecoGEO

INTEGRAL HVAC SYSTEM. HEAT, COOL AND DHW



- Ecoforest geothermal pumps provide a comprehensive HVAC system; that is, heating in winter, cooling in summer and hot water all year round. This is one of the most important features of our heat pumps, and certainly a revolution in the field of climate-control.

-With Ecoforest's heat pump technology, you will no longer need to invest in additional air conditioning to enjoy a pleasant ambient temperature during the warmer months. Changing from a hot environment to a cool one is as simple as pressing a button. Additionally, all the hot water you need will be available all year round.

-During the winter, the ground temperature is higher than ambient temperature, so the pump draws heat from it and releases it inside of your home. In summer the opposite occurs, the ground is cooler than the air, so the geothermal pump extracts heat from the house and yields it to the ground, in exactly the same way it does to keep the inside of a refrigerator cooler than the outside temperature.

You can choose between two types of cooling:

• Active cooling

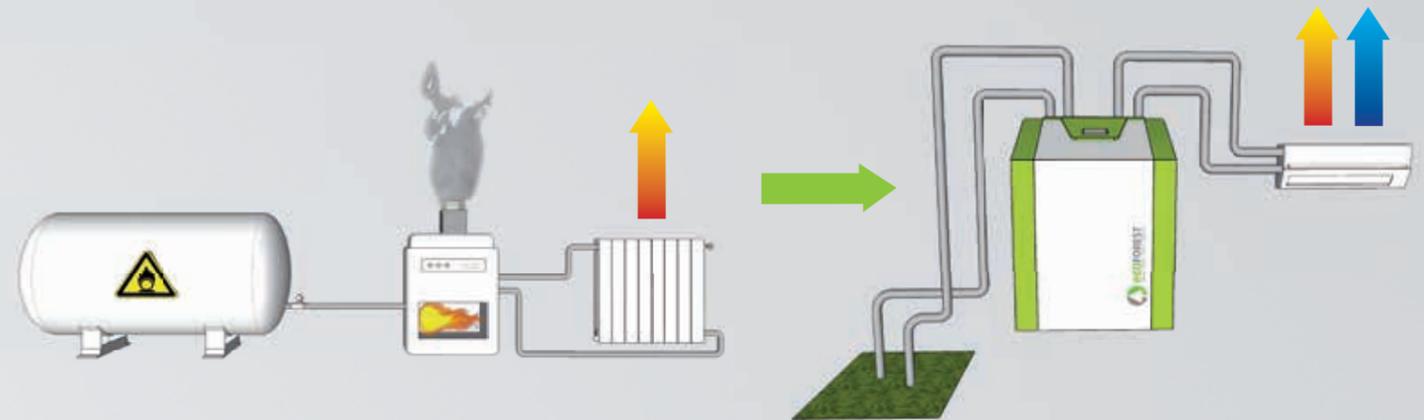
For very warm areas that require greater cooling, the heat pump compressor starts and the direction of flow of the refrigerant in the refrigerant circuit is reversed, so the geothermal heat pump becomes an efficient air conditioning system for your home.

The efficiency of geothermal heat pump in the active cooling mode is much higher than in traditional air conditioning systems.

• Passive Cooling

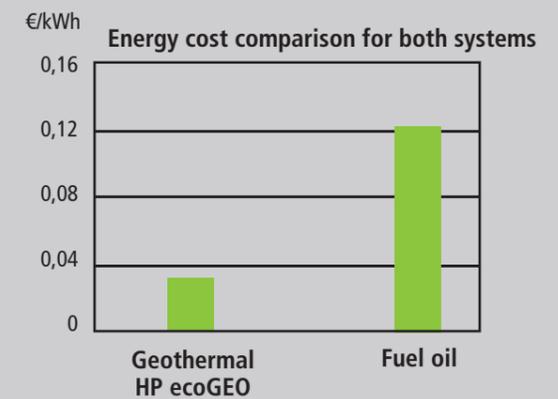
If you live in a temperate zone where excessively high temperatures do not occur during the warmer months, passive cooling is your best choice. Here Ecoforest geothermal pumps are equipped with an additional heat exchanger in which the ground-cooled glycol from the extraction system cools the water in the radiator system. On flowing through the underfloor radiation or fan-coils, the cool water produces the desired temperature drop inside the home, and uses less energy than a pair of light bulbs to do so.

SAVE ENERGY IN THE PRODUCTION OF HEATING AND DHW. COOL YOUR HOUSE WITH THE SAME INSTALLATION.



With a diesel boiler you not only burn fuel but also your money. And all this while you contribute to pollute your environment.

The efficiency of our geothermal heat pumps is so superior to that of diesel fuel boilers that within a very short time and your installation will have paid for itself. From that point you can start counting your savings, savings that in a few years will reach tens of thousands of Euros.



Although this reason would justify by itself changing your oil boiler by a geothermal pump, there are many others:

- Your traditional boiler and radiators system can only offer you heating and domestic hot water, but replacing it by our modern system composed of geothermal heat pump and fan-coil units you will also be able to enjoy air conditioning during the warmer months.

- Hazardous fuel tanks and the risks they entail are no longer needed. Furthermore, as no flames or smoke are generated there is no need for chimneys. Just as if it were another domestic appliance, the only thing required to operate the heat pump is to connect it to an electric socket.

- In the traditional system the water flowing through the radiators need to be at a temperature above 60 °C in order that they turn out to be efficient. Using fan coils the heat pump only needs to heat the water to about 45 ° C, which results in a much more comfortable ambience, because with these lower temperatures unpleasant draughts in the house are avoided. Besides, it also prevents dust particles from burning and causing the unpleasant effect of "black wall".

- No need to worry about the loss of service when replacing your boiler, since the process is very simple and can be done in just a couple of days.

- You will contribute to palliate the greenhouse effect drastically reducing CO2 emissions to the atmosphere.



Just worry about what's necessary

Ecoforest geothermal heat pumps

MODULAR CONSTRUCTION
SOLUTIONS TAILORED TO YOUR NEEDS

Ecoforest puts at your disposal you two ranges of heat pumps: the basic range EcoGeo B and compact range EcoGeo C

ecoGEO B - Basic

The range EcoGeo B is characterized by its small size and is appropriate when the pump will be located in a room with low ceiling. The domestic hot water tank is not integrated, so if you want to produce domestic hot water connection to an external tank is needed.

ecoGEO C - Compact

The range EcoGeo C is equipped with a hot water tank of 170 litres integrated in the pump itself, so it does not require any additional installation.



EcoGeo ranges B and C EcoGeo modules can be equipped with three different cold modules depending on the needs of our facility.



Module 1
It is the simplest, meets the needs of heating and DHW.



Module 2
Provides passive cooling, heating and DHW as well. Pumps equipped with this module will provide the air conditioning of your home in temperate zones with low cooling demand.



Module 3
It is the most complete module, provides heating, hot water and active cooling by cycle reversal. This module manages the comprehensive air conditioning of your home even in areas with very hot weather.

Added value

THESE ARE SOME OF THE REASONS THAT MAKE OUR BOMBS THE MOST ADVANCED OF THE MARKET (I)

1 First European manufacturer with Copeland Inverter Technology®

Inverter technology means the end of the traditional "ON-OFF" compressors. The capacity of our compressors adapts at all times to the heat needs of your installation providing a wide power range.

Besides, Inverter technology developed specifically for Copeland® Scroll compressors provides unbeatable performance. Ecoforest is the first European manufacturer that has incorporated this advanced technology for the manufacture of our geothermal heat pumps.

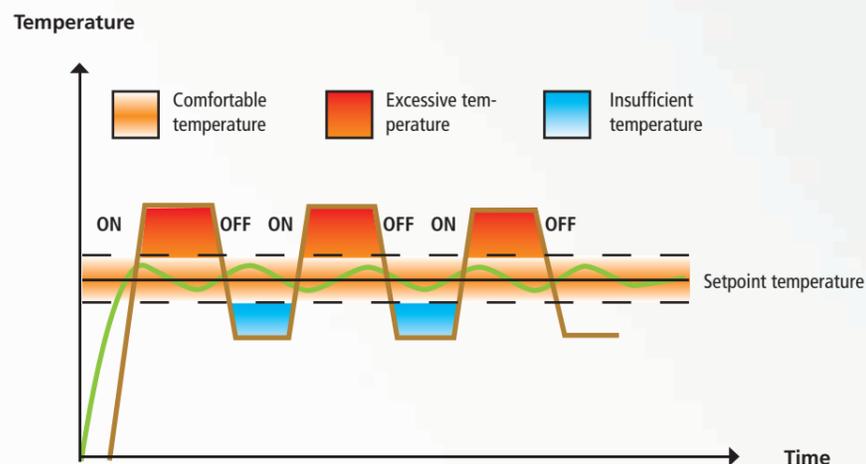
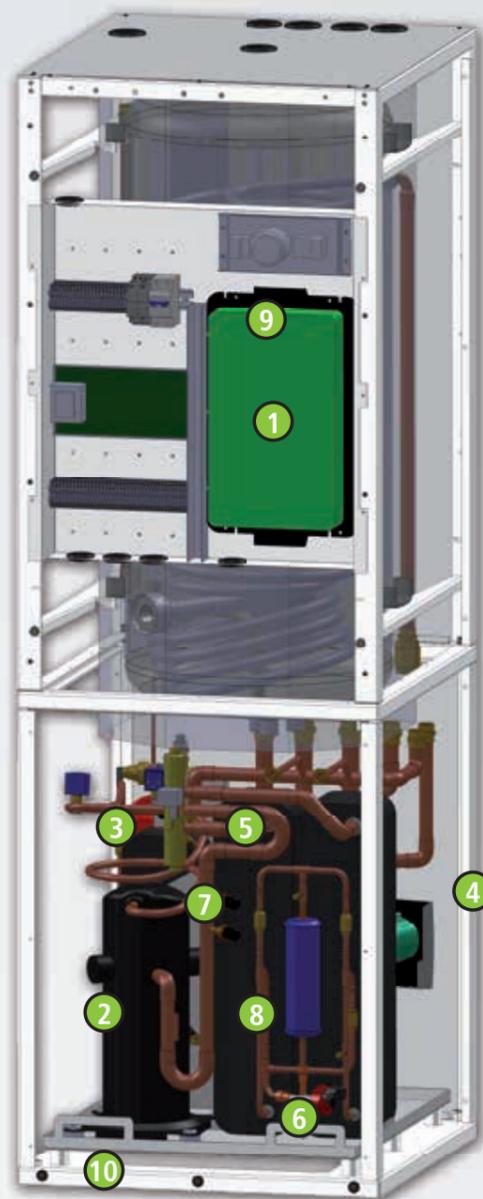
The incorporation of this technology provides advantages that are unattainable with traditional heat pumps.

- Lower electricity consumption
- Greater durability and reliability
- More comfort
- More compact and economical installations, since buffer tanks are not necessary.

2 Copeland Scroll Compressors

The new Copeland scroll compressors with permanent-magnet electric motors specially designed for the Inverter technology provide much higher performances than traditional compressors.

The fact they are also manufactured by Copeland guarantees us to be using the best compressors on the market.



Heat Pump with Inverter

The compressor capacity is adjusted to demand, reducing consumption and maintaining a stable temperature.

Heat Pump without Inverter

The compressor operates in continuous start-stop cycles, increasing consumption and causing significant deviations from the comfort temperature.

Added value

THESE ARE SOME OF THE REASONS THAT MAKE OUR BOMBS THE MOST ADVANCED OF THE MARKET (II)

3 CHW patented

Our patented CHW (Closed Hot Water Production System), completely innovative and based on the introduction of a third exchanger intended only for DHW heating through a closed circuit, ensures the highest efficiency of the market due to smaller thermal jump used and an excellent stratification inside the hot water tank.

4 Circulation pumps of variable speed and high efficiency

As with the compressor thanks to the Inverter technology, the circulation pumps adjust their speed to the demand for heating or cooling, consuming at all times exactly what is needed and ensuring the highest efficiency and at the lowest cost. In addition, high efficiency circulation pumps are included in the geothermic pumps, ie, energy class A, thus anticipating the future requirements of the European Economic Community.

5 Cooling by Reverse cycle

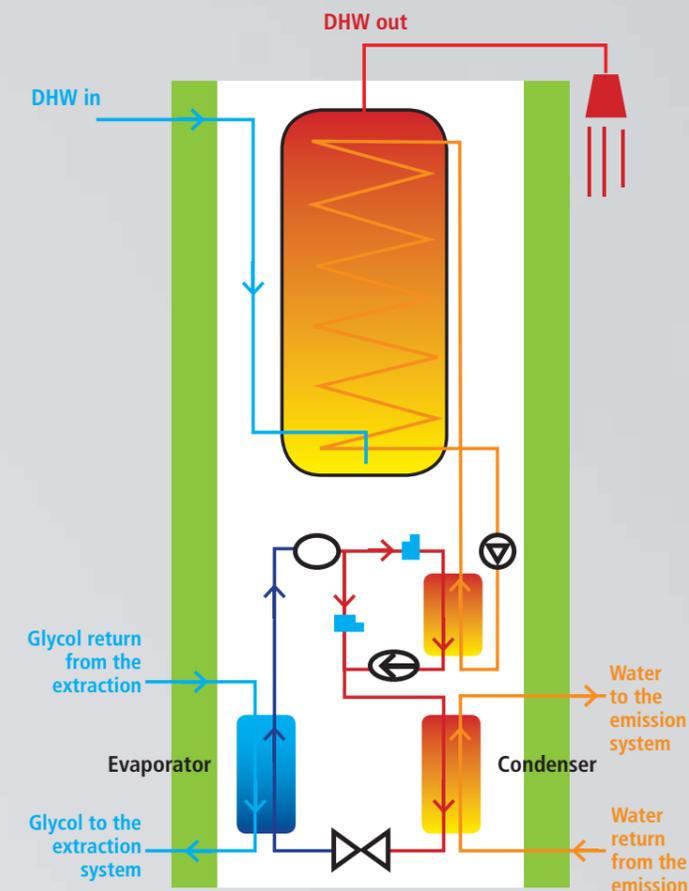
The reverse cycle system used by Ecoforest geothermal heat pumps allows heating and cooling to be carried out with the same equipment without needing to install additional external modules that decrease the efficiency and increase the cost of installation.

6 Electronic expansion valve

The future of the expansion valves. They guarantee more precise control of the refrigerant flow through the system and a better use of the evaporator, helping to increase its efficiency.

7 Refrigerant R410A

The best refrigerant for heat pumps, giving a high performance and a low environmental impact.



8 Alfa Laval asymmetrical plate heat exchangers

Latest development in plate heat exchangers, its asymmetrical design and its innovative system Equalancer for the distribution of the refrigerant allows savings of up to 15% in the exchange surface and makes them the best in the market.

9 Recovery of the heat generated in the inverter

It provides additional and free power that contributes decisively to achieve the highest COP's reached in heat pumps.

10 Silent and without vibration

The structure of our heat pumps is specially designed to absorb all kinds of vibrations, which combined with the acoustic insulation used results in extremely quiet operation.

Ecoforest geothermal heat pumps. High Power

HIGH POWER - ecoGEO HP – HIGH POWER WITH INVERTER TECHNOLOGY

Our new range of high powered heat pumps, ecoGeo HP, are the perfect solution for all installations with a high demand of energy, of both residential and service sectors (buildings, hotels, shopping and sports centers, etc...) as well as the industrial or agricultural sectors.

Elevated energy consumption? Exceptional economic savings

The savings generated each year by equipping these facilities with our heat pumps amounts to several tens of thousands of euros, amortizing the investment within in a few months.

Three different ranges of power

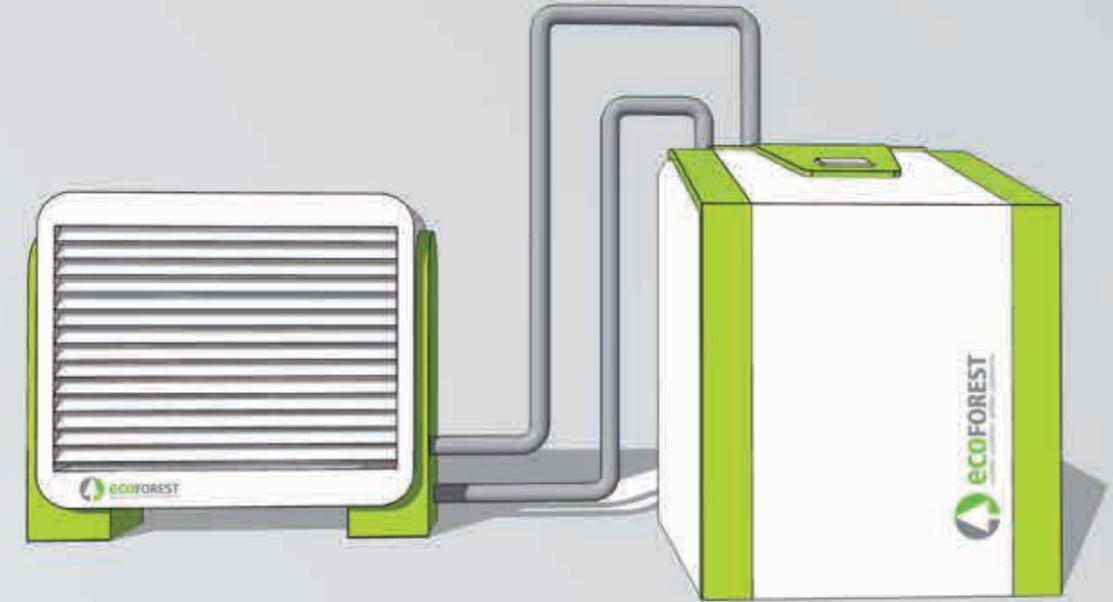
Plus the variable capacity of our inverter compressors allows a wide range of Power between 12 y 100 kw.

ADDED VALUE WITH ECOFOREST

- Inverter Technology.
- Integrated HVAC, heating, hot water and reverse cycle cooling.
- Electronic expansion valve.
- Refrigerant R410A.
- CHW patented technology.
- Ability to connect up to 6 units providing an output of 600 kW.

Ecoforest Aero-thermal unit

USING AIR AS ENERGY SOURCE



Our environment is a great energy source. Regardless of the time of year and weather conditions, air is an inexhaustible source of energy.

ecoGEO AIR

With the new aero-thermal unit developed by Ecoforest it's possible to capture the existing energy in the air for free, to heat a home and or for the production of hot water. It's the perfect alternative when you cannot drill for water resulting in a much simpler and more economical solution.

The Ecoforest aero-thermal unit uses a high efficient heat exchanger to absorb heat from the air and transport it to the internal unit at low temperature, minimizing heat loss.

A unique technology

Ecoforest aero-thermal unit is specifically designed to be used with our ecoGEO heat pumps, both in its basic and compact form with the most advanced current technology available in the field of heat pumps, providing exceptional yields even in adverse weather conditions.

ADDED VALUE WITH ECOFOREST

- Tecnología Inverter Copeland.
- Bombas circuladoras de velocidad variable y alta eficiencia (clase energética A).
- Sistemas de climatización integral, calefacción, ACS y refrigeración por inversión de ciclo.
- Válvula de expansión electrónica.
- Tecnología CHW patentada.
- Refrigerante R410A.

ecoGEO HP – HIGH POWER



Fancoils Ecoforest

A PERFECT COMPLEMENT TO OUR HEAT PUMPS

The new air conditioning systems with heat pump developed in response to the new needs of energy efficiency, cost savings and respect for the environment require new emission systems faithful to those principles.

Efficiency and savings

Specially designed to work with water at low temperatures, the fan coils are an ideal addition to heat pumps, resulting in highly efficient systems that can yield substantial savings in energy and costs.

Comfort

Three ventilation speeds together with the precise control system guarantees a homogeneous distribution of air without turbulence.

With centralized control or in certain cases individual, the temperature is reached quickly and surprisingly quietly.

Flexibility

Our wide range of fan coil units, formed by sets for walls, cartridges, floor and ceilings, each one available in three different potency versions, makes it adaptable to the energetic and architectural needs of all types of facilities and accommodations.

Versatility

Complete Control of your home's temperature throughout the year. Heating, cooling, ventilation and even dehumidification with the same unit.

Slim design

Its elegant design that emphasizes its ultrathin body allows significant saving of space and makes it the ideal solution for air conditioning in any type of environment.

Easy installation

In both cases of new buildings as in the replacement of radiators, the installation of fan coils Ecoforest is extremely simple and economical.



Fancoils Ecoforest

A PERFECT COMPLEMENT TO OUR HEAT PUMPS

FAN COILS MURALS - ecoGEO FC-W

- High efficient filters to keep the air clean.
- Cross flow fan that creates a quiet and comfortable environment.
- LCD panel display with built-in self-test breakdown functions.
- Infrared control included as standard.
- A 3-way electro-magnetic valve built in for an easy installation.
- Easy access to the front panel allows easier maintenance.
- The mobile outlet deflectors allow better air distribution.



FAN COILS CASSETTE - ecoGEO FC-C

- The centrifugal fan design provides a quiet and a highly energetic efficiency.
- LCD panel display with built-in diagnosed breakdown function.
- Infrared control included as standard.
- Built-in condensation pumps with high performance (up to 750 mm in height).
- The mobile outlet deflectors allow better air distribution.
- A socket connection for fresh air renovation duct providing a healthier and more comfortable environment.



FAN COILS CEILING AND FLOOR - ecoGEO FC-CF

FAN COILS FLOOR - ecoGEO FC-F

- The floor to ceiling unit can be installed either vertically or horizontally.
- The centrifugal fan design provides a quiet function and a high efficiency.
- The mobile outlet deflectors allow better air distribution.
- High efficient filters to keep the air clean.
- Aerodynamic appearance. The machines ultra-thin body makes it easy for installation and maintenance.



Ecoforest tanks

THEY STORE THE ENERGY PRODUCED BY THE HEAT PUMP

ecoGEO T-DW DHW TANK

Production and storage tank for domestic hot water, with a corrugated spiral coil exchanger increasing the contact surface and improving heat transfer.

Made of stainless steel AISI 316, with a capacity of 200 and 300 liters.

Thermal insulation in rigid foam polyurethane, HCFC free and with a semi-rigid PVC exterior finish.



EcoGeo T-B BUFFER TANK

Buffer tank of 60 liters of hot water primary circuit specially designed for our geothermal heat pumps, made of carbon steel.

Its small volume, in combination with our variable speed geothermal pumps is sufficient to supply adequate functioning in those installations, which because of their special configuration, requires it.

Thermal insulation in rigid foam polyurethane, HCFC free and with a PVC exterior finish.



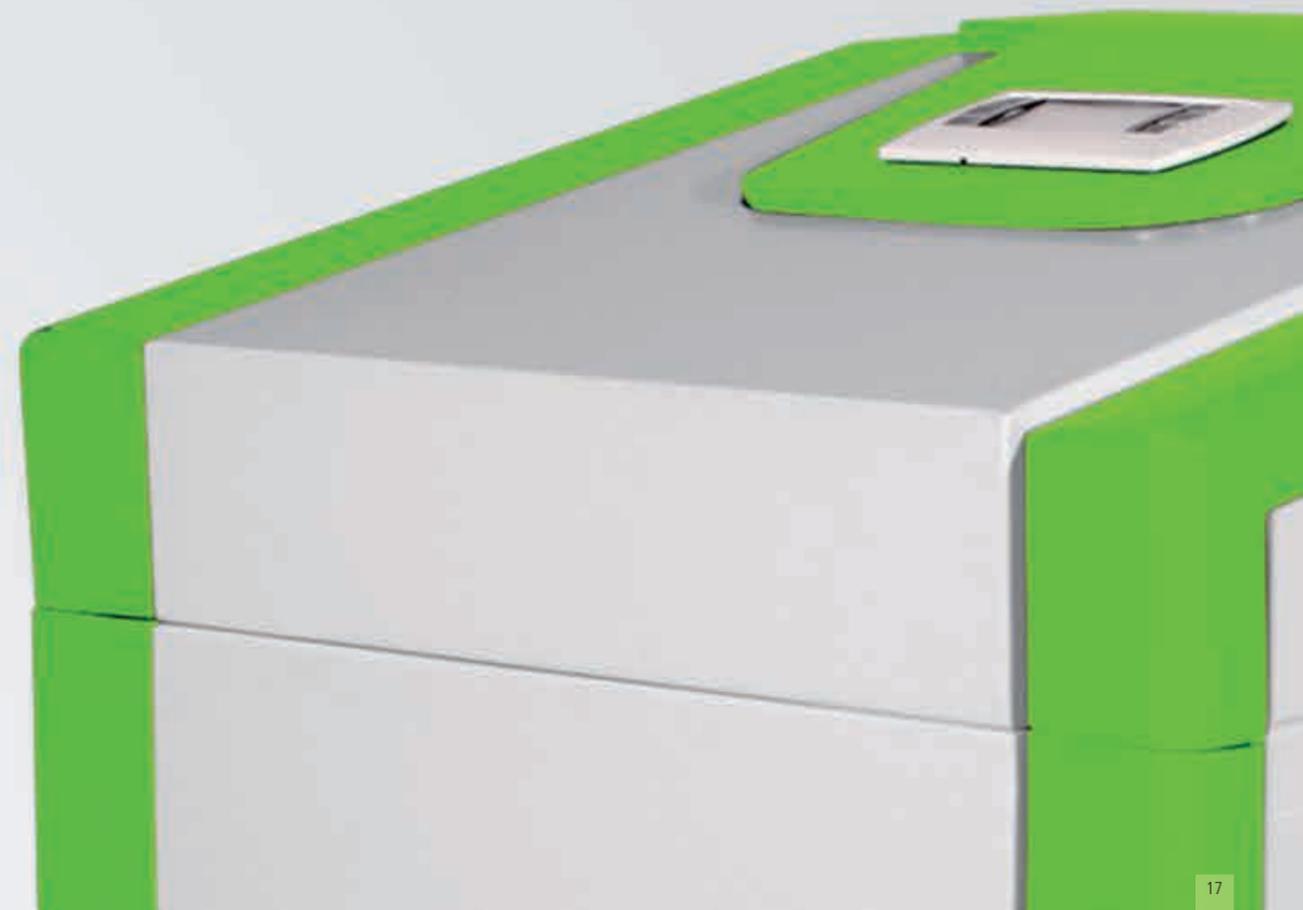
ecoCOMBI

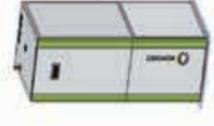
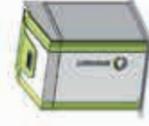
Combined compact tank designed specifically for our geothermal heat pumps, it includes within the same unit DHWC 200 liter (ecoGEO T-DW200) and a buffer tank of 60 liters (ecoGEO T-B80). This will integrate the features of both deposits in an extremely compact form, making it perfectly compatible with all types of installations.

Thermal insulation in rigid foam polyurethane, HCFC free and with a semi-rigid PVC exterior finish.



TECHNICAL CHARACTERISTICS





TECHNICAL CHARACTERISTICS

	ecoGEO B1 3-12 Kw ecoGEO B1 5-22 Kw	ecoGEO B2 3-12 Kw ecoGEO B2 5-22 Kw	ecoGEO B3 3-12 Kw ecoGEO B3 5-22 Kw	ecoGEO C1 3-12 Kw ecoGEO C1 5-22 Kw	ecoGEO C2 3-12 Kw ecoGEO C2 5-22 Kw	ecoGEO C3 3-12 Kw ecoGEO C3 5-22 Kw
Heating and DHW	●	●	●	●	●	●
Passive cooling		●			●	
Active cooling			●			●
Integrated water heater 170 l						
COP ¹	4.6 / 5	4.6 / 5	4.6 / 5	4.6 / 5	4.6 / 5	4.6 / 5
EER ¹			6.1 / 6.9			6.1 / 6.9
Refrigerant R410A	●	●	●	●	●	●
Scroll compressor with Inverter technology from Copeland	●	●	●	●	●	●
Electronic expansion valve	●	●	●	●	●	●
Variable speed circulation pumps and high efficiency integrated	●	●	●	●	●	●
Plate heat exchangers from Alfa Laval	●	●	●	●	●	●
Carel Micro PC control	●	●	●	●	●	●
Our own control strategies	●	●	●	●	●	●

* * According to EN 14511, 0/-3 – 30/35 °C (including circulation pumps). Provisional, pending certification.

ecoGEO Geothermal Heat Pumps TECHNICAL DATA	Unit	ecoGEO B1		ecoGEO B2		ecoGEO B3		ecoGEO C1		ecoGEO C2		ecoGEO C3	
		3-12	5-22	3-12	5-22	3-12	5-22	3-12	5-22	3-12	5-22	3-12	5-22
Application	- - - - - -	●	●	●	●	●	●	●	●	●	●	●	●
Refrigerant	Type	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Components	Compressor	Scroll with Copeland Inverter											
	Expansion valve Exchangers Circulator pumps DHW accumulator with coil Integrated expansion vessel	Carel electronic Alfa Laval plate heat exchangers Variable speed high efficiency Wilo -- Heating circuit											
Electrical data	Power supply	230 V / 50 Hz, 1/N/PE~											
	Magnetohermic protection	-											
Efficiency	Heat output ¹	3-15	5-26	3-15	5-26	3-15	5-26	3-15	5-26	3-15	5-26	3-15	5-26
	Heat output ²	3-14	5-23,5	3-14	5-23,5	3-14	5-23,5	3-14	5-23,5	3-14	5-23,5	3-14	5-23,5
	Electric power consumption ²	0,7-3,2	1,4-5,5	0,7-3,2	1,4-5,5	0,7-3,2	1,4-5,5	0,7-3,2	1,4-5,5	0,7-3,2	1,4-5,5	0,7-3,2	1,4-5,5
	COP ² EER ²	4,6-5 6,1-6,9	4,6-5 6,1-6,9	4,6-5 6,1-6,9	4,6-5 6,1-6,9	4,6-5 6,1-6,9	4,6-5 6,1-6,9	4,6-5 6,1-6,9	4,6-5 6,1-6,9	4,6-5 6,1-6,9	4,6-5 6,1-6,9	4,6-5 6,1-6,9	4,6-5 6,1-6,9
Cooling circuit	Coooling power ³	-											
	Output passive cooling	-											
Cooling circuit	Refrigerant charge	1,35	1,7	1,35	1,7	1,5	2,0	1,35	1,7	1,35	1,7	1,5	2,0
	Maximum working pressure	42	42	42	42	42	42	42	42	42	42	42	42
	Type compressor oil Charge compressor oil	POE 2	POE 2,5	POE 2	POE 2,5	POE 2	POE 2,5	POE 2,5	POE 2	POE 2,5	POE 2	POE 2,5	POE 2
Heating circuit	Max./Min. flow temperature	60/20											
	Maximum working pressure Nominal flow	3 1200 - 4500											
Collectors circuit	Max./Min. flow temperature	20/-10											
	Maximum working pressure Nominal flow Recommended antifreeze ⁴	3 1200 - 4500 Propylene glycol/water with freezing point -17 ±2 °C											
DHW	Volume accumulation	-											
	Maximum working pressure Max. temperature without support Max. temperature with support	bar - - - -											
Soundproofing	Noise emission level	42	45	42	45	42	45	42	45	42	45	42	45
	Height x Width x Depth	1000x600x700											
Dimensions	Unladen weight (without assembly)	170	175	170	175	170	175	170	175	170	175	170	175
	Weight	1800x600x700											

1) According to EN 14511, 5/2 – 30/35 °C (including circulation pumps). Provisional, pending certification.

2) According to EN 14511, 0/-3 – 30/35 °C (including circulation pumps). Provisional, pending certification.

3) According to EN 14511, 7/12 – 30/35 °C (including circulation pumps). Provisional, pending certification.

4) Always consult regional regulations before using antifreeze.



TECHNICAL CHARACTERISTICS

	ecoGEO HP1 12-50 Kw	ecoGEO HP1 15-70 Kw	ecoGEO HP1 25-100 Kw	ecoGEO HP3 12-50 Kw	ecoGEO HP3 15-70 Kw	ecoGEO HP3 25-100 Kw
Heating and DHW	●	●	●	●	●	●
Passive cooling						
Active cooling				●	●	●
COP*	4,6-5	4,6-5	4,6-5	4,6-5	4,6-5	4,6-5
EER†	6,1-6,9	6,1-6,9	6,1-6,9	6,1-6,9	6,1-6,9	6,1-6,9
R410A refrigerant	●	●	●	●	●	●
Scroll Compressor with Inverter Technology	●	●	●	●	●	●
Electronic Expansion Valve	●	●	●	●	●	●
Plate heat exchangers from Alfa Laval	●	●	●	●	●	●
Carel Micro PC control	●	●	●	●	●	●
Our own control strategies	●	●	●	●	●	●

*According to EN 14511, 0/-3 – 30/35 °C (including circulation pumps). Provisional, pending certification.



TECHNICAL CHARACTERISTICS

	ecoGEO AIR B1 3-12, 5-22 Kw	ecoGEO AIR C1 3-12, 5-22 Kw	ecoGEO AIR B3 3-12, 5-22 Kw	ecoGEO AIR C3 3-12, 5-22 Kw
Heating and DHW	●	●	●	●
Passive cooling				
Active cooling				
Integrated water heater 170L				
COP*	4,1-4,5	4,1-4,5	4,1-4,5	4,1-4,5
EER†	5,2-5,9	5,2-5,9	5,2-5,9	5,2-5,9
R410A refrigerant	●	●	●	●
Scroll Compressor with Inverter Technology from Copeland	●	●	●	●
Electronic Expansion Valve	●	●	●	●
Variable speed circulation pumps and high efficiency integrated	●	●	●	●
Plate heat exchangers from Alfa Laval	●	●	●	●
Carel Micro PC control	●	●	●	●
Our own control strategies	●	●	●	●

*According to EN 14511, 0/-3 – 30/35 °C (including circulation pumps). Provisional, pending certification.



		ecoGEO FC C9	ecoGEO FC C12	ecoGEO FC C17	ecoGEO FC W3	ecoGEO FC W4	ecoGEO FC W6
Air flow	H/M/L	1000/850/720	1400/1190/1010	2000/1700/1440	425/360/320	680/580/510	1020/870/770
	H/M/L	590/500/420	820/700/590	1180/1000/850	250/210/190	400/340/300	600/510/450
Heating	Capacity	9,66/7,72/6,27	12,42/9,93/8,07	17,58/14,06/11,42	3,02/2,6/2,23	4,34/3,86/3,25	6,3/5,67/4,73
	Water flow rate	980	1250	1787	378	530	765
Cooling	Water pressure drop	16,4	14,6	34,7	10	20,8	27,9
	Capacity	5,7/4,73/3,96	7,27/6,46/5,71	10,39/9,25/8,2	2,2/1,84/1,65	3,08/2,62/2,27	4,45/4,18/3,74
Power supply	Water pressure drop	23,8	27	44	12	22	29
			220 - 240/1/50				
Power input	H	125	150	190	28	44	60
Sound pressure level	H/M/L	45/41/36	47/43/38	49/45/40	30/24/20	37/31/26	40/34/29
Fan motor	Type	Low noise 4 speed fan motor					
	Quantity	1					
Fan	Type	Centrifugal					
	Quantity	1					
Coil	Row	2					
	Máx. working pressure	1,6					
Panel	Diameter	Φ7					
	Dimensions	950x45x950					
Body	Net/Gross weight	6/9					
	Dimensions	840x230x840		840x300x840		915x210x290	
Pipe connection	Net/Gross weight	25/30		30,5/36,2		12/16	
	Water inlet/outlet pipe	RC 3/4				G 3/4	
	Drain pipe	OD32					

Note:

1. H: High fan speed; M: Medium fan speed; L: Low fan speed; 2. Heating conditions: entering water 50 °C; entering air temperature 20 °C DB; Cooling conditions: entering water 7 °C; temperature raise: 5 °C; entering air temperature 27 °C DB/19 °C WB, the same water flow as the heating conditions.



		ecoGEO FC CF3	ecoGEO FC CF7	ecoGEO FC CF9	ecoGEO FC F5	ecoGEO FC F10	ecoGEO FC F15
Air flow	H/M/L	510/430/380	850/720/640	1360/1160/1020	510/430/380	850/720/640	1360/1160/1020
	H/M/L	300/250/220	500/420/375	800/680/600	300/250/220	500/420/375	800/680/600
Heating	Capacity	3,49/2,97/2,44	6,98/6,28/5,23	9,58/8,14/6,32	5,64/4,85/4,23	10,28/9,05/7,71	15,35/13,82/11,7
	Water flow rate	435	834	1121	435	834	1121
Cooling	Water pressure drop	13,7	17,4	20,2	13,7	17,4	20,2
	Capacity	2,53/2,25/1,88	4,85/4,52/3,72	6,52/5,75/4,36	2,53/2,25/1,88	4,85/4,52/3,72	6,52/5,75/4,36
Power supply	Water pressure drop	14,2	20	21	14,2	20	21
			220 - 240/1/50				
Power input	H	44	49	118	40	49	88
Sound pressure level	H/M/L	37/34/32	43/40/38	46/43/40	37/34/32	43/40/38	46/43/40
Fan motor	Type	Low noise 4 speed fan motor					
	Quantity	1					
Fan	Type	Centrifugal					
	Quantity	2					
Coil	Row	2					
	Máx. working pressure	1,6					
Panel	Diameter	Φ9,52					
	Dimensions	-					
Body	Net/Gross weight	1000/626/220		1200/626/220		1500/626/220	
	Dimensions	26/31		32,5/38		39/45	
Pipe connection	Water inlet/outlet pipe	G 3/4		G 3/4		G 3/4	
	Drain pipe	OD16		OD16		OD16	

Note:

1. H: High fan speed; M: Medium fan speed; L: Low fan speed; 2. Heating conditions: entering water 50 °C; entering air temperature 20 °C DB; Cooling conditions: entering water 7 °C; temperature raise: 5 °C; entering air temperature 27 °C DB/19 °C WB, the same water flow as the heating conditions.

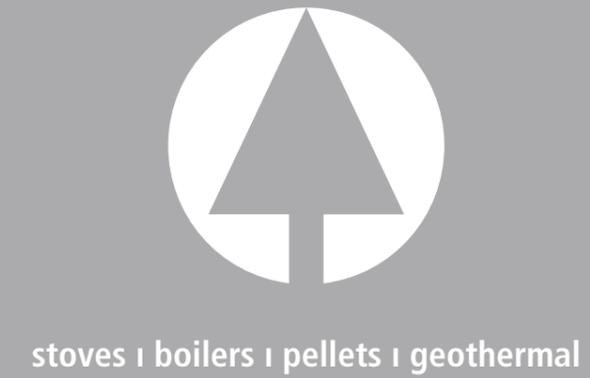
DHW TANK ecoGEO T-DW

Type	Capacity (l)	Exchange surface of the coil (m ²)	Working pressure DHW (bar)	Working pressure coil (bar)	Max. working temperature (°C)	External diameter (mm)	Total height (mm)	Weight (kg)
ecoGEO T-DW200	200	2,2	8	6	90	520	1.502	45
ecoGEO T-DW300	300	3,15	8	6	90	560	1.866	64



BUFFER TANK ecoGEO T-B

Type	Capacity (l)	Working pressure (bar)	Max. working temperature (°C)	External diameter (mm)	Total height (mm)	Weight (kg)
ecoGEO T-B80	80	3	90	520	720	36



ecoCOMBI

Type	DHW volume (l)	Inertial volume (l)	Exchange surface of the coil (m ²)	Working pressure DHW (bar)	Working pressure coil (bar)	Working pressure buffer tank (bar)	Max. working temperature (°C)	External diameter (mm)	Total height (mm)	Weight (kg)
ecoGEO T-DW300	200	60	2,2	8	6	3	90	520	1.850	85



- 1 DHW outlet 1"
- 2 Cold water inlet 1"
- 3 Coil inlet 1"
- 4 Coil outlet 1"
- 5 Connection for electrical heater (optional) 1 1/4"
- 6 Connection for recirculation (optional) 3/4"
- 7 Connection for probe 1/2"
- 8 Drain 3/4"
- 9 Connection for probe 1/2"
- 10 Primary water outlet 1"
- 11 Primary water inlet 1"



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