

HEAT PUMP

CATALOGUE

ecoFOREST

ECOFOREST: MAXIMUM EFFICIENCY WITH THE MOST ADVANCED GROUND-SOURCE ENERGY

At Ecoforest we revolutionised ground-source energy with the first range of **heat pumps with variable speed compressor and Inverter technology**. Our heat pumps continuously adapt to real demand, eliminating the need for buffer tanks and reducing the size and cost of boreholes.

Compact, efficient and equipped with the main components, our heat pumps enable a simpler and more cost-effective installation without compromising top performance. Ecoforest leads the way in efficiency and sustainability in heating and cooling.



WE 'R' 290

How ground-source installations work

Ground-source heat pumps, also known as water-to-water heat pumps, **transfer heat from the ground or from a water source to a hydronic circuit**, which in turn distributes it to the building through another water circuit.

Ground-source systems stand out for their **lack of visual and acoustic impact**. However, they require a higher initial investment compared to air-source systems, due to the work required for heat collection (vertical boreholes, horizontal collection, phreatic collection, and other solutions).

The ground-source heat pump uses the thermodynamic cycle to provide heating, cooling and domestic hot water (DHW). In heating mode, it extracts heat from the ground or water and transfers it to the building. In cooling mode, it extracts heat from the building and dissipates it into the ground or water source.

In terms of efficiency, ground-source heat pumps offer higher performance than air-source heat pumps, which translates into **greater energy savings** and higher long-term cost-effectiveness.

TYPES OF COLLECTION SYSTEMS



Vertical boreholes

These wells consist of buried probes at depths between 80 and 150 metres.



Horizontal boreholes

These boreholes consist of probes buried horizontally at a depth of between 1 and 2 metres.



Groundwater collection

An open-circuit system that draws water from the groundwater table. After passing through a heat exchanger, the water enables the heat pump to extract energy.



Others

Geothermal baskets, thermoactive piles, geothermal pillars...

ecoGEO⁺ Inverter water-to-water heat pumps

Ecoforest's ecoGEO⁺ ground-source heat pumps can be coupled to any type of collection system thanks to their control strategies that adapt their operation to the characteristics of each type of source.



ecoGEO+ LITE



WATER - WATER

Inverter ground-source heat pump with natural refrigerant

- Inverter technology with R290 refrigerant. GWP: 3.
- Power range: 1-6 kW.
- Hot water production temperature of up to 75 °C without electrical support.
- Heating, domestic hot water (DHW) and active cooling services.
- In-built photovoltaic hybridisation.
- Integrated energy meters and internet control via ecoSMART easynet.
- Efficiency: up to 500%.
- Collection and production circulation pumps included.
- Production expansion vessel included.
- DHW 3-way valve included.
- Single-phase power supply (230V).

SERVICES

DHW *Heating* *Cooling*

EMISSION SYSTEMS

Radiators *Fan coils* *Underfloor heating and cooling*

MANAGEMENT OF PRODUCTION AREAS

x1 x2

DHW Management *Management of 2 direct zones*

Features

R290 ecoFOREST

ecoGEO⁺ LITE 1-6 PRO



WITHOUT BUFFER TANK

INVERTER TECHNOLOGY

MODEL

ecoGEO⁺ LITE 1-6 PRO

The ecoGEO⁺ LITE 1-6 PRO is the first compact ground-source heat pump with **natural refrigerant** for indoor installation without restrictions thanks to the low refrigerant charge.

Designed for the **building retrofits and decentralised systems**, its **ultra-compact** design allows a simple installation in small spaces, with the possibility of **ground-source, air-source or hybrid** collection, reaching **temperatures of up to 75 °C**.

An economical, versatile, efficient and sustainable solution to modernise any building.

WE 'R' 290

ecoGEO⁺ LITE 1-6 PRO



Less space, less emissions, more comfort

- **Direct replacement of boilers,** ideal for building retrofit.
- Perfect for **decentralised installations.**
- Possibility of **ground-source, air-source or hybrid collection.**
- **Production temperatures above 75 °C,** perfect for high temperature radiators.
- **Ultra-compact design** (79 x 59.5 x 57.5 cm), the size of a washing machine.
- **Integrated production of DHW, heating and active cooling,** without the need for additional equipment.
- **Flexibility in the size of the DHW tanks,** adapting to different needs.
- **No need for a buffer tank,** optimising space and installation.
- **Wide operation range,** optimum performance in all conditions.

ecoGEO+ PRO



WATER - WATER

Inverter ground-source heat pump with natural refrigerant R290

- Inverter technology with R290 refrigerant. GWP: 3. Power range: 1-6 kW / 2-10 kW / 4-16 kW.
- DHW production temperatures of up to 75 °C without electrical support.
- Domestic hot water production, heating, swimming pool and active cooling.
- 165 l stainless steel DHW tank integrated in the ecoGEO+ Compact models.
- Integrated energy meters and internet control via ecoSMART easynet.
- **Variable speed compressor. No need for buffer tank.**
- Hybridisation with photovoltaic energy.
- Single-phase (230V) or three-phase (400V) power supply depending on the models.
- **It reduces borehole depth by adapting to the actual power demand.**
- **HTR technology** for DHW production, simultaneous production of services up to 75 °C without electrical support, except for the ecoGEO+ 1-6 PRO model.
- No need for a buffer tank in most installations (*).

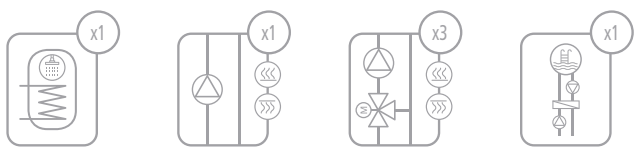
SERVICES

DHW · *Heating* · *Cooling* · *Swimming Pool*

EMISSION SYSTEMS

Radiators · *Fan coils* · *Underfloor heating and cooling*

MANAGEMENT OF PRODUCTION AREAS



DHW Management · *Management of 1 direct zone* · *Management of 3 mixed zones. Except ecoGEO+ 1-6 PRO: 2 mixed zones* · *Pool management*

Features



ecoGEO⁺ 1-6 / 2-10 / 4-16 Basic PRO

WITHOUT BUFFER TANK*

INVERTER TECHNOLOGY

HTR HIGH TEMPERATURE RECOVERY

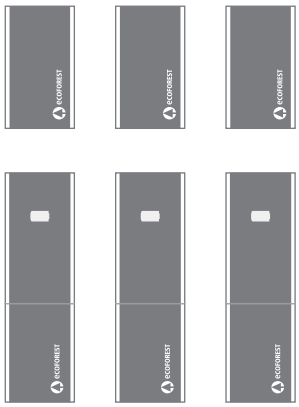
EXCEPT **ecoGEO⁺ 1-6 PRO**

ecoGEO⁺ 1-6 / 2-10 / 4-16 Compact PRO

MODELS

- ecoGEO⁺ 1-6 PRO
- ecoGEO⁺ 2-10 PRO
- ecoGEO⁺ 4-16 PRO

CASCADE

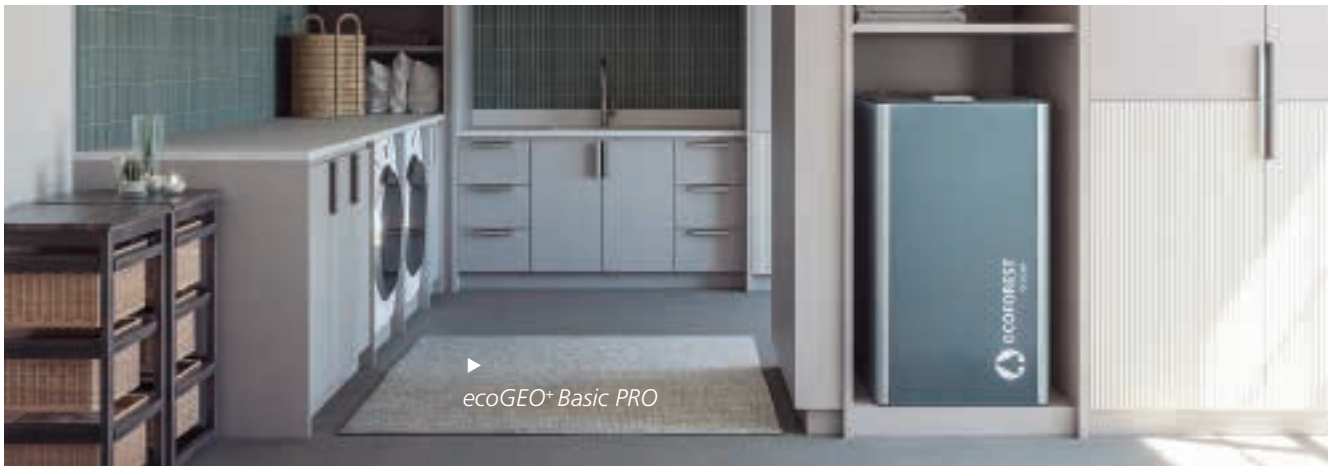


WE 'R' 290

ecoGEO⁺ PRO, the first with natural refrigerant R290

The ecoGEO⁺ PRO heat pump was **the first ground-source heat pump in the world** to use propane (R290) as refrigerant and to be suitable for **unrestricted indoor installation.** This is possible thanks to its low refrigerant charge (ecoGEO⁺ 1-6 PRO) and venting system (ecoGEO⁺ 2-10 PRO and ecoGEO⁺ 4-16 PRO).

The use of propane as a refrigerant offers exceptional performance, allowing **hot water temperatures above 75 °C** to be achieved with a natural and sustainable refrigerant. In addition, propane is combined with Ecoforest's unique advantages, such as photovoltaic hybridisation for optimal integration with solar energy, High Temperature Recovery (HTR) technology for virtually cost-free DHW production (except for the ecoGEO⁺ 1-6 PRO) or the ability to eliminate buffer tanks in most installations.



ecoGEO⁺ Basic PRO

(*) *In most of the installations*

ecoGEO+ Basic · Compact





SERVICES



DHW



Heating



Cooling

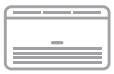


Swimming Pool

EMISSION SYSTEMS



Radiators

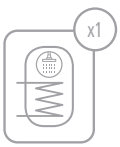


Fan coils

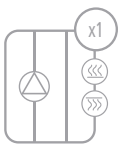


Underfloor heating and cooling

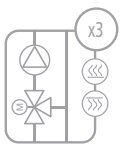
MANAGEMENT OF PRODUCTION AREAS



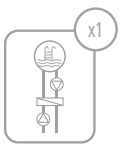
DHW Management



Management of 1 direct zone



Management of 3 mixed zones



Pool management

WATER - WATER

Inverter ground-source heat pumps

- Inverter technology and Scroll compressor.
- Power range: 1-9 kW / 3-12 kW / 5-22 kW.
- **HTR technology** for DHW production, simultaneous production of services up to 70 °C without electrical support.
- Domestic hot water production, heating, swimming pool and active cooling.
- Stainless steel DHW tank of 165 l integrated in the ecoGEO+ Compact models.
- Integrated energy meters and internet control via ecoSMART easynet.
- **Variable speed compressor. No need for buffer tank.**
- Hybridisation with photovoltaic energy.
- Single-phase (230V) or three-phase (400V) power supply depending on the models.
- **It reduces borehole depth by adapting to the actual power demand.**
- No need for a buffer tank in most installations (*).

Features





WITHOUT BUFFER TANK*

INVERTER TECHNOLOGY

HTR
HIGH TEMPERATURE RECOVERY

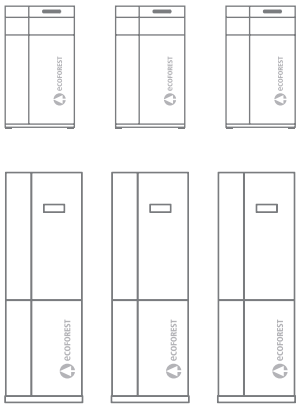
MODELS

ecoGEO+ 1-9

ecoGEO+ 3-12

ecoGEO+ 5-22

CASCADE



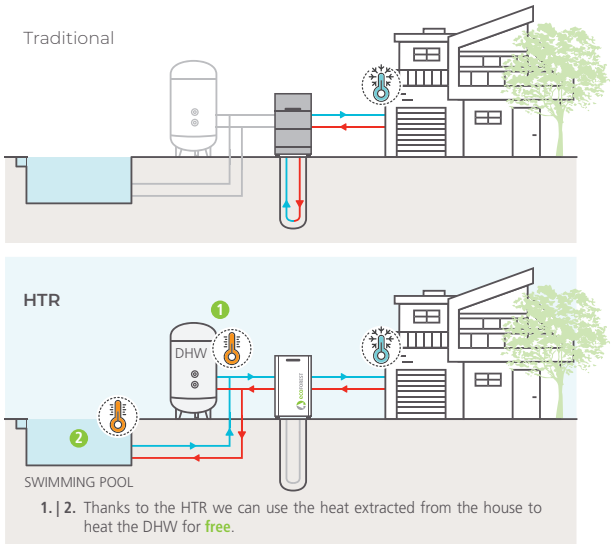
HTR, heat recovery for the best performance

The HTR (High Temperature Recovery) system consists of a heat recovery unit that allows recovering the thermal energy discharged by the compressor at high temperature when the unit is producing heating or cooling.

Through this heat recovery it is possible to produce domestic hot water up to 65 °C. This unique technology also allows the simultaneous production of DHW and heating or DHW and cooling, achieving considerably higher efficiencies than conventional heat pumps, since the production of hot water is done practically free of charge by recovering the high temperature at the compressor discharge.

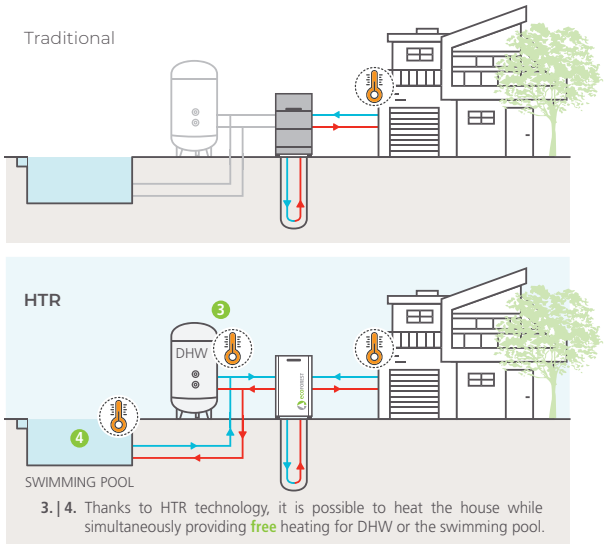
This, along with its Inverter technology and Ecoforest control strategies, optimizes the performance of the ecoGEO+ Basic and Compact units, positioning them among the most efficient ground-source heat pumps on the market.

REFRIGERATION



1. | 2. Thanks to the HTR we can use the heat extracted from the house to heat the DHW for free.

HEATING



3. | 4. Thanks to HTR technology, it is possible to heat the house while simultaneously providing free heating for DHW or the swimming pool.

These infographics are a representation. The heat pumps are installed inside the house

(*) *In most of the installations*

ecoGEO+ HP



WATER - WATER

Inverter ground-source heat pumps

- Inverter technology and Scroll compressor.
- Power ranges: 12-45 kW / 15-60 kW / 20-85 kW.
- Production of heating, active cooling, passive cooling, DHW and swimming pool.
- Control via the Internet with the ecoSMART easynet kit.
- Hybridisation with photovoltaic energy.
- Simultaneous production of heating and cooling.
- Hybridisation of collection sources with the ecoSMART e-source.
- Three-phase power supply (400V).
- Integrated energy and yield meters.
- Control of external auxiliary equipment (gas boilers, heating elements, etc.).
- **Variable speed compressor.**
- DHW recirculation control.
- **HTR technology** for DHW production, simultaneous production of services up to 70 °C without electrical support.

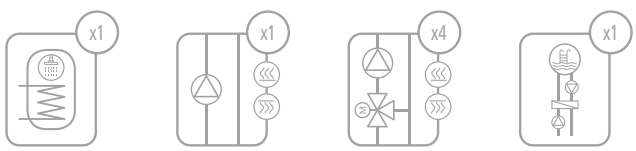
SERVICES

DHW | *Heating* | *Cooling* | *Swimming Pool*

EMISSION SYSTEMS

Radiators | *Fan coils* | *Underfloor heating and cooling*

MANAGEMENT OF PRODUCTION AREAS



DHW Management | *Management of 1 direct zone* | *Management of 4 mixed zones* | *Pool management*

Features



HTR
HIGH TEMPERATURE RECOVERY

INVERTER TECHNOLOGY

ecoGEO⁺ HP

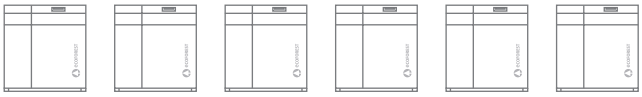
MODELS

ecoGEO⁺ HP 12-45

ecoGEO⁺ HP 15-60

ecoGEO⁺ HP 20-85

CASCADE



Simultaneous cooling and heating, the solution for high demands

The thermal needs of industrial, commercial and agricultural buildings present different energy demands than those of the residential sector. In many cases, such as hotels, fitness centres, spas, leisure centers or agricultural facilities, it is common to require simultaneous heating and cooling for a large part of the year. For these cases, a total heat recovery system with simultaneous production is the ideal solution. For this reason, Ecoforest has developed an exclusive technology for the efficient management of this type of installation.

The ecoGEO⁺ HP heat pumps are designed to handle these complex demands. Thanks to Ecoforest's advanced control strategies and their high modulation capacity, ecoGEO⁺ HP heat pumps can adapt their thermal power in real time, prioritising the most important demand at any given moment, and use ground-source collection in a modulated way, either as an energy source (heating mode) or as a dissipation system (cooling mode), to maintain an optimal thermal balance in any operating condition.



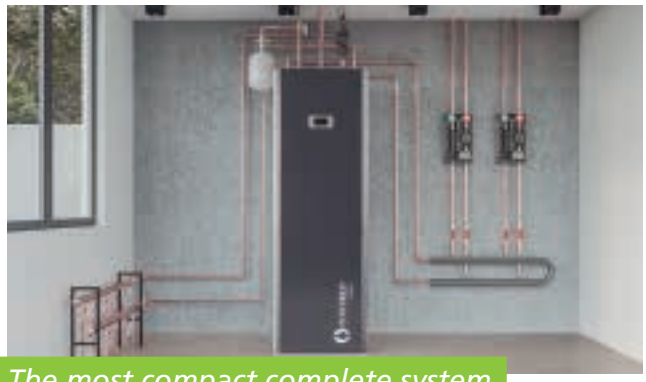
Ground-source solutions
ecoGEO⁺ Basic and Compact



Simplicity and versatility

The ecoGEO⁺ Basic units can be installed with an external hot water tank, so the size can be chosen according to the needs of each installation. Circulation pumps, expansion vessels, safety valves and the three-way DHW valve are integrated into the unit, making installation very simple and compact.

This scheme corresponds to an installation in which the required services are domestic hot water, swimming pool heating, and heating or cooling in two circuits. Since the heat pump includes the circulators, it is not necessary to add a buffer tank and no additional hydraulic elements are required.



The most compact complete system

The ecoGEO⁺ Compact units incorporate a 165-litre stainless steel hot water tank.

A complete heating and cooling installation, which would be very complex with other heat pumps, turns out to be very simple and easy to install. The ecoGEO⁺ Compact pumps avoid the installation of a buffer tank thanks to their high modulation capacity. In addition, the heat pump is also able to manage the heating of the pool.



Smart cascade management

The ecoGEO⁺ Basic and ecoGEO⁺ Compact heat pumps can be installed in cascade of up to 3 units in parallel, reaching a total modulating capacity between 5 kW and 66 kW in a single installation. This does not require any additional control devices because the cascade management is integrated in the control strategies included in the Ecoforest software. These control strategies for cascade installations have several advantages, as the system accurately tracks the operating hours of each cascade unit to extend its lifetime and prioritises its operation at part loads to optimise its performance at all times. In addition, the management capacity is multiplied by the number of units that make up the cascade, resulting in installations capable of meeting any demand.

Ground-source solutions
ecoGEO+ HP

The ideal solution for a classic installation



Simultaneous production



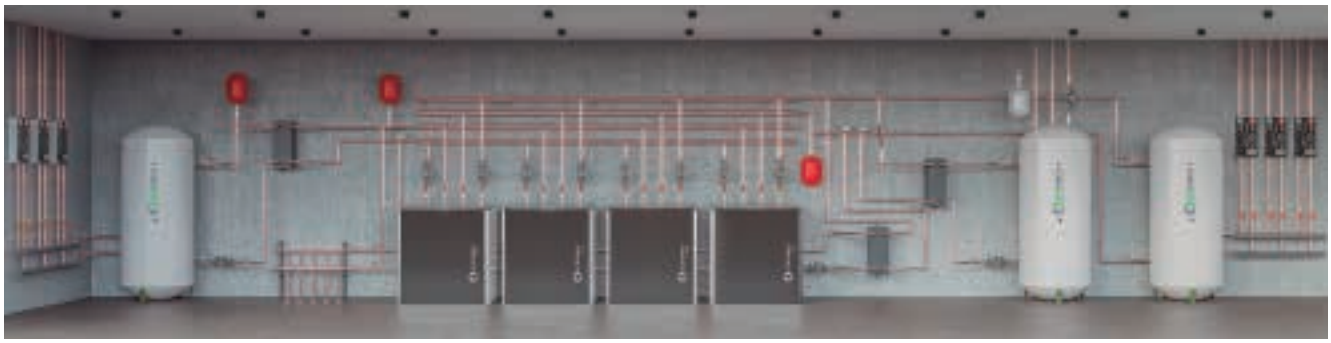
The ecoGEO+ HP heat pumps enable more efficient and simpler installations in both industrial applications and residential buildings with high thermal demands. Their ability to manage up to 5 heating and cooling zones, together with the integrated cycle inversion, ensures optimal adaptation to any type of demand. In addition, they offer the possibility of installing a DHW tank according to the needs of the building. Thanks to Inverter technology, with modulation ranges of up to 80%, the volume of the required buffer tanks is significantly reduced and can even be eliminated completely. Now, with the integrated HTR system, it is possible to produce DHW virtually free of charge, maximizing energy savings and system efficiency.

Cascade and simultaneous production

ecoGEO+ HP heat pumps can be installed in cascades of up to 6 units in parallel. This management capability is possible thanks to the use of the ecoSMART Supervisor manager, which allows an equal distribution of the operating hours of each unit in the cascade, optimising the life and efficiency of the system by seeking partial load operation of all heat pumps.

In addition, these heat pumps can manage heat recovery installations, simultaneous production of heat and cooling, with unique performance thanks to the exclusive control strategies developed by Ecoforest.

These two features make the ecoGEO+ HP ideal for installations where heating and cooling needs often occur simultaneously and represent a significant thermal power. In addition, the management capacity of the ecoGEO+ HP heat pumps is multiplied by the number of units that are part of the cascade, making this system more complete also in terms of control of the installation and its elements.



Parque Empresarial Porto do Molle. Rúa das Pontes 25. 36350 Nigrán - Pontevedra. SPAIN



ecoFOREST

www.ecoforest.com

Ecoforest assumes no responsibility for any errors contained in this document, and reserves the right to make any modifications it deems appropriate at any time and without prior notice, both for technical and commercial reasons. The availability of the equipment will always be confirmed by Ecoforest. Their appearance in this document does not imply their immediate availability.