



Leading the change since 1959

ecoforest

ABOUT

ECOFOREST



Sustainability



Technology focus



Renewable Energy



210 Employees



International company

MILESTONES ECOFOREST



José Carlos Alonso
founds Ecoforest

1959



Invention of the pellet
hydrostove

1993

1992

First manufacturer of pellet
stoves in Europe



2012

Manufacture of the first
ground source heat pump



Inauguration of the
Ecoforest headquarters

2018

2019

Full air source range
with R290



First ground source heat
pump with R290

2020

2024

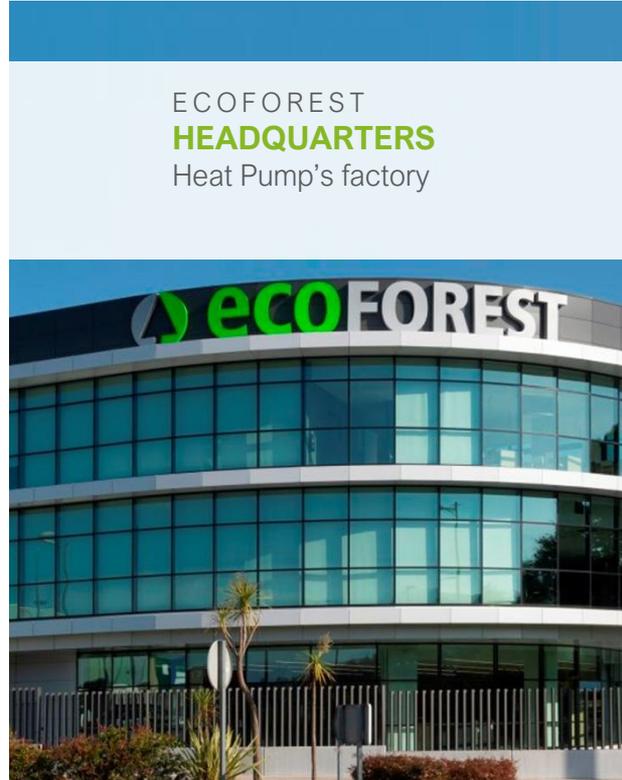
Full ground source range
with R290



FACTORIES



ECOFOREST
VILLACAÑAS
Pellet's factory

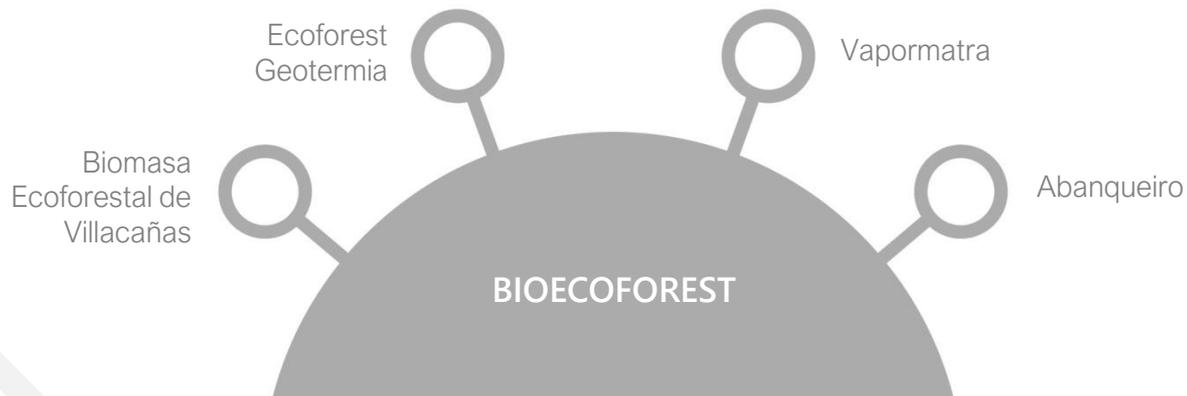
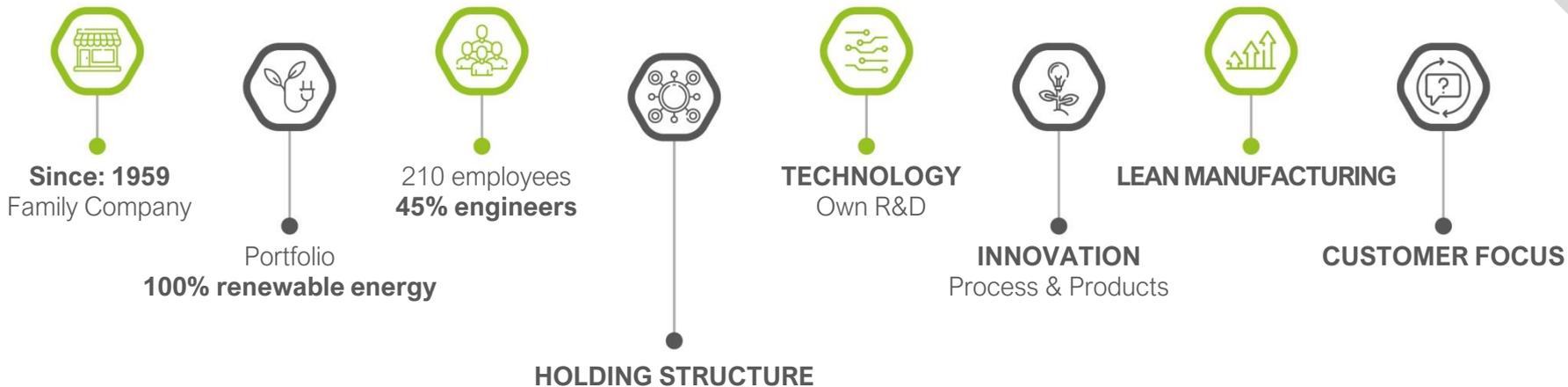


ECOFOREST
HEADQUARTERS
Heat Pump's factory

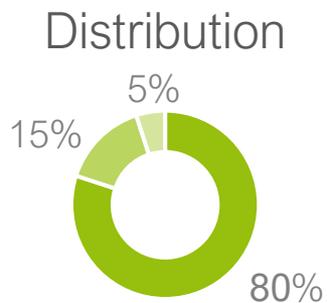


ECOFOREST
VINCIOS
Biomass factory, Training
Center and Retrofit workshop

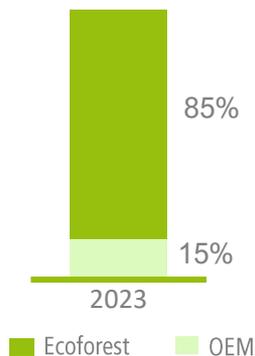
BACKGROUND



TURNOVER



■ Heat pumps ■ Biomass ■ Others



ECOFORST BRANDS



OEMs



INTERNACIONAL PRESENCE

01

EUROPE

Three factories.

Important presence in all markets through local distributors.

Represents an 85% of the total turnover. Average of 5% of the European heat pumps market share.

Own presence in the UK & Germany.

02

AMERICA

Own brand and product range adapted to the market.

Present since 2019. Product fully certified since 2021.

03

AUSTRALIA

Products certified for the Australian market with local distributors.

04

ASIA & AFRICA

Specific projects in West and South Asia. Current distributor in India.

Local distributors in East & South Africa.

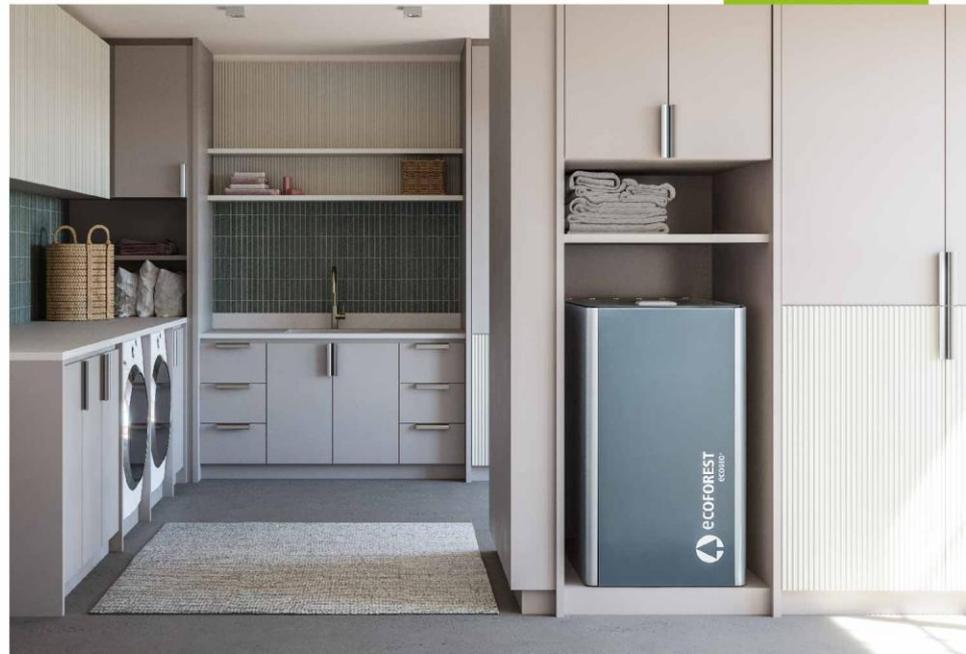


ECOFORST HEAT PUMPS

ecoAIR+



ecogEO+



ecoGEO+ PRO

Basic & Compact

WATER-TO-WATER

165 L DHW Tank

Stainless Steel 316L



POWER OUTPUT

1-6 kW PRO



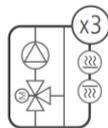
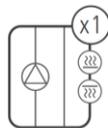
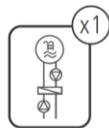
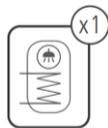
2-10 kW PRO



4-16 kW PRO



INSTALLATION MANAGEMENT



DHW
Up to 75 °C



Heating



Active
Cooling



Free/Passive
Cooling



Ice Melting/
Pool Heating



Hybrid air source

INVERTER



ecoGEO⁺

Basic & Compact

WATER-TO-WATER

165 L DHW Tank

Stainless Steel 316L



DHW
Up to 65 °C



Heating



Active
Cooling



Free/Passive
Cooling



Ice Melting/
Pool Heating



Hybrid air source

INVERTER

POWER OUTPUT

1-9 kW



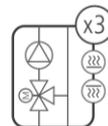
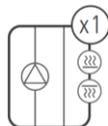
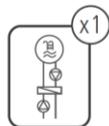
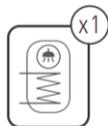
3-12 kW



5-22 kW



INSTALLATION MANAGEMENT



ecoGEO⁺

FEATURES



EVERYTHING INBUILT

- Circulation pumps on both sides.
- Expansion vessels on both sides.
- Electrical heater as back up (6kW).
- DHW 3-way-valve.
- Active Cooling production by reversing cooling cycle through a 4-way-valve.
- Passive/Free Cooling production.
- HTR heat exchanger (desuperheater).

MODULE 1



DHW



Heating



Ice Melting/
Pool Heating

MODULE 3



DHW



Heating



Ice Melting/
Pool Heating



Active
Cooling

POWER SUPPLY

Single Phase 230 V
Three Phase 400 V



PV HYBRIDISATION



REMOTE CONTROL



MODULE 2



DHW



Heating



Ice Melting/
Pool Heating



Free/Passive
Cooling

MODULE 4



DHW



Heating



Ice Melting/
Pool Heating



Active
Cooling



Free/Passive
Cooling

UP TO 3 UNITS IN CASCADE



Without any indoor module or additional controller

ecoGEO+ Lite

WATER-TO-WATER



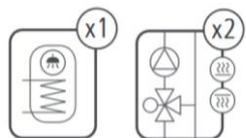
INVERTER

1-6 kW PRO



Single Phase 230 V

INSTALLATION MANAGEMENT



European Standard Furniture Sizing

790 x 595 x 575 mm



DHW



Heating



Active Cooling



Ice Melting/
Pool Heating



Hybrid air source



ecoAIR+

AIR-TO-WATER



DHW



Heating



Active
Cooling



1-7 kW PRO



1-9 kW PRO



3-12 kW PRO



3-18 kW PRO



6-24 kW PRO

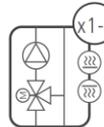
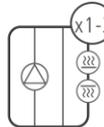
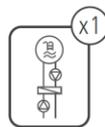
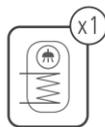


4-20 EVI kW



INVERTER

INSTALLATION MANAGEMENT



ecoAIR⁺

INDOOR MODULES



CM LITE

- Wall mounted.
- Simple and easy installation.
- Removable.
- Possibility to manage DHW & 1 shunt group.
- DHW & heating EH management.



CM

- Wall-mounted indoor module.
- Single cascade controller.
- Possibility to manage DHW & up to 3 shunt groups.
- DHW & heating EH management.



HK-EH-S

- Wall-mounted indoor module.
- Possibility to manage DHW & up to 3 shunt groups.
- DHW & heating EH management.
- All main hydraulic components in-built:
 - Heat exchanger as separator.
 - Circulation pump.
 - DHW 3-way-valve.
 - Electrical Heater.
 - Filling kit & filter.



HK COMPACT-EH-S

- Possibility to manage DHW & up to 3 shunt groups.
- DHW & heating EH management.
- 165 L DHW stainless steel tank.
- All main hydraulic components in-built:
 - Heat exchanger as separator.
 - Circulation pump.
 - DHW 3-way-valve.
 - Electrical Heater
 - Filling kit & filter.

ecoAIR⁺

FEATURES



INVERTER

EVERYTHING INBUILT

- Circulation pump included.
- Active Cooling production by reversing cooling cycle through a 4-way-valve.
- Fitting support kit.

POWER SUPPLY

Single Phase 230 V
Three Phase 400 V

PV HYBRIDISATION

REMOTE CONTROL

SERVICES



DHW



Heating



Ice Melting/
Pool Heating



Active
Cooling

UP TO 6 UNITS IN CASCADE



Up to 144 kW in a single cascade with just one indoor module.

DDC DEFROST SYSTEM



HYBRIDISATION

Boiler
Stove
Electrical heater
Chiller



ecoGEO+ HP

Up to 510 kW in a single cascade

WATER-TO-WATER

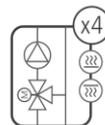
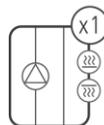
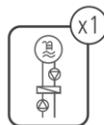
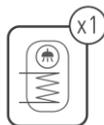


POWER OUTPUT



INVERTER

INSTALLATION MANAGEMENT



DHW
Up to 65 °C



Heating



Active
Cooling



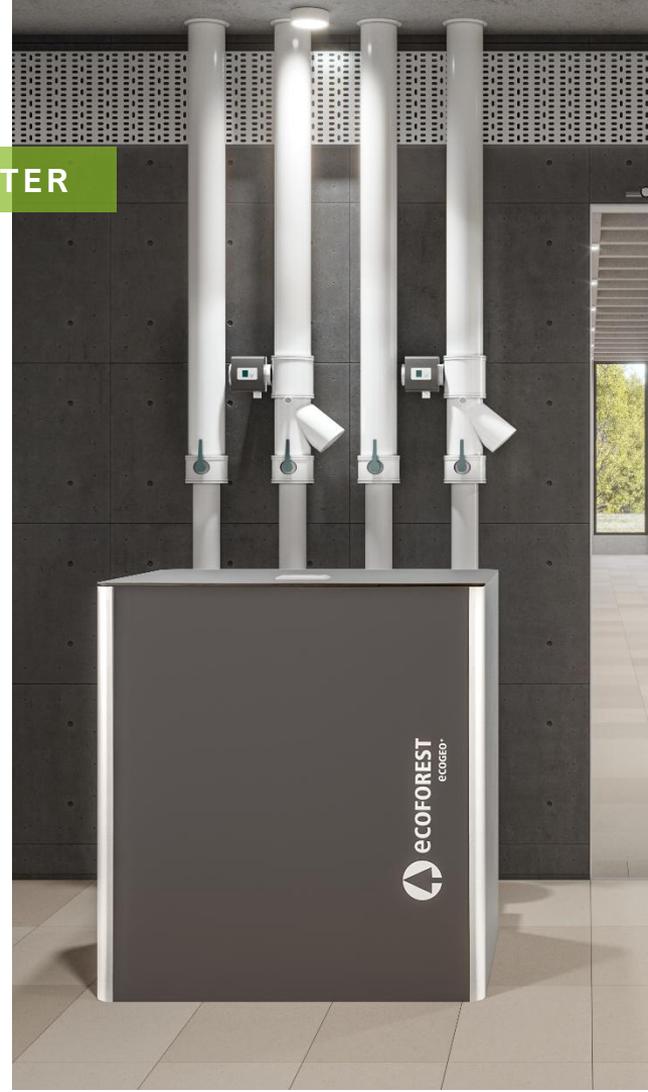
Free/Passive
Cooling



Ice Melting/
Pool Heating



Hybrid air source



ecoGEO⁺ HP

FEATURES



SERVICES



DHW
Up to 65 °C



Heating



Active
Cooling



Free/Passive
Cooling



Ice Melting/
Pool Heating



Hybrid air source

UP TO 6 UNITS IN CASCADE



Up to 510 kW in a single cascade with a single indoor module.

EVERYTHING INBUILT

- Cooling production by reversing cooling cycle through a 4-way-valve.
- HTR heat exchanger (desuperheater).
- Simultaneous heating-cooling management inbuilt.

POWER SUPPLY

Three Phase 400 V



PV HYBRIDISATION



HYBRIDISATION

Boiler
Stove
Electrical heater
Chiller



REMOTE CONTROL



Details that mean quality, quality that makes the difference.

- Full Inverter Modulation and control strategies
- Natural refrigerants.
- Cooling production.
- Being more efficient: HTR.
- Defrosting system: DDC
- Software management.
- Combination with PV.
- Hybridisation.
- Suitable on all systems.
- Remote control.
- Ecoforest Academy.



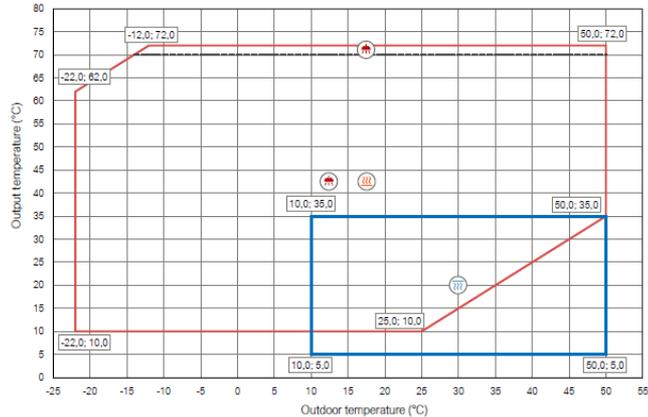
Inverter technology and control strategies

TECHNOLOGICALLY DIFFERENT

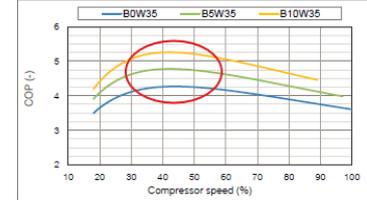
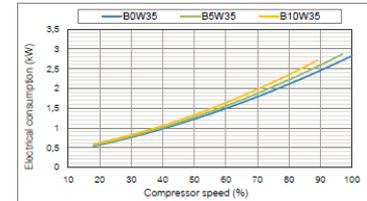
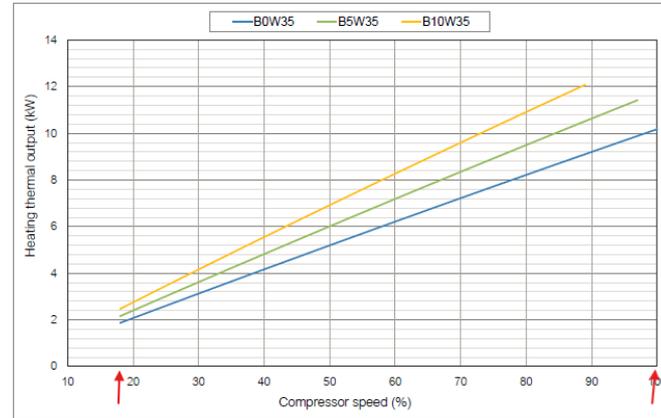
- Software and control strategies are developed exclusively by Ecoforest's R&D department.
- Full Inverter Technology → Widest modulation ranges on the market. From 12.5% up to 100%.
- Most of the time the HP operates at partial loads between 30% and 60% of the total output.
- Very extensive operational map → Operation under extreme conditions.
- Reduction of compressor starts and stops.



Operational chart



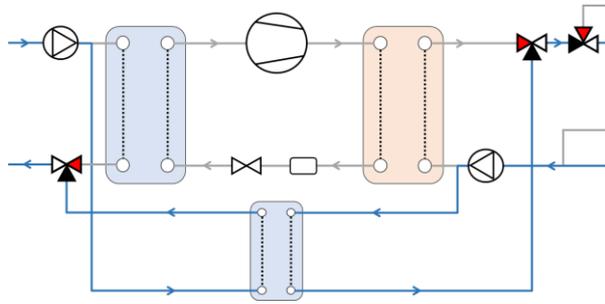
Performance curves



COOLING PRODUCTION

TECHNOLOGICALLY DIFFERENT

Free Cooling



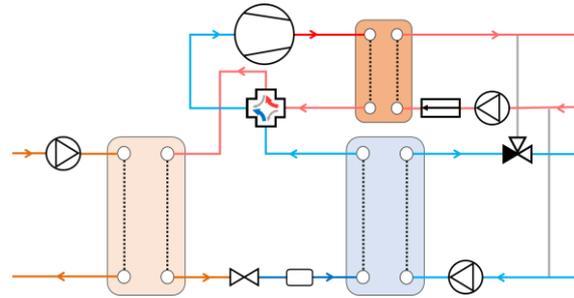
ecoGEO+ Basic & Compact

→ Models 2 and 4 in-built

ecoGEO+ HP

→ External management

Active Cooling



ecoGEO+ Basic & Compact

→ Models 3 and 4 in-built

ecoGEO+ HP

→ Model HP3 in-built

ecoAIR+

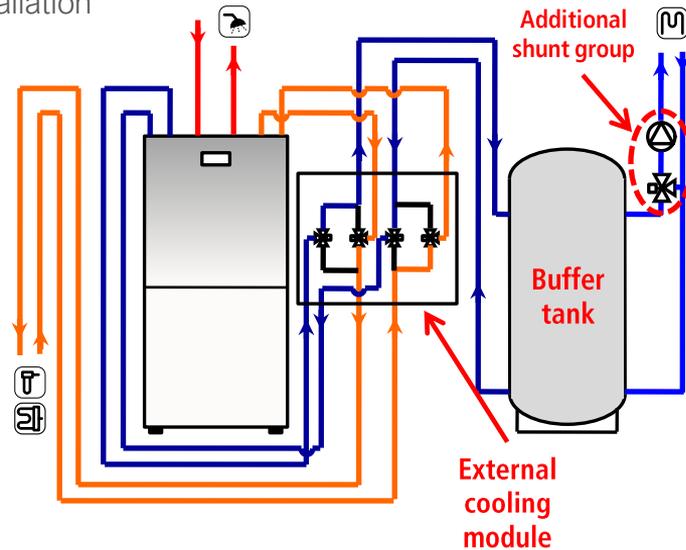
→ Included in all models

COOLING PRODUCTION

TECHNOLOGICALLY DIFFERENT

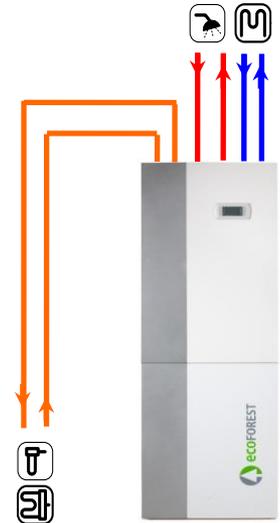
- No external hydraulic inversion
- Significant reduction of investment
- Much simpler, compact and economical installation
- Savings in:
 - ✓ Money
 - ✓ Space
 - ✓ Installation time

Traditional installation



ecoGEO+ Installation

✓ 4 WAY-VALVE



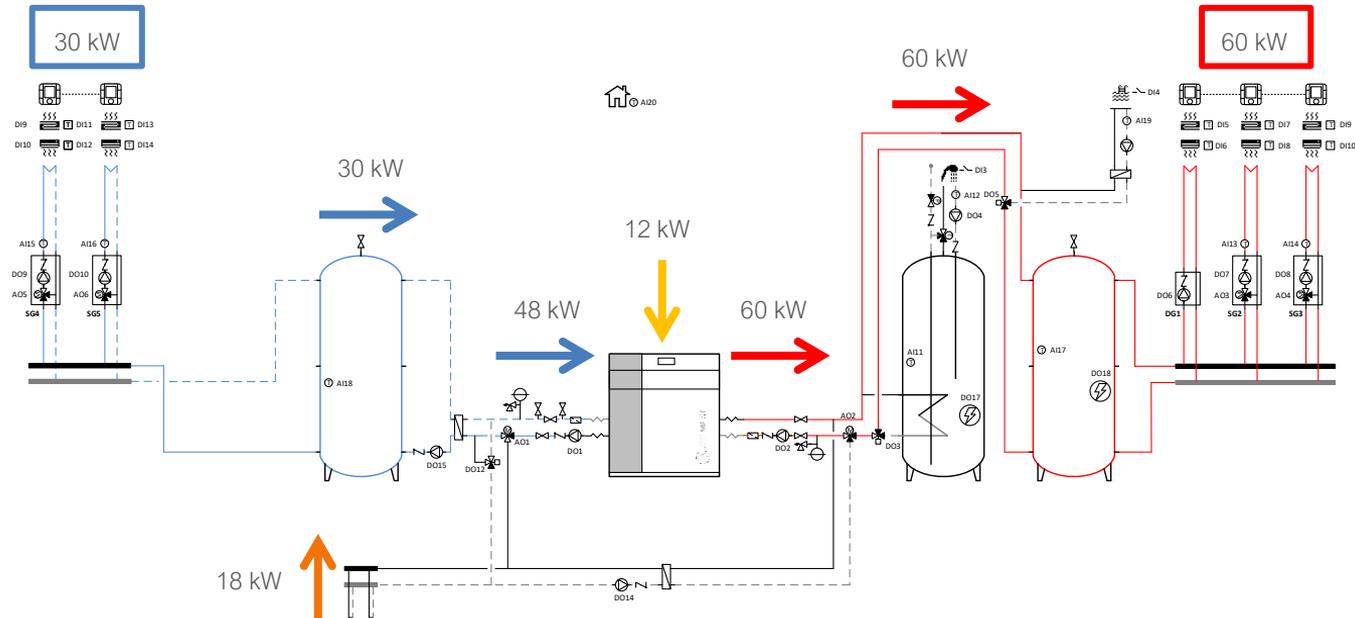
COOLING PRODUCTION

TECHNOLOGICALLY DIFFERENT

Simultaneous production
Heating & Cooling

$$COP\ Installation = \frac{60kW + 30\ kW}{12\ kW} = 7,5$$

- Heating demand: 60kW
- Cooling demand: 30kW



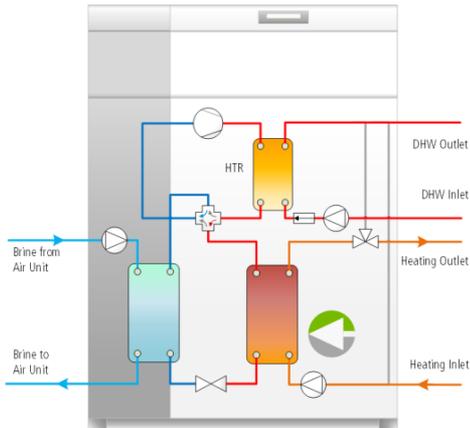
HTR

TECHNOLOGICALLY DIFFERENT

HOW DOES IT WORK?

1. HARDWARE

Additional heat exchanger at the exit of the compressor, direct supply to the DHW tank or pool.



2. SOFTWARE

2 different setpoints:

- DHW setpoint – 45 °C
- HTR setpoint – 70 °C

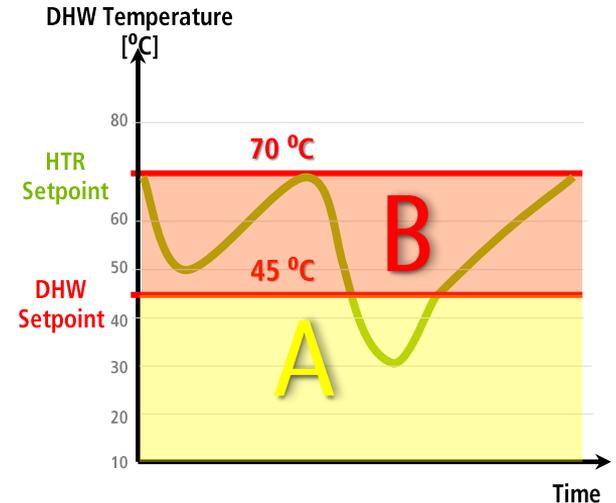
2 work areas

• Area A

The heat pump produces only DHW using the main condenser and circulator (more power available, faster heating of DHW).

• Area B

The heat pump continues to heat the DHW with the desuperheater up to HTR Setpoint, while simultaneously satisfying the heating and cooling demands.

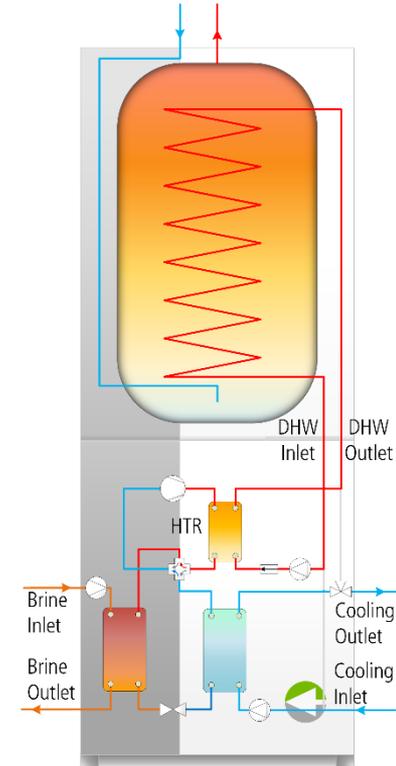


HTR

TECHNOLOGICALLY DIFFERENT

RESULTS AND ANVANTAGES

- Heating/Cooling and DHW or Pool heating simultaneously
- DHW production up to 70°C without any type of electrical support
- Great reduction of the number of cycle reversions
- Greater comfort, it is not necessary to interrupt the production of heating or cooling when there is a moderate demand for DHW
- Performance increase of up to 200%.

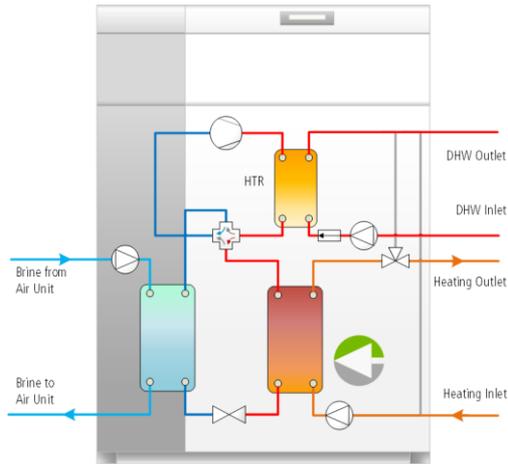


HTR

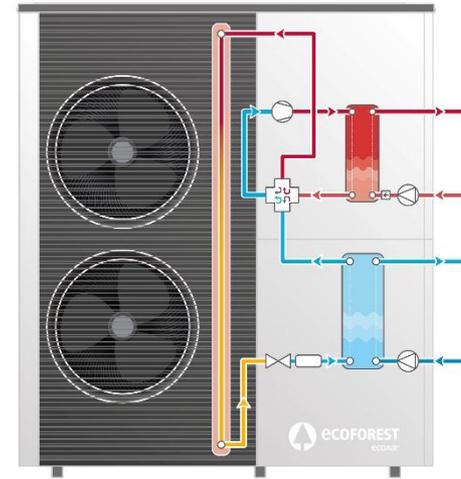
TECHNOLOGICALLY DIFFERENT

- ✓ Available in all the ecoGEO+ range
- ✓ Available in ecoAIR+ 6-24 PRO

ecoGEO+ B/C and ecoGEO+ HP



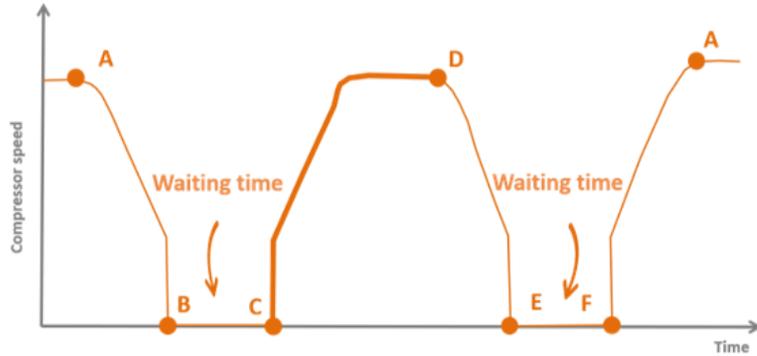
ecoAIR+ 6-24 PRO (G3)



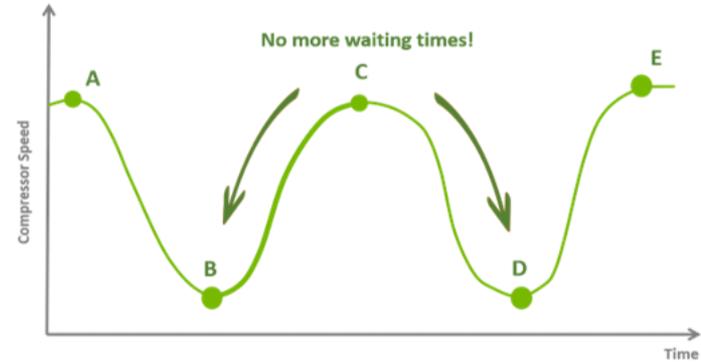
DDC: DYNAMIC DEFROST CYCLE

TECHNOLOGICALLY DIFFERENT

TRADITIONAL DEFROST CYCLE



DDC



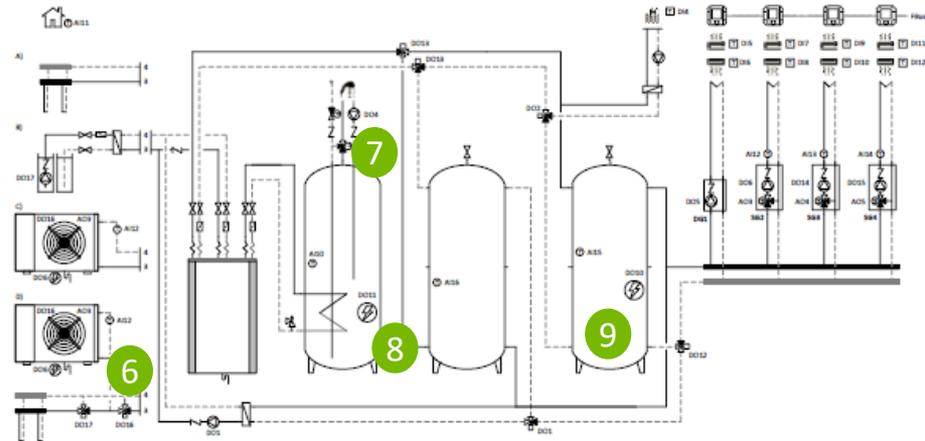
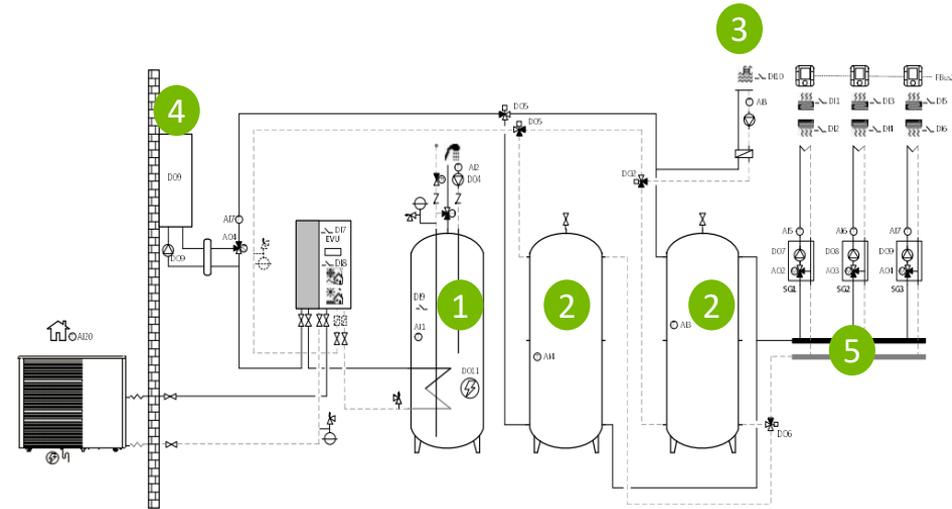
**Thanks to the DDC,
we achieve**

- ✓ Reduction of defrosting time
- ✓ Increased of thermal power delivery
- ✓ Increased compressor's lifespan

Own software

TECHNOLOGICALLY DIFFERENT

Ecoforest heat pumps incorporate the hydraulic circuit controls inside the heat pump, without the need for external controllers. Control system based on PCOOEM+ (CAREL).



Cascade management

TECHNOLOGICALLY DIFFERENT

% Compressor
power

100 %

80 %

60 %

40 %

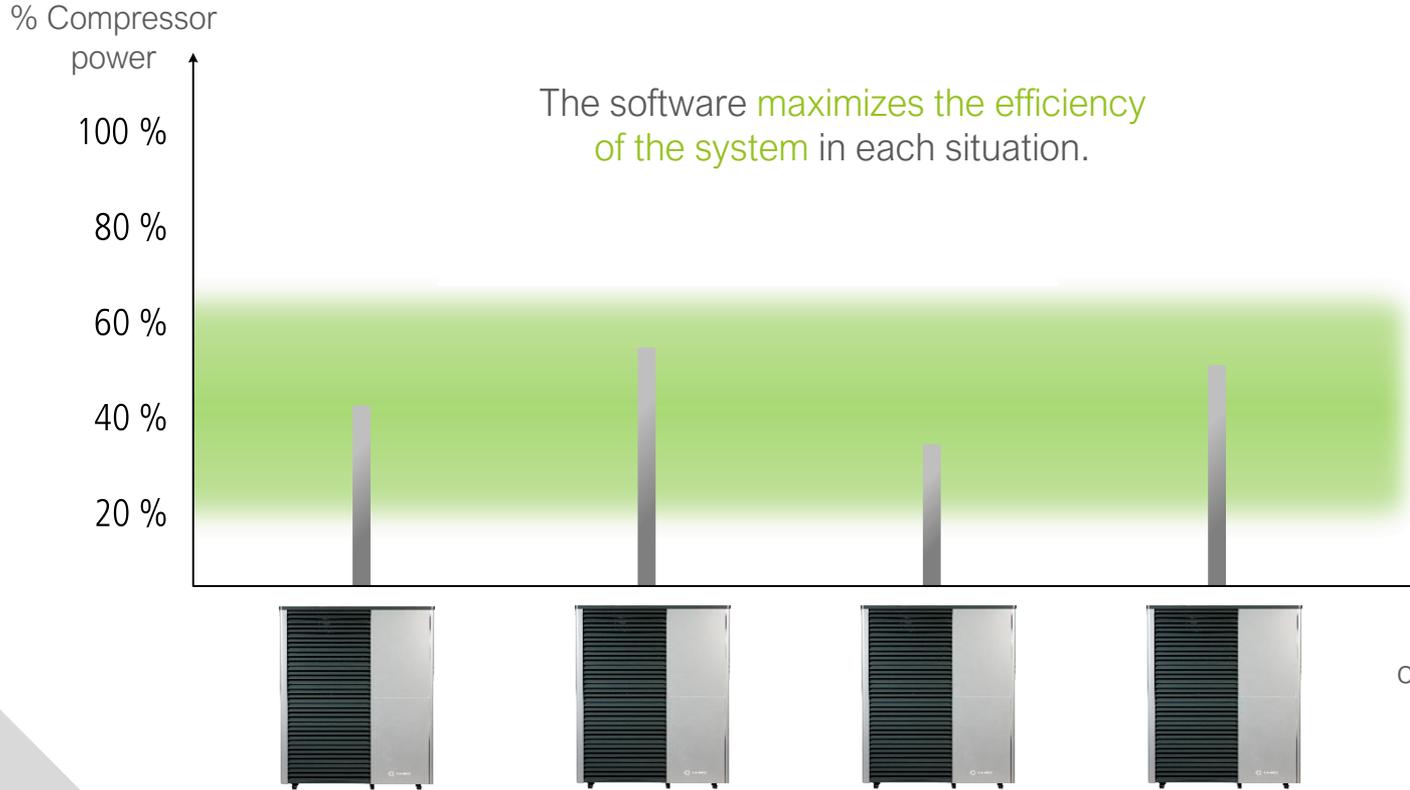
20 %

The software **maximizes the efficiency of the system** in each situation.

It also **balances the operating hours** of heat pumps to increase the lifetime of the entire system.



Heat pump
operating hours

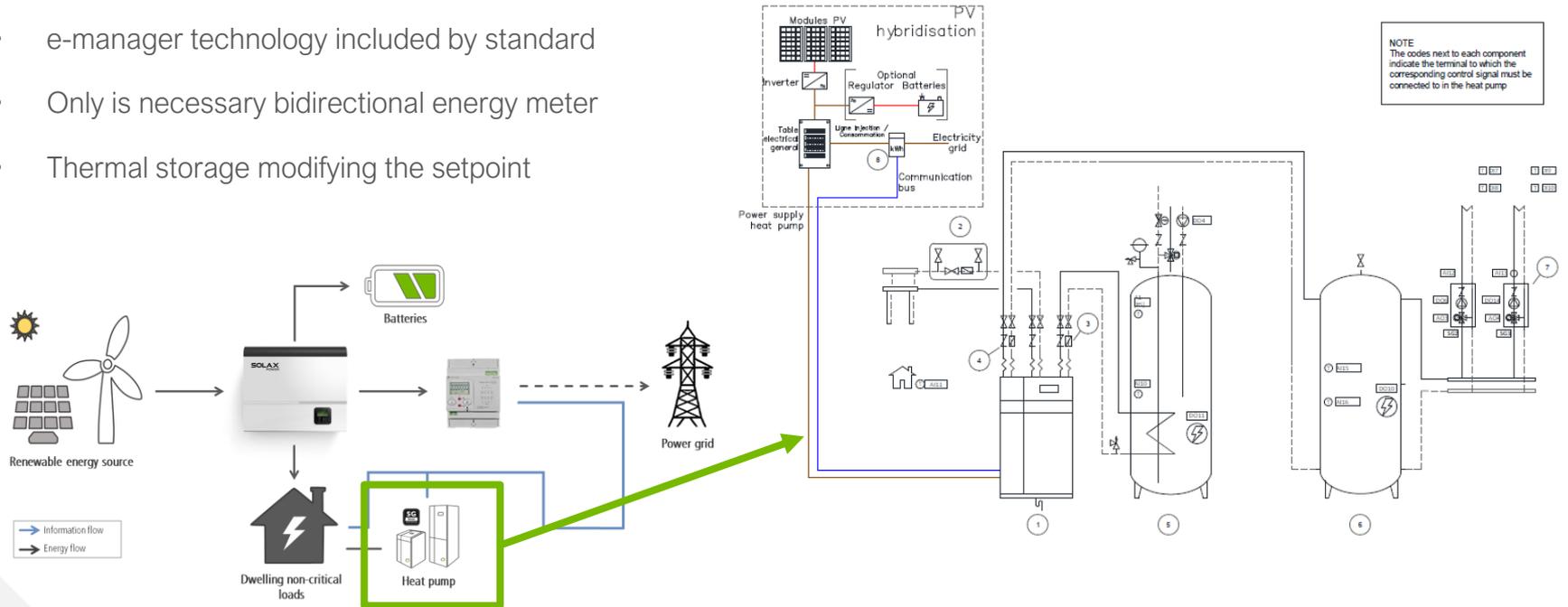


PV Management

TECHNOLOGICALLY DIFFERENT

Scheme of the system

- e-manager technology included by standard
- Only is necessary bidirectional energy meter
- Thermal storage modifying the setpoint

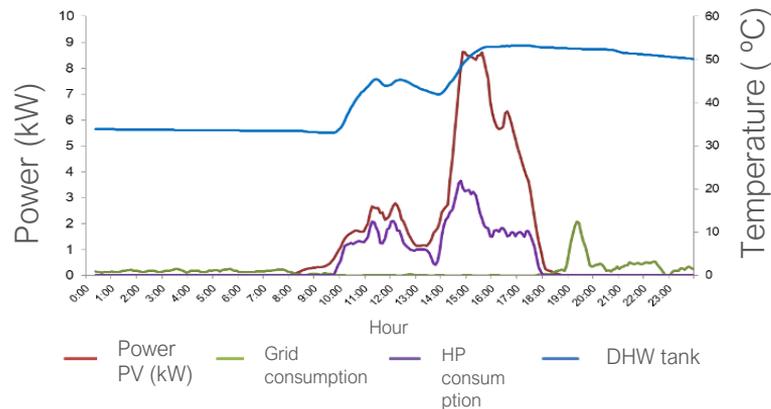
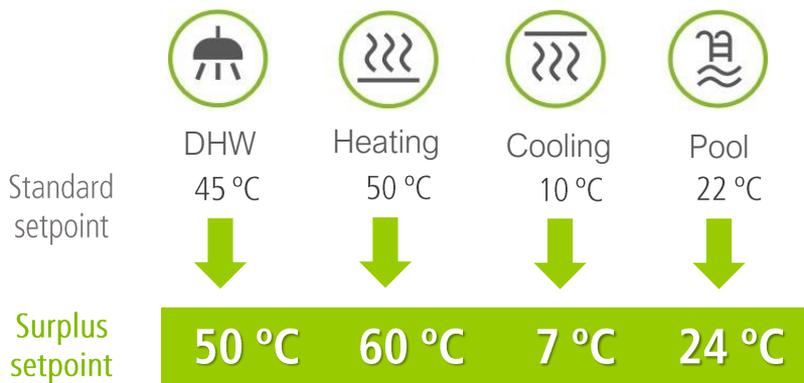


PV Management

TECHNOLOGICALLY DIFFERENT

How it works?

The heat pump will work by adapting its consumption to the surplus photovoltaic energy, making a thermal storage in the form of heating or cooling depending on the configuration.



PV Management

TECHNOLOGICALLY DIFFERENT

Own energy meters already inbuilt

Instantaneous

- Consumed electrical power
- Heating / Cooling power produced
- COP

Monthly and yearly

- Consumed electrical energy
- Heating / Cooling energy produced
- SPF



Ryan Daly · 1er

Owner, Daly Renewables Ltd.

1 mes · 🌐

****Incredible Stat.****

When Daly combine Ecoforest Geothermal Heat Pump and Solar PV systems we maximise the free electricity generated by solar to run the heat pump. In this example, for the last week in October 54% of the heat pump electricity consumption was powered from a 3.68kw Solar PV array. Running cost for one week heating and hot water £1.40. 😊

Reducción



ecoGEO+ & AU

TECHNOLOGICALLY DIFFERENT

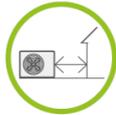
- Air source collection with water – water heat pumps.
- Cheap, easy and fast fitting.
- Hydraulic system without distance limitation.
- Efficient and cheap defrost process.
- Suitable with other sources (ground source + air source).
- Exclusive features



Exclusive defrost



Low noise level



No distance limitation



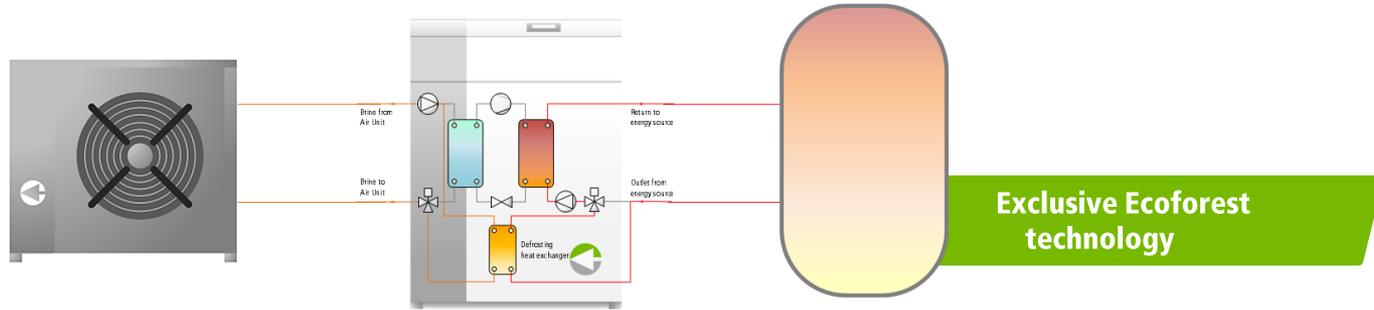
Longer life span



ecoGEO+ & AU

TECHNOLOGICALLY DIFFERENT

Exclusive defrosting: ecoGEO+ Basic & Compact

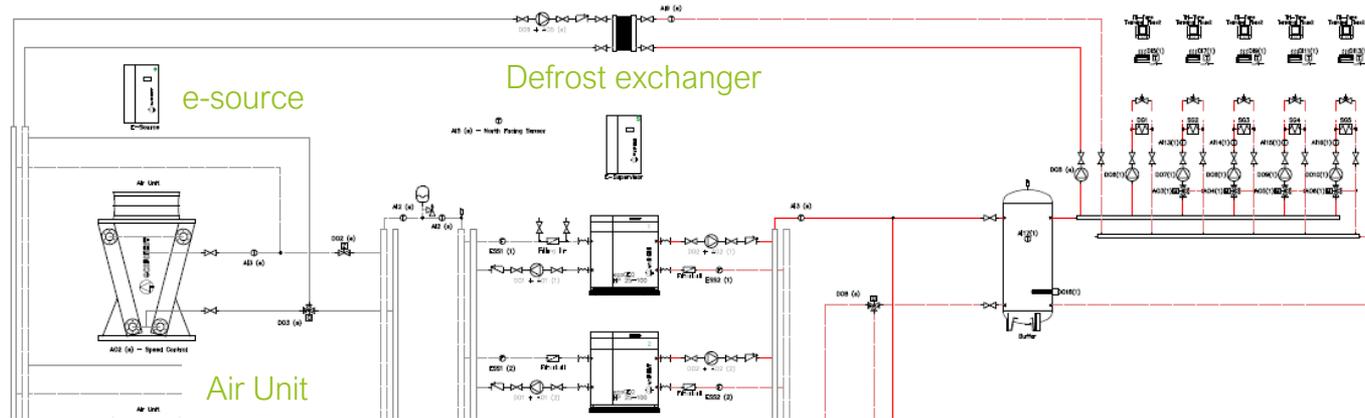


- A secondary heat exchanger is used for defrosting the Air Units.
- The Seasonal Performance (SPF) increases considerably as the compressor is switched off during the process.
- It is not necessary to activate electrical resistances.
- Reduces the defrosting time. It is not necessary to reverse the cycle to carry out defrosts.
- Possibility of selecting the energy source with which the defrost is carried out (DHW, production system, buffer tank or pool).

ecoGEO+ & AU

TECHNOLOGICALLY DIFFERENT

Exclusive defrosting: ecoGEO+ HP



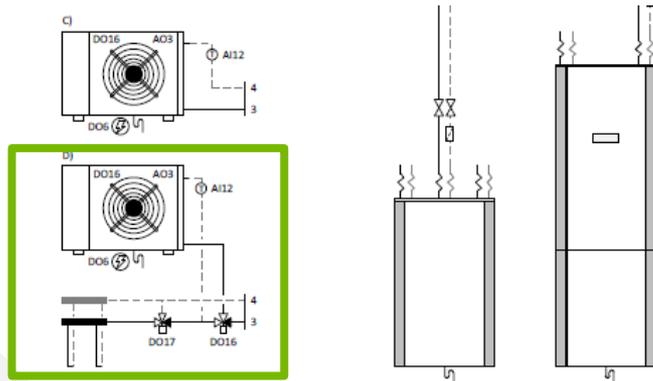
- Same advantages as in the Domestic range.
- Defrost management of the Air Unit without stopping the compressor → Times are reduced
- Exclusive defrost management with an external heat exchanger and the e-source source manager.
- Sequential defrost in case of several Air Units.
- Possibility of selecting the energy source with which to perform the defrost (DHW, buffer tank or pool).

ecoGEO+ & AU

TECHNOLOGICALLY DIFFERENT

Hybrid collection

- Water-water heat pump with air source and ground source collection
→ Unique installations with advantages of both systems.
- Heat pump chooses the most efficient heat source at any given time.
- Reduction of initial investment.
- Redundancy in the event of failure of one of the capture sources.



AIR UNITS

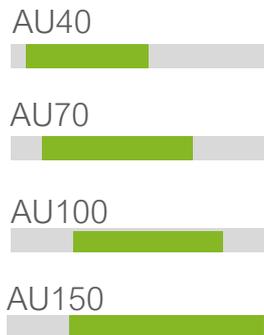
AIR-TO-WATER



Power output / Domestic range



Power output / Commercial range



e-source community

Suitable in all Systems

Decentralized installations with common collection

- Distribution at ambient temperature which reduces temperature losses
- Increased efficiency
- Individual heat pumps per flat
- Individualized consumption
- HTR technology
- The heat pump does not defrost*
- Indoor installation
- Adaptable collection system
- No centralised technical room required



Summary

FULL INVERTER PRODUCT RANGE



ecoGEO+ Basic & Compact



ecoGEO+ HP



ecoGEO+ + AU



ecoAIR+

Water-to-water heat pumps

Air-to-water heat pumps

Water-to-water system

Air-to-water system

ecoSMART

INDOOR MODULES



easynet

- Accessory for internet connection.
- WiFi or ethernet possibilities.
- Remote control & monitoring.
- Access to MyEcoforest.
- Access to the APP.



supervisor

- Wall-mounted indoor module.
- Cascade controller for the ecoGEO+ HP range.
- Up to 6 units.
- Efficiently manage both the capacity and working time of each unit for a cascade. This way, the system is balanced and enjoy increased life span.



e-source

- Wall-mounted indoor module.
- Possibility to manage up to 4 different Heat sources.
- Necessary for hybridisation of heat sources for the ecoGEO+ HP range.
- Efficiently manages system supply by allowing prioritisation of heat sources



e-source community

- Wall-mounted indoor module.
- Controller for multiple individual heat pumps working with the same brine system.
- Useful for a flat of dwellings with individualized production system.
- Efficiently manage and balance the needs to give to each heat pump the flow that it needs.

Remote control & monitoring

TECHNOLOGICALLY DIFFERENT

REMOTE CONTROL

APP

MyEcoforest



COMMUNICATION PROTOCOLS

Ecoforest is also compatible with the following communication protocols





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HEAT PUMPS

📅 April 25, 2024
🕒 09:00
📍 Présentiel

**Formation présentielle.
Pompe à chaleur**



HEAT PUMPS

📅 May 15, 2024
🕒 15:00
📍 Online

**Redesigning Commercial
Water-to-water Heat Pumps,
the new ecoGEO+ HP**



HEAT PUMPS

📅 June 18, 2024
🕒 15:00
📍 Online

**Redesigning Commercial Air-
to-water Heat Pumps, the
New ecoAIR+ PRO**

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