



**Committed
to the planet**

Press Kit
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Committed to the planet

Since its beginnings, **Hispacold** has always shown its commitment to protecting the environment and implementing policies to reduce global warming.

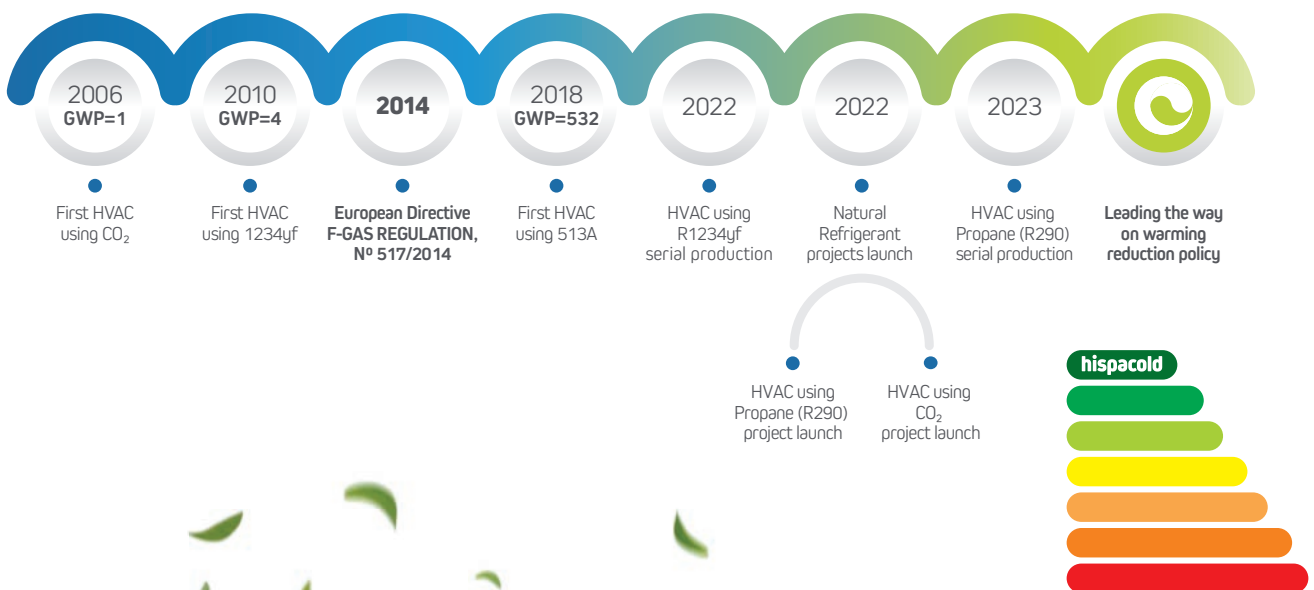
In 2006, ahead of regulatory changes, Hispacold began working on the research, development, and use of alternative refrigerants that had lower global warming potential, such as CO₂, HFO refrigerants, and combined HFOs. In 2006, Hispacold began using CO₂ in its HVAC systems, long before other companies in the sector followed suit.

In 2010, the company was also a pioneer in testing HVAC systems with the HFO-1234yf refrigerant.

When the European Directive F-GAS REGULATION No. 517/2014 was enacted in 2014, Hispacold was already working with refrigerants that had lower global warming potential (GWP<150), such as R-744 (carbon dioxide) and HFO-1234yf.

Currently, Hispacold is in the process of testing many systems which operate with synthetic refrigerants that have low global warming potential.

Ultimately, Hispacold is ready to deal with any new change in course when it comes to policies for reducing global warming.



eBreeze: Hispacold's electric range that provides more efficient and sustainable solutions in order to meet the needs of electromobility

The equipment in the electric Breeze range reduces weight by 20% and refrigerant charge by more than 40% compared to previous electric ranges.

Since 2005, Hispacold has offered different ranges of 100% electric air conditioning systems, designed to meet all the needs of electromobility, local, intercity and private vehicles, for all climate and/or environmental zones. The new e-Breeze Range is more compact and lightweight, with a completely refreshed modular design. It is characterized by the ease with which it adapts to the needs of the customer, as well as higher levels of power and sustainability. With the launch of this range of HVAC systems, Hispacold is raising its quality standards, complying with the highest technical requirements of the sector, while also contributing to a reduction in the total cost of ownership (TCO).

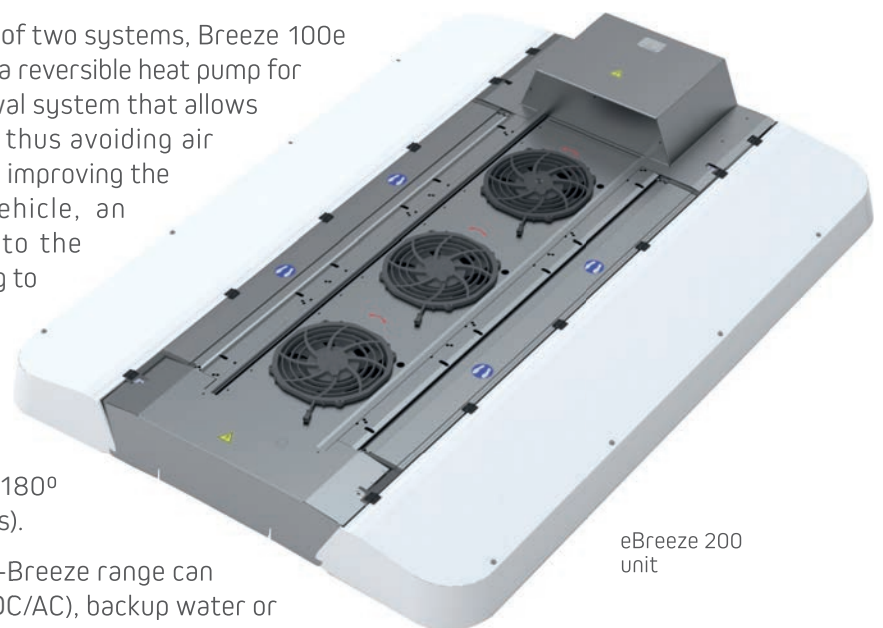
In 2022, as a result of some intense innovation and development work, the Seville company, a leader in air conditioning systems for buses, coaches and railway vehicles, launched its electric e-Breeze version to market, meeting the current needs of the electromobility market.

The electric range currently consists of two systems, Breeze 100e and Breeze 200e, both of which have a reversible heat pump for producing cold and heat, an air renewal system that allows them to work with 100% fresh air, thus avoiding air recirculation in the compartment and improving the hygiene conditions inside the vehicle, an extraction system that is built into the equipment itself, mechanical fastening to the roof of the vehicle, a simple circuit and a lateral air intake. In addition, they are characterized by their ability to adapt to the vast majority of vehicle roof radii, and their symmetry (option of rotating 180° without changing the anchoring points).

As an option, the equipment in the e-Breeze range can incorporate an Inverter System (HVDC/AC), backup water or PTC heating, fan and turbine diagnostics and eco3 air purifiers.

Available in multiple configurations, the e-Breeze systems reduce weight by more than 20% compared to previous Hispacold electric ranges, and they require 40% less refrigerant gas charge than previous ranges.

The equipment in the electric Breeze range works with the R134a refrigerant, but is also available for R513A or R1234yf refrigerants, with a lower GWP index, guaranteeing less of an impact on the environment. The compressor is connected to the equipment (AC or HVDC) with 2/3 position connectors, ensuring compliance with regulations R100 and E10 (EMC).



eBreeze 200
unit

Hispacold launches its netiOs range

The netiOs range of control panels is characterized by its modularity, thanks to the Master-Slave concept, its simple, robust, flexible, intuitive design, and the ease with which it can be integrated.

Alongside the development of its Breeze and eBreeze HVAC systems, and its new systems for articulated and double decker vehicles, Hispacold has developed a range of control panels which are capable of meeting the control needs of all this equipment, and of any other configuration.

This range of netiOs controls has been manufactured using state-of-the-art electronic components, allowing the weight and dimensions to be reduced while also incorporating new features and functions, such as the option to connect to fleet management tools, remote diagnostics, and the simplification of electric panels and installations, thanks to direct charge management that does not require intermediate operating modules. This direct charge management function also allows the diagnostic capacity to be increased, for both electrical connections and components, as there is direct visibility between the control panel and the charge that is being managed.

The new netiOs HMI and netiOs i20 join the finished products that are already established: netiOs MP and netiOs MD. These four models are capable of meeting all the market's needs, thanks to their flexible, modular architecture. All the models can be combined with each other, in order to offer the optimal solution from a features and cost point of view, thanks to the standardization of their communication and diagnostic protocols.

The netiOs range offers improved connectivity, with optional Bluetooth and Wi-Fi modules, and is compatible with the unified diagnostic protocol (UDS). In addition, it is able to control fans and components made by Hispacold as well as those made by other manufacturers, thanks to the LIN and PWM control outputs.

The netiOs control panels have been designed to have increased predictive capacity, as they have a greater number of inputs for reading additional sensors.



netiOs MD



netiOs i20

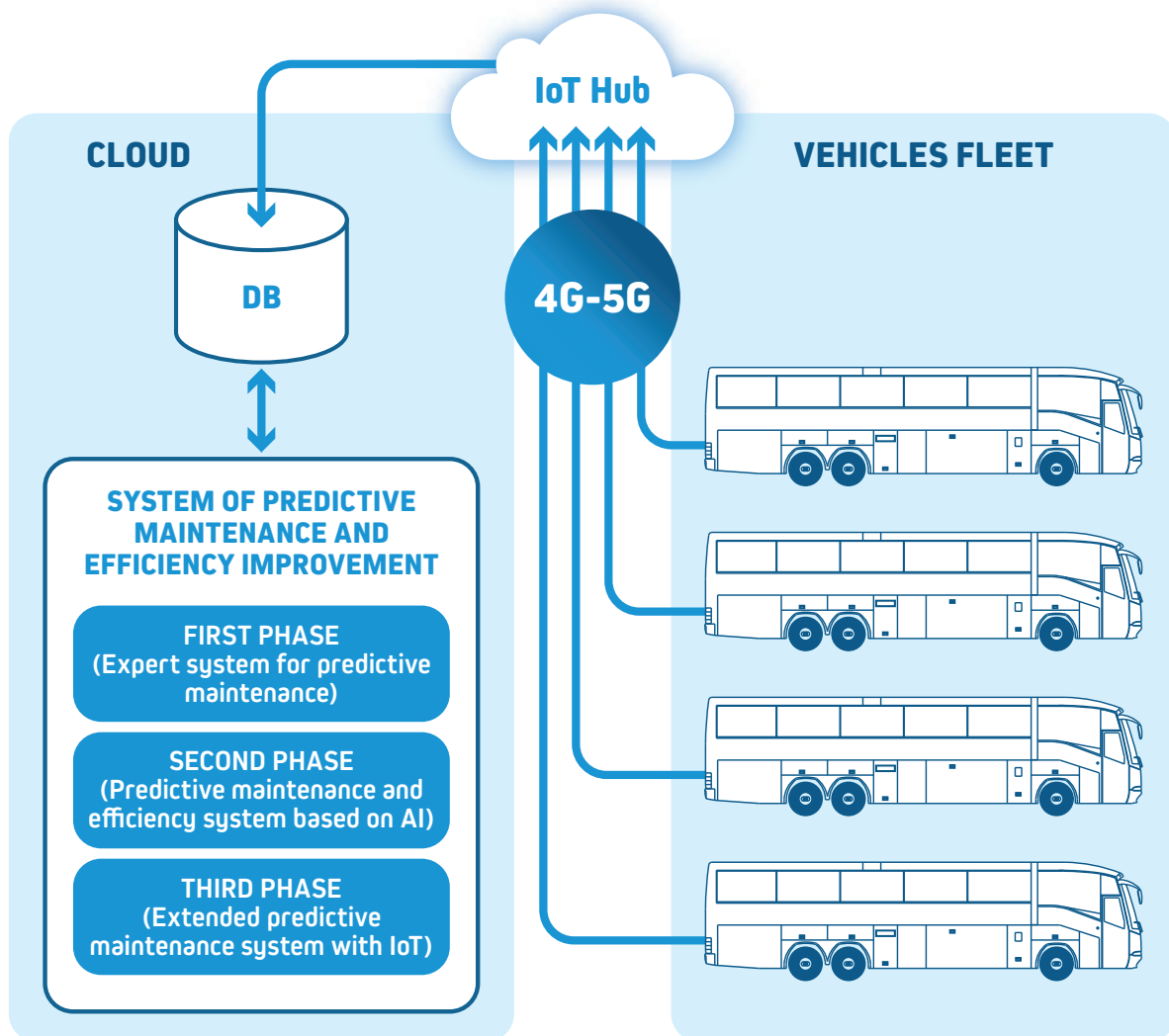
netiOs HMI
control panel

netiOs MP

Hispacold is working on designing a predictive maintenance and energy efficiency system based on Artificial Intelligence

The two-year project, called Signum, is being developed in partnership with the University of Seville and is supported by CTA (Technological Corporation of Andalusia), the Center for the Development of Industrial Technology (CDTI), the Metropolitan Transport Consortium of Seville and TUSSAM.

The Signum project is aimed at developing a smart system based on two complementary objectives: to generate a predictive maintenance system that can anticipate when a technical intervention is necessary for a vehicle before a breakdown occurs to reduce costs and intervention times; and the energy optimization of HVAC systems to reduce operation costs.



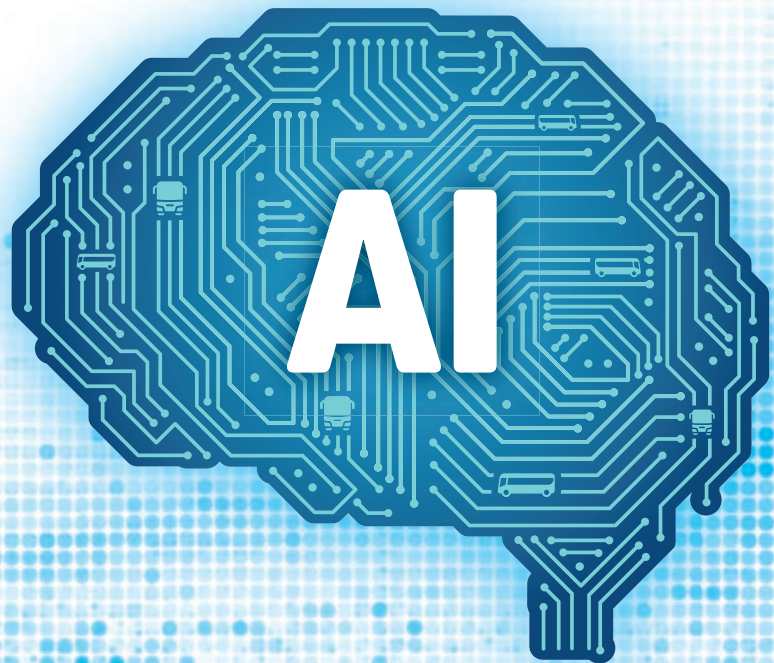
The Signum project consists of several phases that use different AI techniques such as expert systems, machine learning, IoT and deep learning to cover as many diagnostic cases as possible.

In the first phase of the project, an expert system was developed based on rules generated from Hispacold previous experience to predict issues in the functioning of equipment before a breakdown occurs that would cause the vehicle to be taken out of service.

The second phase is focused on the integration of AI models that can provide new knowledge and develop new rules from machine learning. These models will be based on deep learning and machine learning techniques and will be able to increase the predictive capacity of the system and reduce the energy consumption of on-board HVAC systems.

In the last phase of the project, the goal is to develop and integrate an electronic device that will make it possible to read new variables thanks to the incorporation of additional sensors (IoT). The integration of these new variables into the AI models will result in the extended predictive maintenance system with greater scope and features.

A large volume of vehicle operation data is necessary to develop and fine-tune the system. To achieve this, Hispacold is using data generated by TUSSAM vehicles, which have made it possible to train the system on urban applications, as well as with the vehicles of the Metropolitan Transport Consortium of Seville (thanks to the partnership agreement signed with both entities aimed at promoting innovation between the Consortium and Hispacold), in order to validate the system in intercity applications. The project is currently working in real time on a fleet of 25 vehicles that belong to the operators Tranvías de Sevilla and Autocares Paulino, and has been collecting and analyzing data since last November.



Hispacold presents its new HVAC CO₂ system

Internacional Hispacold, a leader in sustainable technologies, is launching an HVAC system with CO₂ refrigerant, producing cold and heat, which not only provides outstanding performance, but also redefines the HVAC experience in urban bus fleets. This system is designed to provide the passengers with optimal comfort, while maintaining an eco-friendly, energy-efficient approach.

The system can operate in both subcritical and transcritical modes, and it moves from one to the other automatically. This versatility guarantees optimal performance in all weather conditions, as the system operates efficiently at all times.

It also includes a function for thermally pre-conditioning the vehicle, which can be activated both when the device is connected to the mains, and when it is isolated. This not only improves its operational energy efficiency, but it also ensures that the passengers are comfortable in the vehicle when service begins.

We use CO₂ probes to regulate the quality of the internal air, always introducing the necessary circulation flow, making the most of favorable external conditions, and preventing adverse external conditions from having an impact where possible, while ensuring the quality of the internal air.

The set point temperature can be easily adjusted for each project, and it can be set or variable depending on the external conditions. This allows the HVAC to be customized, based on the specific needs of each vehicle.



Breeze 100 CO₂ unit



Hispacold achieved €54 million in sales in 2022, returning to pre-pandemic revenue levels

The Seville-based company increased its revenue by 16.6% in 2022, achieving €54 million compared to €46.3 million in 2021.

This new record revenue was mainly due to growth in the electromobility segment (e-bus), and the good figures obtained in the railway market.

Having experienced sustained growth since 2014, the sharp downturn that the market suffered in 2020 as a result of the global Covid-19 pandemic interrupted the steady progression of Hispacold's sales. However, the work that had been carried out during previous years, consolidating its client portfolio in Europe, and tackling new markets such as Australia and Turkey, allowed the company to return to pre-pandemic revenue levels in 2021.

Thus, the Seville-based leader in air conditioning systems closed 2022 with €54 million in revenue, which is 16.6% higher than in 2021. This represents a return to the growth trend of the years prior to the pandemic, in spite of the complex global situation, which has seen historic highs in the price of raw materials, energy and transport, and the supply problems which have affected, and continue to afflict, the global industry.

By 2023, the company expects to achieve €60 million in revenue. The air-conditioning systems division for buses and coaches expects to see a revenue of €41 million this year, while the railway division will achieve sales of €19 million, thanks to the orders confirmed during the past year. In fact, Hispacold expects its order backlog for railway HVAC systems to reach €36 million in 2023, matching the 2022 figures.

Hispacold's ability to adapt to customer needs, its commitment to innovation, and the development of proprietary technology to provide solutions for the electromobility market have enabled it to consolidate its leadership position, in spite of the global crisis.

International expansion

Hispacold's strong growth in the domestic market is complemented by its international expansion. In 2022, the company closed some important projects in countries such as Italy, France, Portugal, the United Kingdom, the Netherlands, and Turkey, among others.

