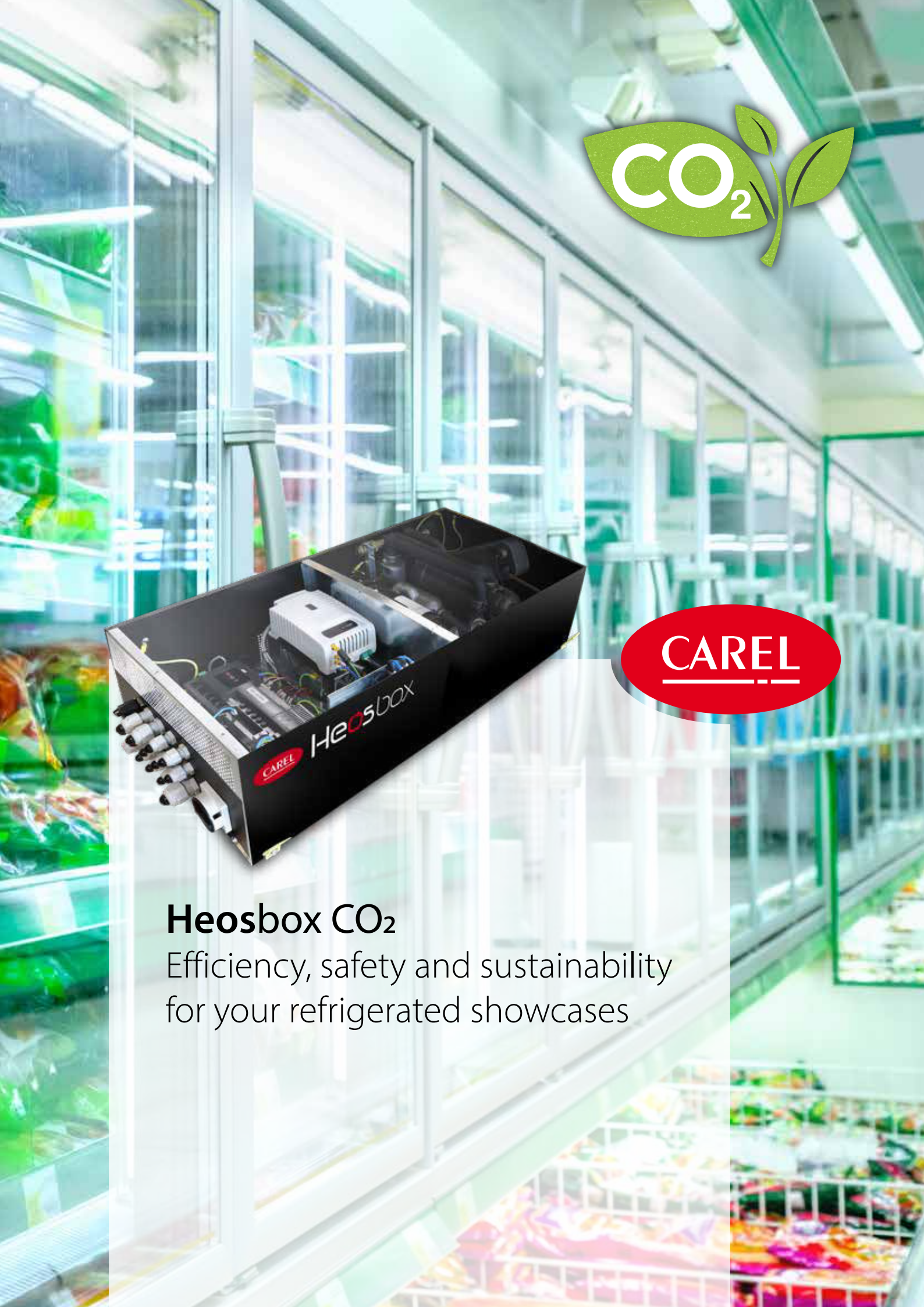


Heosbox CO_2

Efficiency, safety and sustainability
for your refrigerated showcases

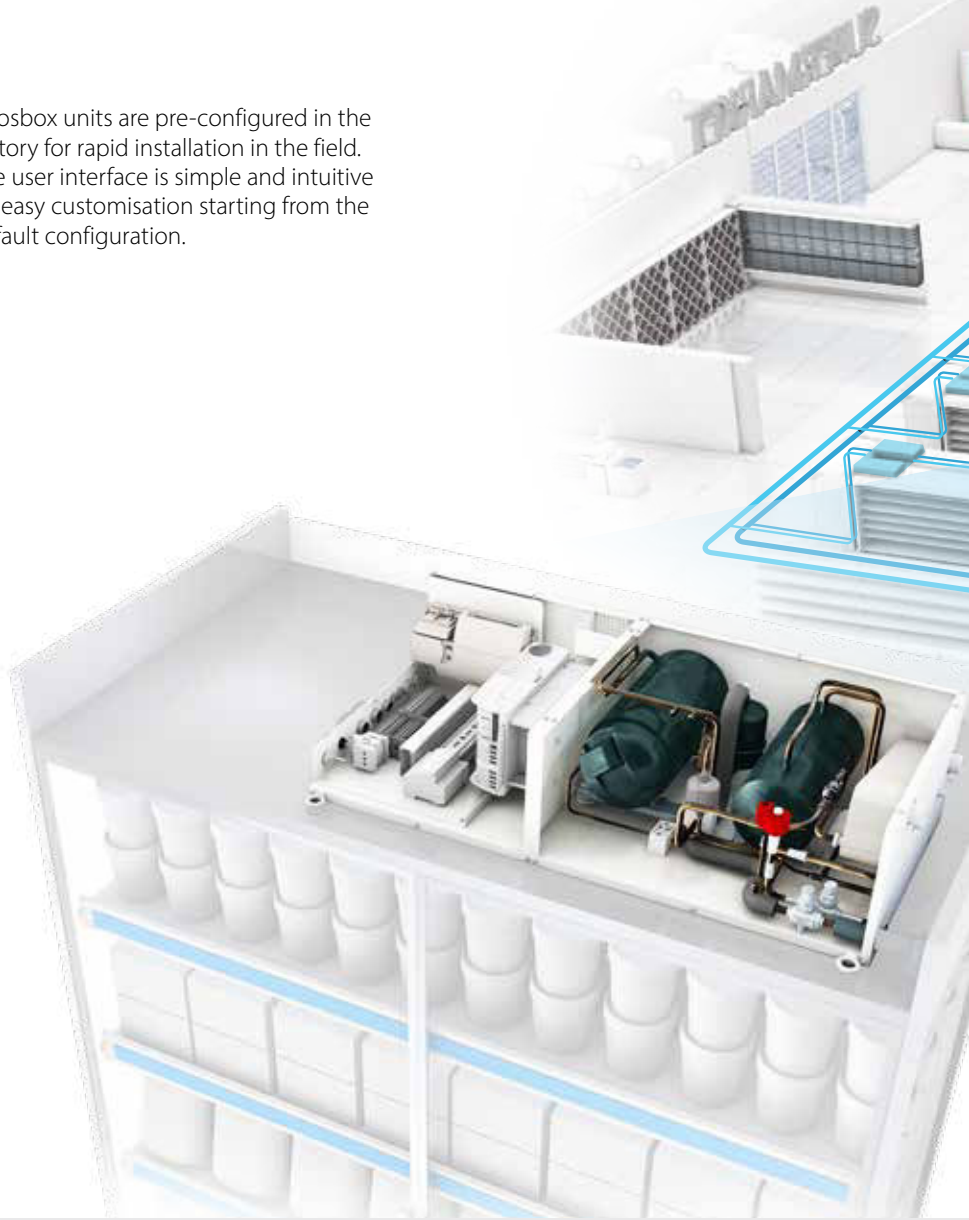
Heosbox: cutting-edge technology and the benefits of plug-in

Heosbox is a compact, water-cooled condensing unit, fully designed and developed by CAREL. The solution is used on semi plug-in showcases in waterloop systems, as an alternative to the traditional centralised architecture with compressor racks and remote showcases supplied by long refrigerant distribution lines.

Maximum efficiency

Heosbox integrates Heos technology: BLDC compressors and electronic expansion valves.
Synchronised action of these two components through Heos control logic allows continuous modulation of performance.
In this way, each showcase can operate independently of the others, giving the lowest possible energy consumption in every condition.

Heosbox units are pre-configured in the factory for rapid installation in the field. The user interface is simple and intuitive for easy customisation starting from the default configuration.



Lower installation costs

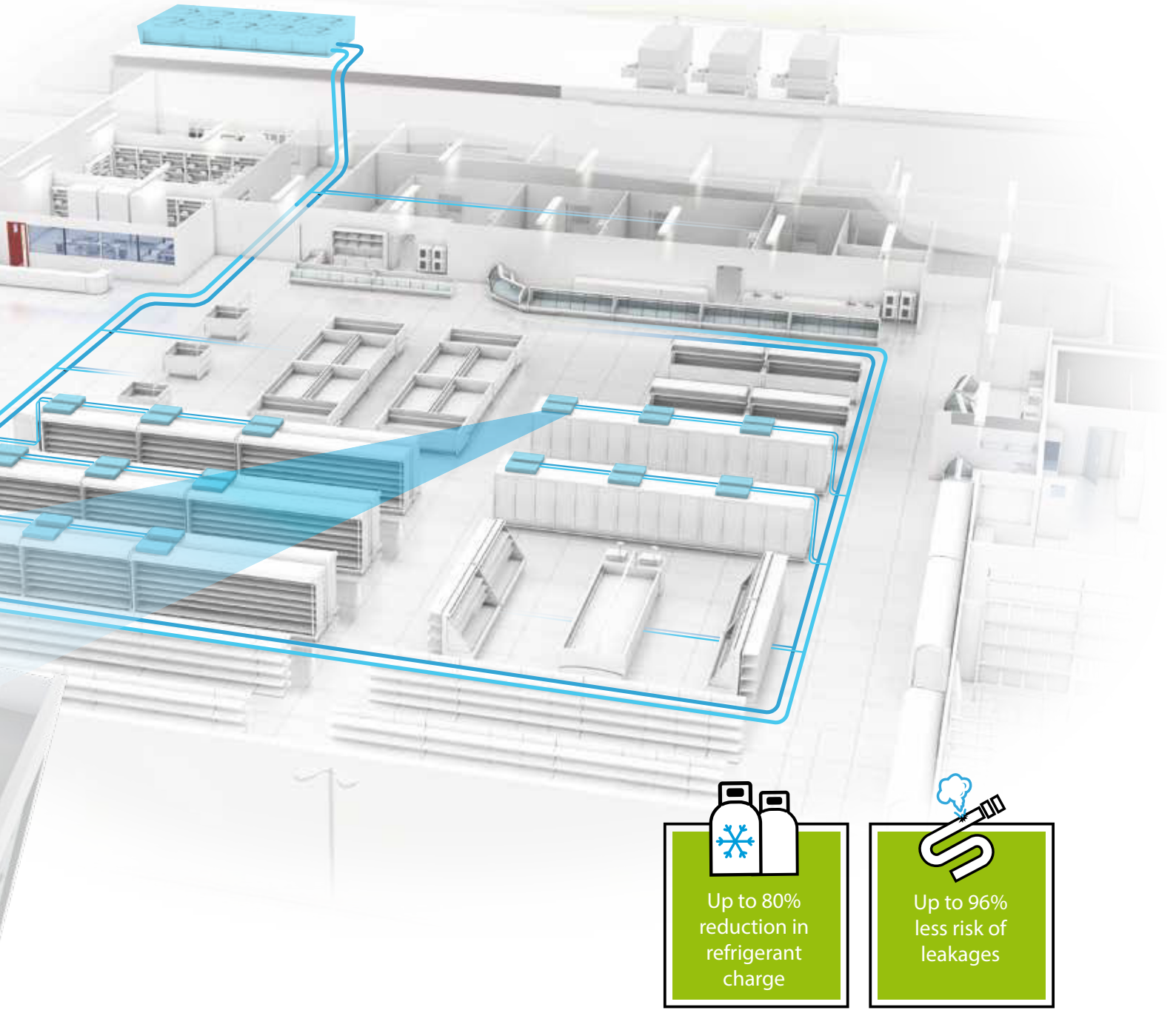
The self-contained design eliminates the need for welding and makes it easy to install units in the field.

Lower maintenance costs.

The decentralised design minimises the risk of refrigerant leaks.
The use of smart components and related IoT services further increase the reliability of the solution.

Solution flexibility

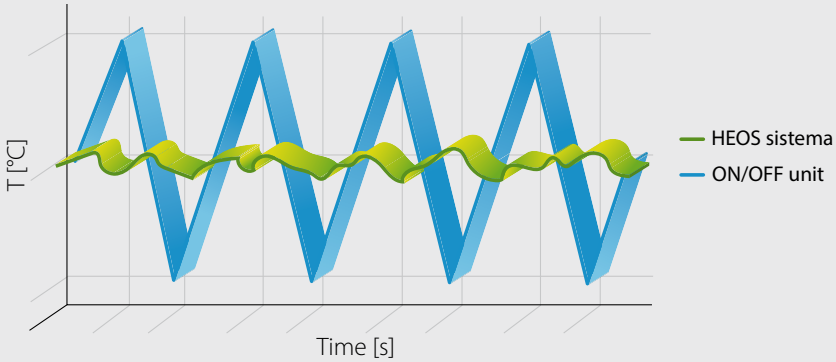
The use of semi plug-in cabinets allows maximum flexibility when changing the supermarket layout.
No compressor racks means more floor area for sales.



Up to 80% reduction in refrigerant charge

Up to 96% less risk of leakages

Food preservation quality
Heos technology ensures exceptional showcase temperature stably. The result is better food preservation, resulting in a shelf life of up to 2 extra days.



Food temperature fluctuation compared to the average

Cutting-edge technology for the highest performance

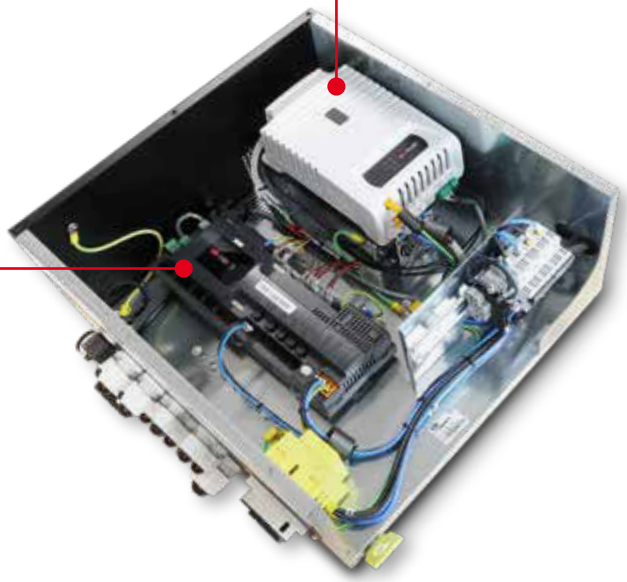
DC inverter technology and synchronised electronic expansion valves for true continuous modulation.

Modular design

The unit has a modular design, with the electrical panel and refrigerant circuit placed side-by-side.
The units also features dismantlable architecture for testing and easy access to all the components.

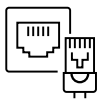
Power+ inverter

- Precision electronic control for maximum efficiency
- Compliance with the strictest standards on electromagnetic interference (EMC)
- Class B firmware and safety functions

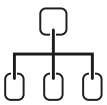


HEOS controller

- Complete management of the condensing unit and showcase
- Perfect synchronisation of compressor and electronic valve for the highest efficiency
- Advanced control and monitoring functions: real-time COP calculation, smart defrosting, etc.
- Compatibility with CAREL and third-party supervisors: Ethernet or RS485.



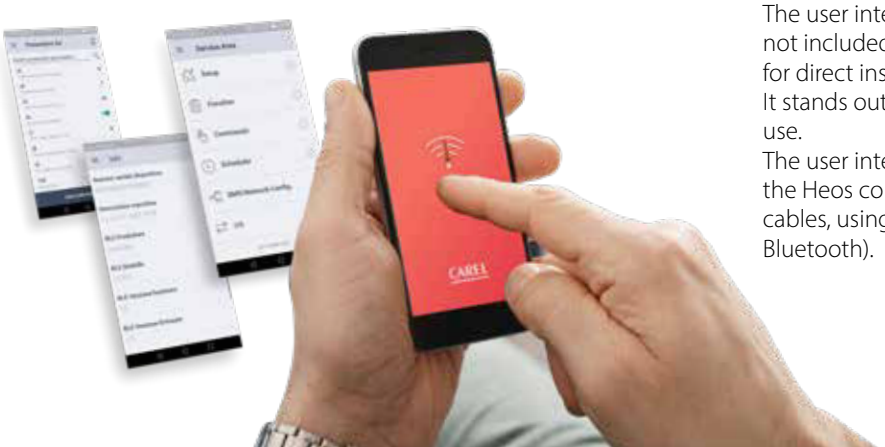
Ethernet



RS485

User interface

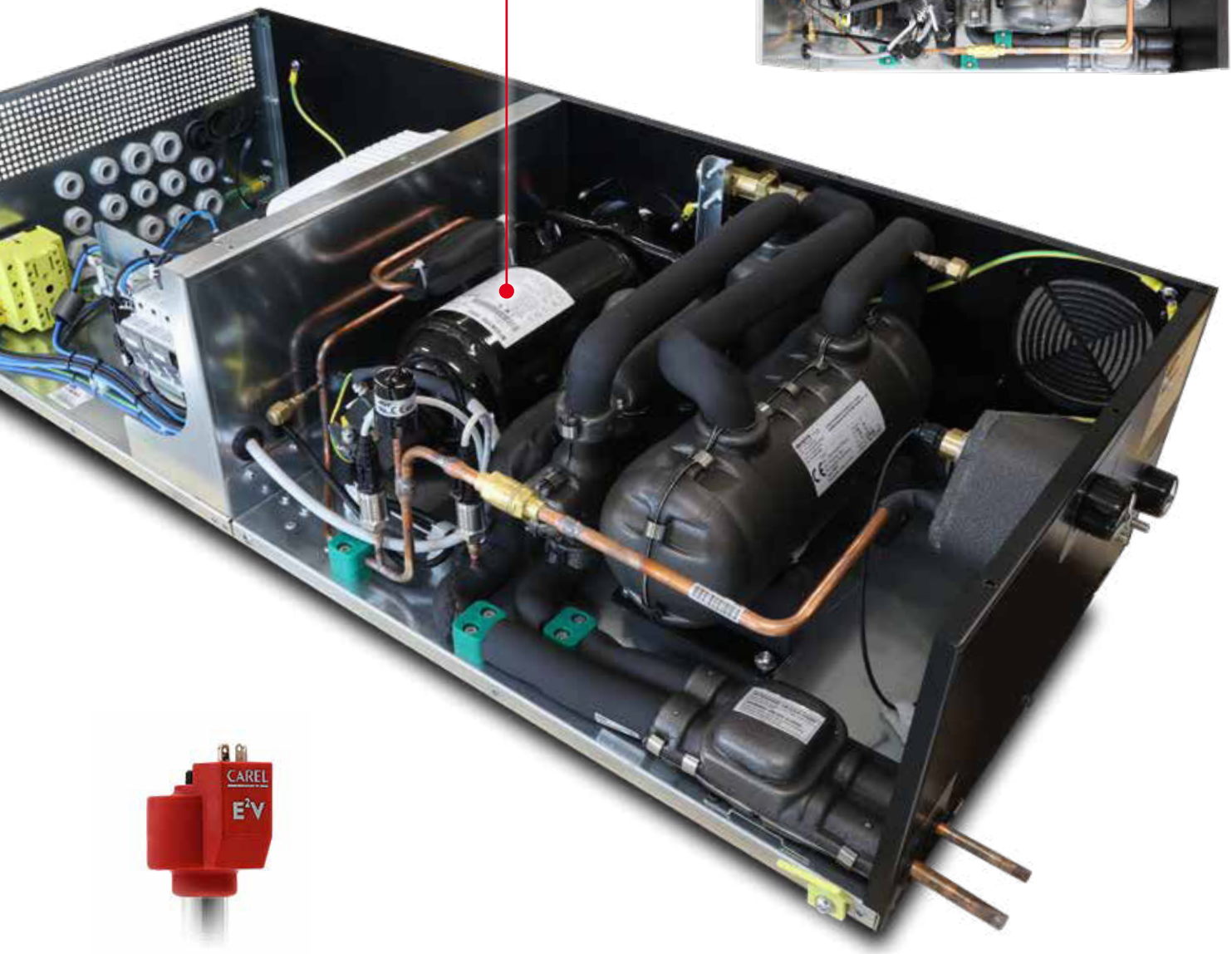
The user interface is an accessory that is not included inside the Heosbox, designed for direct installation on the showcase.
It stands out for its aesthetics and ease of use.
The user interface allows interaction with the Heos controller, without the need for cables, using wireless connectivity (NFC or Bluetooth).



Variable-speed compressors

- Wide control range (25 - 100 rps)
- Permanent magnet brushless motor for the highest electrical efficiency
- Low noise due to the "double rotation" design
- Maximum reliability through an intelligent drive system, backed by many years of experience

DC Technology
CAREL



Electronic expansion valve

The CAREL electronic valve is not included in the Heosbox, but is available as an external kit.
This ensures perfect superheat control by operating in sync with the compressor for the highest system efficiency.

Advanced connectivity, supervision and dedicated digital services

Heosbox integrates perfectly into the boss family supervisors for remote management, active monitoring and optimisation of both performance and energy consumption.

Remote connectivity, via Ethernet or serial cable from the unit to supervisor.

Local connectivity, through a user interface also equipped with wireless connectivity (Bluetooth and NFC).

Everything under control

The 100% CAREL design and extensive experience in the field have made it possible to develop dedicated algorithms, made available in the form of intuitive dashboards and integrated with CAREL services, allowing not only complete monitoring, but also predictive and prescriptive actions, with proven results in terms of maintenance cost reductions.

The following services are included with the Heosbox unit:

- Remote configuration optimisation before start-up;
- Free monitoring for a limited period.

Descriptive analysis
What is happening and what happened in the past, converting data into information

Preventive analytics
What might happen in the future

Prescriptive analysis
The system proposes operational/strategic solutions based on the analysis performed

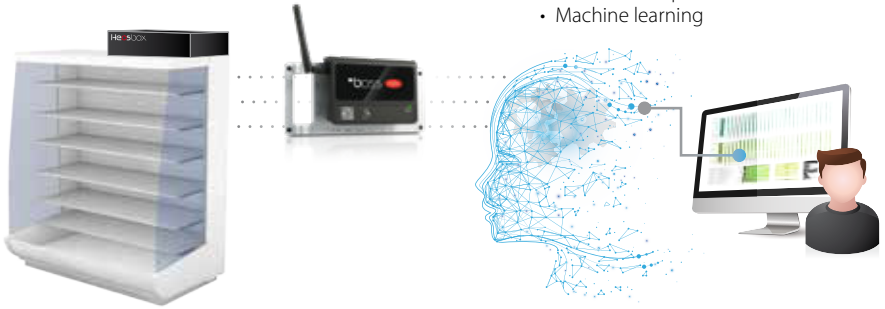
Proactive management
Automatic implementation of the proposed actions

Cabinet

Store

Digital services

- Multisite comparison
- Machine learning



Part numbers available and cooling capacity

Four models of Heosbox are available. Each model, combined with the right electronic expansion valve, can serve medium or low temperature single evaporator applications. Heosbox can also serve up to three units in a multi-evaporator configuration.

Heosbox part numbers, kits and accessories available

	Part number	Description	
Heosbox unit	HB200C0300CE0	Medium and low temperature Single evaporator and multi-evaporator	3 cc compressor
	HB200C0400CE0		4.5 cc compressor
	HB200C0600CE0		6.7 cc compressor
	HB200C1000CE0		10 cc compressor
Valve kit	E2V**C**C0	Electronic expansion valve	
	E2VSTA0330	Unipolar stator	
	E2VCABS*U0	Unipolar stator cable	
Showcase display	AX4000PS20030	Showcase display with Bluetooth connectivity	
	AX4000PS10020	Showcase display with NFC connectivity	
	S90CONN0A*	Display cable	
Other accessories	HB200CXX00SE0	Electrical panel for multi-evaporator configuration	
	HBOPZGATY2000	Kit for WiFi connection to the supervisor	
	HBOPZRAHY2000	Anti-sweat heater management kit	

Heosbox unit cooling capacity

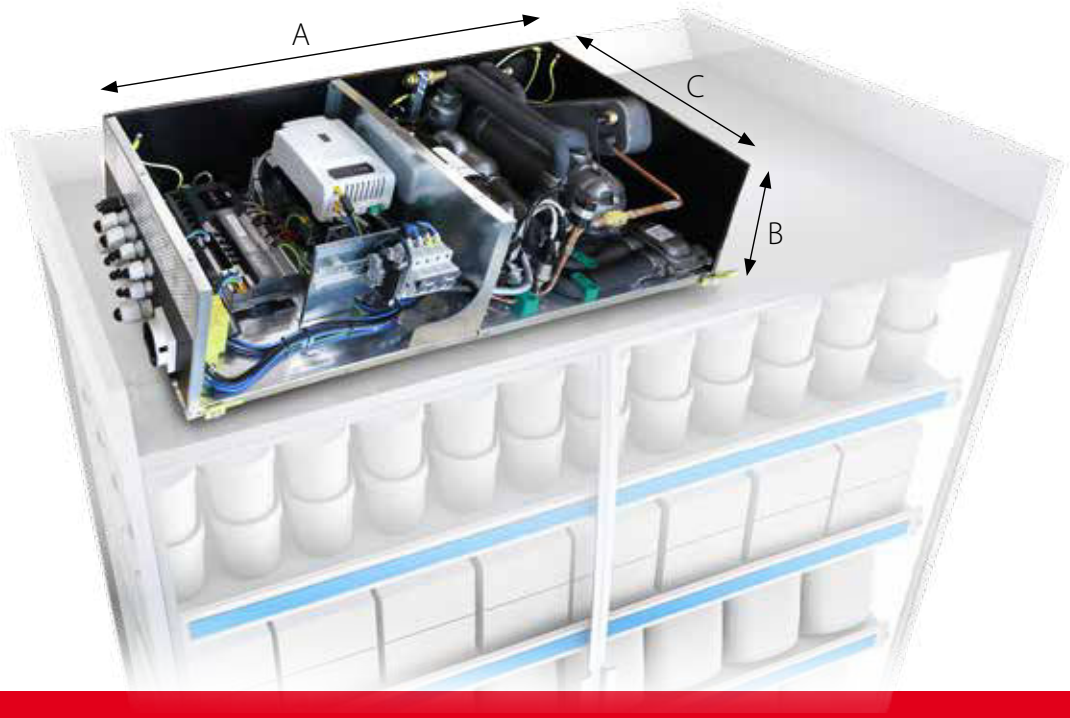
	Tevap	0 °C	-5 °C	-10 °C	-15 °C	-20 °C	-25 °C	-30 °C
HB200C**030**CE0 (min/max Watt)*								
Inlet brine**	0 °C	***	***	***	898-3668	722-3090	552-2606	381-2148
	5 °C	***	***	1023-4023	847-3461	682-2916	524-2465	365-2035
	10 °C	***	1136-4384	955-3751	791-3234	638-2725	491-2309	345-1909
	15 °C	1237-4684	1049-4036	881-3451	730-2983	589-2513	454-2136	321-1767
HB200C**040**CE0 (min/max Watt)*								
Inlet brine**	0 °C	***	***	***	1351-5553	1084-4679	830-3949	579-3259
	5 °C	***	***	1542-6081	1274-5232	1026-4409	789-3729	556-3081
	10 °C	***	1715-6623	1440-5665	1191-4883	961-4115	742-3489	527-2885
	15 °C	1869-7076	1584-6094	1329-5210	1099-4502	888-3793	688-3225	491-2669
HB200C**060**CE0 (min/max Watt)*								
Inlet brine**	0 °C	***	***	***	2359-7965	2006-6786	1695-5834	1420-4937
	5 °C	***	***	2535-8632	2159-7473	1827-6353	1534-5454	1275-4598
	10 °C	***	2713-9367	2315-8034	1964-6958	1653-5902	1379-5061	1136-4250
	15 °C	2881-10003	2467-8629	2099-7393	1772-6408	1484-5424	1229-4648	1003-3887
HB200C**100**CE0 (min/max Watt)*								
Inlet brine**	0 °C	***	***	***	3533-11883	3004-10124	2536-8702	2121-7361
	5 °C	***	***	3793-12880	3230-11151	2732-9480	2292-8138	1902-6859
	10 °C	***	4056-13978	3462-11989	2935-10383	2470-8809	2059-7553	1695-6342
	15 °C	4303-14930	3686-12877	3136-11033	2647-9564	2215-8096	1834-6939	1497-5803

* at nominal flow-rate, 3K subcooling, 10K superheat
** max inlet brine temperature 18°C
*** working conditions in which the envelope control safety devices are activated

Main technical specifications

+3000232EN - 1.0 - 31.03.2022

Heosbox model	Dimensions (mm)			Weight (kg)	Connections				Design pressure (barg)	Inlet water operating range (°C)
	A	B	C		Electrical	Refrigerant				
						IN (mm)	OUT (mm)	safety valve		
HB200C0300CE0	1040	250	460	74	1ph 230V	Ø 10 x 1	Ø 8 x 1	3/8" G	80	0-18
HB200C0400CE0				75						
HB200C0600CE0				82		Ø 12 x 1				
HB200C1000CE0	1140	250	460	92	3ph 400V					



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