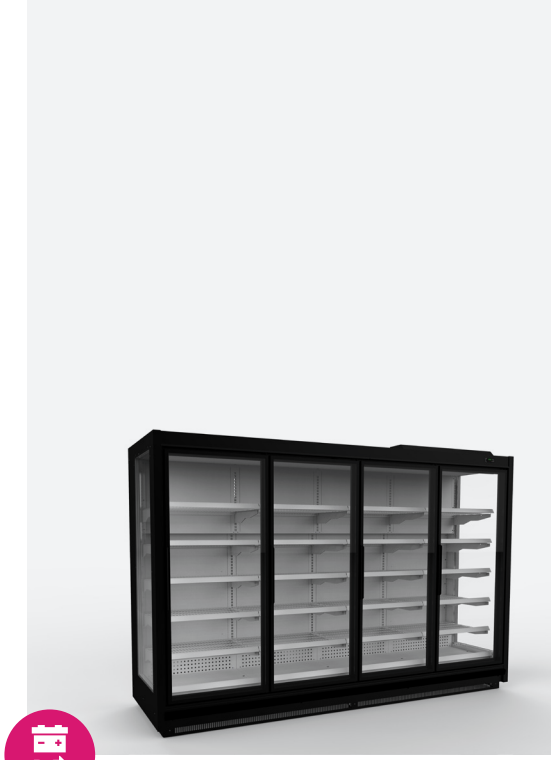
exkal
FOR FUTURE GENERATIONS

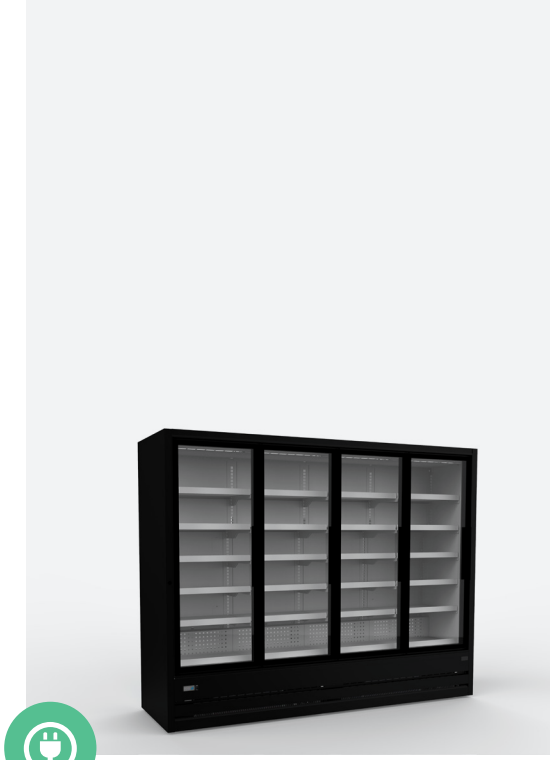
Semi-plugin units

Benefits and features



Remote

Commercial refrigerator cabinets with remote condensing unit.



Plugin

Commercial refrigerator cabinets with built-in condensing unit.

Semi-plugin

Commercial refrigerator cabinets with the top-mounted condensing unit.

Impact of technological changes on refrigerator cabinets

Over the last 20 years, improvements in energy efficiency and the shift from open to closed cabinets have been so significant that it has become necessary to rethink the way we design and manage climate systems in retail outlets. This transformation has not only improved the overall energy performance of premises, but also significantly changed their indoor heat balance.

This technological shift has also made it necessary to rethink the technical criteria that have been applied in the sector's day-to-day operations for decades:

- **The heat provided by plugin cabinets**
- **The noise from compressors in plugin cabinets**
- **Regular maintenance of condensers**

This new paradigm has provided an opportunity to redesign retail spaces with more sustainable, quieter and more efficient solutions, tailored to the requirements of modern retail.

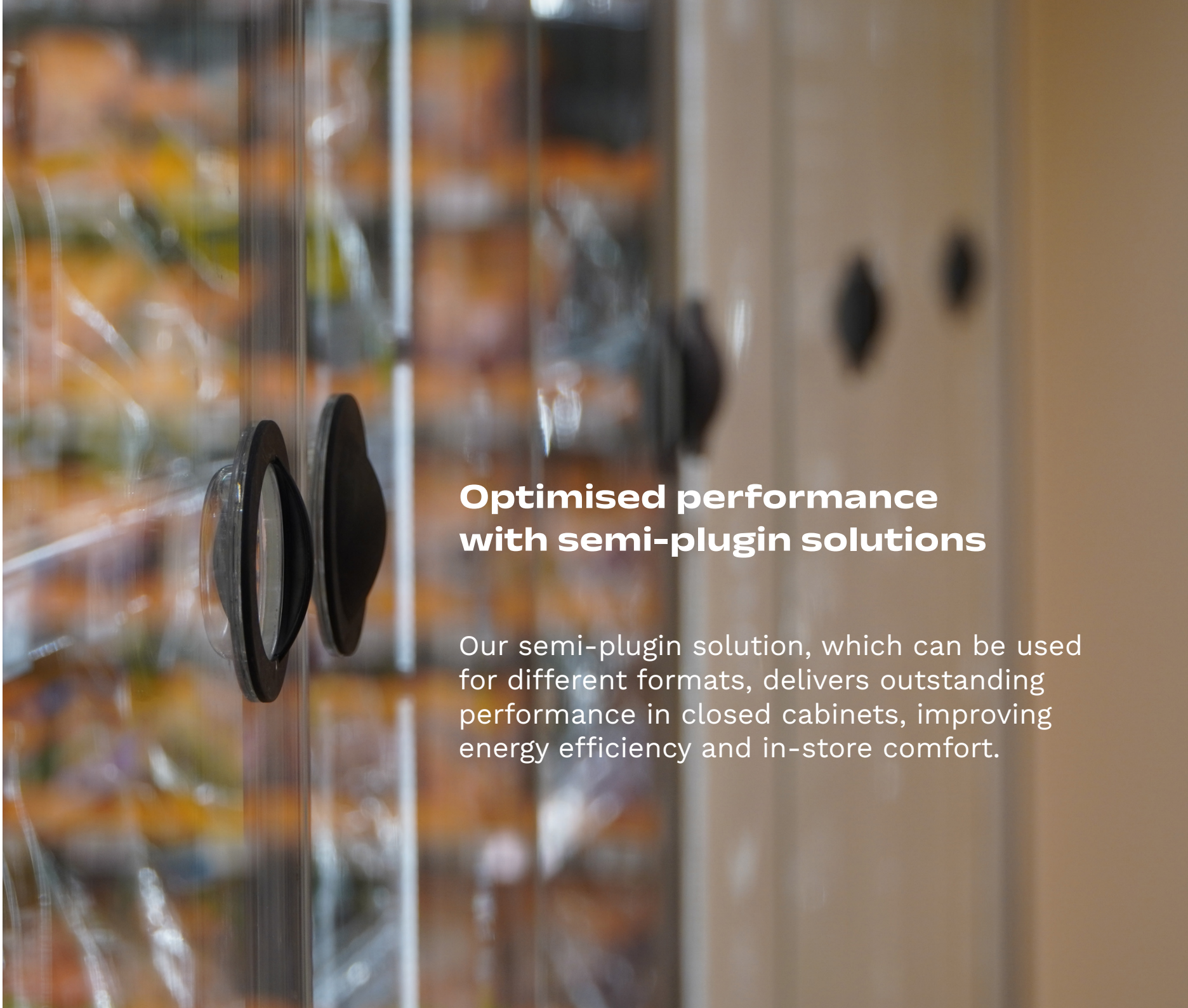
Energy performance trends in supermarkets

→ In 2005, an average supermarket **was made up of G-rated cabinets with average consumption of 100%.**

→ in 2025, a supermarket **with the best cabinets on the market will stand at between 25% and 30% of baseline consumption.**

	2005			2010			2015			2020			2025		
Range	Class	Gen.	kWh	Class	Gen.	kWh	Class	Gen.	kWh	Class	Gen.	kWh	Class	Gen.	kWh
Wall-mounted	G	G1	65	D	G4	25	C	G5	20	B	G6	13	B	G6	13
Cabinets	G	G1	20	F	G2	15	F	G2	15	E	G3	12	C	G5	8
Islands	G	G1	10	F	G2	7	F	G2	7	E	G3	6	D	G4	4
Display cabinets	G	G1	5	F	G2	4	F	G2	4	E	G3	3	E	G3	3
Total	G	G1	100	E	-	51	D	-	46	C	-	34	C	-	28

Gen. = generation



Optimised performance with semi-plugin solutions

Our semi-plugin solution, which can be used for different formats, delivers outstanding performance in closed cabinets, improving energy efficiency and in-store comfort.

Semi-plugin units: benefits

Exkal's solution

_ Our modular condensing unit solution, with **one evaporator for each coil and condensing unit in the cabinet,** provides **extra peace of mind in the event of a fault** in one of the coils. The other coils that are working correctly will maintain the temperature of the cabinet and the products being displayed without any need for emergency repairs.

_ The **structural strength** of the injection-moulded monoblock cabinet is designed to **support the condensing units at the top of** the cabinet.

Cabinets

_ When you opt for air-cooled semi-plugin units, **the unit is physically the same as if you choose a centralised remote system.**

_ **There is no need to change the layout of the** products being displayed.

_ As closed cabinets use up to **75% less power,** you can **install a quiet system that adds very little heat to the store.**

_ The location of the **small R-290 condensing units, with a charge of less than 150 g** and air-cooled in the upper part of the cabinet, provides **dust-free air** and allows **maintenance intervals to be extended by up to 6 months or even 1 year.**

_ As a result, **our condenser with a copper tube and aluminium fin** delivers outstanding performance, excellent safety, high rust resistance and a long service life.

Finances

_ Our semi-plugin air-cooled cabinet is up to **40% cheaper than a centralised CO_2** solution (CAPEX). However, **energy consumption over a 10-year service life is up to 40% higher (OPEX).**

_ A highly attractive alternative for supermarket operators who prefer to **optimise cash flow through operating expenditure** and limit capital expenditure commitments.

Machine room

_ When you opt for closed cabinets, our semi-plugin air-cooled solution **does not require a machine room.**

_ This also gives **air-cooled semi-plugin units** an advantage over water-cooled semi-plugin cabinets (which require a machine room).

_ The other possible solutions, centralised **CO_2, centralised A2L and glycol water, require a machine room and equipment to be installed** between the machine room and the cabinets.

Semi-plugin units: benefits

Independent of outdoor climate

_ The operation of our semi-plugin **air-condensing cabinets is very stable at any time of year,** only depending on the indoor environment of the store, **unaffected by the outdoor environment.**

_ With the impact of climate change on extreme environmental conditions, **being unaffected by the outside environment is a great advantage.**

In-store climate

_ When you choose closed cabinets, remote or semi-plugin units **increase in-store heat** by between **0.2 and 0.25 kWh per metre** of cabi-net.

_ Water-cooled and glycol water-cooled semi-plugin remote cabinets make the store cooler and air-cooled semi-plugin cabinets make the store warmer, both to a similar extent.

_ Depending on the geographical location and outdoor climate, this may be an advantage or a disadvantage, but only a very small one.

Semi-plugin units: benefits

Expansions

_ The solution with semi-plugin air-cooled cabinets provides one of the best **life cycle costs, similar to the centralised CO_2 system.**

_ Expansions can be completed **without needing to close the store** or install any pipe runs.

_ **There are no limits** to their length, power, etc.

Refurbishments

_ The solution with semi-plugin air-cooled cabinets allows you to **keep supermarkets open while they are being refurbished**, without any downtime or impact on sales. Customers will not even notice it.

_ This not only applies to closed cabinets, but also to open-fronted cabinets, with certain limitations on the size of the store.

Store sizes

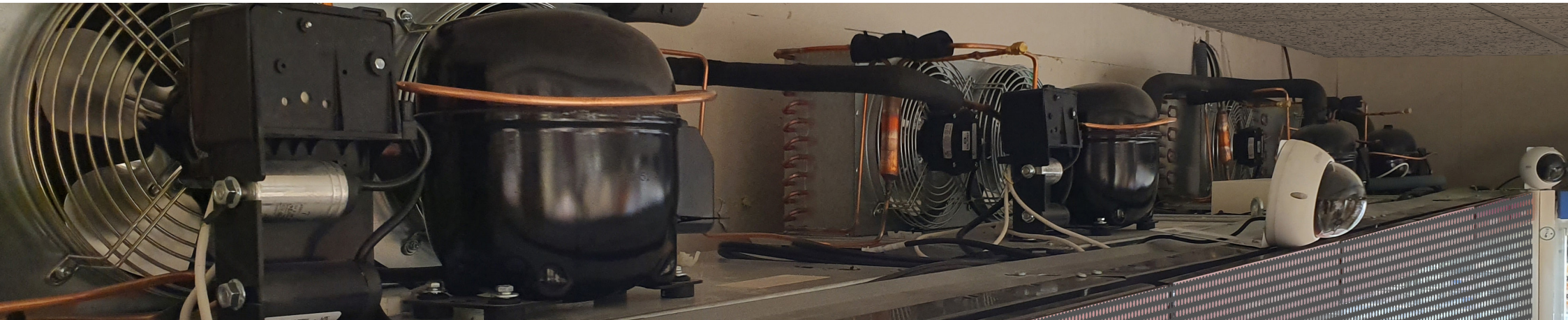
_ Traditionally, remote installations have been regarded as the most suitable option for medium and large floor areas; with plugin units being best for small areas.

_ Since power consumption can be reduced by up to 75% if you choose closed units, the solution with semi-plugin air-cooled cabinets **can be used for all store sizes: small, medium and large.**

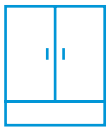
Compared to other types of systems

_ The solution with semi-plugin air-cooled **cabinets provides one of the best life cycle costs,** similar to the centralised CO_2 system.

_ It **is safe** as **units have a R-290 charge of less than 150 g**. It is reliable, easy to maintain and, depending on the design of the evaporator, it will ensure that exposed food is preserved even if one of the compressors breaks down. **And there are no plans to ban its use in the next revised version of the FGAS regulations.**

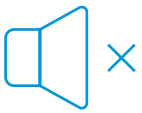


Semi-plugin units: summary

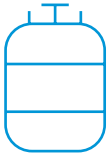


Suitable for closed cabinets (AE)

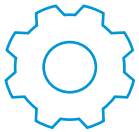
Low heat emissions



Low noise emissions



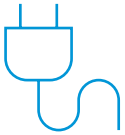
<150 g R-290 / unit (safety)



Simple to install / maintain

Refurbishment with open store

The investment cost is 40% lower than with centralised CO_2 systems



It consumes 40% more energy than CO_2 solutions

LCC = 10 years

exkal

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SUSTAINABLE DEVELOPMENT GOALS

AENOR GESTIÓN DE LA CALIDAD ISO 9001 EP-0149/2011

AENOR GESTIÓN AMBIENTAL ISO 14001 GA-2011/0074

AENOR SEGURIDAD Y SALUD EN EL TRABAJO OHSAS 18001 SST-0022/2011

AENOR SOCIAL RESPONSABILITY IQNet SR10 SR-0009/ES

AENOR SEGURIDAD INFORMACIÓN ISO/IEC 27001 SI-0011/2021

AENOR GESTIÓN ENERGÉTICA ISO 50001 GE-2022/0091

AENOR SEGURIDAD Y SALUD EN EL TRABAJO ISO 45001 SST-0022/2011

AENOR RESIDUO CERO RC-2024/0006

CERTICOLD HACCP

AEFYT ASOCIACIÓN DE EMPRESAS DE FRÍO Y SUS TECNOLOGÍAS

EUREKA

CHINEKA

AFFILIATED MANUFACTURER EUROVENT

Semi-integral units catalogue - ED0