

THE NEXT-GEN LCV REFRIGERATION

Transport refrigeration that finally demands Zero from you



ecos M24



- ⊗ Zero mandatory annual leak inspections
- ⊗ Zero maintenance required every 1.500 hrs
- ⊗ Zero filter-dryer replacement
- ⊗ Zero certified refrigeration engineers required
- ⊗ Zero refrigerant logbooks
- ⊗ Zero 5-year record-keeping obligations
- ⊗ Zero investment risk regarding the F-gas phase-out and anticipated PFAS ban



Take the easy route to Mission Zero →

Zero emissions. Zero F-gas. Zero mandatory inspections. Zero avoidable downtime-costs.

A battery-powered cooling van is only ever as efficient as its refrigeration system allows — and as the required documentation and inspections permit. The **ecos M24** doesn't just maintain stable temperature and humidity conditions; it keeps uptime high — and shields your transporter from a steep drop in resale value.



Refrigerant servicing? Strike it from your maintenance plan.

Refrigerated vans are regulars in the workshop. As early as two months in, the filter dryer needs replacing. After that, at least one mandatory leak inspection per year is required — along with a certified refrigeration technician to carry it all out correctly. This isn't the exception — it's the current standard.

The alternative? A refrigeration unit that remains sealed, delivering efficient and reliable cooling performance without recurring maintenance.

The **ecos M24** is built around a fully hermetically sealed refrigeration circuit. The unit comes factory-charged and is ready to operate without a single service stop.

What the cooling unit doesn't weigh, rides in the cargo bay as payload.

The **ecos M24** tips the scales at no more than 40,5 kg. That's approximately 50% less than conventional refrigeration units. A difference that pays off. Because every kilogram that isn't cooling unit is payload. And every kilowatt-hour that doesn't flow into inefficient refrigeration is range.

In practice: up to 15% more payload capacity and up to 25% more range — on the same route, with the same driver and the same vehicle.

50+ sensors continuously monitor the system, unlocking new possibilities and delivering valuable real-time data streams to build AI-enhanced logistics, like route optimization.

F-gases want something from you. Natural refrigerants don't.

Fluorinated refrigerants — R410A, R452A, or newer HFOs like R513A or R454 — are transitional solutions. Problem is: all contain PFAS, targeting them for the 2027 REACH regulation.

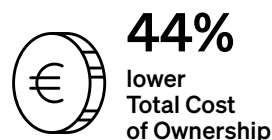
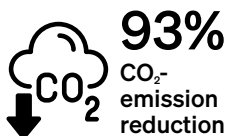
Choosing between HFCs or HFOs does not solve the problem — it merely postpones it. While HFCs have a higher global warming potential, HFOs have a lower one. However, HFOs break down into TFA in the atmosphere — a so-called "forever chemical" that continuously accumulates in groundwater. Consequently, a lower climate impact is paid for with higher toxicity.

In contrast, propane R290 has minimal climate impact (GWP <3). No F-gases. No PFAS. No regulatory price risks. The residual value of your fleet remains stable.

Hermetic Refrigeration Circuit**Maintenance-free** **Max. Uptime****Minimum Downtime****50% less System Weight****+15% Payload** **+25% Range****AI-enhanced logistics****Natural Refrigerants** **GWP < 3****F-gases-free** **PFAS-free****ESG compliant**

The future of transport refrigeration is climate-friendly, cost-effective, and intelligent. How about you?

	Standard	pbx ecos M24evo
Refrigerant	F-gases (e.g. R134a, R452A) High GWP und PFAS	R290 (Propane) Natural Refrigerant, GWP < 3
Weight	> 69 kg (+refrigerant +accessories)	40,5 kg lightweight construction
Refrigeration Circuit	Assembled manually on-site, increased risk of contamination and leakage	Hermetically sealed system, factory filled, sealed and tested
Installation Time	> 32 hours including soldering, testing, charging	< 4 hours Plug-&-play-installation
Refrigeration Engineer	Certified refrigeration experts needed	None – can be installed by vehicle body builders
Maintenance	Annual inspection mandatory, biannual service recommended refrigerant log-book required	Maintenance-free
Downtime in Repair	Several hours to days (complex circuit repair)	Exchange of a complete modul in less than 60 Minuten
Data/Monitoring	Limited availability of real-time data	50+ data points = real-time data for the continuous development of AI-enhanced logistics
Compatibility	Primarily designed for diesel vehicles, with limited support for e-commercial vehicles	Designed for electric commercial vehicles (LCVs), fully usable for diesel vehicles
Environmental Impact	Synthetic F-Gases with high Global Warming Potential (GWP), 92 t emissions in lifetime	93% fewer emissions, climate-friendly solution
Compliance	Phase-out F-Gases until 2032, PFAS ban expected with upcoming REACH-Regulation	No F-gases, No PFAS future-proof solution beyond 2050



ecos M24evo

Specifications

Cooling Capacity

Cargo Box Temperature	0°C
Ambient Temperature	30°C
Cooling Capacity (ATP)	1350W

Heating Capacity

Heating Capacity	1070 W
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Airflow

Nominal Operation	860 m³/h
High Speed Operation	up to 1600 m³/h

Weight and Size

Outer Unit (Condenser)	30 kg 781 x 870 x 265 mm
Inner Unit (Cargo Space)	10,5 kg 762 x 726 x 209 mm

Recommend Box for Fresh Goods

K = 0,7	< 10 m³
K = 0,4	< 14 m³

Power Supply and Consumption

Supply Voltage	28 VDC (min 20 VDC, max. 30 VDC)*
Rated electr. power (cooling)	1150 W
City route: 5 Stops/h	< 7% of the traction battery capacity

Directives and Regulations

- Directive on Machinery 2006/42/EG
- Pressure Equipment Directive 2014/68/EU
- Electromagnetic compatibility directive EMV-Directive 2014/30/EU
- Electromagnetic regulation UN/ECE R10
- EU F-Gas Regulation (EU) 2024/573
- Int. Carriage for Perishable Foodstuffs UNECE/ATP 2024

* Supply voltage conversion packages available as option



For light commercial vehicles, transport efficiency is not decided under the hood, but right at the top – directly above the cab.



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