THERMO KING

Magnum™ Eco

The future of marine refrigeration delivered today

CONTAINER REFRIGERATION SOLUTIONS

SUSTAINABILITY. RELIABILITY. ECONOMY.



TRANE TECHNOLOGIES

Sustainability at the core

Thermo King delivers cutting-edge temperature management solutions that keep your fleet running efficiently and reliably. Designed for A2L refrigerant R-1234yf, Magnum™ Eco offers an optimized total cost of ownership through advanced controls and modular design.

Key benefits include:

- Superior temperature and humidity control
- Enhanced defrosting performance
- Lower power consumption compared to previous Thermo King models

The unit meets all ISO 20854 safety standards and features an electronic expansion valve, allowing easy refrigerant change if needed. With the MP-5000 controller, you get advanced diagnostics and intelligent control to ensure your cargo is always protected.



Magnum™ Eco can be supplied with a mechanical expansion valve if preferred.
Talk to your Thermo King sales representative for the best guidance on your requirements.



LOW GLOBAL WARMING POTENTIAL (GWP) REFRIGERANTS

The Magnum™ Eco supports low-GWP refrigerants, available factory-charged or via field upgrade. Key components—including the compressor—are compatible with R-134a, R-513A, and R-1234yf* refrigerants.

Upgrading is simple: reclaim the existing refrigerant sustainably, charge with the new option, and update the MP-5000 settings to run the unit in a more sustainable mode.

-30°C to +30°C

TEMPERATURE RANGE

Magnum™ Eco uses **low pressure refrigerant** and can maintain temperatures **from -30°C to +30°C** (-22°F to 86°F) even under the toughest conditions. We protect your valuable cargo.

+30 years

ENGINEERED FOR LONGEVITY

Leveraging proven technology, Magnum™ Eco continues the legacy of Thermo King's iconic V-shaped frame, a market leader for over 30 years. **Its unique design delivers optimally sized heat exchangers, improved system efficiency, and easy service access.**

24/7 support

GLOBAL SERVICE YOU CAN COUNT ON

From scheduled maintenance to urgent repairs, **Thermo King's worldwide service network ensures superior parts availability, 24/7 support, and coverage across ports and continents.**

* To comply with regulations, always check whether your Magnum™ Eco unit using R-1234yf refrigerant features a leak sensor, a telematics module, and warning decals. Talk to your Thermo King sales and service representative to understand how to safely upgrade your unit and comply with the ISO 20854 standard.

Raising reefer performance since the 1950s

In 1956, Thermo King introduced the first marine container refrigeration unit—and we've been innovating ever since. Our mission remains clear: protect your valuable cargo with best-in-class performance, efficiency, and sustainability.
Today, that legacy lives on in Magnum™ Eco, the industry-leading solution designed to deliver unmatched cooling capacity, energy savings, and reliability.

Magnum™ Eco provides

PRECISE TEMPERATURE CONTROL

Magnum™ Eco sets a new standard for accuracy by combining high-precision PT1000 sensors with smart controls. It maintains strict temperature stability within ±0.25°C for chilled and fresh cargo, and ±1.0°C in frozen mode. For ultimate cargo protection, the MP-5000 controller offers the Max-Care setting, ensuring reliability even under the most demanding conditions.

LOWER ENERGY CONSUMPTION

Magnum™ Eco is engineered for efficiency. Activate Eco-Care mode via the MP-5000 controller to reduce power consumption while safeguarding cargo integrity. The system intelligently balances set-point tolerance and logs energy use, enabling CO_2e reporting for every trip.

LOWER GWP REFRIGERANTS

Magnum™ Eco is A2L-ready, featuring optimized components such as the compressor, evaporator motors, defrost heaters, and heat exchangers—all designed for safe operation under ISO 20854 standards.

Factory options include R-134a (GWP 1430), lower-GWP R-513A (GWP 631), or ultra-low GWP R-1234yf (GWP 4), which comes with a leak sensor and illuminated buzzer for added safety.

GWP values are IPCC AR4 per kg of refrigerant.

OPTIMIZED EVAPORATOR

The evaporator section is engineered for reduced power consumption, improved airflow, and easier service access.
An electronic expansion valve enhances defrosting and dehumidification, ensuring consistent performance and simplified maintenance.

PROTECTING YOUR INVESTMENT

Magnum™ Eco's A2L-ready design allows a smooth transition to next-generation refrigerants when you're ready. Combined with reduced energy use, modular MP-5000 controls, and simplified service tasks, the unit lowers total cost of ownership and maximizes long-term value.

SMART CONTROLS

The MP-5000 controller provides advanced diagnostics and intelligent monitoring.
It continuously evaluates data from PT-1000 temperature sensors, pressure transducers, and component power consumption to optimize performance. In case of unexpected conditions, clear troubleshooting guidance appears on-screen.

SMART PTI can be enabled for trend analysis, and the system is expandable for Controlled Atmosphere applications with CO_2 and O_2 sensors, pressure transducers, solenoids, and air compressor integration.



Join the Largest Climate Commitment in B2B

At Trane Technologies, our parent company, we've set an ambitious goal: to help reduce our customers' carbon footprint by 1 gigaton by 2030. Every innovation counts—and the Magnum™ Eco unit is a powerful contributor to this mission. By dramatically lowering power consumption, it minimizes environmental impact without compromising performance.
When operating with R-1234yf, Magnum™ Eco takes sustainability to the next level. This advanced refrigerant has a Global Warming Potential of just 4, according to IPCC AR4—making it one of the most climate-friendly choices available today.

Passion for the cold chain

Standard or customized reefer units



MAGNUM™ ECO FEATURES

REAL DATA FOR REAL DECISIONS

Magnum™ Eco puts actionable insights at your fingertips. With energy logging as standard, you can track real-world power consumption for each trip and turn data into knowledge. Beyond energy, the system records temperature, humidity, CO_2, O_2, and key events—giving you a complete picture of your operations.

Compare performance across containers, cargo types, or your entire fleet to optimize efficiency and sustainability reporting.

The future belongs to Artificial Intelligence, where data evolves into actionable knowledge and wisdom. **The MP-5000 controller** taps into this potential by sending its extensive data to the cloud for intelligent analysis.

SEAMLESS CONNECTIVITY

Stay seamlessly connected. The MP-5000 controller supports integration with your preferred telematics device for two-way GSM or GNSS connectivity, along with your choice of graphical user interface. For vessel operations, an optional ISO 10368 power line modem can be installed to enable full two-way onboard communication.

For local connectivity, connect to the MP-5000 controller via Bluetooth using the Thermo King Reefer app on iOS or Android. Within a 12-meter range, you can view unit data, initiate a Pre-Trip Inspection (PTI), and download logs—offering the same functionality as the physical keypad.

SMART PTI: AUTOMATED PERFORMANCE AUDITS

Save time and money with Smart PreTrip Inspection, standard on Magnum™ Eco. The MP-5000 controller performs automated inspections during operation, analyzing performance trends and triggering alerts for technicians when needed. Smart PTI works whether the container is empty or loaded, ensuring reliability without downtime.

COMPATIBLE WATER-COOLED CONDENSERS (OPTIONAL)

For below-deck operations where airflow is limited, Magnum™ Eco can be equipped with a water-cooled condenser. This option ensures stable conditions and additional power savings in challenging environments.

CONTROLLED ATMOSPHERE (OPTIONAL)

For sensitive cargo like fruits, vegetables, and ornamentals, Thermo King offers passive or active Controlled Atmosphere solutions. Choose **TK Fresh Plus** for CO_2 monitoring and ventilation, or **TK Active Fresh** for full O_2 and CO_2 management. A dedicated brochure detail these options.

CUSTOMIZATION WE LISTEN TO YOUR NEEDS

Your brand deserves to stand out. Customize Magnum™ Eco units with your logo, decals, and custom frame colors to showcase your identity across the globe. From tailored power cables and plugs to anti-theft hardware and specialized control features, we build to suit your exact operation—just let us know what you need, and we will make it happen.

MP-5000 Controller: Powering smarter operations

The MP-5000 controller is the brain behind Magnum™ Eco, combining advanced control algorithms, faster processors, and ultra-precise PT1000 sensors to deliver best-in-class temperature accuracy. Whether transporting chilled, fresh, or frozen cargo across intermodal routes, MP-5000 ensures precision up to ±0.25°C—every time.

ECO-CARE EFFICIENCY

With Eco-Care, the MP-5000 reduces power consumption without compromising temperature integrity. This intelligent feature sets new standards for operating efficiency, delivering significant energy savings and lowering total cost of ownership.

2-WAY CONNECTIVITY

Stay in control from anywhere. The MP-5000 offers Bluetooth connectivity and remote monitoring via the TK Reefer App for Android and iOS, enabling two-way commands such as PTI, defrost, set-point changes, and log-file retrieval.

For extended connectivity, telematics devices and/or ISO 10368 Power Line Modems can be integrated directly into the control box. For units charged with R-1234yf, a telematics device is mandatory.

DATA THAT DRIVES DECISIONS

Every trip generates a wealth of insights—temperature, humidity, air exchange, CO_2/O_2 levels, pressure, events, PTI results, and power consumption. MP-5000 captures it all, preparing your operation for the future of data science and AI-driven analytics.



ENERGY LOGGING FOR SUSTAINABILITY

Track real-world energy use with precision. MP-5000 logs power consumption per trip, enabling accurate kWh and CO_2e reporting. This means smarter decisions, better sustainability metrics, and full visibility on and off the vessel.

LOWER TOTAL COST OF OWNERSHIP

Designed for durability and ease of service, MP-5000 is housed inside the control box with a decoupled display and keyboard, and uses standard contractors for simplified maintenance—reducing downtime and costs.

RENOWNED USABILITY

Building on the trusted performance of the MP-4000, the MP-5000 controller takes usability to the next level with intuitive design and advanced functionality. It's engineered to make operation simpler, faster, and more reliable—so you stay in control with ease. Key features include:

- Alarm and warning codes
- Pre-trip inspections
- Text rich definitions
- LED status lamps
- Advanced screen flow
- Software customization capability
- Bluetooth connectivity

Technical Specifications

MODEL — MAGNUM™ ECO

PERFORMANCE					
Net cooling capacity at 37.8°C (100°F) ambient temperature at 60 Hz power					
Evaporator Return Air Temperature	**Power requirement Watt**	**Cooling capacity Watt**	**COP at full load**	**Kcal/hr at full load**	**BTU/hr at full load**
21.1°C (70°F)	10 650	15 700	1.47	13 500	53 618
15.0°C (59°F)	9 895	15 200	1.54	13 070	51 910
10.0°C (50°F)	9 660	13 400	1.39	11 520	45 763
1.7°C (35°F)	8 800	11 375	1.29	9 781	38 847
-17.8°C (0°F)	5 690	6 325	1.11	5 439	21 601
-25.0°C (-13°F)	4 863	5 116	1.05	4 399	17 472
-28.9°C (-20°F)	4 570	4 035	0.88	3 469	13 780
Net heating capacity (including fan heat) at 60 Hz power					
System heating capacity	5 250			4 515	17 914

Test method according to AHRI standard 1110 (I-P)-2013. Unit mounted in test room.
Detailed specification will be provided on request, reach out to your Thermo King sales representative.

Anytime. Anywhere. Always There.

With over 500+ authorized Thermo King service points worldwide, you're never far from expert help. And because your cargo never stops, our network is ready 24/7, across the globe.

Stay supported
dealers.thermoking.com



TK Active Fresh

Active control. Perfect fruit.

Take active control of your fresh cargo with TK Active Fresh. When shipping ripening fruit, vegetables, or ornamentals, precise control of the air composition helps ensure optimal quality and market value. With its advanced control algorithms, the MP-5000 setup helps preserve cargo quality, enable long-distance shipping, and support expansion into new markets.

PRESERVES QUALITY AND APPEARANCE

TK Active Fresh maintains the freshness, taste, and nutritional value of fruits and vegetables, ensuring they reach consumers in optimal condition.

ENABLES SHIPPING TO DISTANT MARKETS

The technology enables growers to ship produce to more distant destinations, expanding their market reach and potential for higher profits.

EXTENDS SHELF LIFE

By slowing down the ripening process, TK Active Fresh allows for longer storage and transportation times, reducing the risk of spoilage.

REDUCES POST-HARVEST TREATMENT

TK Active Fresh minimizes the need for additional treatments and preservation methods after harvest, saving time and resources.



Check the TK Fresh app

Discover our comprehensive database of optimal temperature settings for any type of fresh cargo on thermokingfresh.com or scan the QR code.

Magnum™ Eco

– **SUSTAINABILITY**
Magnum™ Eco is designed with the entire lifecycle in mind. It reduces power consumption, uses intelligent controls to prevent food loss and waste, and supports ultra-low GWP refrigerants like R-1234yf. This is the future of marine refrigeration—available today.

– **RELIABILITY**
Built for performance and durability, Magnum™ Eco integrates advanced digital scroll compressor technology, the modular MP-5000 controller, PT1000 sensors, coated heat exchangers, and specially engineered electric heaters—all mounted on Thermo King's iconic V-shape frame for proven strength.

– **ECONOMY**
Protect your investment with A2L-ready components, reduced energy costs, and simplified service. Combined with the modular MP-5000 controller, Magnum™ Eco lowers total cost of ownership while delivering premium cargo performance.
Smart savings with Magnum™ ECOnomy.



THERMO KING

Thermo King – by Trane Technologies (NYSE: TT), a global climate innovator – is a worldwide leader in sustainable transport temperature control solutions. Thermo King has been providing transport temperature control solutions for a variety of applications, including trailers, truck bodies, buses, air, shipboard containers and railway cars since 1938.

For further information
europe.thermoking.com

Find your nearest dealer on
dealers.thermoking.com

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