

# CFF

Container Fresh & Frozen.  
Protecting your cargo.

CONTAINER REFRIGERATION SOLUTIONS

BOOSTED PERFORMANCE WITH  
THE NEW MP-5000 CONTROLLER.



CONTAINER FRESH & FROZEN

# Proven reliability across the seas.

Thermo King creates innovative temperature control solutions that help your fleet perform more efficiently. CFF is the culmination of our deep container refrigeration knowledge acquired from the intermodal use of reefer units on rough roads and even rougher seas.

Our new CFF unit features improved temperature and humidity control, lower total cost of ownership and the implementation of a low pressure, lower GWP refrigerant. The results speak for themselves. The worldwide reference for marine reefer refrigeration.

CONTAINER FRESH & FROZEN



**-30°C to +30°C**

**CHOOSE YOUR OPTIMAL SET-POINT**

CFF can reach and maintain box temperature in the toughest conditions between -30°C and +30°C to safeguard product quality.

**+25 years**

**DESIGNED TO LAST LONGER**

CFF makes use of proven technology – the characteristic V-shape picture frame has been a frontrunner in the market for 25+ years. Its unique design allows for **optimal heat exchange, system efficiency and easy service access.**

**24/7 support**

**SERVICE AROUND THE WORLD**

From planned maintenance to unscheduled repairs – Thermo King's extensive service network provides superior parts availability and **around the clock support.**



# Raising reefer performance since the 1950s

Thermo King introduced the first Marine Container unit in 1956. Innovation continues, always with focus on protecting your valuable cargo

At Thermo King, we take pride in CFF and what it offers to our customers. Here are the main reasons to choose our industry-leading solution:

**PRECISE TEMPERATURE CONTROL**

The unique CFF advanced temperature management control system delivers extremely precise temperature control +/- 0.25°C in chilled mode and +/- 1°C in frozen mode.

**FAST PULL-DOWN**

Thanks to its superior cooling capacity, CFF can reach specific set-points faster and increase the shelf-life of your shipments.

**LOWER GWP REFRIGERANTS FOR LESS ENERGY CONSUMPTION**

CFF comes with the industry-standard R-134a. Optional, we offer lower GWP refrigerant R-513A from factory, or as a drop-in. Both are lower Global Warming Potential refrigerants that enable an optimal Coefficient of Performance and drastically reduce your energy cost.

**THERMO KING PARTS LAST LONGER**

Every component is crucial to the overall performance of your unit. Genuine Thermo King consumables and replacement parts are created with high-quality materials and rigorously tested to ensure reliable operation.

**SMART ENERGY MANAGEMENT**

CFF offers remarkable energy efficiency through intelligent controls and component design – without compromising on load protection.

MP-5000 controller comes with two control modes as a standard:

- Non-optimized for tighter temperature control
- Energy optimized for wider temperature tolerance, defined by the specific set-point.

Energy logging for the journey is standard, providing valuable insights into your journey's energy consumption.



## Contribute to the largest climate commitment in B2B

Trane Technologies – our parent company – has challenged itself to reduce our customers' carbon footprint by 1 gigaton by 2030. The all-new CFF unit will help us achieve that goal by decreasing the power consumption and drastically reducing your environmental impact.

# Unique and customizable cold-chain technology



## SEAMLESS CONNECTIVITY

CFF's MP-5000 controller is compatible with a wide range of telematics solutions for both one-way and two-way communication. Let us know your preferred brand and model and we will factory install. It features a build-in BlueTooth BLE5 communication for two-way communication using Android or IOS Application. An optional ISO10368 modem can be installed inside the MP-5000 control box.



## SMART PTI: AUTOMATED PERFORMANCE AUDITS

Smart PreTrip Inspection can be enabled to save you time and money. The intelligent MP-5000 controller will perform full inspections during reefer operation – anytime or anywhere, empty or loaded.



## ADVANCED FRESH AIR MANAGEMENT

TK FRESH+ protects fresh produce from detrimental atmospheric conditions. Just indicate your desired fresh air rate on the MP-5000 controller and TK FRESH+ will ensure the specified fresh air rates are maintained. Air vent logging (AVL) will also document the actual air exchange process.



## SYNCHRONIZED DEFROST

Simultaneous defrost cycles for adjoining reefers are critical for optimum cooling performance and energy efficiency.



## COMPATIBLE WATER-COOLED CONDENSERS (OPTION)

When air cooling capacity is insufficient – e.g. below-deck – water-cooled condensers offer a reliable and compatible alternative while reducing power consumption.



## REAL DATA FOR REAL DECISIONS

Energy data logging keeps you informed about real-life power consumption, so you can monitor and report sustainability data and information.



## SHOW OFF YOUR STYLE

Proudly display your brand around the world by customizing the visual aspects of your CFF units with your logo, decals, and colors.

## CONTAINER FRESH &amp; FROZEN

# MP-5000 controller: helping you run a tighter ship.

Advanced control algorithms, faster processors, and ultraprecise PT1000 control sensors deliver the best-in-class temperature control that is essential when transporting chilled, fresh, and frozen cargos by sea. With the uniquely intelligent and ultra-reliable MP-5000 controller, every CFF unit boasts temperature accuracy of up to  $\pm 0.25^{\circ}\text{C}$ .

## ECO-MODE EFFICIENCY

MP-5000 offers an **Optimized Mode** that reduce power consumption, without compromising temperature management. With the MP-5000, the CFF sets new standards in operating efficiency for **significant cost and energy savings and a lower total cost of ownership**.

## 2-WAY CONNECTIVITY

Thanks to its remote monitoring module and Bluetooth connectivity, the MP-5000 controller enables 2-way communication via the TK Reefer App for Android and IOS, so user can execute commands like PTI, defrost, change of set-points or retrieve a log-file. A telematics device, like RMM-W, and a ISO10368 Power Line Modem can be installed into the MP-5000 control box.

The event and temperature logs, allow as well for every trip to obtain data points – temperatures, humidity, air-exchange,  $\text{CO}_2/\text{O}_2$ , pressure, events, PTI results, power consumption, and more.



## ENERGY LOGGING

Make intelligent decisions based on real data with CFF equipped with MP-5000 controller. By logging the power consumption of each trip, CFF enables you to monitor your kWh and  $\text{CO}_2$  footprint. The result? Sustainability, and energy tracking on and off vessel at every voyage.

## LOWER TOTAL COST OF OWNERSHIP

By locating the MP-5000 **inside the control box**, decoupling display and keyboard, and using standard contactors, the controller offers **easier maintenance, and improved durability and reliability, for a lower total cost of ownership**.

## RENOWNED USABILITY

Building on the proven capabilities of the user-friendly MP-4000 controller, the MP-5000 controller features:

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

# Technical Specifications

MODEL CFF

PERFORMANCE			
System Net Cooling Capacity - Full Cool CFF Model - Air Cooled Condensing			
Setpoint	460V, 3 Phase, 60 Hz Power		
	Net Cooling Capacity		Power Consumption
	Capacity BTU/hr	Capacity kW	Power kW
21.1°C (70°F)	53 618	15 700	10 650
1.7°C (35°F)	38 847	11 375	8 800
-17.8°C (0°F)	21 601	6 325	5 690
-28.9°C (-20°F)	13 780	4 035	4 570

System net cooling capacity with a 37.8°C (100°F) ambient air temperature.

MODEL CFF

PERFORMANCE				
Evaporator Airflow Specifications System Net Heating Capacity				
CFF	460V, 3 Phase, 60 Hz Power		380V, 3 Phase, 50 Hz Power	
	Heating Capacity			
	Watts	BTU/hr	Watts	BTU/hr
	5 250	17 914	3 900	13 300

System net heating capacity includes fan heat.

# TK Active Fresh

Active control. Perfect fruit.

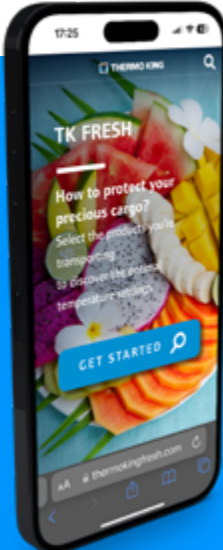
Now you can take active control of your fresh cargo with **TK Active Fresh**. This active air management system is available now on CFF reefers equipped with an MP-5000 controller. Maintain quality over longer distances and expand into new markets. The optimal controlled atmosphere for perfect fruits and vegetables.

**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.

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


**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.

**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](https://thermokingfresh.com) or scan the QR code.





Download the complete CFF manual online

## Stay supported by your Thermo King dealer

The Thermo King dealer network boasts over 460 authorized service points throughout the world – all are open and available 24/7.

CONTAINER FRESH & FROZEN

# High-efficiency, low-total cost of ownership, optimal conditions for fresh and frozen cargo.

## HIGH ENERGY EFFICIENCY

Energy efficiency through intelligent controls with the MP-5000 controller.

## LOW COST OF OWNERSHIP

Operational efficiency and easy servicing make CFF our lowest TCO reefer solution.

## DESIGNED FOR DURABILITY

Proven technology – the characteristic V-shape picture frame has been a frontrunner in the market for 25+ years.



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  
[thermoking-globalsolutions.com](https://thermoking-globalsolutions.com)

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TECHNOLOGIES

