



# THERMO KING

## *Precedent<sup>®</sup> Multi-Temp*

*Avoid expensive maintenance and upkeep costs  
with these proven trailer refrigeration units.*



**TRANE**  
TECHNOLOGIES

# INNOVATIVE LEADER

Since inventing refrigerated transport in 1938, Thermo King has continued to build on our legacy of leadership through innovative and sustainable solutions that help our customers deliver temperature-critical products to people around the world safely and efficiently.

Utilizing the latest breakthroughs to drive efficiency, safety, and sustainability while saving money, we bring concepts from the test lab to the highway.

**750,000,000**  
HOURS OF SERVICE

**80,000**  
UNITS ON THE ROAD

**10,000**  
FLEET OWNERS

The numbers speak for themselves.

The S-Series: a proven non DPF ULETRU solution for fleets that operate in California.

Developed to achieve Evergreen CARB and EPA emissions compliance while adding performance, the Precedent S-Series is notable for what it does not have: a Diesel Particulate Filter (DPF). When considering the negative impact on engine life and fuel efficiency that a DPF brings, it was clear that a DPF was not a viable solution for units that run in California. Avoid the unknowns and risks of DPFs and rest easy knowing that you're running the only unit available that will be compliant nationwide for as long as you own it.

## X430P Reciprocating Compressor

4 cylinder, 30 cubic inch with 7 quart deep oil sump, forged steel connecting rods with barring inserts and discharge valves incorporating slug relief springs, integrated internal oil filter reduces leaks, 15.5 lbs. of 404a refrigerant.

## 12 volt Charging

Multiple options in both Alternator and Battery Charger configurations

## Generator

Totally Enclosed Fan Cooled (TEFC) 5.25 KW rated output, fully potted and protected stator windings, IP55 rated.

## Evaporator Motor

Totally Enclosed Air Over (TEAO), 2 speed operation with up to 3350 CFM due to Smooth Air Blower technology.

## Remote Evaporators

Supports 1,2 and 3 zone operation with up to 4 remote evaporators.



# THE PROVEN CHOICE

## PRECEDENT MULTI TEMP: C AND S-SERIES

Precedent units offer superior temperature control, double-digit fuel savings, and enhanced durability. The S-Series meets current and future California emission requirements, while C-Series is for fleets not operating in California.

<b>C-600M</b> 7 year CARB compliant engine (TK486V25L1) 2.1 liter direct injection, rated at 24.4 HP at 2200 RPM	<b>S-610M</b> Evergreen CARB compliant engine (TK488CR1) 2.2 liter common rail fuel injected engine rated at 33.0 HP at 2050 RPM	<b>S-610DE</b> Evergreen CARB compliant engine (TK488CR1) 2.2 liter common rail fuel injected engine rated at 33.0 HP at 2050 RPM
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Each engine version includes: 12 qt oil capacity, extended life coolant, and 3000 hour air, oil, and fuel filtration systems with 4000 hour options available.



### New Condenser Grilles

Upgraded condenser grilles with improved airflow and debris protection. LEDs and chrome available.

### Integrated Telematics

TrackKing® - Integrated telematics from the factory.

### Composite Doors

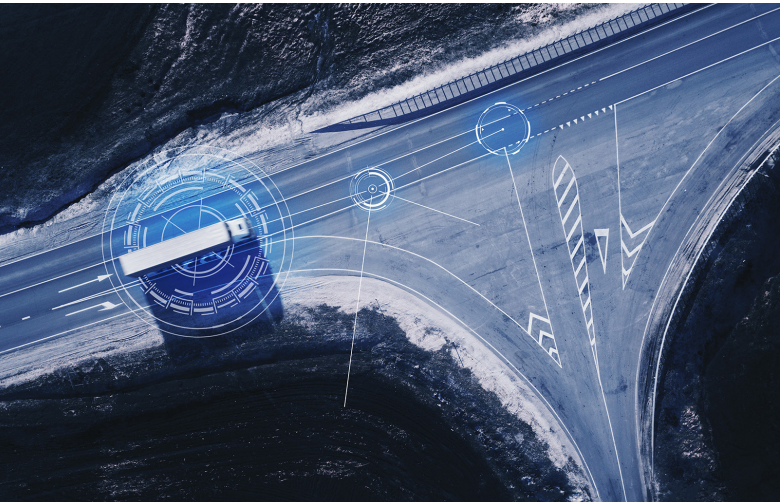
Composite long life door panels with auto latch and auto secondary latch on front doors.

### Controller

Smart Reefer® 4 (SR4) control system, temperature data logger, ServiceWatch and Optiset® Plus enabled, running and pretrip diagnostics, integrated USB port, and proprietary eco-pulldown technology.

# THE PROVEN ADVANTAGE

REGARDLESS OF YOUR ZONE CONFIGURATIONS AND APPLICATIONS – NOTHING DELIVERS LIKE PRECEDENT'S MULTI TEMP SOLUTIONS



## TELEMATICS FOR YOUR FLEET

### DATA IS POWER

Every Precedent TRU comes connected from the factory with Tracking® telematics, making it easier for fleets to monitor and analyze their refrigerated fleet operations.

#### REAL-TIME CONNECTIVITY

- Reefer status
- Load condition
- Asset location

#### COMPLIANCE AND SECURITY

- Temperature compliance
- Asset security
- Cargo traceability

#### LOWER COSTS

- Vehicle uptime
- Fuel usage



## ALL UNITS

### NEW CONDENSER GRILLES

We know customers take pride in the look of their fleets – and that includes the look of the industry-leading Precedent models. The new grilles not only provide improved protection from road debris that can impact the condenser coil, but also a stronger, more integrated look for the unit.

For customers looking to further enhance their fleet's appearance, chrome and LED options are available.



*original grille style*

*new grille style*





**S-SERIES - ONLY**

**NEW EGR SYSTEM**

Eliminating unscheduled maintenance and reducing scheduled maintenance is a tenant of the Thermo King value proposition to customers since 1938. We provide a reduced maintenance expense with the elimination of the scheduled 3,000 hour service interval of the EGR system on S-Series units. The new EGR system now has no scheduled maintenance required and is expected to perform 10,000+ hours between required EGR service. As a fix on fail component, the system will provide users with a log alarm as service is approaching. A service reminder will be issued at 12% of service life remaining.

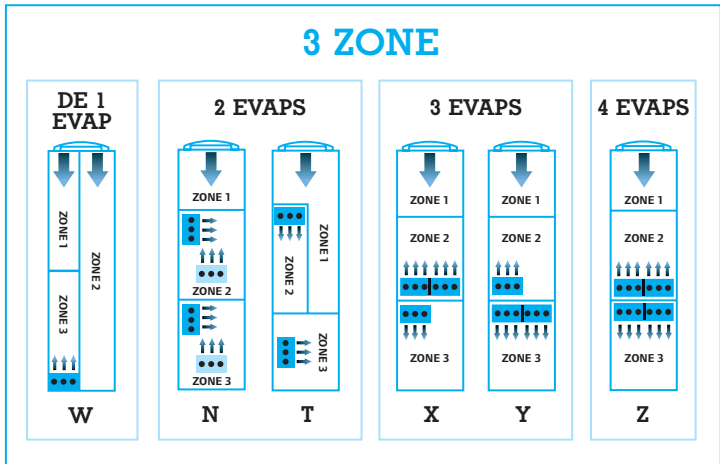
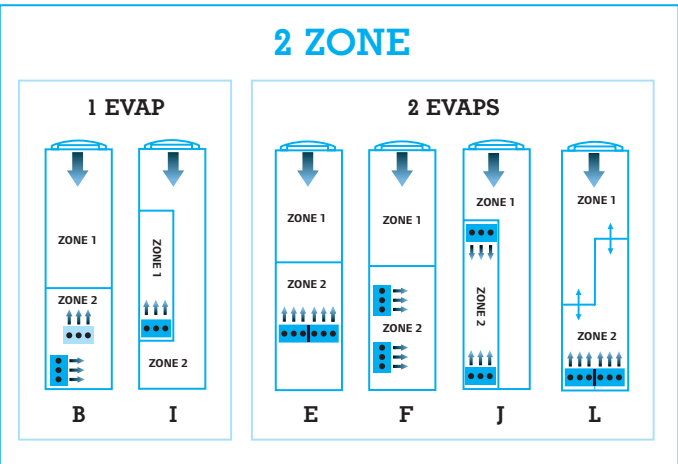
Changes to the cooler, valve, and piping, along with a new fuel injection strategy, allow the S-series to operate at 10,000+ hours of expected EGR service life. When service is required, technicians will find easier service access with the system redesign. This upgrade is not backwards compatible to units in the field.

**ENHANCED FUEL FILTRATION**

A new 2-stage fuel filtration system has been added to the S-Series units. The system features a 5 micron primary filter with a 99% efficiency. The primary filter will also remove water from the fuel and store it for draining or disposal during filter maintenance. Capacity of water retention is well beyond what will be collected between service intervals, so there is no incremental service requirement. Emulsified water is removed per ISO 16332 at >93%. A secondary filter captures smaller particulate at 3 micron with 99% efficiency.

With the continued use of additives by refiners, distributors, and retails, this new filter system assures protection of the high pressure common rail fuel delivery system.

**MULTIPLE ZONE CONFIGURATIONS**



# MAXIMIZE UPTIME BY USING HIGH-QUALITY PRODUCTS AND SERVICES

## SUSTAINABILITY

*We're focused on creating a more energy-efficient cold chain that gets temperature-critical goods to the people who need them.*

The Precedent S-Series engine was developed to meet both CARB and EPA emissions compliance starting in 2013. It also fulfills all of the newly proposed emissions concepts by CARB.

R452a refrigerant is an available option on select Precedent units. R452a provides a lower Global Warming Potential (GWP).

Precedent offers returnable packaging pallets to reuse and save wood.

Since Precedent launched, we've helped save

**32 MILLION + KILOGRAMS** of Nitrous Oxide.

Which equates to

**9.6 MILLION METRIC TONS** of Carbon Dioxide,

OR the amount of energy used by

**1.1 MILLION HOMES** in a year's time.

ThermoLite® solar panels deliver clean, reliable performance resulting in longer battery life, lower fuel consumption, and reduced emissions. Given these potential benefits, ThermoLite solar panels can be an important part of a comprehensive sustainability program for any business.



30W solar panel

Fleets, currently operating with ThermoLite solar panels experience an **ANNUAL SAVINGS** of

nearly **3 MILLION GALLONS** of fuel,

**1.3 MILLION POUNDS** of lead,

and over **6 MILLION POUNDS** of Carbon Dioxide from entering the atmosphere



## TEMPERATURE CONTROL

*Take action to mitigate risk in your cold chain*

Considerations for temperature control can include:

### **Air Chutes and Return Air Bulkheads**

Provide optimal airflow and even temperature distribution to reduce hot spots in a trailer that can negatively impact the quality of the transported product.

### **OptiSet® Plus**

Ensures that temps are optimized and personalized with pre-set profiles for your cargo. Over 500 cargo profiles available.

### **Door Switches**

Configured to turn the unit off when doors are opened to help ensure the integrity of the cargo.

### **Solar Panels**

Provide fuel efficiency from reduced runtime in cycle sentry mode and engine offloading as a healthier battery demands less from the charging system.

### **Sensors**

Precedent units are designed with two return air sensors for constant verification. They are calibrated and graded to one of twenty seven grades and accuracy can be expected within plus or minus 0.47F.

**±0.47 F ACCURACY**  
on sensors.

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## FUEL EFFICIENCY

*Improve fuel efficiency on the road and save money*

To help you save money, Precedent units provide optimal fuel efficiency by making adjustments to fan speeds, timers, temperature range settings, and more.

You can reduce risk of wasting fuel or losing your cargo by locking out certain parameters to prevent driver error.

Every Precedent can be customized to work as efficiently as possible with its default features for hundreds of cargo profiles.

### **In the 1980s, Thermo King invented CYCLE SENTRY**

operation, which dramatically reduces fuel usage and saves customer's operational costs.



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 more information, visit [thermoking.com](http://thermoking.com) or [tranetechnologies.com](http://tranetechnologies.com).

