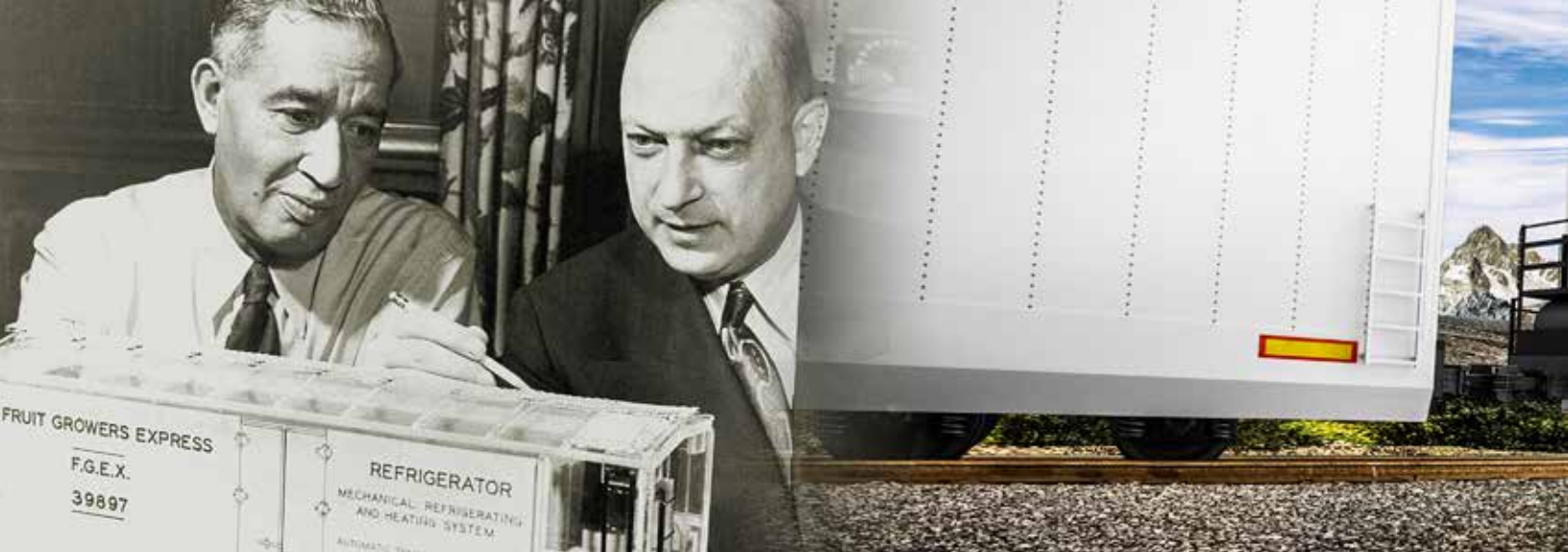




Precedent™ Rail

The all-new rail-ready platform that delivers double-digit fuel savings and offers compliance choices that don't compromise performance.





WE KNOW RAIL.

THERMO KING HAS BEEN DESIGNING CUSTOM RAIL SOLUTIONS FOR OUR CUSTOMERS SINCE 1948.

Thermo King introduced the first refrigerated boxcar over 60 years ago and continues to develop and expand on the latest industry-leading rail technologies. Thermo King provides rail solutions to customers by listening to their needs and developing the most reliable, cost-effective products in the industry.

Unsurpassed Reliability and the Lowest Cost of Ownership

Thermo King understands your business and provides rail products designed to offer you unsurpassed reliability and the opportunity to lower your fuel, maintenance and overall operational costs. Thermo King also has you covered from coast to coast, with expert service when and where you need it. Thermo King rail products truly Deliver What Matters:

- ▶ Unsurpassed Reliability in Unattended Rail Service
- ▶ Backed by the Longest Warranty in the Rail Industry (see your dealer for details)
- ▶ Less Maintenance - Extended Maintenance Intervals mean Less Downtime and Less Expense
- ▶ Expert Mobile Service and Support Nationwide from the Thermo King Dealer Network.
- ▶ Lower Operating Costs and the Lowest Cost of Ownership



DELIVERING WHAT MATTERS TO RAIL CUSTOMERS



Thermo King Advantage: Premium Engine Protection

Thermo King's Rail-Ready units come equipped with a Severe Duty Filtration Package to protect the engine in the harsh environments the unit is exposed to.

The system is built to function in unattended situations because Thermo King understands fuel system performance is the last thing rail and intermodal transporters want to worry about during long, cross country trips.

This system delivers:

- ▶ 30% longer maintenance intervals with more capacity than our standard filtration package
- ▶ Stable fuel flow with a robust 80 micron strainer
- ▶ Longer engine life with the exclusive automatic drainage system found in the 5 micron fuel filter
- ▶ Reduced waste with environmentally-friendly replacement elements

Best Warranty in the North American Rail Industry

Not only do Thermo King Rail-Ready Units provide best-in-class quality and reliability, they are backed by the best warranty in the industry. See the table below to compare the standard warranty on all major parts from Thermo King and its nearest competitor.

Competitor	Thermo King	Nearest
Run Time	8,000 hours	6,000 hours
Years	4 years	3 years

Rail Ready



PREVENTATIVE MAINTENANCE FILTER KIT
PART NUMBER: 10-469

Auto Fresh Air Exchange

- ▶ Auto fresh air exchange helps keep loads safe from the detrimental effects of gaseous build-up inside the refrigerated space
- ▶ Can be controlled and monitored via the unit controller or remotely via telematics

Electric Fuel Heater

Makes starts in cold conditions easier by adding a thermostatically-controlled fuel heater.

Electric Fuel Pump

Allows for easier starts and virtually eliminates bleed starts.

All-New Diesel-Direct Electric (DDE) Architecture:

ENGINEERED FOR MAXIMUM RAIL UNATTENDED PERFORMANCE

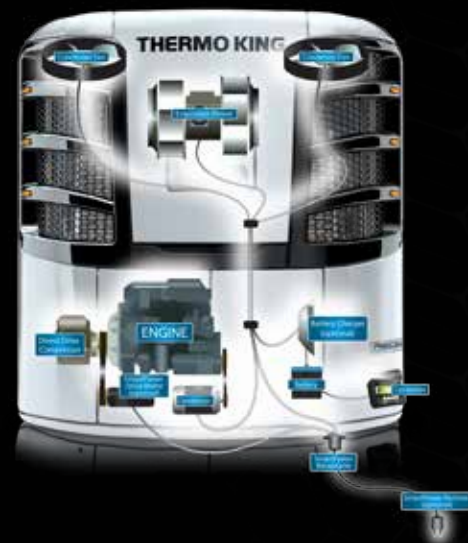
The Precedent platform utilizes an all-new DDE (Diesel Direct Electric) architecture to drive optimum efficiencies and double-digit fuel savings across real-world applications. It's a smarter approach, with the expressed goal of making a lasting difference on your budget.

In addition to brand-new technologies, there are also some familiar components residing within the Precedent architecture. The well-proven X-430 reciprocating compressor provides the performance and reliability Thermo King is famous for and, when combined with the new architecture, delivers better operating efficiencies than ever before.

Why DDE?

Diesel-electrical vs. diesel-mechanical. It was the central debate when deciding Precedent's architectural framework. Instead of choosing one, we chose the best of both.

- ▶ Our new platform utilizes DDE architecture to drive optimum efficiencies and double-digit fuel savings.
- ▶ DDE ensures minimal energy loss and maximized fuel efficiency and reliability when compared to an all-electrical solution.



Evaporator Blower Assembly

Precedent's evaporator assembly moves air more efficiently than ever. Leveraging the Smooth Air™ blower system, the airfoil blade profile and contoured air inlets deliver maximum airflow with minimal power draw. We used compression molding to produce both the evaporator and condenser side sections using SMC material and insulation with a 6.7/ inch R-value to isolate the condenser and evaporator airflow sections. The bulkhead is structural, allowing for the direct mounting of hardware to cut system weight. All together, it delivers:

- ▶ High speed airflow during low speed engine operation for optimal protection of fresh loads and improved fuel efficiency
- ▶ An easily removable access panel enables service from front of unit
- ▶ 30% larger coil area for improved efficiency and faster pulldown

THERMO KING TELEMATICS

The latest technology solutions to make your business run smarter



Thermo King's new REB wireless communication platform offers fleet owners the ability to monitor their refrigerated assets using multi-mode technology. Embedded in the SR-4 controller, the REB wireless platform integrates with Thermo King's web-based TrackKing application, now enabling customers to manage their refrigerated fleets remotely and in the yard.

The REB wireless platform also enables multiple remote features over-the-air using TrackKing, like OptiSet+ and flashloading of the SR-4 controller. Fleet owners can remotely upgrade multiple refrigeration units simultaneously, saving time and lowering maintenance costs.

Multiple wireless technologies converge on this robust platform, making it "future proof." Cellular, Wi-Fi and GPS capabilities offer fleet owners multiple communication options as well as a way to leverage their existing Wi-Fi infrastructure. The Secure Link Coordinator offers the ability to connect wireless sensors across the trailer, container or box car, lowering installation costs. A 3rd party interface offers a gateway for telematics providers to communicate with the Thermo King unit.

Thermo King's REB wireless platform is innovative, efficient and eliminates the need to have multiple communication devices. A single antenna supports all four wireless technologies. A back-up battery is included with the TrackKing cellular REB, ensuring up-time and seamless connectivity with the reefer.



PRECEDENT RAIL-READY ORDERING GUIDE

Trailer on Flat Car (TOFC) and Intermodal



Domestic Refrigerated Container (DRC)



S-600RR

S-700RR

Capacity at 35°F (BTU/hr)	60,000	Coming Soon
Heat (BTU/hr)	50,000	Coming Soon
Airflow (CFM)	3,300	Coming Soon

TOFC Package - includes:

- ▶ Severe Duty Filtration Package
- ▶ 65 Amp Alternator

Factory Options:

- ▶ TrackKing Telematics
- ▶ Battery Charger
- ▶ SmartPower Electric Standby
- ▶ Auto Fresh Air Exchange
- ▶ Fuel Heater



S-600RR

S-700RR

Capacity at 35°F (BTU/hr)	60,000	Coming Soon
Heat (BTU/hr)	50,000	Coming Soon
Airflow (CFM)	3,300	Coming Soon

DRC Package - includes:

- ▶ Severe Duty Filtration Package
- ▶ Battery Charger

Factory Options:

- ▶ TrackKing Telematics
- ▶ Battery Charger
- ▶ Auto Fresh Air Exchange
- ▶ Fuel Heater

Steel Wheeled Refrigerated Box Car (RBC)



	S-600RR	S-700RR
Capacity at 35°F (BTU/hr)	60,000	Coming Soon
Heat (BTU/hr)	50,000	Coming Soon
Airflow (CFM)	3,300	Coming Soon

RBC Package - includes:

- ▶ Severe Duty Filtration Package
- ▶ 65 Amp Alternator
- ▶ Maximum Flow Evaporator Panel

Factory Options:

- ▶ TracKing Telematics
- ▶ Battery Charger
- ▶ Auto Fresh Air Exchange
- ▶ SmartPower Electric Standby
- ▶ Electric Fuel Heater

New Thermo Gard™ Assurance

CUSTOMIZABLE FLEET MANAGEMENT OPTIONS FOR YOUR BUSINESS ARE NOW 5-7% LESS THAN EVER BEFORE*

Thermo King SVC's new Thermo Gard Assurance guaranteed maintenance program includes set programs and a wide variety of coverage options to fit the needs of your business. And because of Precedent's improved reliability and lower maintenance costs, peace-of-mind is now less expensive than ever!



*Compared to similar guaranteed maintenance program costs for SB trailer units.

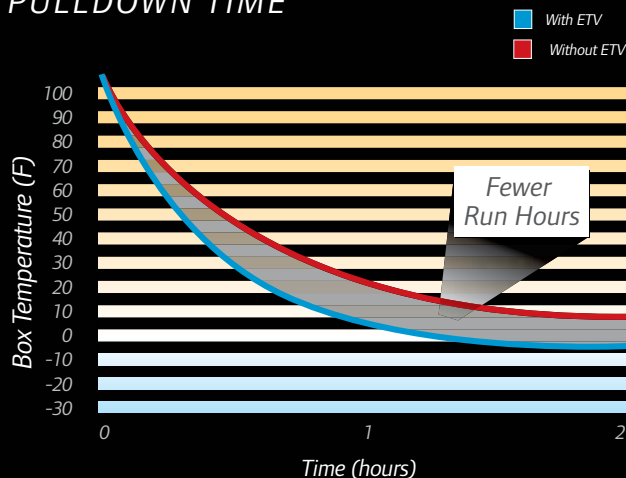
THERMO KING RAIL-READY BENEFITS

Greater Fuel Savings with ETV

Fuel expense continues to represent a significant portion of your operating costs. Thermo King's Precedent rail units incorporate the latest fuel-saving technologies while delivering the BTU performance the market demands.

Thermo King's Electronic Throttling Valve (ETV) for Rail-Ready units uses a microprocessor to precisely control the system. As the temperature approaches the setpoint, the ETV begins to close, throttling the suction gas returning to the compressor. This continues until the ETV becomes almost completely closed, reducing engine load and saving fuel.

PULLDOWN TIME



Other ETV features include:

- ▶ Maximization of capacity for faster pull-down and less fuel usage
- ▶ Elimination of temperature spikes for extended product life
- ▶ High ambient operation for worry-free long distance unattended operation

Lower Operating Costs

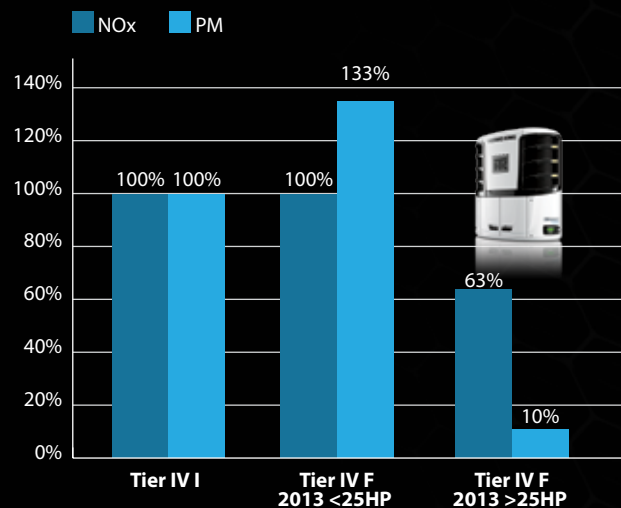
Reducing the everyday costs of operating the reefer was essential in the development of these new units. The following features will help you realize reduced operating costs, every day you run:

- ▶ SR-4 Controller with OptiSet™ Plus helps ensure correct parameters are set for every load, quickly and easily
- ▶ EMI extended maintenance interval means longer intervals between service
- ▶ Low Fuel Warning helps prevent costly out-of-fuel shutdowns
- ▶ Scheduled Maintenance Reminder to keep unit running at peak efficiency

EPA and CARB Compliant

The S-600RR and S-700RR are evergreen* solutions that deliver double-digit fuel efficiency gains without the uncertainty of future compliance.

2013 Emissions Reduction (Regulatory Levels)



* S-Series models, which include the S-600RR and S-700RR, already meet Tier 4 final emissions certification by the Environmental Protection Agency (EPA) and California Air Resources Board (CARB). Further, they comply with CARB's Ultra-Low-Emission Transport Refrigeration Unit In-Use Performance Standards (ULETRU).

RAIL OPTIONS

Fuel Tanks

Lightweight and durable aluminum fuel tanks.

- ▶ Anti-siphon device prevents fuel theft (optional)
- ▶ Ultra-Sonic Fuel Sensor (USFS) prevents costly out-of-fuel shutdowns on the road (optional)
- ▶ Twin site wired fuel gauge (optional)

DOMESTIC REFRIGERATED CONTAINER	TRAILER ON FLAT CAR
120 gal	75 gal
156 gal	110 gal
	120 gal

CargoLink™ Wireless Sensors

Wireless sensor system saves money, reduces maintenance and offers increased load protection.

DOOR SENSORS

- ▶ Configurable to shut down unit or switch to low speed operation when door is open
- ▶ Decreases fuel consumption and emissions
- ▶ Connects with TrackKing to monitor when door is open

FUEL SENSOR

- ▶ Monitors fuel levels to prevent unnecessary shut downs
- ▶ Advanced fuel sensing algorithm detects fuel loss events, eliminates fuel slosh readings and improves accuracy
- ▶ Connects with TrackKing to monitor fuel level - even when unit is off
- ▶ Rapid fuel loss detection alerts you to fuel theft

Rail Remote Status Lights

Prevent costly shutdowns and monitor the conditions of the asset during routine inspection.

- ▶ Displays any warning indicators and unit status

PrimAir™ Air Management Solutions

Proper air management is the key to keeping your cargo at the correct temperature.

RETURN AIR BULKHEADS

- ▶ Ensure proper airflow by pulling return air off trailer floor
- ▶ Provide protection to evaporator during pallet loading

CHUTES

- ▶ Ensure proper airflow by pulling return air off trailer floor
- ▶ Patent-pending ramped mesh ends protect chute from teardown during loading

PLENUMS

- ▶ Formed plastic panels efficiently distribute air throughout container

Solar Panels

Eliminate costly call-outs to start your unit.

- ▶ Help assure units start
- ▶ Increase battery life
- ▶ Decrease maintenance costs

Intermodal Guards (Coming Soon)

Engineered to protect your investment during loading and unloading from rail cars.

- ▶ Heavy duty, all-steel construction
- ▶ Patent-pending design and attachment method

NATIONWIDE RAIL COVERAGE FROM THE THERMO KING DEALER NETWORK

EXPERT MOBILE SERVICE. 24 HOURS A DAY.
ALL ACROSS NORTH AMERICA.



e-Rail Safe Certified Dealers

e-Rail Safe certification is required to enter rail yards and facilities across the United States. Without this certification, access to rail yards can be denied, causing major problems for your business. If technicians cannot enter the yard, loads can be lost to unit shutdowns, costing you money and customer loyalty.

Thermo King Dealers are e-Rail Safe certified, allowing them to access all rail yards nationwide. UpTime mobile service trucks bring the dealership to the customer and are on call 24 hours a day, 7 days a week. Whenever a unit requires repair, upload or flashloading, or regular maintenance, Thermo King Dealers can deliver Genuine Thermo King Parts and expert service right to you.



*Look for this symbol
to identify Rail-Ready
dealers in your area!*



THERMO KING QUALITY AND RELIABILITY

TESTED FOR RELIABILITY IN DEMANDING RAIL APPLICATIONS



Rail-Specific Testing

To ensure years of performance in demanding rail applications, Thermo King applied rail shock loading to the Precedent unit – the railcar shock data was acquired from measurements taken on several units on a fleet of refrigerated boxcars. The unit was bolted to a special fixture and the assembly was then bolted securely to a 50 kip Electro Dynamic shaker table at Thermo King's Vibration Test Lab in Minneapolis (photo below). Half-Sine Wave Shock pulses were applied in the vertical and horizontal directions (direction of railcar travel). Shock loads in the direction of travel varied from 3 impacts at 7 Gs up to several hundred impacts at 2 G loads. Similar impacts were applied in the vertical direction. These rail shock tests are equivalent to a service life of 7 years.

Over-the Road Durability

Because our Rail-Ready units also must perform over the road, accelerated tests were also applied to the Precedent unit on a multi-axis hydraulic shaker table (MAST table) at Thermo King's Research & Development Centre in Prague, Czech Republic. The vibration test profile was generated from data collected from an instrumented reefer unit on a tractor-trailer driven on road surfaces varying from typical paved highways to harsh resonant test tracks. This test is equivalent to driving a tractor-trailer a distance of 1.9 million miles.



OPTIONS CHECKLIST

SmartPower Electric Standby:

- ☐ Standard
- ☐ High-Output
- ☐ SmartPower Prep Package
- ☐ SmartPower Remote Receptacle
- ☐ Fresh Air Exchange
- ☐ Supplemental Power Kit
- ☐ Arctic Package
- ☐ Battery Charger
- ☐ 65 Amp Alternator

Fuel Tanks - Trailer on Flat Car:

- ☐ 50 Gallon
- ☐ 75 Gallon
- ☐ 110 Gallon
- ☐ 120 Gallon

Fuel Tanks - Domestic Refrigerated Container:

- ☐ 120 Gallon
- ☐ 156 Gallon
- ☐ Anti-Siphon Device
- ☐ Ultra Sonic Fuel Level Sensor
- ☐ Wired Twin Site Gauge
- ☐ CargoLink™ Fuel Level Sensor (COMING SOON)

Batteries:

- ☐ EON
- ☐ MAXPLUS
- ☐ ReliaMax

TrackKing Telematics:

- ☐ TrackKing – Satellite
- ☐ TrackKing – Cellular
- ☐ I-box Interface

Remote Status Lights:

- ☐ Status Only

Door Sensors and Switches:

- ☐ CargoLink™ Wireless Door Sensors
- ☐ Wired Door Switches

☐ CargoWatch™ Sensor Kits

Air Management:

- ☐ PrimAir™ Return Air Bulkheads
- ☐ PrimAir™ Chutes
- ☐ PrimAir™ Plenums

☐ Solar Panels

☐ Intermodal Guards (Coming Soon)

- ☐ Full (Top and Bottom)
- ☐ Bottom Only



DIMENSIONS



TOFC

86.2"

*(includes air deflector
and bottom pan)*

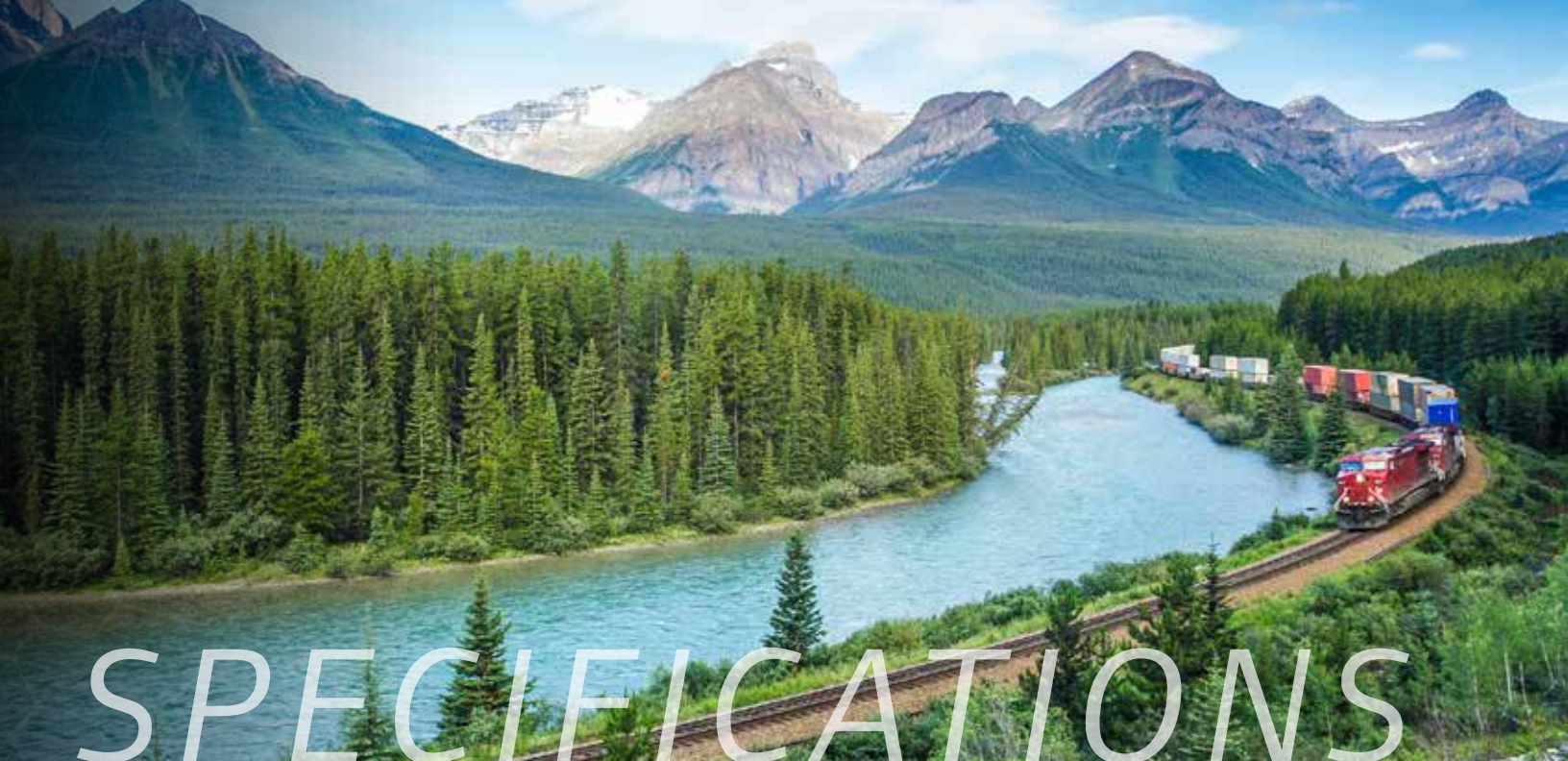
DRC

82.3"

RBC

83.5"

(includes air deflector)



SPECIFICATIONS

S-600RR

Refrigeration Capacity (System net cooling capacity at 100°F ambient and high speed engine operation)

	Engine Power w/ETV		Electric Power		Electric Power (HO)	
	BTU/hr	Watts	BTU/hr	Watts	BTU/hr	Watts
35°F	60,000	17,584	30,000	8,792	54,500	15,972
0°F	32,000	9,378	22,000	6,448	34,000	9,964
-20°F	20,000	5,861	15,000	4,396	20,000	5,861

Heating Capacity (System net heating capacity at 35/0°F ambient)

BTU/hr	Engine Power
	51,000

Airflow Capacity

Volume at 0 Pa static pressure	3,300 ft ³ /min
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Engine: four cylinder, direct injection, liquid cooled (Compliant with Final Tier 4 EPA Emissions Regulations Standards)

Model	TK488CR
Hp Rating at 2,050 RPM	33.0
Oil Capacity	12 qt
Maintenance Interval	3,000 hrs/4,000 hrs

Compressor: lightweight aluminum alloy body, heads and sump

Model	X430L
Displacement	30.0 in ³

Refrigerant: (Zero Ozone Depletion Potential (ODP), internationally approved)

Charge	R404A
	14.5 lbs

System Weight

50 gallon fuel tank w/bracket	1857 lbs
	76 lbs



Ingersoll Rand's Climate Solutions sector delivers energy-efficient HVACR solutions for customers globally. Its world class brands include Thermo King, the leader in transport temperature control and Trane, a provider of energy efficient heating, ventilating and air conditioning systems, building and contracting services, parts support and advanced controls for commercial buildings and homes.

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