



THERMO KING



THERMO KING MI, INC.

955 76th St. S.W.
Byron Center, MI 49315
(616)878-4900 – 1-800-968-9378
www.thermokingmichigan.com

RD-II SR

Smart, optimum temperature control for large trucks.



Now Featuring
SMART REEFER®

- *SMART REEFER* – industry's most advanced microprocessor
- Superior *Load Encircling* airflow for total load protection
- Lightweight/corrosion-resistant frame and exterior panels
- Clean and silent diesel engine
- Superior heating capacity and faster defrosts with exclusive *TherMax™* system
- Environmentally safe R-404A chlorine-free refrigerant

 **Ingersoll Rand**
Climate Control Technologies

Maximum load protection.

SMART REEFER® for advanced temperature control, monitoring and system performance.



Distributing perishable cargo today requires accurate and reliable temperature control. With Thermo King's RD-II *SMART REEFER*, you now have the ability to maintain ideal conditions for any temperature-sensitive cargo you distribute. Your trucks will be equipped with the industry's most advanced temperature control and monitoring system.

Continuous monitoring optimizes the overall temperature control system's performance, thereby reducing fuel consumption and unit downtime.

The built-in **CYCLE-SENTRY™** automatically starts and stops the unit according to temperature demands.

A **self-check**, run before the daily distribution route, verifies the unit's proper performance and identifies any possible malfunctions with a pass/fail report.

Troubleshooting is simplified with 40 built-in alarm codes to alert the driver to take corrective action before a problem develops.

A range of **programmable features** lets you tailor the operating conditions to the load.

Convenient **in-cab** or outside remote monitoring, with reversible readout capability, allows you to have controls where you want them. Drivers can operate the unit safely and easily. No more climbing on the cab to read gauges or adjust settings.

Diesel/Electric auto-switching automatically changes from engine operation to electric operation and back again (without manual intervention).

With these and other value-added features, the RD-II SR is clearly the smartest way to protect temperature-sensitive cargo.



Key Advantages

SMART REEFER
for trucks means:

- ✓ Maximum load protection



- ✓ Lower operating costs



- ✓ Advanced monitoring/control



- ✓ Simplicity, flexibility and safety



- ✓ Many additional value-added features

RD-II SR Specifications

DESCRIPTION

A one-piece, frontmount, high-capacity, diesel-powered cooling and heating system for large straight trucks. Designed for use with totally chlorine free R-404A refrigerant. Powered by special clean and silent diesel engine.

Features belt-driven dual evaporator fans for superior air throw. Exclusive spacesaver condenser provides maximum cab clearance and reduced truck body height on conventional chassis. Cubesaver evaporator optimizes space below the evaporator for all types of cargo. Lightweight aluminum frame allows for increased payload.

Industry leading SMART REEFER® microprocessor controller provides continuous monitoring, advanced diagnostics and eases troubleshooting. TherMax™ defrost/heating system increases unit heating capacity for faster defrost.

MODELS AVAILABLE

RD-II 30 SR: Cooling and heating on engine operation.

RD-II 50 SR: Cooling and heating on engine and electric standby operation.

REFRIGERATION CAPACITY

System net cooling capacity at 100°F (38°C) ambient and high-speed engine/60 Hertz electric power operation.

Evaporator

Return Air	Btu/hr	Watts	With R-134a	
			Btu/hr	Watts
Engine Power:				
35°F (2°C)	20,500	6,000	23,000	6,740
0°F (-18°C)	15,500	4,540	11,000	3,220
-20°F (-29°C)	10,000	2,930	-	-

Electric Power:

35°F (2°C)	17,500	5,125	19,000	5,570
0°F (-18°C)	14,000	4,100	8,500	2,490
-20°F (-29°C)	9,500	2,780	-	-

DEFROST/HEATING CAPACITY

System net heating capacity at -20°F (-29°C) ambient and high-speed engine/60 Hertz electric power operation.

Operation	Btu/hr	Watts	With R-134a	
			Btu/hr	Watts
Engine Power	15,000	4,400	14,500	4,250
Electric Power	12,000	3,520	11,500	3,370

OPERATION

- Continuous run cool/heat on engine or electric standby operation

- Start/stop cool/heat on engine or electric standby operation in CYCLE-SENTRY mode
- Automatic defrost initiation and termination with microprocessor controlled "Smart Defrost," designed to minimize defrost time
- Automatic defrost initiation with air switch

EVAPORATOR BLOWER PERFORMANCE

- Evaporator blower performance on high-speed engine operation at 0 in. (0 mm) water column external static pressure:
 - Airflow Volume: 1,800 ft³/min (3,060 m³/hr)
 - Discharge Velocity: 20.0 ft/sec (6.1 m/s)

CLEAN AND SILENT ENGINE

- TK 3.95/TK 376 diesel engine
- Meets all known EPA emission requirements (applies to units manufactured after December, 2005)
- 60.0 cu. in. (950 cm³) displacement
- 11.8 qt. (11.0 liter) oil capacity

PROVEN, HIGH-PERFORMANCE COMPRESSOR

- Thermo King X426, four-cylinder
- 26.0 cu. in. (426 cm³) displacement

ELECTRIC MOTOR (MODEL 50)

- 230V/3-Phase/60 Hz, 7.5 hp

STANDARD FEATURES

- **SMART REEFER (µP-T) microprocessor controller features:**
 - CYCLE-SENTRY™ start/stop control system
 - In-cab remote display
 - Continuous system monitoring
 - Unit self-check/pre-tripping
 - 40 alarm codes. The most thorough in the industry
 - Diesel-electric auto-switching (50 model)
 - Smart Defrost
 - 6 hour meters (3 programmable)
 - Programmable set point range
 - Low-speed lock-in (low noise operation)
 - Choice of units of measure
- **TK 3.95/TK376 clean and silent diesel engine**
- **Model X426 high-performance**

- compressor
- **TherMax™ system for faster defrosts, greater heating capacity**
- **Automatic phase correction (50 model)**
- **Three-way control valve**
- **Receptacle AC, 230V (50 model)**
- **Corrosion-resistant protection for extended system life, long lasting appearance**
 - Polyester powder-coated aluminum frame
 - Composite outer cover
 - Stainless steel condenser exterior hardware
 - Stainless steel evaporator hardware
 - Coated refrigerant tubing
- **Maintenance reduction features**
 - Alternator, 23 amp, 12V dc
 - Oil bath-type air cleaner
 - Spin-on fuel filter

- Full-flow oil filter
- Tapered roller bearing fanshafts
- Tapered roller bearing idler pulley
- **Protection devices**
 - Engine low oil level switch
 - Engine coolant high temperature cutout
 - Engine low oil pressure cutout
 - Refrigerant high pressure cutout
 - Refrigerant high pressure relief valve
 - Motor overload protector (50 model)
 - 12 volt circuit breaker (current limiter)
- **Installation kit**
 - Installation hardware
 - Battery cables
 - Electric fuel pump
 - Fuel lines
 - Fuel tank pickup and return tube

OPTIONAL FEATURES

- Data logging
- Body-mount control box (µP-T)
- Low decibel sound reduction package (6 dBA)
- R-134a refrigerant
- Air cleaner, dry type
- Easy-read thermometer
- Bypass oil filter
- Remote lights

- Silicone coolant hoses
- Door Sentry 1 door switch
- Electric motors (50 model only)
 - 380V/3-Phase/50Hz, 6.25 hp
 - 460V/3-Phase/60Hz, 7.5 hp
- Electric heater strips (50 model)
- Stainless steel grill
- Top screen condenser

- Diesel fuel heater
- Battery box, universal
- Battery, 12 volt (dealer supplied)
- Fuel tanks (bands and brackets included)
 - 30 gal. (114 liter) undermount aluminum
 - 50 gal. (190 liter) undermount aluminum

Specifications are subject to change without notice.



Thermo King Corporation

Ingersoll Rand Company
314 West 90th Street
Minneapolis, MN 55420-3693
www.thermoking.com

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ARI Rating points are at 1,700 compressor speed.



Take a look inside for all the advan

Designed for maximum performance with large trucks.

The RD-II SR is an ideal temperature control unit for large straight trucks needing maximum cooling capacity. At -20°F (-29°C) with an ambient temperature of 100°F (38°C), it can generate 10,000 Btu (2,930 watts) per hour. That's more than enough refrigeration capacity for any temperature requirement.

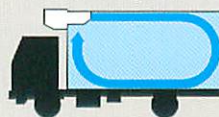
Additionally, its exclusive space saver condenser provides maximum cab clearance and reduces truck body height on conventional chassis. The cube saver evaporator optimizes payload space below the evaporator for all types of cargo.



What's more, the RD-II SR is designed for use with totally chlorine-free R-404A refrigerant. This means Zero ozone depletion potential (ODP), Zero chlorofluorocarbons (CFCs), Zero hydrochlorofluorocarbons (HCFCs) and Zero chlorine. Zero ODP and Zero chlorine means a transport refrigeration system that meets all international requirements for refrigerants.

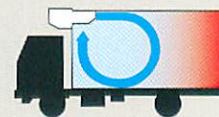
Belt-driven dual evaporator fans

For superior *Load Encircling* airflow. When airflow is being short cycled, the registered temperature may not be the actual temperature for the entire cargo area. To achieve superior temperature control, you need superior airflow and air throw. With Thermo King you get both. Thermo King SR systems employ two high output, belt-driven fans that are



Thermo King's Load Encircling full air throw.

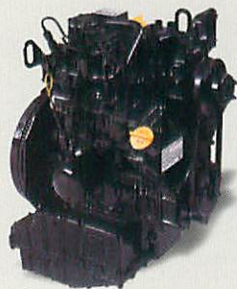
powered by the system's diesel engine, creates a large volume of high velocity results in increased air circulation throughout entire cargo area. Superior air circulation results in faster box temperature drops, faster re-temperature after door openings and virtually no hot spots and



Prevents short cycle airflow.

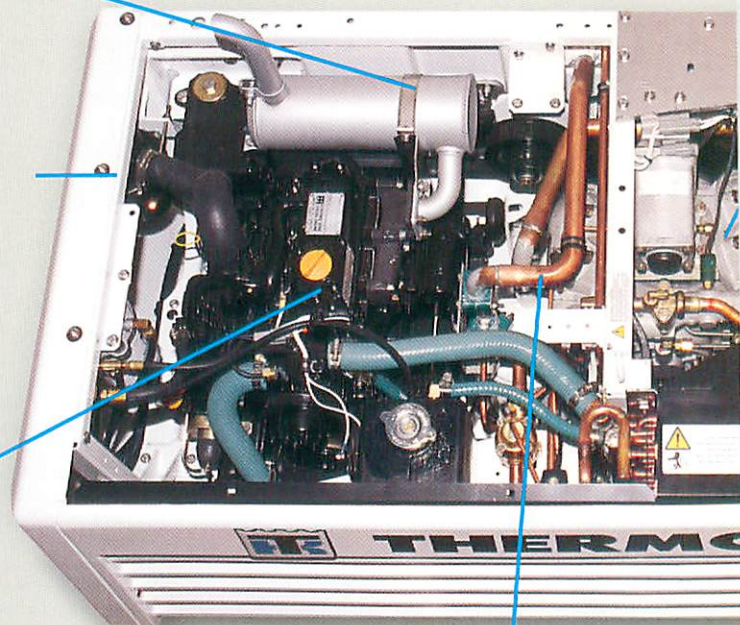
Corrosion-free frame and exterior panels

The frame and exterior panels of the RD-II SR are built of lightweight, high-strength aluminum, which means less axle weight and greater cargo capability.



Clean and silent engine

Addressing two ever-growing concerns – exhaust and noise emissions – the RD-II SR utilizes the powerful TK 3.95/TK 376 three-cylinder indirect-injection, liquid-cooled diesel engine. It incorporates new design and engineering improvements, making it the cleanest-burning, most fuel-efficient and quietest-running engine available.



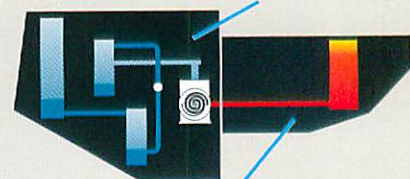
TherMax™ system

For faster defrosts and superior heating capacity. An exclusive feature in all Thermo King SMART REEFER units is the proven *TherMax* heat and defrost system.

TherMax is simply a better way to generate more heating capacity when it's needed. By using a special condenser evacuation cycle, more refrigerant is made

available during heating modes. In warm climates, more capacity means faster re-temperature. It also results in faster defrosts.

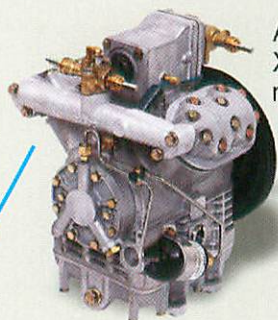
When heating and defrosting, evacuation cycle pumps refrigerant out of condenser.



Evaporator can then heat and defrost more effectively with full refrigerant charge.

tages the RD-II SR has to offer.

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High-capacity compressors

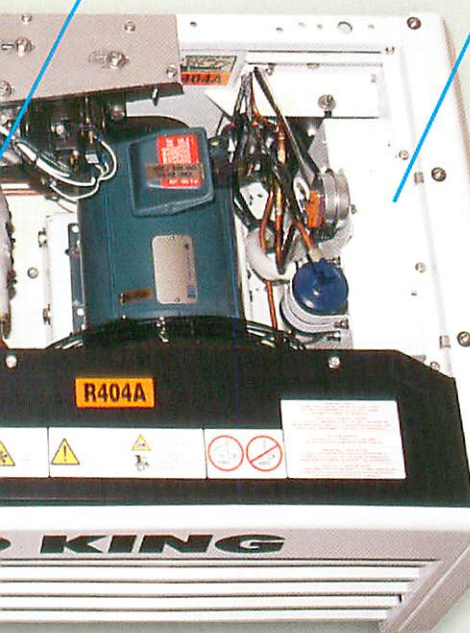
At the heart of the RD-II SR is the X426 four-cylinder compressor, engineered specifically for R-404A. It is considered to be the most efficient reciprocating compressor in the industry, delivering optimum pumping and cooling capacity.

The SMART REEFER microprocessor controller

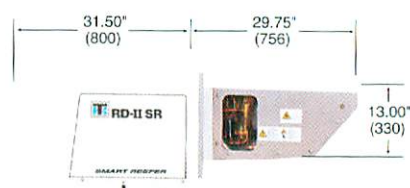
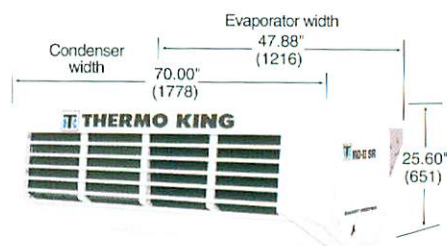
Each RD-II SR is equipped with a microprocessor. Essentially it gives you a temperature control unit with a built-in "brain,"



designed exclusively for transport refrigeration applications. With it you can monitor and control unit operation like never before. It's available with convenient in-cab mounting or in a special weatherproof enclosure for outside remote monitoring. It includes a digital read-out displaying set point, return air temperature, discharge air temperature and alarm codes.



DIMENSIONS inches (millimeters)



WEIGHT (approximate)

RD-II 30 SR 985 lbs (447 kg)
RD-II 50 SR 1035 lbs (470 kg)

eat and defrost
weather more heating
orter defrost cycles.
nger cooling cycles
minimal load tem-
perature fluctuations.
In cold weather,
greater heating
capacity means
faster box tempera-
ture recoveries
after door openings
or maximum protec-
on of fresh products.

RD-II SR Performance

Cooling Capacity @ 100°F w/R-404A

Return Air Temperature	Diesel Operation BTU	Electric Operation BTU
35°F	20,500	17,500
0°F	15,500	14,000
-20°F	10,000	9,500
<i>Air Exchange</i>		
Airflow	Velocity	Refrigeration Charge
1800 CFM	20.0 ft/sec	7.5 lbs. R-404A

Warranty Summary

Terms of the Thermo King Warranty are available on request from your local Thermo King dealer. Please reference document TK50047 for the Thermo King Self-Powered Truck Unit Warranty.

Advanced temperature control system.

Features/Functions	Benefits
Continuous monitoring of refrigeration unit performance and cargo conditions.	<ul style="list-style-type: none"> • Optimizes unit performance. • Reduces energy consumption. • Reduces operating costs. • Reduces downtime.
Self-check including engine performance and refrigeration capacity. Supported by continuous diagnostics.	<ul style="list-style-type: none"> • Identifies small problems before they become large ones. • Saves operator time, especially larger fleets. • Increases unit uptime. • Helps assure product quality.
Smart Temperature Monitor checks unit capacity continuously and gives advance warning of possible unit shutdown due to loss of capacity.	<ul style="list-style-type: none"> • Enhanced load protection. Fault code will clear if capacity is sufficient. Original detection code remains as a reminder to check unit.
40 alarm codes to cover every eventuality: the most thorough in the industry.	<ul style="list-style-type: none"> • Alerts operator to take corrective action. • Speeds up diagnosis and repair times. • Reduces repair costs.
Auto-switching (diesel/electric) automatically starts diesel engine if electric stand-by fails. Manual override for ferry operation.	<ul style="list-style-type: none"> • Protects the load automatically (without manual intervention).
CYCLE-SENTRY™ built-in as standard: an exclusive system which stops engine when refrigeration is not needed (and is smart enough to re-start if battery charge is low).	<ul style="list-style-type: none"> • Fuel savings of up to 80%. • Optimizes unit life.
Defrost intervals calculated automatically: defrost duration is programmable (SMART DEFROST).	<ul style="list-style-type: none"> • Enhances temperature management.
Standard display of operating parameters.	<ul style="list-style-type: none"> • Convenient and safe access to gauge information including: <ul style="list-style-type: none"> Discharge and return air temperature Engine coolant temperature Battery voltage Coil temperature Engine oil pressure Engine r.p.m. 3 programmable hour meters (6 total) <ul style="list-style-type: none"> - Total on switch hours - Diesel engine hours - Electric run hours (50 model) • Customize to match individual needs. • Use hour meters to show when service is due.
Customized programmable features for simple operation: <ul style="list-style-type: none"> 3 programmable hour meters Programmable set point range High-speed pulldown High-speed defrost Low-speed start Low-speed lock-in Adjustable back-lit display Reversible readout on display Choice of units of measure 	<ul style="list-style-type: none"> • Dealer presets operating parameters to match your needs with fully automatic operation thereafter. • Tracks service intervals. • Prevents accidental or deliberate errors, protects load. • Quick temperature recovery, protects the load. • Reduces defrost operation time. • Increases engine life. • Locks unit in low-speed for operation in noise-sensitive areas. • Easy-to-read and safe. • Use wing mirror to read (body mount control box). • Information the way you want it.
Phase indication as standard: phase correction available as an option (can be a retrofit later).	<ul style="list-style-type: none"> • Protects load by avoiding reverse fan rotation on electric standby.
Data logging capability with set point monitoring available as an option (can be a retrofit later).	<ul style="list-style-type: none"> • Meets and exceeds legal requirements for temperature monitoring. • Avoids cost and inconvenience of fitting a stand-alone data logger. • Monitors and records thermostat set point for a complete record.
Control keys (only nine).	<ul style="list-style-type: none"> • Very simple to operate.
Remote display installation – either inside in the driver's cab or outside in a weatherproof enclosure.	<ul style="list-style-type: none"> • Puts controls where you can operate them safely and easily: no more climbing on the cab. • You choose what suits your operation. • Identical functions and benefits regardless of installation. • Rugged and good-looking.