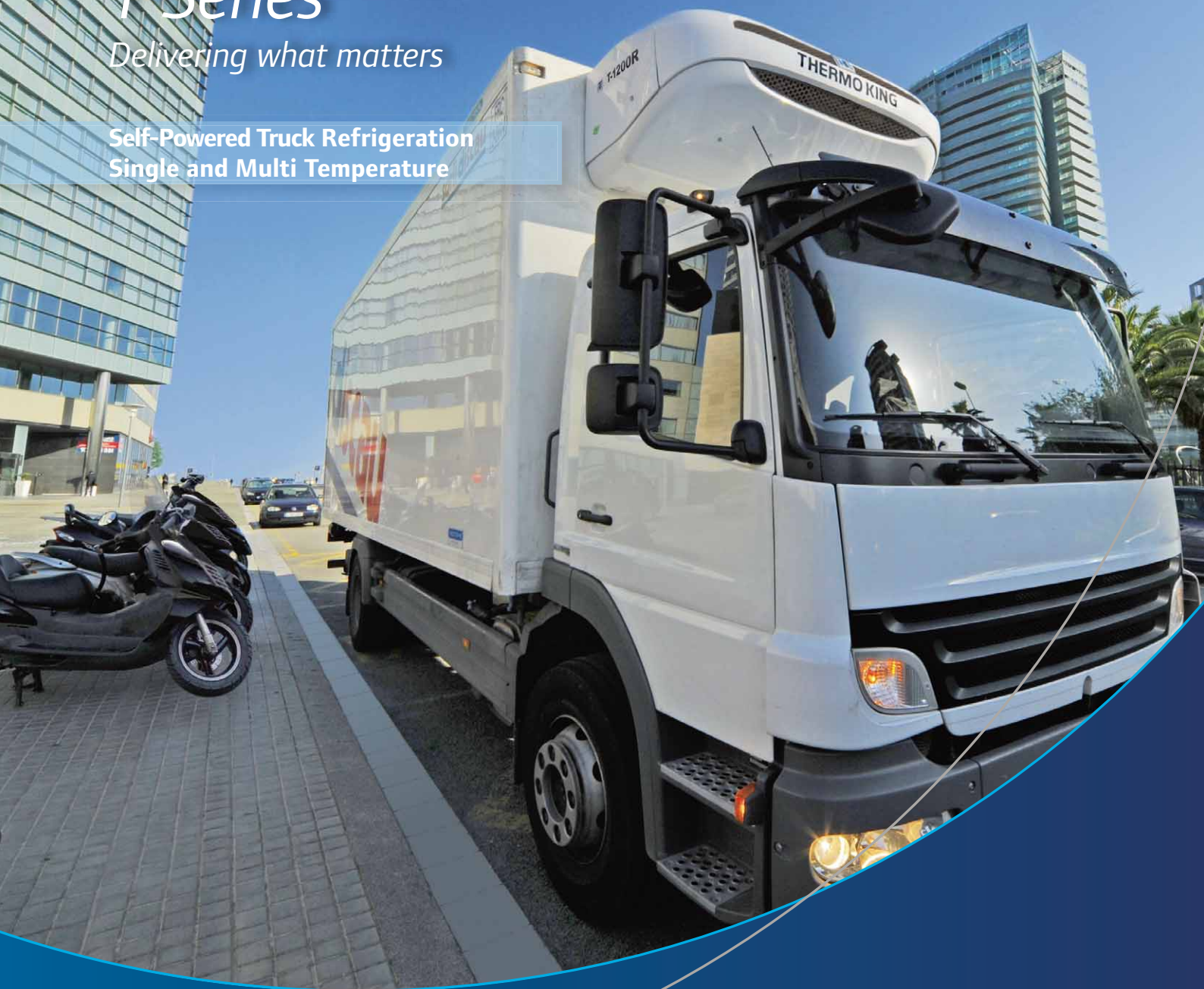




T-Series

Delivering what matters

Self-Powered Truck Refrigeration
Single and Multi Temperature



- *Quiet operation*
- *Low fuel consumption*
- *Low life cycle costs*
- *Easy to use and service*
- *Reduced emissions & waste*



T-Series

Delivering what matters



IMPORTANT NOTE

This is an interactive PDF. Clicking on a table of content item will lead you to the actual page. The home button brings you back to this page.



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Thermo King's new T-Series is the result of years of R&D and exhaustive testing. Built on the proven reliability of the TS and MD product ranges, the T-Series sets new industry standards for reliability, performance and efficiency.

The range has been specially developed to exceed your and your customers' expectations when it comes to truck refrigeration. The T-Series delivers greater capacities at lower operating speeds and allows for precise temperature control.

Low operation and maintenance costs, as well as fuel saving technologies, make sure you save money throughout your unit's life cycle. Easy system operation reduces the risk of user errors, while easy service and monitoring allow the unit to run at optimum efficiency at all times.

The T-Series also sets new standards when it comes to the reduction of emissions, waste and noise pollution, offering unmatched performance with minimal environmental impact. Whatever your application and needs, the T-Series is available in a complete range of capacities, making it the perfect fit for all your transportation requirements.



Introducing T-Series truck refrigeration units

Low fuel consumption

- Through extensive development and field experience, Thermo King have found the right balance between system efficiency, fuel consumption and performance in all ambient conditions for both fresh and frozen produce and in Single and Multi temperature applications
- Advanced fuel-saving control technology with the new TSR-2 controller means greater fuel efficiency
- On the T-1200R and T-1200R Spectrum, the ETV (Electronic Throttling Valve) helps reduce engine emissions and increase fuel economy depending on the application



Lower life cycle costs

- The TSR-2 controller allows optimum management of all functionalities of the unit in order to deliver what matters for every load
- The Extended Maintenance Interval Programme EMI 2000 increases time between service intervals to 2000 hours and reduces maintenance costs
- All T-Series units come with a 2 year full warranty

Easy to use and service

- The new and intuitive TSR-2 controller features a symbolic display for error-free operation
- Low level alerts for oil and coolant
- Programmable service intervals and scheduled maintenance reminders
- Easy service accessibility to electrical and engine components

Reduced emissions & waste

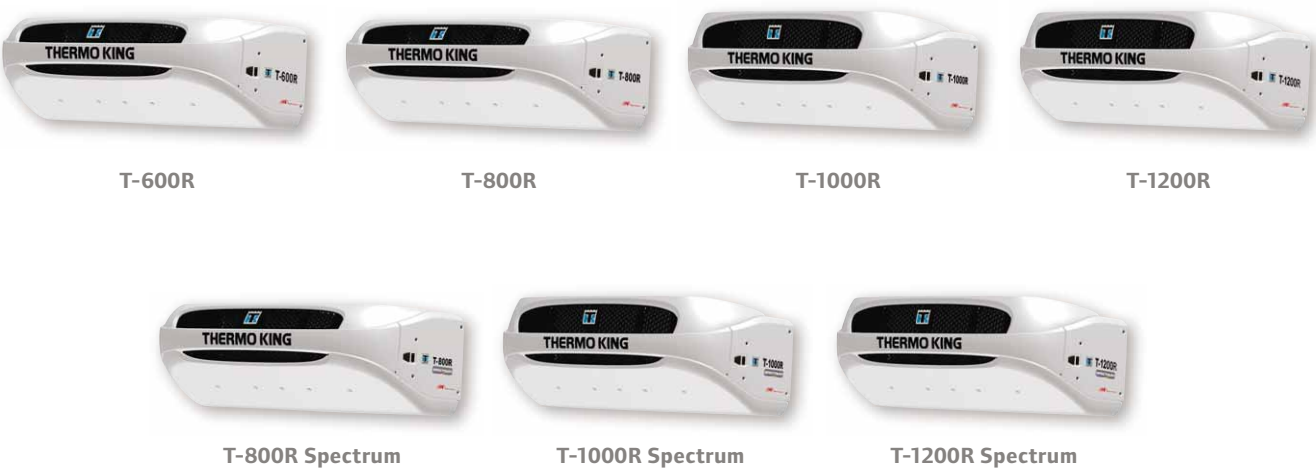
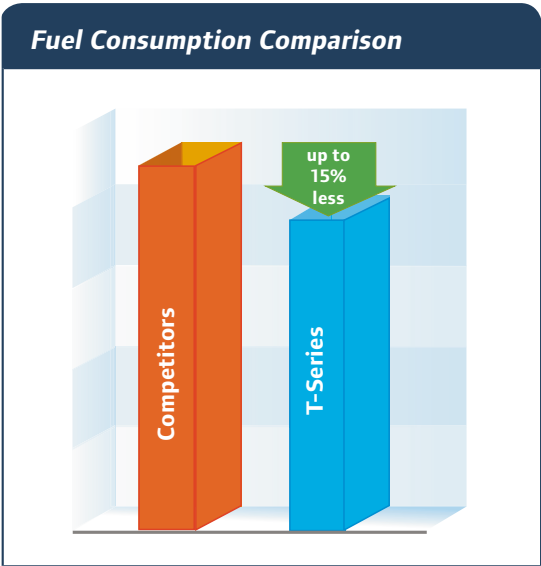
- T-Series units are now equipped with GreenTech™ engines which are the cleanest on the market, exceeding all existing EU requirements
- Reduction of oil, filter and coolant waste through EMI 2000
- 99.7% of the unit material is recyclable
- The T-Series range is manufactured at Thermo King's state-of-the-art facility in Galway, Ireland, which has held ISO 14001 certification for Environmental Management since 2000

Quieter operation

- Whisper™ quiet operation
- Poly-V stretch belt with Quiet Channel technology for reduced noise

Capacities that match your requirements

- A range of Single temperature and Multi temperature units with the perfect capacities to fit your specific application
- Eliminate energy waste and save costs
- Capacities from 6000 W to 11000 W at 0°C
- Capacities from 3800 W to 6900 W at -20°C
- All units tested up to 55°C ambient temperatures



The GreenTech Engine from Thermo King

Low emissions, high performance

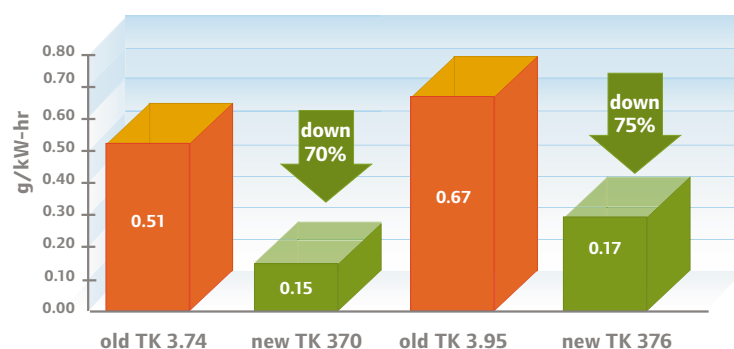


All the T-Series truck refrigeration units are equipped with the new range of GreenTech engines from Thermo King. These engines drastically reduce emissions, waste and noise pollution, exceeding all known requirements, including the most stringent EU standards.

So, when you see the GreenTech name and symbol, you know at a glance that you are looking at refrigeration units that contain the cleanest engines on the market today. Performance has been enhanced too; GreenTech engines are more powerful and cause less stress to components. It is the easy choice for you and the best choice for the environment.



Particulate Matter Emissions



Emissions of particulate matter (PM) from all engines have been substantially reduced

Engine life

Our new range of engines for the T-Series is more powerful, even running at no more than 80% of their maximum output. Thus, both oil and coolant temperatures are reduced, resulting in less component stress and engine wear.

Bio-fuel compatibility

All the new engines are approved for use with B5 fuel (5% bio/95% petroleum diesel) with no change in maintenance schedules. Fuels with higher bio-diesel content (B6 up to B100) require shorter intervals between oil changes and injector servicing. Contact your Thermo King representative for more information.

The new TSR-2 controller

Easy to use, hard to beat

TruckSmartReefer2

Powerful and simple to use, the new TSR-2 T-Series controller makes it easy for your drivers to accurately manage the temperature in the truck, no matter what you are hauling.

Step-by-step instructions, depicted in symbolic form, make it quick and easy to precisely set and adjust the refrigeration unit, helping your drivers, your customers and ultimately your bottom line.

New intuitive interface

The new TSR-2 Standard in-cab display shows all information in clear symbols no matter what language you speak. This increases ease-of-use and reduces the risk of operator errors. For even greater control of every aspect of a T-Series unit, a graphic TSR-2 Premium in-cab display is available as an option. The simple and logical menus, easy to read screen and choice of 21 languages makes this the interface of choice for the advanced operator.



TSR-2 Standard in-cab display



TSR-2 Premium in-cab display

Fuel savings

The TSR-2 includes features that improve fuel savings such as:

- Cycle-Sentry™ mode
- ETV (Electronic Throttling Valve)
- Economy mode
- Electronic door switch input

Improved diagnostics with ServiceWatch™

Better diagnostics make it easier for service technicians to understand and respond to potential problems. ServiceWatch preventative maintenance logger is a precise built-in recorder that provides improved diagnostics and keeps track of system performance and functionality. It records all operational parameters to significantly improve service diagnostics.

Easy-to-read LED display

The new LED display is bright and clear, ensuring better visibility in all light conditions. It also functions perfectly in all ambient temperatures.

Enhanced safety and security

At the end of the day, protecting your load is what matters. The TSR-2 makes that job easier and even more effective with a range of enhanced features:

- Keypad with lock-out
- Phase correction
- Diesel/electric auto switching
- Set-point warning
- Oil and coolant level alerts
- Tiered security access levels for appropriate personnel
- Diesel engine and electric stand-by hour meter display
- DAS (Data Acquisition System) and TracKing compatibility

Quality you can rely on

Thermo King's T-Series is the result of years of extensive research and stringent testing, ensuring each unit can provide unmatched reliability and efficiency from day one.

At every stage of the development, the T-Series has undergone rigorous testing procedures in cutting-edge R&D centres worldwide. This includes nonstop endurance tests, accelerated life tests and exposure to extreme operating environments. All of these measures ensure that you can rely on your T-Series refrigeration unit for any type of application, in all conditions, and without compromise.

GreenTech Engine

- Low emissions
- High performance
- Increased life
- Reduced maintenance

Powertray

- Poly-V stretch belt system delivers exceptional belt life
- Made with Quiet Channel technology: advanced materials virtually eliminate the noise caused by misalignment

Electronic Throttling Valve

- On the T-1200R and T-1200R Spectrum, the ETV (Electronic Throttling Valve) helps reduce engine emissions and increase fuel economy depending on the application

Thermo King Reciprocating Compressors

- The industry standard for proven reliability and easy service
- X426 C5 / X430 C5 compressors with extended life crankshaft bearings
- High volumetric efficiency due to more pumping capacity per cubic centimetre
- Reliable, time-tested design
- Field-repairable for easy service
- No special tools or facilities required

Unit Grill and Skins

- Aerodynamic skins
- Removable side doors for easy service
- Impact-resistant, in-mould colouring process helps reduce and hide scratches
- Recyclable Geloy® engineered plastic

Extended Maintenance Interval: EMI 2000

- 2000 hours / 24 months oil change intervals
- Reduced environmental impact with less spillage and less waste
- Lower maintenance costs than competitor models

Coils

- Bigger condenser/evaporator gives high ambient capability, more capacity and more efficiency with less noise
- Mechanical-drive evaporator fans reduce maintenance costs



X214 Compressor



X426 C5/X430 C5 Compressor

T-Series Spectrum: Solutions for multi temp distribution



With a tireless focus on reducing noise and emissions while maximizing performance, the new range of T-Series Spectrum units are designed to meet the grueling demands of Multi temperature distribution.

We also understand that all distribution operations are not the same. That is why all T-Series Spectrum units are available with a choice of two or three blower remote evaporators that can be used in a number of configurations. With the ability to support up to three zones in both compartment and lane applications, we have a solution to match your unique needs. Your Thermo King representative can assist you in selecting the right unit for your operations.

Maximum performance for the most demanding operations

The T-1200R Spectrum has a class-leading 11,000W of refrigeration capacity at 0°C which exceeds the performance of even some trailer units. It does so by using technology such as an Electronic Throttling Valve (ETV) usually found in such trailer units. This ensures that your product is always at temperature even in the most grueling ambient temperatures and operations.



Using the all-new Truck Smart Reefer 2 (TSR-2) controller and the latest in control software, the T-Series Spectrum operator can select from a range of programmable features to precisely tailor unit performance to the needs of the load carried, balancing temperature management and fuel economy.

Optional door switches are available to minimize temperature fluctuations during multiple delivery drops by automatically switching off the unit each time the doors are opened.

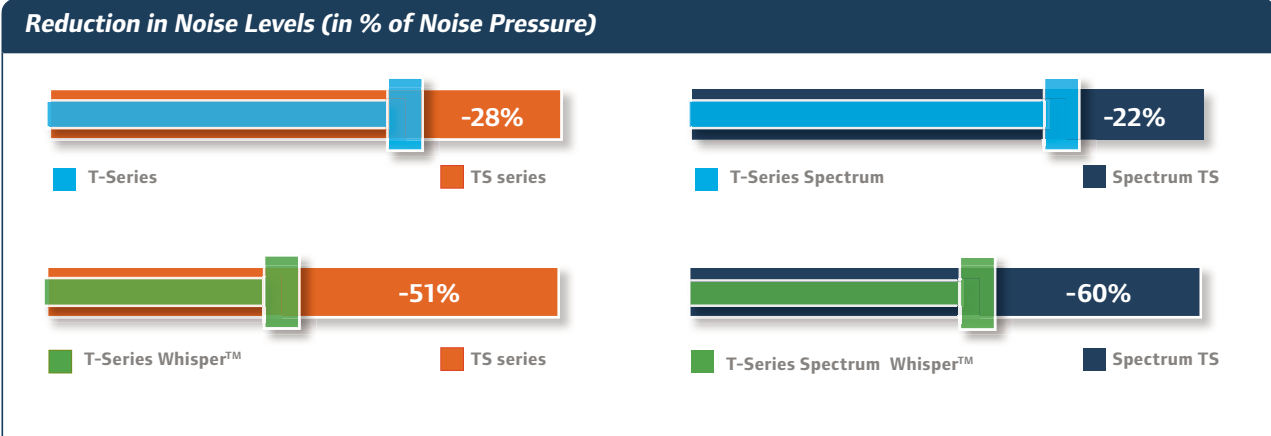
T-Series Whisper™

Noise is an important consideration for all transport operations but especially for distribution in urban areas.

Accordingly, the T-Series and T-Series Spectrum ranges were designed with noise reduction as a key consideration. Exhaustive sound analysis was conducted in Thermo King's sound labs to not just contain noise but actually reduce it at its source. Hence, numerous components have been designed to perform at their optimal while minimizing its noise levels.


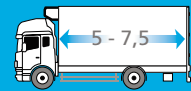
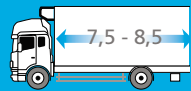
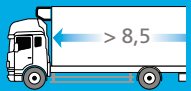
Quieter operation

T-Series units are up to 60% quieter than the units they are replacing while making no compromises on refrigeration capacity. This has been achieved with the use of a larger condenser, low-noise fans, noise-absorbing foam and a reduction of system speeds.




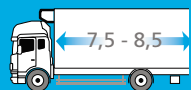

Product Segmentation

Single temperature

Box Length in meters	5,5 to 6,5	6,5 to 7,5	7,5 to 8,5	> 8,5
T-Series	 T-600R	 T-800R	 T-1000R	 T-1200R

Multi temperature



Box Length in meters	5 to 7,5	7,5 to 8,5	> 8,5
T-Series Spectrum	 T-800R Spectrum	 T-1000R Spectrum	 T-1200R Spectrum

*The above recommendations are for average running conditions and will be affected by operational factors such as ambient temperature and door openings. To ensure the best selection for your application please contact your Thermo King representative.

Performance

Performance	T-600R	T-800R	T-1000R	T-1200R	T-800R Spectrum	T-1000R Spectrum	T-1200R Spectrum
Refrigeration Capacity 0°C (W)	6000	7500	8700	11500	7700	9300	11000
Refrigeration Capacity -20°C (W)	3800	4250	5200	6900	3850	5600	6400

Features and Options Overview

Features and Options		Single Temp T-600R/T-800R/T-1000R/T-1200R	Multi Temp T-800R/T-1000R/T-1200R Spectrum
LIFE COST MANAGEMENT			
1	ThermoKare service contracts	▲	▲
2	2-year warranty coverage	●	●
3	Cycle-Sentry start/stop control system	●	●
4	EMI 2000 extended maintenance	●	●
5	Thermo King high performance battery	●	●
6	Thermo King EON battery	△	△
DATA CAPTURE & COMMUNICATIONS			
7	DAS (Data Acquisition System)	△	△
8	FleetWatch (fleet management software)	▲	▲
9	TKDL data capture	▲	▲
10	TracKing (tracking and load monitoring)	▲	▲
11	Wintrac (data analysis software)	▲	▲
LOAD PROTECTION			
12	Auto phase correction	●	●
13	Diesel/electric auto switching	●	●
14	Door switches	△	△
15	TSR-2 standard in-cab display	●	●
CUSTOMIZATION			
16	TSR-2 premium in-cab display	△	△
17	Whisper™ low noise kit	△	△
18	TherMax system	●	●
19	Evaporator guard	○	▲
20	TSR-2 rear remote control	△	△
21	Body mount enclosure	▲	▲

○ Not Available ● Standard Feature △ Option: Factory Supplied ▲ Option: Dealer Supplied



Features and Options

1 ThermoKare

ThermoKare offers a complete selection of service contract solutions to manage maintenance costs and hence total life cost of a unit.

2 Warranty coverage

2 year warranty coverage on unit and options*

*2nd year warranty coverage subject to mid-term inspection.



3 Cycle-Sentry

This stops the engine when refrigeration is not needed and restarts it when refrigeration or battery charge is needed.

- Fuel and CO₂ savings of up to 80%
- Increase component life
- Reduce maintenance costs

4 Extended maintenance interval: EMI 2000

Thermo King EMI 2000 will extend your maintenance interval and reduce your operating costs by:

- Reducing clean-up and disposal costs
- Reducing environmental impact with less spillage and less oil, filter and coolant waste
- Extending engine life with improved, highly efficient filtration

5 Thermo King high performance battery

- Incorporates silver-calcium technology to extend service life over 20% longer than conventional batteries

6 Thermo King EON battery

- Uses Absorbed Glass Mat (AGM) technology with deep-cycle capability and enormous cranking power
- Maintains capacity at low temperatures better than a wet cell battery
- Saves you the time and money of battery replacements through expected five to eight year service life, backed by our four year warranty

7 DAS (Data Acquisition System)

This high performance data recorder system records temperatures, set-point, operating modes and external events.

- Data can be output to a computer or printer
- Operates independently of unit controller
- Memory storage for over one year's data
- Reassures customer of total quality control
- Provides evidence of correct practice
- Approved to EN-12830, CE mark and IP-65 standards
- Up to 6 independent sensors
- Automatic power-up and shut-off to protect unit battery

8 FleetWatch

This user-friendly software empowers the fleet manager with automatic custom reporting.

- Provides seamless connection to collect and organise output from Thermo King's DAS and TKDL data recorders
- Automatically organises data recorder output data into simple, selectable reports useful to your operation
- Reports are easy to understand and user-friendly

9 TKDL data capture

- User-friendly temperature recorders for all makes of temperature-controlled equipment
- Simple data offload to PC
- Delivery and journey printouts at the touch of a button
- Approved to EN 12830, CE Mark and IP-65 standards
- Up to 4 independent sensors and up to one year's data storage capacity

10 TracKing



Get complete load monitoring and fleet tracking at your fingertips.

- Monitors sensitive loads via the web
- Increases truck asset utilisation
- Reduces operating costs
- Enhances customer satisfaction
- Increases security and reduces insurance risk
- TracKing can be sold with a ThermoKare service contract
- TracKing is compatible with all Thermo King dataloggers and controllers
- More information at www.tktracking.com

11 Wintrac (data analysis software)

User-friendly software offers fleet managers automatic and customised reporting of temperature and operational data logged by DAS or transmitted by TracKing.

12 Auto phase correction

- Avoids reverse fan rotation while on electric stand-by
- Protects your load

13 Diesel/electric auto switching

- Automatically starts diesel engine if electric stand-by fails
- Manual override for ferry operation
- Protects the load automatically (without manual intervention)

14 Door switches

- Reduce load temperature rise and save fuel when doors are opened

15 TSR-2 standard in-cab display

- Simplified keypad to reduce the risk of incorrect operation of the system
- Visible set-point confirmation for load protection
- Programmable features to tailor operating conditions to the load

16 TSR-2 premium in-cab display

- Even greater control of every aspect of a T-Series unit
- Access to all programmable features on TSR-2
- Simple and logical menus, easy to read screen and choice of 21 languages

17 Whisper™ low noise kit

The Whisper™ low noise kit reduces noise levels by over 50% compared to the previous generation of truck units.

18 ThermMax system

- Faster defrosts

19 Evaporator guard

- Maximum protection against evaporator damage during loading and unloading
- Easy to install
- Exceptional quality

20 TSR-2 rear remote control

- Allows control of the refrigeration unit from inside the rear of the truck
- Enables energy efficient and safe loading

21 Body mount enclosure

- Allows external mounting of in-cab displays on truck body (for swap body applications)

Exclusive driver training software

Thermo King's Tutor Series with "Professor Kool" provides rapid and effective interactive training to reduce driver error and ensure optimum equipment operation.



Always insist on genuine Thermo King service parts

Thermo King understands the importance of parts availability and performance. That's why we have expanded our range of aftermarket products. Now you can get the parts and accessories you need, where you need them, when you need them, quicker and more efficiently than ever before. Our goal is to provide you with a total solutions package to increase operating performance and reduce life cycle costs.

Replacement parts

Genuine Thermo King replacement parts are proven time after time in side-by-side testing to be superior to other non-original parts. Specifically engineered to provide optimal performance and maximum life, Thermo King replacement parts protect your investment and give you confidence and peace of mind on the road.

Maintenance parts

Thermo King offers the highest quality in durable maintenance parts. All parts have been carefully selected and designed to keep your Thermo King equipment operating efficiently and at full capacity for longer and to reduce life cycle costs.

ThermoKare Service Solutions

ThermoKare is a complete selection of service contract solutions, designed for fleets operating nationally or internationally. The contracts are designed to optimise the efficiency of your fleets, minimise operating costs and maximise the resale value of your equipment. Our tailored service contract solutions help to remove the non-core tasks from your daily business operations such as maintenance planning, scheduling, invoice interpretation and general fleet administration. The ThermoKare service contract solutions offer you everything from "administration only" to the complete "peace of mind" contract at an agreed, fixed cost.

For more information about ThermoKare, please contact your Thermo King representative.

Thermo Assistance

Thermo Assistance is a multilingual 24-hour telephone breakdown assistance service available throughout Europe that puts you in direct contact with an authorised Service Dealer whenever you require one.










Thermo King Dealer Service Network

Anywhere in Europe

- Blanket coverage across Europe
- Open & available 24/7
- Over 300 authorised service points
- 1,300 certified technicians



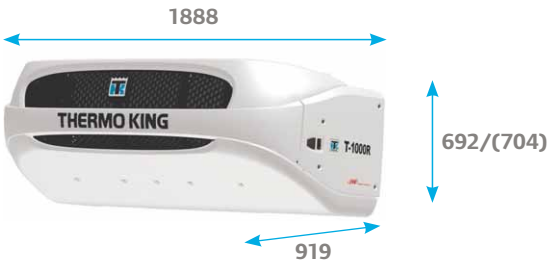
Specifications

Specifications		T-600R		T-800R		T-1000R		T-1200R		T-800R SPECTRUM		T-1000R SPECTRUM		T-1200R SPECTRUM	
REFRIGERATION CAPACITY: SYSTEM NET COOLING CAPACITY AT 30°C AMBIENT TEMPERATURE UNDER A.T.P. CONDITIONS															
Return air to evaporator	Celsius	0°C	-20°C	0°C	-20°C	0°C	-20°C	0°C	-20°C	0°C	-20°C	0°C	-20°C	0°C	-20°C
Capacity on engine power	W	6000	3800	7500	4250	8700	5200	11500	6900	7700	3850	9300	5600	11000	6400
Capacity on electric stand-by	W	4600	3200	5900	3300	6400	4200	8900	5300	5400	2800	5800	4400	7000	5000
AIRFLOW															
Airflow volume @ 0 Pa static pressure	m³/hr	2700		2700		3200		3300		N/A		N/A		N/A	
WEIGHT															
Model 30: cooling and heating on engine operation	kg	448		451		466		469		362		380		384	
Model 50: cooling and heating on engine & electric stand-by operation	kg	480		484		523		526		394		437		441	
ENGINE: LOW EMISSIONS, 3 CYLINDER, LIQUID COOLED															
Model		TK 370 		TK 370 		TK 376 		TK 376 		TK 370 		TK 376 		TK 376 	
Rating	kW	11.2		11.2		14.6		14.6		11.2		14.6		14.6	
Maintenance interval	hrs	2000		2000		2000		2000		2000		2000		2000	
COMPRESSOR: LIGHTWEIGHT ALUMINIUM ALLOY															
Model		X214		X214		X426C5		X430C5		X214		X426C5		X430C5	
Displacement	cc	228		228		424		492		228		424		492	
ELECTRIC STAND-BY OPTION															
Voltage / Phase / Frequency		400V/3Ph/50Hz 230V/3Ph/50Hz 230V/3Ph/60Hz		400V/3Ph/50Hz 230V/3Ph/50Hz 230V/3Ph/60Hz		400V/3Ph/50Hz 230V/3Ph/50Hz 230V/3Ph/60Hz		400V/3Ph/50Hz 230V/3Ph/50Hz 230V/3Ph/60Hz		400V/3Ph/50Hz 230V/3Ph/50Hz 230V/3Ph/60Hz		400V/3Ph/50Hz 230V/3Ph/50Hz 230V/3Ph/60Hz		400V/3Ph/50Hz 230V/3Ph/50Hz 230V/3Ph/60Hz	
Rating	kW	4.5		4.5		7.5		7.5		4.5		7.5		7.5	
REFRIGERANT: R-404A ZERO OZONE DEPLETION POTENTIAL (ODP), INTERNATIONALLY APPROVED															
Charge	kg	3.6		3.9		4.1		4.1		5.9		5.9		5.9	

Specifications are subject to change without notice.



T-600R/T-800R/T-800R SPECTRUM/
T-WHISPER



T-1000R/T-1200R/T-1000R SPECTRUM/
T-1200R SPECTRUM/(T-WHISPER)

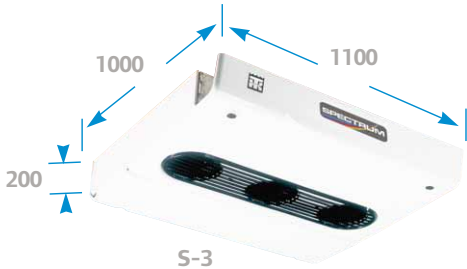
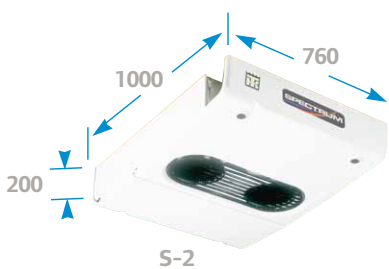
WARRANTY SUMMARY

Specific terms of the Ingersoll Rand Ltd. 24 month full warranty are available on request (refer to TK 60483). Thermo King excludes liability in contract and tort (including strict liability and negligence) for any special, indirect or consequential damages by reason of the installation or use of any covered product or its mechanical failure.



Remote Evaporators		S-2		S-3	
REFRIGERATION CAPACITY: SYSTEM NET COOLING CAPACITY AT 30°C AMBIENT TEMPERATURE UNDER A.T.P. CONDITIONS					
Return air to evaporator		0°C	-20°C	0°C	-20°C
Capacity	W (up to)	6300	3800	7600	4400
AIRFLOW					
Airflow volume @ 0 Pa static pressure	m3/hr	1320		1980	
Discharge velocity (air throw)	m/sec	9.5		9.5	
WEIGHT					
	kg	36		51	

S-4 configuration = S-2+S-2. Airflow volume and weight will be cumulative. Capacity will depend on unit configuration.



Multi temperature configurations

	Host	Remote
A	T-1000R, T-1200R Spectrum	S-3 + S-3
B	T-800R, T-1000R Spectrum	S-2 + S-3
C	T-1000R, T-1200R Spectrum	S-2 + S-4
D	T-1000R, T-1200R Spectrum	S-3 + S-3
E	T-800R, T-1000R Spectrum	S-2 + S-3
F	T-800R Spectrum	S-2 + S-2
G	T-800R Spectrum	S-2 + S-2
H	T-1200R Spectrum	S-4 + S-4
I	T-1200R Spectrum	S-4 + S-4
J	T-1000R, T-1200R Spectrum	S-2 + S-2 + S-2
K	T-1000R, T-1200R Spectrum	S-2 + S-2 + S-2
L	T-1200R Spectrum	S-3 + S-3 + S-2

Multi temperature Zone Plans

Two-Zone

A

B

C

D

E

F

G

H

I

Three-Zone

J

K

L



Ingersoll Rand (NYSE:IR) is a world leader in creating and sustaining safe, comfortable and efficient environments in commercial, residential and industrial markets. Our people and our family of brands— including Club Car®, Hussmann®, Ingersoll Rand®, Schlage®, Thermo King® and Trane®—work together to enhance the quality and comfort of air in homes and buildings, transport and protect food and perishables, secure homes and commercial properties, and increase industrial productivity and efficiency. We are a \$13 billion global business committed to sustainable business practices within our company and for our customers.

thermoking.com ingersollrand.com

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