



## *Direct Drive Truck Units*

*A complete line of refrigeration units for a wide variety of vehicle chassis and applications.*





# CLEAN, EFFICIENT, RELIABLE.

## THERMO KING DIRECT DRIVE VEHICLE-POWERED UNITS FOR A WIDE VARIETY OF APPLICATIONS

Every day your business faces new challenges - increasing fuel costs, new idling and noise regulations, food safety, driver turnover - all while you're expected to continue to deliver the freshest product possible to your customers. That's where Thermo King comes in. With a full range of direct-drive units to suit your needs, from straight trucks to delivery vans, flowers to seafood, Thermo King has the temperature control solution for you.

### DELIVERING WHAT MATTERS TO YOU:



#### R-134A REFRIGERANT FOR FRESH APPLICATIONS

- Lower pressure refrigerant means a longer unit lifespan
- More reliable with better temp management for fresh loads

#### R-404A REFRIGERANT FOR FROZEN APPLICATIONS

- Greater cooling capacity
- Better temp management for frozen loads

- **Low Fuel Consumption and Running Costs** achieved by optimizing performance according to the capacity demand, thereby reducing the fuel consumption of the truck.
- **DSR (Direct Smart Reefer) Controller** delivers optimum temperature control and monitoring.
- **Superior Capacity and Airflow** to ensure superior temperature distribution to protect the product load.
- **SmartPower Electric Standby** capacity is a maximum of 82% of the road capacity at any working conditions for maximum protection of the load at any time.
- **Outstanding Pull-Down Capacity** for improved pull-down and recovery time to guarantee product quality.
- **Ideal for Demanding Conditions** and able to function in ambient temperatures up to 122°F with both R-134a versions for fresh and R-404A versions for frozen applications.
- **Low Noise Level** in all operating conditions, particularly in steady state conditions.
- **CARB TRU Exemption** saves you time and money by not having to register units or do expensive compliance upgrades.
- **Backed by the Thermo King Dealer Service Network** with expert service and support at over 200 locations across North America.
- **Multi-Temperature Operation** for transporting combinations of fresh and frozen goods gives you maximum flexibility.



## B-100

The B-100 is a compact, all-electric unit that provides outstanding refrigeration capacity for small trucks and vans in fresh applications. The system is powered by the vehicle's battery (minimum 250 amp alternator recommended) and does not require a compressor mounted in the engine compartment or extra refrigerant hoses. The B-100 is controlled by the Thermo King Direct Smart Reefer (DSR) controller, which delivers maximum temperature control and efficiency.

### B-100 FEATURES INCLUDE:

- Ultra-thin ceiling mounted evaporator to increase payload space
- Low battery voltage protection
- SmartPower electric standby standard (115 VAC)
- Hermetic refrigeration system
- Lightweight construction
- R-134a refrigerant
- 12VDC
- Backed by Thermo King's world-wide service network



## V-220/V-320

The V-220 and V-320 vehicle powered units deliver day-in and day-out cooling performance for small van or compartmental applications. Both systems use an engine-mounted compressor (TK-13 and TK-15 respectively) and are available in MAX configurations for higher capacity needs or frozen goods.

### V-220/V-320 FEATURES INCLUDE:

- SmartPower electric standby option (115 or 230 VAC)
- Automatic hot gas defrost
- Optional heating packages
  - Coolant heat option (V-220/320)
  - Hot gas heat option (V-320)
- Jet Lube compressor lubrication
- Jet Cool compressor injection cooling (MAX units)
- DSR controller
- R-134a or R-404a (MAX) refrigerants
- 12VDC
- Lightweight construction
- Hourmeters - Road/standby/total hours plus maintenance counter
- Optional snow cover





V-520 NM (Nosemount)



V-520 RT (Rooftop)



## V-520 NOSEMOUNT AND ROOFTOP

The V-520 provides superior cooling performance in two different packages: nose-mount and rooftop. The nose-mount unit is ideal for medium size box trucks, while the rooftop arrangement is perfect for large vans and body-on-chassis vehicles with reach-in side compartments. Only Thermo King offers a unit with this much capacity in a slim line package (just 6 inches above the roof for non-standby units).

Both units use an engine-mounted TK-16 compressor or optional TK-312 reciprocating compressor. Refrigerant R-404a is available for MAX and SPECTRUM units for frozen and multi-temp applications, while R-134a is available for fresh applications.

### V-520 FEATURES INCLUDE:

- SmartPower electric standby option (230 VAC)
- Automatic hot gas defrost
- Optional heating package (hot gas, MAX units)
- Jet Lube compressor lubrication
- Jet Cool compressor injection cooling (MAX units)
- DSR controller
- 12VDC
- 24VDC (non-standby units only)
- Lightweight construction
- Very long life condenser fans



## V-800

The V-800 is the largest vehicle-powered system that Thermo King has to offer. The unit provides unparalleled cooling performance, even up to trucks 24' in length. Use the V-800 where large urban transport is needed, but the higher costs of maintaining an extra diesel engine are not.

The V-800 consists of a two-piece, split design for fresh, frozen and deep frozen applications for medium to large trucks. The road compressor is powered by the vehicle's engine and the electric standby compressor is powered by an electric motor located in the unit.

V-800 Series units are equipped with an industry-standard swash plate compressor, which uses a wide range of drive kits for ease of installation.

### V-800 FEATURES INCLUDE:

- Highest cooling capacity on the market
- SmartPower electric standby option (230 VAC)
- Automatic hot gas defrost
- Jet Lube compressor lubrication
- Jet Cool compressor injection cooling (MAX units)
- DSR controller
- 12VDC
- 24VDC
- Lightweight construction
- Low-noise operation
- Very long life condenser fans

# DSR CONTROLLER

## THE LATEST IN MICROPROCESSOR-BASED INTELLIGENT CONTROL

- Advanced control but simple to use
- Flexible, modular and stylish
- Enables error-free control and monitoring of the refrigeration unit from inside the cab



### THE DSR IN-CAB DISPLAY

Equipped with the most advanced features to provide best user interface experience, including LCD technology for comfortable exposure and outstanding display conditions and an LED backlight for optimal viewing without additional light. Multiple available functions provide the flexibility to adapt to your specific transport application while guaranteeing optimal temperature control and product integrity while displaying alarm code symbols for quick driver response.

### STANDARD FEATURES:

- Automatic start-up to restart unit in case of power interruption, switches between standby and over-the-road operation automatically
- Separate hour meters to record total unit on time, engine compressor run time and electric standby compressor run time
- Simple alarm codes for rapid diagnosis and reduced maintenance costs
- Manual or automatic defrost allowing defrost initiation and termination to be scheduled to suit the application
- Vehicle battery protection with low voltage monitoring, sequential evaporator starts and "soft starting" during unit power-up
- Compressor protection with optional "soft start" feature to increase engine compressor life

### PROGRAMMABLE FEATURES:

- Set-point lock prevents the driver modifying a pre-determined temperature
- Door switches shut down the unit when door is opened to help maintain box temperature and protect the load (optional)
- Wintrac, a Windows-based software package, allows configuration parameters to be edited in the field and system values such as voltage, pressure and alarms to be logged and read
- Firmware upgrades can be carried out in the field
- Independent control of two-compartments on SPECTRUM multi-temp units allows compartments to switch on/off independently
- Evacuation mode to pump down the system

### THE DSR CONTROL BOARD

- Modular concept, separating the control and power relay boards (VPRS-111)
- Improved reliability, serviceability and component replacement
- Reduced service and maintenance costs



## COMPRESSORS

Thermo King vehicle-powered systems use industry-standard swash plate compressors that deliver excellent performance in a compact size. The compressor is sized for the size of the unit and speed of the engine. For increased reliability and performance, the TK-208 and TK-312 reciprocating compressors are also available when the truck chassis will allow.

## AVAILABLE OPTIONS:

### DOOR SWITCH KIT

Reduces load temperature rise and saves fuel when the vehicle doors are opened by turning off the refrigeration system. Unit will automatically restart when doors are closed.

### DIN ADAPTOR

The din adaptor box enables the DSR controller to be installed in the vehicle dashboard. The aesthetically-designed box allows the controller to be fitted in any available radio slot.

### HOSE COVERS

Highly durable kits providing total protection for hoses and cables while enhancing vehicle appearance. Easily installed on all bodies. Metal and plastic options are available.










### MUFFLER KIT

Purpose-designed kit to eliminate transmission of unit vibration and noise into the driver cab. Provides significant gains in driver comfort.

### SNOW COVERS

Designed to protect the unit condenser in extreme conditions. The aerodynamically-designed snow cover prevents the build-up of snow and ice on fan blades, avoiding downtime and additional maintenance costs.

## BOX SIZE/TEMPERATURE GUIDE\*

Temp	 6'	 8'	 10'	 12	 14	 16	 18	 20	 22
<b>35°F</b> <b>-2°C</b>	v-220 or B-100	v-220 or B-100	V-320	V-320 or V-520RT	V-520 or V-520RT	V-520 or V-520RT	V-520 or V-520RT	V-800MAX	V-800MAX
<b>0°F</b> <b>-18°C</b>	V-220MAX	V-320MAX	V-320MAX or V-520RT MAX	V-320 MAX, V-520 MAX, or V-520RT MAX	V-520 MAX or V-520RT MAX	V-520 MAX or V-520RT MAX	V-800MAX	V-800MAX	Contact your Dealer
<b>-20°F</b> <b>-29°C</b>	V-320MAX	V-320MAX or V-520RT MAX	V-320MAX or V-520RT MAX	V-520MAX or V-520RT MAX	V-800MAX	V-800MAX	Contact your Dealer	Contact your Dealer	Contact your Dealer

\*For cooling applications only. Above reference assumes 3" of insulation for 35°F (2°C), 0°F (-18°C) and 4" for -20°F (-29°C); ten door openings per delivery day; box dimensions of 96"W and 96"H on trucks 10' and over in length.

## COOLING AND HEATING CAPACITIES

Model	Refrigerant	Truck Engine Cooling Capacity-BTU/hr			Electric Standby Cooling Capacity-Btu/hr.			Evap Airflow CFM	Coolant Heating-Btu/hr.		Hot Gas Heating-Btu/hr.	
		35°F	0°F	-20°F	35°F	0°F	-20°F		Engine	Electric	Engine	Electric
B-100*	R-134a	3,600	1,300	----	3,700	1,400	----	400	----	----	----	----
V-220*	R-134a	5,930	----	----	4,700	2,120	----	650	14,400	5,000	----	----
V-220 MAX**	R-404A	7,160	4,775	3,170	5,250	3,410	2,265	650	14,400	5,000	----	----
V-320*	R-134a	9,590	4,130	----	6,690	2,425	----	765	14,400	5,000	----	----
V-320 MAX	R-404A	10,015	5,835	3,535	5,801	3,790	2,565	765	14,400	5,000	10,875	5,393
V-520*	R-404A	15,500	8,200	5,000	10,400	6,600	3,500	1,415	----	----	14,000	8,000
V-520 RT*												
V-520 MAX												
V-520 RT MAX												
V-520 SPECTRUM												
V-520 RT SPECTRUM												
V-800*	R-134a	16,400	6,175	----	16,500	7,700	----	1,576	----	----	----	----
V-800 MAX	R-404A	20,500	9,500	6,000	21,000	11,000	6,200	1,576	----	----	----	----

\* Non-MAX units (R-134a) are rated @ 0°F but not allowed to operate below 25°F due to system protection. All standby capacities rated w/230 VAC option.

\*\* Hot gas heat not available on V-220 Series.



Ingersoll Rand (NYSE:IR) advances the quality of life by creating comfortable, sustainable and efficient environments. Our people and our family of brands—including Club Car®, Ingersoll Rand®, Thermo King® and Trane®—work together to enhance the quality and comfort of air in homes and buildings; transport and protect food and perishables; and increase industrial productivity and efficiency. We are a \$13 billion global business committed to a world of sustainable progress and enduring results.



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