THERMO KING

V-520

Superior performance for larger trucks with fresh or frozen applications.



TRANE TECHNOLOGIES™

THE V-520
TAKING CARE OF ALL YOUR NEEDS



The V-520 series offers you optimal performance while using less fuel and making less noise.

- **DSR (Direct Smart Reefer) Controller** delivers optimum temperature control and monitoring.
- **Superior Capacity and Air ow** to ensure superior temperature distribution to protect the product load.
- **SmartPower Electric Standby** delivers 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 the R-134a and R-452A version available for fresh and frozen applications.
- **Low Fuel Consumption and Running Costs** achieved by optimizing performance according to the capacity demand, thereby reducing the fuel consumption of the truck.
- **Low Noise Level** in all operating conditions, particularly in steady state conditions.
- **SPECTRUM™ multi-temp con iguration** available for multiple temperature compartments.

Unsurpassed Reliability

- Semi-hermetic reciprocating standby compressor
- Electrical components protected from water and humidity inside a semi-hermetic box
- Smart control system (TCC) reduces the working time of the condenser fans
- Option of Thermo King exclusive reciprocating road compressor offers a significantly longer life

Easy Installation and Easy to Service

- Front cover fixed to the structure by the means of plastic clips
- Clip-on electric cover
- Speedy clip system for hoses and connections

Exclusive TCC Feature

(Triple Cooling Capacity)

Offers you three cooling capacities and fan speeds to automatically match cooling needs of varying intensity. The TCC level is adjusted according to the pressures read within the refrigeration circuit.

Level	Performance of the unit	Operation
TCC 1	Large pull-down capacity, capability to work under extreme conditions	2 condenser fans at high speed
TCC 2	Low noise and fuel consumption under steady conditions	Fans at low speed
TCC 3	Minimum noise and fuel consumption under low demanding conditions	Fans stopped



SmartPower™

Saves fuel and cuts emissions

SmartPower electric standby allows the unit to operate on electric power in addition to being powered by the vehicle engine. During SmartPower operation, power to the unit is supplied by an electric motor connected to a standard power source.

Lowers your Operating Costs by

- Reducing energy costs by up to 75%
- Lowering maintenance costs
- Extending reefer lifespan

Helps the Environment by

- Reducing diesel emissions
- Reducing noise
- Cutting waste by generating less used oil and filters

Featuring the user-friendly Direct Smart Reefer control system

The DSR (Direct Smart Reefer) control system offers the latest in microprocessor control with many new features, yet is very simple to operate. Features include:

- Continuously monitors load and reefer temperatures
- Automatic start-up/automatic restart protects load
- Three hourmeters to record:
  - Total number of run hours
  - Number of hours on vehicle-driven compressor
  - Number of hours on electric standby compressor
- Easy-to-understand alarm codes
- Maintenance reminders to help reduce downtime
- Manual or automatic defrost
- Software can be upgraded in the field using Wintrac™
- Vehicle battery protection features





MULTI-TEMP: V-520 SPECTRUM®



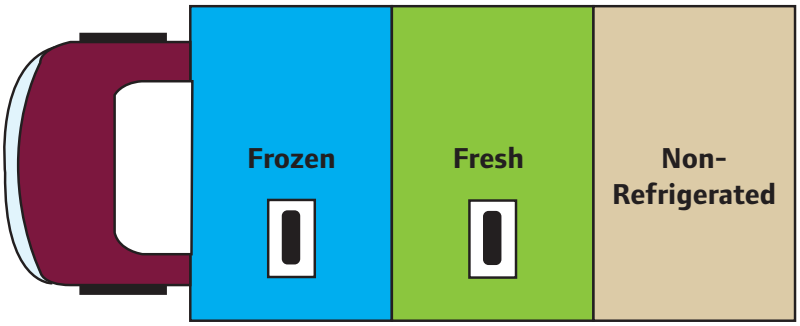
ES-300 evaporator mounted in a multi-temperature application.

The V-520 nose mount unit is also available in a multi-temp configuration that can accommodate two different temperature controlled zones. The system includes two ES-300 evaporators mounted in separate compartments, with one typically set for frozen applications and one set for fresh. Door switches can be used in both compartments to reduce run time and increase overall efficiency.

The V-520 SPECTRUM is an ideal unit for home delivery applications. The system offers excellent temperature control and has ample capacity to ensure frozen foods stay frozen and fresh foods don't spoil en route, even in the hottest climates. Couple the V-520 with SmartPower to streamline pre-cooling and loading operations while saving on fuel.



SmartPower Option





V-520 Option Ordering Guide

- ☐ **24V Option (10 and 20 units only)**
  Allows unit to run on 24V system.
- ☐ **Hot Gas Heat (R-452a units only)**
  Provides heat from the unit compressor.
- ☐ **Door Switch Kit**
  Magnetic door switch can be added to improve system efficiency.
- ☐ **Cut-to-Length Hoses**
  Simplifies and reduces install time.
- ☐ **Standby Power**
  230/1/60 or 230/3/60 options available.

Compressor Options

- ☐ **TK-16 XD (Swash Plate)**



  - 6 cylinder
  - 9.9 cubic inch displacement
  - 2A, 1B or poly groove 12V or 24V clutch

- ☐ **TK 312 Reciprocating**



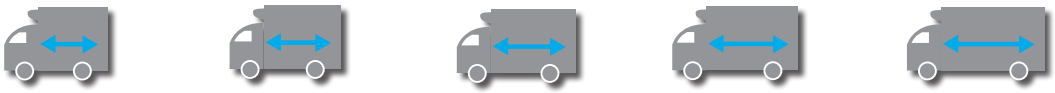
  - 3 cylinder
  - 11.4 cubic inch displacement
  - 12V or 24V clutch
  - 2A, 1B or poly groove 12V or 24V clutch

Cooling and Heating Capacities: V-520 Series

Model	Refrigerant	Truck Engine Cooling Capacity-Btu/hr.			Electric Standby Cooling Capacity-Btu/hr.			Evaporator Airflow	Heating - Btu/hr.	
		35°F	0°F	-20°F	35°F	0°F	-20°F	CFM	Engine	Electric
V-520 (Reciprocating)	R-134a	13,700	5,410	-	10,000	3,500	-	1415	-	-
V-520 (Swash Plate)	R-134a	12,200	5,000	-	10,000	3,500	-	1415	-	-
V-520 MAX (Recip)	R-452A	16,600	8,700	5,300	10,400	6,600	3,500	1415	14,000	8,000
V-520 MAX (Swash)	R-452A	15,500	8,200	5,000	10,400	6,600	3,500	1415	14,000	8,000
V-520 SPECTRUM (Rec)	R-452A	16,600	8,700	5,300	10,400	6,600	3,500	2 x 765	2 x 7,000	2x4,000
V-520 SPECTRUM (Sws)	R-452A	15,500	8,200	5,000	10,400	6,600	3,500	2 x 765	2 x 7,000	2x4,000

Unit selection may vary depending on ambient temperature, truck body insulation, number of door openings, heat of respiration, etc. Please consult your Thermo King dealer for a detailed computer analysis and printed report showing your truck application requirements and unit selection comparison.

Box Size/Temperature Guide: V-520 Series*



Temp	10′	12′	14′	16′	18′
35°F -2°C	Contact Your Local Thermo King Dealer	Contact Your Local Thermo King Dealer	**V-520**	**V-520**	**V-520**
0°F -18°C	**V-520 MAX**	**V-520 MAX**	**V-520 MAX**	**V-520 MAX**	Contact Your Local Thermo King Dealer
-20°F -29°C	**V-520 MAX**	**V-520 MAX**	Contact Your Local Thermo King Dealer	Contact Your Local Thermo King Dealer	Contact Your Local Thermo King Dealer

*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 72″H on trucks 10′ and over in length.

System Performance

Description

The V-520 Series from Thermo King is comprised of two-piece split units designed for fresh, frozen and deep frozen applications on medium-sized trucks.

The road compressor is powered by the vehicle's engine. In models with electric stand-by, the second one is powered by an electric motor. Models with heating are also available.

System components

- Condenser
- ES500 MAX evaporator (ST units)
- ES300 MAX/ES150 MAX evaporators (Multitemp units)
- Engine driven compressor choice between reciprocating and swash plate compressor
- Installation kit
- In-cab control box

Refrigerant

V-520

HFC R-134a (7.9 lbs) Chlorine: Zero

V-520 MAX

HFC R-404A (8.2 lbs) Chlorine: Zero

Compressor (engine driven)

Reciprocating compressor (TK-312R)

- Number of cylinders: 3
- Displacement: 11.4 cu in.
- Max. recommended speed: 3,000 rpm
- Jet Lube and Jet Cool compressor lubrication and cooling systems

Swash plate compressor (TK16)

- Number of cylinders: 6
- Displacement: 9.9 cu in.
- Max. recommended speed: 3,000 rpm
- Jet Lube and Jet Cool compressor lubrication and cooling systems

Defrost

Automatic hot gas defrost

Electric motors

DC voltage options

	ST	MT
12V	36A	56A
24V*	18A	28A

*10 and 20 models only

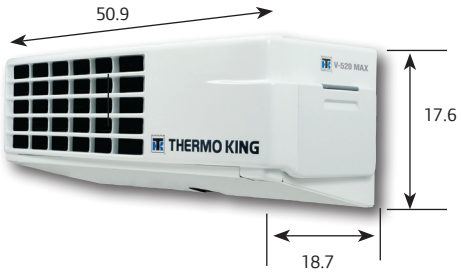
SmartPower electric standby options (draw):

230V/1 Phase/60Hz (12.7 A)

230V/3 Phase/60Hz (14.1 A)

Specifications

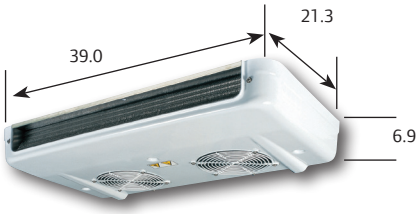
Dimensions (inches)



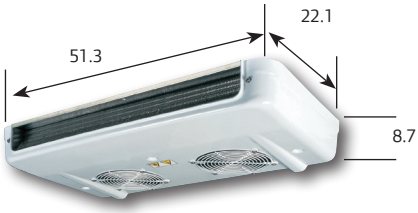


Evaporators

ES300



ES500



Warranty

Terms of the Thermo King Warranty are available on request from your local Thermo King dealer. Please reference TK 50047 for the Thermo King Self-Powered Truck unit warranty.

THERMO KING

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* or *tranetechnologies.com*.

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