



V-Series for Medium/Large Trucks

High performance non-diesel range

- Exceptional performance, fresh and deep frozen
- Superior heating performance
- User-friendly in-cab DSR controller
- High reliability, easy to maintain and service
- Single and multi temperature solutions

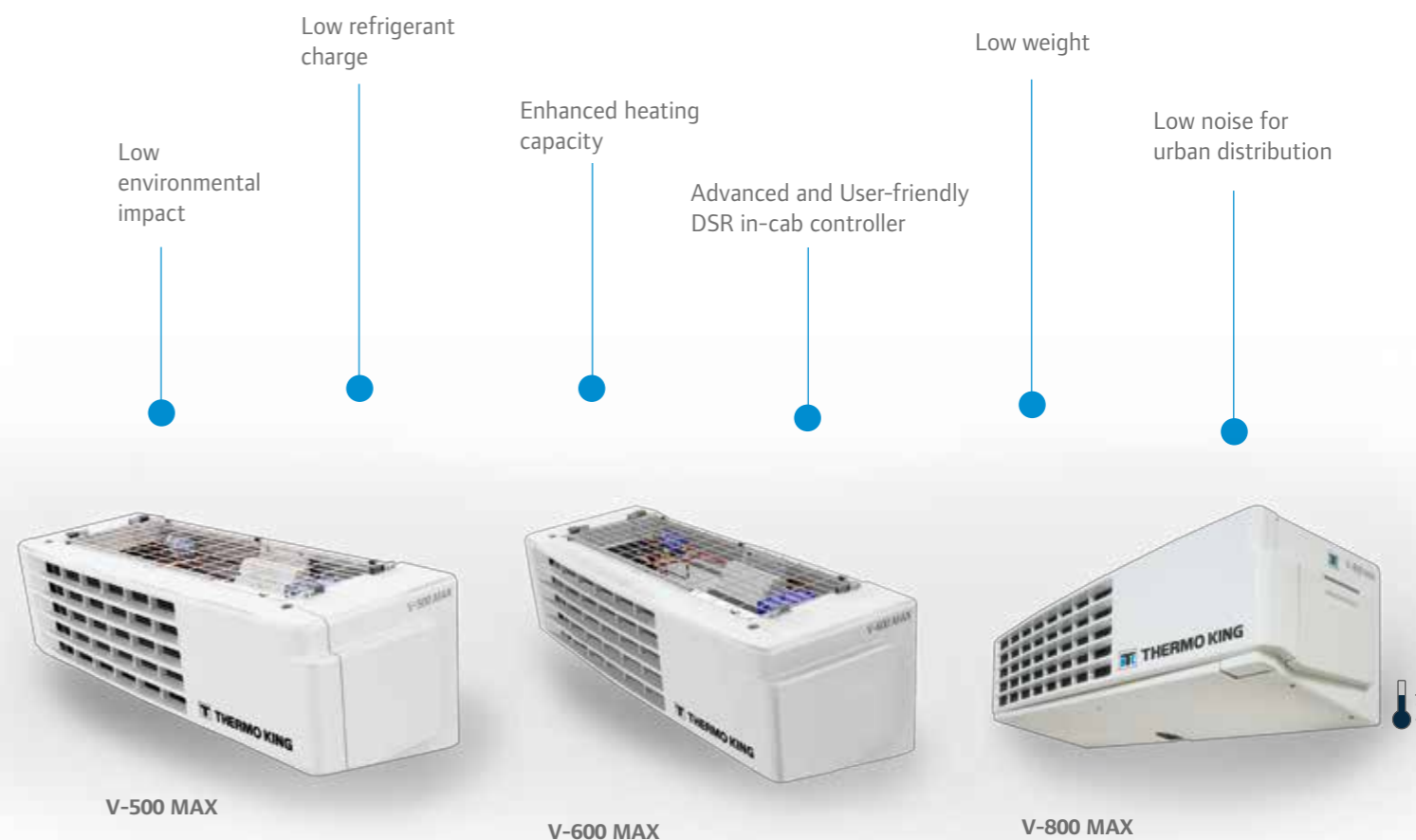


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Key features

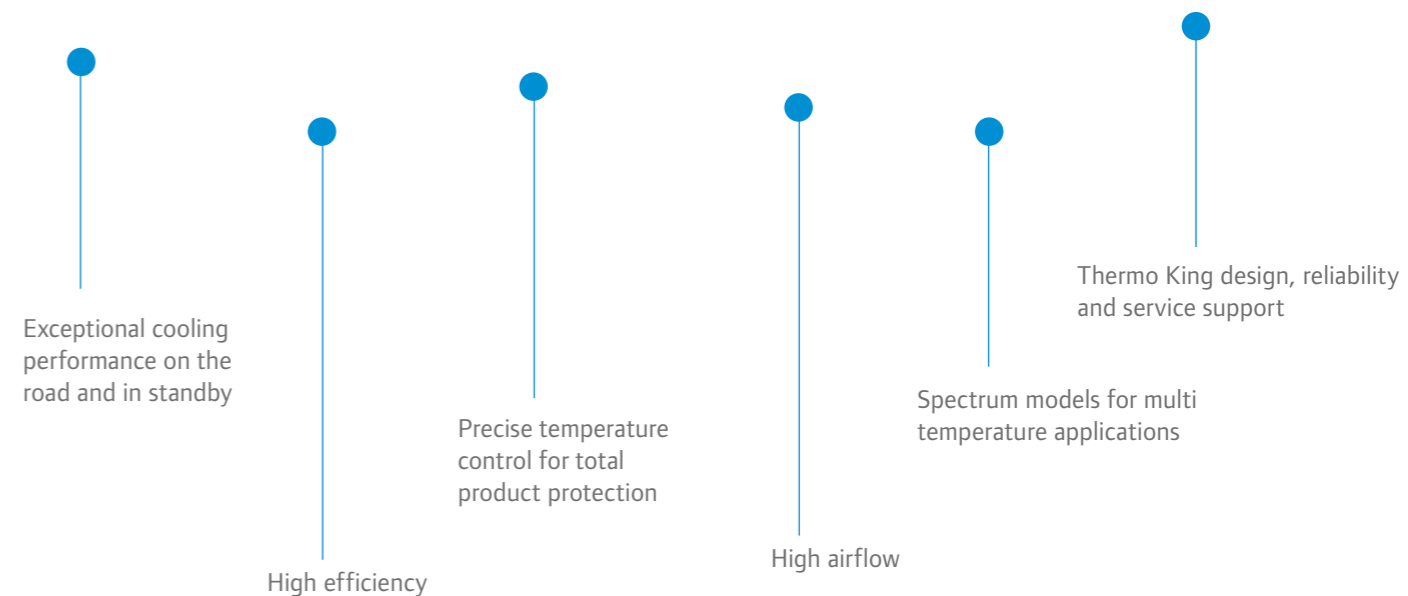


V-Series for Medium/Large Trucks

Introduction

The V-500, 600 and 800 Series offer a direct drive, non-diesel temperature control solution for operators of medium and large trucks in the 13 to 42 m³ (frozen) and 30 to 54 m³ (fresh) ranges.

For multi temperature applications, the V-500 and 800 Spectrum models are available. The range has minimal environmental impact as the refrigeration unit compressor is driven by the vehicle engine, offering exceptionally low noise and low emissions. All V-Series models share many common components, including the Direct Smart Reefer (DSR) controller.



Benefits

V-500 SERIES

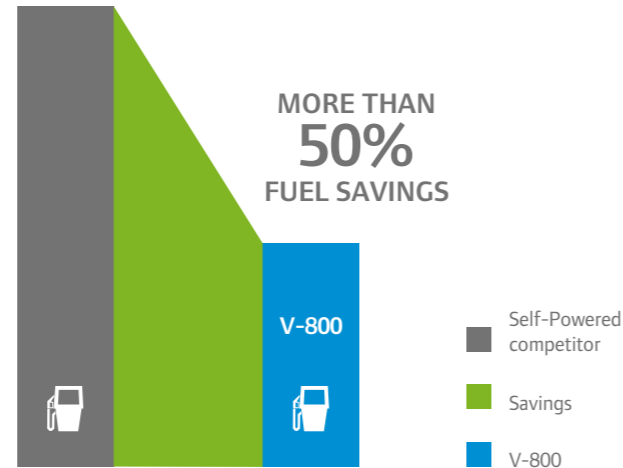
The V-500 Series comprises two-piece split units delivering top performance, reliability and ease-of-use. A small all-aluminium condenser coil and a more compact and lighter system bring significant life cycle benefits. Decreased refrigerant volume reduces expense and allows faster charging of the system, resulting in lower labour costs and less environmental impact. The range has been designed to ease maintenance and service operations and improve aesthetic effect with plastic skins increasing resistance to corrosion.

V-600 SERIES

The V-600 Series is a more efficient range of vehicle-powered temperature control units. This results in a significantly lower environmental impact. The V-600 Series delivers increased performance more efficiently. A more efficient evaporator and an all-aluminium condenser coil bring significant life cycle benefits. The V-500 and V-600 Series are equipped with the QP16 swash plate compressor for ease of installation and drive kit availability.

V-800 SERIES

The V-800 Series delivers superior capacity, attaining optimal energy efficiency. The V-800 Series is the most powerful vehicle-powered range, both in cooling and heating modes, making it more efficient and sustainable. To provide environmentally-friendly solutions, the V-800 Series represents an unbeatable non-diesel alternative for large trucks, low noise and reduced weight.



Fuel savings V-800 vs "Self-powered competitor"

Benefits

Total flexibility

- Many standard features and options match all requirements:
 - Refrigerant choice R-134a (V-500/800) or R404A (V-500/600/800) to suit your application set-point and ambient temperatures
 - Electric standby
 - Heating
 - Multi temperature (V-500/800)

Optimized performance

- Low fuel consumption, carbon footprint and running costs
More efficient evaporators and all-aluminium condenser coils (V-500/600) result in a significantly lower environmental impact
- Enhanced heating system
Improved hot gas system (V-500/600) and reverse cycle 4-way valve technology (V-800) to deliver exceptional performance under the most demanding conditions (i.e. low ambient, pharma applications)
- Exceptional cooling performance on the road and standby
Refrigeration expertise to provide solutions with faster and more efficient pull-down for quicker recovery

High airflow evaporators

For better temperature distribution across the cargo to protect load integrity

Low noise level

Direct Drive technology allows a low noise solution for urban distribution

Light design

- Lowest weight allows for higher payload and increased end user revenue

Low refrigerant charge

- Refrigeration circuit is designed to optimize refrigerant use in order to reduce Global Warming Potential (GPW) and equivalent CO₂ emissions resulting in tax benefits and reduced environmental impact

Efficiency

- Designed for highest efficiency to reduce consumption and total life cycle cost of ownership

Light design

Low noise
Low CO₂

High performance



Direct Smart Reefer (DSR) Controller

Direct Smart Reefer (DSR) Controller

The DSR brings the latest in microprocessor-based intelligent control to Thermo King's vehicle powered product range. Its in-cab display is connected to a control board in the condenser module.

Key features:

- Ease of use
- Flexible, modular and stylish
- Designed for error-free control and monitoring of the refrigeration unit from inside the cab

The DSR in-cab display

The DSR in-cab unit provides the ideal user interface. LCD technology with LED backlighting makes the screen easy to read in all light conditions. The operator can select from multiple functions to suit specific transport applications, ensure optimal temperature control and product integrity. In the event of a malfunction, an easily interpreted alarm code allows drivers to take rapid and appropriate remedial action. A bracket is provided for the DSR to be located in the optimum position in any cab configuration. An optional DIN adaptor is available for installation in the radio slot.

Standard features

- Continuous monitoring of load and temperature control unit
- Automatic start-up in case of a power interruption on the road or in standby
- A full record via three hour metres of the number of hours:
 - that the unit has been switched on
 - that the vehicle-driven compressor has been running
 - that the electric standby compressor has been running
- Simple alarm codes with clear descriptions for quick diagnosis and reduced maintenance costs
- Maintenance reminders to encourage preventative maintenance and reduce downtime
- Manual or automatic defrost to schedule defrost initiation and termination to suit the application
- Tamper-proofing by removing the in-cab control panel after presetting
- Unit protection via time limited on/off cycles and overload protection to extend the life of electrical components and the compressor
- Constant airflow option during "null mode" to protect sensitive loads
- Automatic switchover between over-the-road battery operation and electric standby
- Vehicle battery protection with low voltage monitoring, sequential evaporator starts and "soft starting" during unit power-up to avoid power "spikes"
- Compressor protection with the optional "soft start" feature to increase engine compressor life
- Load protection by delaying evaporator start-up after defrosts, to avoid accidental water discharge into the load space

The DSR control board

- A modular concept that separates control and power relay boards
- Improved reliability, serviceability and component replacement
- Lower service and maintenance costs



Platform-II Control Box

Programmable features

- Set point limits for optimum temperature range selection
- Set point lock to prevent the driver modifying a predetermined temperature
- Temperature control band
- Out of range alarm for on-screen warning when the return air temperature is out of range
- Door switches to shut down the unit each time the door is opened, to help maintain the box temperature and protect the load
- Warning buzzer to alert the operator if the vehicle is started with the unit on electric standby or the door open
- Wintrac a Windows-based software package for configuration parameter editing in the field
- Firmware upgrades can be carried out in the field with a specific Thermo King

New

Spectrum multi temperature features

- Each compartment can be switched on/off independently
- Improved door switch functionality allows each evaporator to be controlled independently so that only the compartment with the door open is turned off
- Set point range can be independently adjusted for each compartment
- Operation in single temperature mode selection if required for increased flexibility



The DSR in-cab display



switch on/off each compartment



improved door switch



adjustable point range each compartment



single temp if required

Features & options

| FEATURES AND OPTIONS | V-500 V-500 MAX V-600 MAX | V-500 MAX SPECTRUM | V-800 V-800 MAX | V-800 MAX SPECTRUM |
|--|---------------------------------|-----------------------|--------------------|-----------------------|
| LIFE COST MANAGEMENT | | | | |
| ThermoKare service contracts | ▲ | ▲ | ▲ | ▲ |
| DATA CAPTURE AND COMMUNICATIONS | | | | |
| TKDL data logger | ▲ | ▲ | ▲ | ▲ |
| Wintrac (data analysis software) | ▲ | ▲ | ▲ | ▲ |
| USB data logger | ▲ | ▲ | ▲ | ▲ |
| Datalogger Jr | ▲ | ▲ | ▲ | ▲ |
| LOAD PROTECTION | | | | |
| Door switch | △ | △ | △ | △ |
| Din adapter | △ | △ | △ | △ |
| Hose cover | △ | △ | △ | △ |
| Harness extension 2 m/4 m/6 m | △ | △ | ● | △ |
| Hose extension 2 m/4 m/6 m | ● | △ | ● | ● |

● Not available △ Option: factory supplied ▲ Option: dealer supplied

ThermoKare

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

TKDL data capture

- User-friendly temperature recorders
- Delivery and journey printouts at the touch of a button
- Approved to EN 12830, CE Mark and IP-65 standards

Wintrac (data analysis software)

User-friendly software compatible with DSR controller for configuration file downloads.

USB data logger

Humidity, temperature and dewpoint recorder.

DataLogger Jr

Programmable temperature recorder.

Door switches

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

Din adapter

The din adaptor box permits the adaption of the DSR controller to the vehicle dashboard. The aesthetically designed box allows the placement of the DSR controller in any available radio slot compartment in the driver cab.

Hose Covers

Full protection of hoses and cables on the road and full resistance under all climate adversities. Designed with best aesthetics to promote brand image and with an exceptional durability. User-friendly installation (Only for chassis installations, no vans.).





Harness extension

The 2, 4 or 6 metre harness extension allows evaporators to be located to suit any customer needs with an extremely easy installation (plug-and-play connection) and provides full flexibility to position the evaporators especially in multi-temp applications.

Hose extension

The 2, 4 or 6 metre hose extensions (includes corresponding splice connectors) are also on offer as option for remote evaporators.

V-Series range

| RANGE | Refrigerant | Standby |     | |
|------------------------------------|-------------|---------|---|-------------|
| | | | Heating | Multi-temp. |
| V-500 10 | R-134a | × | × | × |
| V-500 20 | R-134 | ✓ | × | × |
| V-500 MAX 10 | R-404A | × | × | × |
| V-500 MAX 20 | R-404A | ✓ | × | × |
| V-500 MAX 30 | R-404A | × | ✓ | × |
| V-500 MAX 50 | R-404A | ✓ | ✓ | × |
| V-500 MAX 10 Spectrum ¹ | R-404A | × | × | ✓ |
| V-500 MAX 20 Spectrum ¹ | R-404A | ✓ | × | ✓ |
| V-500 MAX 30 Spectrum ¹ | R-404A | × | ✓ | ✓ |
| V-500 MAX 50 Spectrum ¹ | R-404A | ✓ | ✓ | ✓ |
| V-600 MAX 10 | R-404A | × | × | × |
| V-600 MAX20 | R-404A | ✓ | × | × |
| V-600 MAX 30 | R-404A | × | ✓ | × |
| V-600 MAX 50 | R-404A | ✓ | ✓ | × |
| V-800 10 | R-134a | × | × | × |
| V-800 20 | R-134a | ✓ | × | × |
| V-800 MAX 10 | R-404A | × | × | × |
| V-800 MAX 20 | R-404A | ✓ | × | × |
| V-800 MAX 30 | R-404A | × | ✓ | × |
| V-800 MAX 50 | R-404A | ✓ | ✓ | × |
| V-800 MAX 50 Spectrum ² | R-404A | ✓ | ✓ | ✓ |

✓ Included
 × Not included

(1) Available in the following configurations: ES300+ES300, ES300+ES150 and ES300+2xES150

(2) Available in the following configurations: ES400+ES400, ES600+ES150 and ES600+2xES150



V-Series range

Unit selection guide

The table below indicates a guide to select the right unit that could match your application. These figures are maximum vehicle volumes, calculated on road operation, at 2400 rpm compressor speed and 30°C ambient temperature.

| Model | Ambient temperature | | | |
|--------------------|---------------------|-------|--------|-------|
| | 30°C | | 40°C | |
| | +0/2°C | -20°C | +0/2°C | -20°C |
| V-500 | 30 | 13 | 21 | 10 |
| V-500 MAX | 42 | 25 | 29 | 19 |
| V-500 MAX Spectrum | - | 22 | - | 17 |
| V-600 MAX | 48 | 30 | 34 | 24 |
| V-800 MAX Spectrum | - | 40 | - | 30 |
| V-800 | 44 | - | 31 | - |
| V-800 MAX | 54 | 42 | 38 | 34 |

Recommendations are based on precooled loads and K value of 0.35 W/m²K is used for frozen goods (-20°C) and 0.5 W/m²K for fresh goods (+0/2°C), for a distribution of 8 hours. Recommendation for V-500 MAX Spectrum unit is based on ES300+ES300 configuration, and ES400+ES400 for V-800 MAX Spectrum unit. Recommendations are not a guarantee of performance as there are many variables to be considered. See your Thermo King dealer for complete information.

Specifications single temperature

| SPECIFICATIONS | | V-500 | V-500 MAX | V-600 MAX | V-800 | V-800 MAX |
|--|-------------------|--|----------------------------|----------------------------|---|----------------------|
| REFRIGERATION CAPACITY: AT 30°C AMBIENT | | | | | | |
| | °C | 0°C | -20°C | 0°C | -20°C | 0°C |
| Air return/on the road | W | 3915 | 1655 | 4890 | 2630 | 5910 |
| Electric standby 50 Hz | W | 3160 | 1090 | 4215 | 1830 | 4970 |
| | | 2550 | 4920 | - | 7790 | 4160 |
| | | 7030 | 3795 | | | |
| HEATING CAPACITY: AT -18°C AMBIENT/2400 RPM | | | | | | |
| On the road swash plate compressor | R-404A (W) | - | 3600 | 4000 | - | 7030 |
| Electric standby operation | | - | 3120 | 3200 | - | 6450 |
| AIRFLOW | | | | | | |
| Airflow volume @ 0 pa static pressure | m ³ /h | 2200 | 2200 | 2580 | 2680 | 2680 |
| WEIGHT | | | | | | |
| Condenser w/o electric standby | kg | 53 | 53 | 53 | 100 | 100 |
| Condenser with electric standby | kg | 125 | 125 | 125 | 160 | 160 |
| Evaporator | kg | 25.5 | 25.5 | 28 | 35 | 35 |
| Swash plate compressor | kg | 7.1 | 7.1 | 7.1 | 8.5 | 8.5 |
| COMPRESSOR | | | | | | |
| Model | | QP16 | QP16 | QP16 | QP21 | QP21 |
| Displacement | cc | 163 | 163 | 163 | 215 | 215 |
| Number of cylinders | | 6 | 6 | 6 | 10 | 10 |
| ELECTRIC STANDBY MOTOR | | | | | | |
| Voltage/phase/frequency | | 400/3/50 - 380/3/60 - 230/3/50 - 230/3/60 230/1/50 - 230/1/60 | | | 400/3/50 - 400/3/60 - 230/3/50 - 230/3/60 | |
| Rating | kW | 6.4 (400/3/50) | 6.4 (400/3/50) | 6.4 (400/3/50) | 8.2 (400/3/50) | 8.2 (400/3/50) |
| REFRIGERANT CHARGE | | | | | | |
| Charge | | 10:2.0 20:2.2 | 10:2.1 20/30:2.2 50:2.3 | 10:2.2 20/30:2.3 50:2.4 | 10:4.55 20:4.85 | 10/30:4.7 20/50:5 |
| GENERIC | | | | | | |
| Refrigerant | | R-134a | R-404A | R-404A | R-134a | R-404A |
| Controller | | DSR III | DSR III | DSR III | DSR III | DSR III |
| DEFROST | | | | | | |
| Defrost | | Automatic hot gas defrost/Reverse cycle | | | | |



Specifications multi temperature

| SPECIFICATIONS | | V-500 MAX SPECTRUM | | | | | |
|--|------|---|-------|-------------------------|-------|-----------------------|-------|
| REFRIGERATION CAPACITY: AT 30°C AMBIENT | | | | | | | |
| | | ES300 MAX+ES300 MAX | | ES300 MAX+2xES150 MAX | | ES300 MAX+ES150 MAX | |
| Return air to evaporator | °C | -20°C | | -20°C | | -20°C | |
| Capacity on engine power | W | 2390 | | 2390 | | 2390 | |
| Capacity on electrical stand | W | 2005 | | 2005 | | 2005 | |
| REFRIGERATION CAPACITY: INDIVIDUAL COOLING CAPACITY | | | | | | | |
| | | ES300 MAX | | 2XES150 MAX | | ES150 MAX | |
| Return air to evaporator | | 0°C | -20°C | 0°C | -20°C | 0°C | -20°C |
| Capacity on engine power | W | 3585 | 1930 | 3975 | 2055 | 2925 | 1580 |
| Capacity on electrical stand | W | 3385 | 1745 | 3595 | 1770 | 2580 | 1380 |
| HEATING CAPACITY | | | | | | | |
| On the road | W | 3600 | | | | | |
| Electric standby operation | W | 3120 | | | | | |
| AIRFLOW | | | | | | | |
| | | ES300 MAX + ES300 MAX | | ES300 MAX + 2XES150 MAX | | ES300 MAX + ES150 MAX | |
| On high speed engine operation | m³/h | 2x1185 | | 1185+(2x700) | | 1185+700 | |
| WEIGHT | | | | | | | |
| Condenser w/o electric standby | kg | 53 | | | | | |
| Condenser with electric standby | kg | 125 | | | | | |
| Evaporator ES300 MAX | kg | 18 | | | | | |
| Evaporator ES150 MAX | kg | 12.5 | | | | | |
| Swash plate compressor | kg | 7.1 | | | | | |
| COMPRESSOR | | | | | | | |
| Model | | QP 16 | | | | | |
| Displacement | cc | 163 | | | | | |
| Number of cylinders | | 6 | | | | | |
| ELECTRIC STANDBY MOTOR | | | | | | | |
| Voltage/phase/frequency | | 400/3/50 - 230/3/50 - 230/3/60 - 230/1/50 - 230/1/60 - 380/3/60 | | | | | |
| Rating | kW | 6.4 (400/3/50) | | | | | |
| REFRIGERANT CHARGE | | | | | | | |
| Charge | kg | 10 : 2.3 - 20/30 : 2.4 - 50: 2.5 | | | | | |
| GENERIC (BOXLENGTH. REFRIGERANT....) | | | | | | | |
| Refrigerant | | R-404A | | | | | |
| Controller | | DSR III | | | | | |
| DEFROST | | | | | | | |
| Defrost | | Automatic hot gas defrost | | | | | |

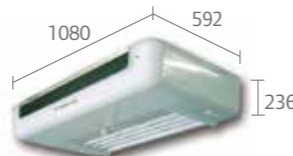
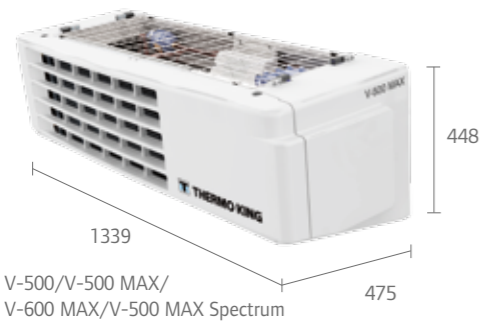
Specifications multi temperature

| SPECIFICATIONS | | V-800 MAX SPECTRUM | | | | | | | |
|--|------|---|-------|-----------------------|-------|-------------------------|-------|---------------|-------|
| REFRIGERATION CAPACITY: AT 30°C AMBIENT | | | | | | | | | |
| | | ES400 MAX+ ES400 MAX | | ES600MAX+ ES150 MAX | | ES600 MAX+ 2x ES150 MAX | | | |
| Return air to evaporator | °C | -20°C | | -20°C | | -20°C | | | |
| Capacity on engine power | W | 4395 | | 3850 | | 4300 | | | |
| Capacity on electrical stand | W | 3595 | | 3385 | | 3595 | | | |
| REFRIGERATION CAPACITY: INDIVIDUAL COOLING CAPACITY | | | | | | | | | |
| | | ES400 MAX | | ES600 MAX | | ES150 MAX | | 2 X ES150 MAX | |
| Return air to evaporator | | 0°C | -20°C | 0°C | -20°C | 0°C | -20°C | 0°C | -20°C |
| Capacity on engine power | W | 5740 | 3300 | 6765 | 3460 | 3975 | 2270 | 5640 | 2995 |
| Capacity on electrical stand | W | 5300 | 3010 | 6305 | 3110 | 3850 | 2165 | 5045 | 2705 |
| HEATING CAPACITY | | | | | | | | | |
| On the road | W | 4500 | | | | | | | |
| Electric standby operation | W | 4000 | | | | | | | |
| AIRFLOW | | | | | | | | | |
| | | ES400 MAX + ES400 MAX | | ES600 MAX + ES150 MAX | | ES600 MAX + 2XES150 MAX | | | |
| On high speed engine operation | m³/h | 1760x2 | | 2260+890 | | 2260+(2x890) | | | |
| WEIGHT | | | | | | | | | |
| Condenser w/o electric standby | kg | 100 | | | | | | | |
| Condenser with electric standby | kg | 160 | | | | | | | |
| Evaporator ES600 MAX | kg | 28 | | | | | | | |
| Evaporator ES400 MAX | kg | 20 | | | | | | | |
| Evaporator 2 X ES150 MAX | kg | 25 | | | | | | | |
| Evaporator ES150 MAX | kg | 12.5 | | | | | | | |
| Swash plate compressor | kg | 8.5 | | | | | | | |
| COMPRESSOR | | | | | | | | | |
| Model | | QP21 | | | | | | | |
| Displacement | cc | 215 | | | | | | | |
| Number of cylinders | | 10 | | | | | | | |
| ELECTRIC STANDBY MOTOR | | | | | | | | | |
| Voltage/phase/frequency | | 400/3/50 - 230/3/50 - 400/3/60 - 230/3/60 | | | | | | | |
| Rating | kW | 8.2 (400/3/50) | | | | | | | |
| REFRIGERANT CHARGE | | | | | | | | | |
| Charge | kg | ES400+ES400: 5.2 - ES600+ES150: 5.0 - ES600+2XES150: 5.15 | | | | | | | |
| GENERIC | | | | | | | | | |
| Refrigerant | | R-404A | | | | | | | |
| Controller | | DSR III | | | | | | | |
| DEFROST | | | | | | | | | |
| Defrost | | Automatic hot gas defrost | | | | | | | |

Note: specifications are subject to change without notice.

Discover the V-100/200/300 Series

Dimensions (mm)



The V-Series product range from Thermo King also comprises products for smaller trucks and vans. Just like the larger Series, the V-100, V-200 and V-300 offer optimal performance while using less fuel and making less noise.

The range is suited to load spaces from 5 to 17 m³ (frozen) and from 12 to 28 m³ (fresh).

Total flexibility

The V-100, V-200 and V-300 offer multiple options to suit every application including R-134a refrigerant for fresh loads/ high ambient and R-404A for frozen, electric standby operation and heating capability. The range includes Spectrum V-200 MAX and V-300 MAX models for multi temperature vehicles.

High performance under any conditions

High capacity and airflow ensure superior temperature distribution as well as faster pull-down and temperature recovery to protect the product load after door openings.

Ease of use

The V-100, V-200 and V-300 enjoy all the same advantages of the DSR in-cab controller including ease of use, flexibility and alarm functions.

Form and function

Condenser modules are compact, stylish and aerodynamic. They can be installed on the vehicle roof or over the cab. Slim-line evaporators provide maximum load space, which is critical in smaller vehicles.



WARRANTY CONDITIONS

Thermo King warrants the new product delivered will be free of defects in material and workmanship for the period of time specified in the applicable warranties. Specific terms of the Thermo King warranty are available on request.





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For further information please contact:



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Ingersoll Rand - Lenneke Marelaan 6, B-1932 Sint-Stevens-Woluwe, Belgium.

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