



V-Series for Medium and 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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V-Series for 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 from 13 to 42 m³ (frozen) and from 30 to 54 m³ (fresh). For multi temperature applications, the V-500 and 700 Spectrum models are available.

Because the refrigeration unit compressor is driven by the vehicle engine, this product range has minimal environmental impact, offering exceptionally low noise and low emissions. The models share many common components including the Direct Smart Reefer (DSR) controller and there are modular options to tailor the units to precise customer requirements.

Key features include:

- Exceptional cooling performance both over the road and on standby
- Enhanced heating capacity
- Precise temperature control for total product protection
- Low environmental impact
- Low noise for urban distribution
- User-friendly DSR in-cab controller
- Spectrum models for multi temperature applications
- Thermo King design, reliability and service support



V-500 MAX



V-800 MAX



V-600 MAX



Exceptional performance

Minimal environmental impact

Benefits

V-500 SERIES

The V-500 Series from Thermo King comprises two-piece split units designed for fresh, frozen, deep frozen and heated applications on medium-large trucks, delivering top performance, reliability and ease-of-use. These units also allow users to increase energy efficiency and sustainability.

The V-500 Series range delivers increased performance, both cooling and heating, more efficiently. A small all-aluminium condenser coil and a more compact and lighter system bring significant life cycle benefits. Decreased refrigerant volume reduces expense (especially as refrigerant prices continue to increase), allows faster charging of the system with reduced labour cost and creates less environmental impact.

The range has been designed to ease maintenance and service operations and to improve aesthetic effect with plastic skins increasing resistance to corrosion.

V-600 SERIES

The V-600 Series units from Thermo King is a more efficient range of vehicle-powered temperature control units for medium-large trucks hauling fresh, frozen, deep frozen or heated loads. The efficiencies result in a significant reduction in carbon footprint and less environmental impact.

The V-600 Series range delivers increased performance more efficiently. A more efficient evaporator and an all-aluminium condenser coil - also used in the V-500 Series - bring significant life cycle benefits and create less environmental impact. 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 best energy efficiency. The V-800 Series is the most powerful vehicle-powered range in both cooling and heating modes, making it more efficient and sustainable. In our mission to provide environmentally-friendly solutions, the V-800 Series represents an unbeatable non-diesel alternative for large trucks, low noise and reduced weight.

Heating capacity

Environmentally-friendly



Total flexibility

- Availability of many standard features and options to match all requirements:
- R-134a (V-500/800) or R404A (V-500/600/800)
- Electric standby
- Heating
- Multi temperature (V-500/700)

Optimised performance

• Enhanced heating system

Improved hot gas system (V-500/600) and reverse cycle 4-way valve technology (V-800) to deliver exceptional heating capacities under the most demanding conditions.

• Semi-hermetic reciprocating standby compressor

Capacity in standby is 85 % to 95 % of the road capacity under any working conditions for maximum protection of the load at any time.

• Low fuel consumption and running costs

More efficient evaporators and all-aluminium condenser coils (V-500/600) result in a significant reduction of carbon footprint and less environmental impact.

• Low noise level

On road operation, the compressor is driven by the engine of the vehicle. As such, the noise from the unit is less than that of a self-powered unit. Semi-hermetic electric standby compressors are used to lower the noise on electric standby.

Light design

- Increased use of plastic covers to improve aesthetic finishing and corrosion resistance.
- V-500/600 Micro-channel coil and redesigned refrigeration circuit.
- Reduced refrigerant use to lower cost and improved environmental impact.

Ease of install

- Equipped with swash plate compressors for ease of installation and drive kit availability.

Efficiency

- Increased efficiency in refrigeration circuits for higher performance.



Direct Smart Reefer (DSR) Controller

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

The DSR is:

- Simple to use with advanced control features
- Flexible, modular and stylish
- Designed to enable error-free control and monitoring of the refrigeration unit from inside the cab

The DSR in-cab display

The DSR in-cab unit comes with the most advanced features to provide the ideal interface for the user. 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 and to 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 to enable the DSR to be located in the optimum position in any cab configuration. An optional DIN adaptor is available should installation in the radio slot be preferred.



The DSR in-cab display

The DSR control board

- A modular concept, separating the control and power relay boards
- Improved reliability, serviceability and component replacement
- Reduced service and maintenance costs



Platform-II Control Box

Standard features

- **Continuous monitoring** of both the load and the temperature control unit for peace of mind.
- **Automatic start-up** to restart the unit if a power interruption stops it either on the road or on 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 easily understood written descriptions for rapid diagnosis and reduced maintenance costs.
- **Maintenance reminders** to encourage preventative maintenance and reduce downtime.
- **Manual or automatic defrost** allowing defrost initiation and termination to be scheduled to suit the application.
- **Tamper-proofing** achieved 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 of 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** provided with the optional “soft start” feature to increase engine compressor life.
- **Load protection** given by delaying evaporator start-up after defrosts, avoiding accidental water discharge into the load space.

Programmable features

- **Set point limits** to allow the selection of the optimum temperature range to suit the application and the refrigerant.
- **Set point lock** to prevent the driver modifying a pre-determined temperature.
- **Temperature control band** can be selected as required.
- **Out of range alarm** to provide an 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, helping to maintain the box temperature and protect the load (optional).
- **Warning buzzer** to alert the operator if the vehicle is started while the unit is on electric standby or the door is open (optional).
- **Wintrac**, a Windows-based software package, to allow 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 using a specific .exe file provided by Thermo King.

New Spectrum multi temperature features

- Each compartment can be independently switched on or off as required.
- 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 can be selected if required for increased flexibility.

Features & options

FEATURES AND OPTIONS	V-500 V-500 MAX V-600 MAX	V-500 MAX SPECTRUM	V-800 V-800 MAX	V-700 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	X	X	X
V-500 20	R-134	✓	X	X
V-500 MAX 10	R-404A	X	X	X
V-500 MAX 20	R-404A	✓	X	X
V-500 MAX 30	R-404A	X	✓	X
V-500 MAX 50	R-404A	✓	✓	X
V-500 MAX 10 Spectrum ¹	R-404A	X	X	✓
V-500 MAX 20 Spectrum ¹	R-404A	✓	X	✓
V-500 MAX 30 Spectrum ¹	R-404A	X	✓	✓
V-500 MAX 50 Spectrum ¹	R-404A	✓	✓	✓
V-600 MAX 10	R-404A	X	X	X
V-600 MAX20	R-404A	✓	X	X
V-600 MAX 30	R-404A	X	✓	X
V-600 MAX 50	R-404A	✓	✓	X
V-700 MAX 50 Spectrum ²	R-404A	✓	✓	✓
V-800 10	R-134a	X	X	X
V-800 20	R-134a	✓	X	X
V-800 MAX 10	R-404A	X	X	X
V-800 MAX 20	R-404A	✓	X	X
V-800 MAX 30	R-404A	X	✓	X
V-800 MAX 50	R-404A	✓	✓	X

- ✓ Included
- X Not included

(1) Available in the following configurations: ES300+ES300, ES300+ES150 and ES300+2xES150
 (2) Available in the following configurations: ES400+ES400, ES500+ES150 and ES500+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	-	21	10
V-500 MAX	42	25	29	19
V-500 MAX Spectrum	-	22	-	17
V-600 MAX	48	30	34	24
V-700 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-700 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	-20°C	0°C	-20°C	0°C	-20°C	
Air return/on the road	W	3665	1500	4925	2515	5910	1950	5175	-	7790	4160	
Electric standby 50 Hz	W	3305	1250	4390	2015	4970	2550	4920	-	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	m³/h	2160	2160	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	7.5	7.5	7.5	-	-						
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										

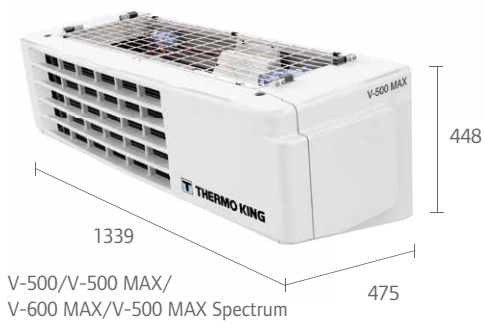
Specifications multi temperature

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		-20°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	m ³ /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	7.5					
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-700 MAX SPECTRUM							
REFRIGERATION CAPACITY: AT 30°C AMBIENT									
		ES400 MAX+ ES400 MAX		ES500MAX+ ES150 MAX		ES500 MAX+ 2x ES150 MAX			
Return air to evaporator	°C	-20°C		-20°C		-20°C			
Capacity on engine power	W	3705		3305		3305			
Capacity on electrical stand	W	3335		3080		3080			
REFRIGERATION CAPACITY: INDIVIDUAL COOLING CAPACITY									
		ES400 MAX		ES500 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	5055	2870	5570	2930	3700	2135	5190	2820
Capacity on electrical stand	W	4850	2695	5250	2775	3575	2030	4905	2720
HEATING CAPACITY									
On the road	W	4500							
Electric standby operation	W	4000							
AIRFLOW									
		ES400 MAX + ES400 MAX		ES500 MAX + ES150 MAX		ES500 MAX + 2XES150 MAX			
On high speed engine operation	m ³ /h	1290x2		2200+790		2200x(2x790)			
WEIGHT									
Condenser w/o electric standby	kg	100							
Condenser with electric standby	kg	160							
Evaporator ES500 MAX	kg	25.5							
Evaporator ES400 MAX	kg	20							
Evaporator 2 X ES150 MAX	kg	25							
Evaporator ES150 MAX	kg	12.5							
Reciprocating compressor	kg	15							
COMPRESSOR									
Model		TK-315							
Displacement	cc	226							
Number of cylinders		3							
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 - ES500+ES150: 5.0 - ES500+2XES150: 5.15							
GENERIC									
Refrigerant		R-404A							
Controller		DSR III							
DEFROST									
Defrost		Automatic hot gas defrost							

Dimensions (mm)



ES150 MAX Ultra Slim Evaporator



ES300 MAX Ultra Slim Evaporator



ES500 Ultra Slim Evaporator



ES600 MAX Evaporator

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V-700 MAX Spectrum/V-800/V-800 MAX



ES150 MAX Ultra Slim Evaporator



ES400 MAX Evaporator



ES500 MAX Ultra Slim Evaporator



ES800 Ultra Slim Evaporator



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.

Discover the V-100/200/300 Series

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.



V-100 Series



V-200 Series



V-300 Series





europe.thermoking.com



For further information please contact:



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