



Thermal System with Heat Pump

The first integrated heat pump system built specifically for medium-duty vehicles, combining heating and cooling in one efficient package.



Advanced Thermal Management

Powerful cooling and heating capacity allows precise temperature control for diverse fleet operations.



Flexible Configuration

Dual radiators enable efficient underhood packaging for front-end design flexibility.



Integrated Design

Simultaneous thermal management of the drive unit, batteries, and cabin simplify cooling system.



Service Optimized

Side-mounted thermal box allows for quick removal and servicing, minimizing vehicle downtime.



Thermal System Features and Specifications

Features

Heat Pump Capability	High coefficient of performance heating improves vehicle range
Electric Resistive Heaters	High heating power for extra low-temperature performance
Side-Mounted Thermal Box	Provides ease of serviceability and efficient packaging
6-way Coolant Valve	Allows coolant mode switching to efficiently balance thermal loads
Dual Radiators	Enables efficient underhood packaging for front-end design flexibility
Coolant Shut-Off Valves and Quick Connects	Improves accessibility for servicing components
Liquid-Cooled Components	Battery, Power Electronics, Drive Unit
Multiple Cooling Circuits	High, Medium, and Low-temperature cooling loops
Coolant	50/50 Water-Ethylene Glycol
Refrigerant	R134a
Refrigerant Mass	3.9 lbs

Performance

Battery Cooling Capacity	10 kW
Battery Heating Capacity	8 kW
Cabin Cooling Capacity	7 kW
Cabin Heating Capacity	8 kW
Maximum Radiator Cooling Capacity	30 kW

Safety & Environmental

Operating Temperature Range	-30°C to 55°C / -22°F to 131°F
Corrosion Resistance	Tested in accordance with ASTM B117
Refrigerant Permeability	Meets SAE J2727
Thermal Electronic Equipment	Meets ISO 16750

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