

Specifications

THERMO KING ATHENIA™ R-744 HEAT PUMP SPECIFICATION

Listed Cooling Capacity ¹	kW	29.9
Rated Cooling Capacity ²	kW	28.9
Heating Capacity ³		
@-10°C	kW	23
@-15°C	kW	18.5
@-20°C	kW	17
@-25°C	kW	15.5
Operating Voltage	VDC	450 to 750
Evaporator Air. Capacity	m ³ /h	7080
Fresh Air	%	0-100
Weight	kg	385
Dimensions L x W x H	mm	3000 x 1876 x 368
Operational Range	°C	-25 to +50
Refrigerant	Weight kg	R744 (6.5 kg Factory Charged)
Options		
Water Cooling (Driver's Compartment + Battery Cooling) ⁴	kW	12.4
Water Heating (Driver's Compartment + Floor Heating) ⁴	kW	22
Waste Heat Utilization [kW] ⁴	kW	12
Accessories		
Heating Coil Kit ⁵		Option
CO ₂ Sensor Kit		Option
Inverter Kit		Option

NOTE: All Data points mentioned for "Athenia R744 HP unit" are measured values.

1. Measured at conditions 40°C / 40°C / 95 % @ 70 Hz

2. Measured at conditions 35°C / 27°C / 19°C

3. Measured with inclusion of de-icing cycle/s.

4. Capacity dependent on application and equipment layout.

5. Heating capacity of up to 47 kW measured at conditions

-20°C / 80°C / 16.7 l/min



ATHENIA™ R-744 HEAT PUMP

— environmentally friendly solution —



RELIABLE AND DURABLE SOLUTIONS
FOR ELECTRIC AND HYBRID BUSES



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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.

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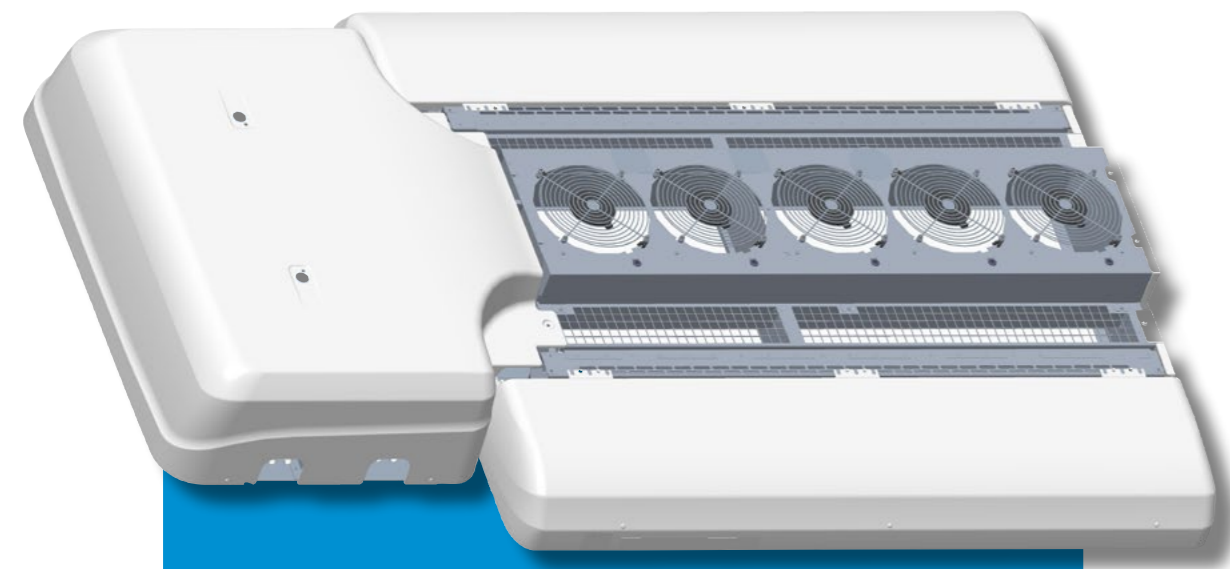
Heat Pump with R-744 Refrigerant for longer driving range

RELIABLE AND DURABLE SOLUTION FOR ELECTRIC CITY BUSES

R-744 – often just named CO₂ – is a long-lasting, natural, and reliable refrigerant that is kinder to the planet than its CFC- and HFC-containing predecessors. It is, in fact, the most environmentally friendly refrigerant available, with a Global Warming Potential (GWP) score of just 1.

When used in a Thermo King Bus HVAC unit, it delivers comfort while also looking after the driveline batteries, allowing buses to drive longer. This is thanks to patented controls, algorithms, the variable speed compressor and optimal power consumption.

Available and compatible with all electric and hybrid bus rooftops, the Thermo King “All-In-One” solution works hard in extreme conditions (-25°C to +50°C) to keep driver, staff and passengers at just the right comfort levels, including heating, cooling and fresh-air control. Simultaneously, the unit also protects the drive-line batteries by providing hot and cold water for thermal management during charging and discharging. The solution provides “Waste Heat Utilization” to optimize energy usage and ensure comfort.



ALL-IN-ONE:

- Refrigerant-to-air for passengers (full CO₂ circuit)
- Water cooling: refrigerant-to-water (for front box and batteries)
- Water heating: refrigerant-to-water (for front box, floor heating and batteries)
- Waste heat utilization



R-744 Refrigerant

R-744 IS A CO₂ REFRIGERANT WITH OUTSTANDING COOLING AND HEATING CAPACITY THAT DOESN'T CONTRIBUTE TO GLOBAL WARMING.

LONGER RIDES

- R-744 in Thermo King Bus HVAC units means better performance and longer distances before the electric bus needs a recharge
- Variable speed compressor, excellent controls, component selection and design

RELIABLE AND DURABLE

- Compressor designed for mobile HVAC applications and environment
- Manufacturing and installation with strong focus on process control, quality and reliability

MOST ENVIRONMENTALLY FRIENDLY REFRIGERANT

- CO₂ contributes less to climate change than HFCs and CFCs
- CO₂ is a non-toxic and non-flammable alternative to HFCs and CFCs
- R-744 refrigerant has a Global Warming Potential of just 1

ALL-IN-ONE HEATING AND COOLING

- One unit, several jobs to be done
- Outstanding heating and cooling capacity for driver and passengers
- Simultaneous heating and cooling operation i.e.: heat passenger's compartment and cool batteries.
- Utilize waste heat from other accessories on the bus

WIDEST OPERATING RANGE

- CO₂ refrigerants outperform HFCs and CFC refrigerants in extreme temperatures in Thermo King Bus HVAC units
- R-744 in Thermo King Bus HVAC units operate in both high temperatures (up to +50°C) and low temperatures (down to -25°C)



OPTIONS AND ACCESSORIES – TOTAL SOLUTIONS BY THERMO KING

- Inverter kit
- CO₂ sensor to manage and control fresh air exchange
- Water heating coil in rooftop unit
- Floor heating convectors
- Front box (modular and customized)
- Auxiliary heaters and control box
- Modular controller expandable to 3 temperature zones