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Thermo King Launches Innovative Heat Pump Technology for Electric and Hybrid Buses

The new Athenia™ MkII heat pump series offers maximum passenger comfort and the most efficient heating and cooling performance using reversible refrigeration circuit.

Kortrijk, Belgium, Oct. 16, 2014 – [Thermo King](#), a manufacturer of transport temperature control solutions for a variety of mobile applications and a brand of [Ingersoll Rand](#), introduces the first-on-the-market air-to-air reversible electric heat pump units for hybrid and electric buses.

The new Athenia™ MkII Electric Heat Pump range offers the most efficient way of heating and cooling performances in hybrid and electric buses thanks to its reversible refrigeration circuit. It offers maximum passenger comfort not only during the summer months when cooling is required but also during the winter months when heating is needed.

“In times of rapidly expanding cities and increasing traffic congestion, the need for more sustainable passenger mobility technology is growing. Heat pumps are one of the most promising technologies to reduce greenhouse gas emissions, and still guarantee full climate comfort for passengers,” said Gulsah Metinoz, portfolio manager for Bus and Marine at Thermo King. “With this unique range of heat pump units Thermo King strengthens its lead in the innovation race. This complements our capability of providing customers with customized solutions that meet their business needs, keeping up with industry trends and addressing regulatory requirements.”

In heating mode, the Athenia MkII Electric Heat Pump is able to transfer heat from outside air into the inside passenger area with a coefficient of performance level (COP) of up to 4. This means that for each 1kW of electricity consumed from batteries the heat pump generates up to 4kW of heating. When in cooling mode the unit operates just as Athenia MkII Electric air-conditioning unit.

The heat pump unit’s battery cooling circuit works independently from the passenger compartment cooling and heating mode. It helps to effectively recycle the heating energy generated by batteries during bus operation and reduces energy consumption of the unit when heating mode is required for passengers.

For lowering total power consumption, the Athenia MkII Electric Heat Pump unit uses an electric variable speed compressor with a heating and cooling capacity modulation range of up to 60 percent. Moreover, the unit operates independently from the engine revolutions per minute (rpm).

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Coupled with this innovation for highest passenger comfort, the Thermo King CANAIRE® control system can manage up to three temperature zones with precise temperature control for single, articulated and double-articulated buses. The unit can be equipped with a built-in CO2 sensor that monitors air quality and efficiently provides fresh air intake into the bus.

The CANAIRE control system features an ergonomically designed LCD driver panel, which allows for the control of A/C roof unit in parallel with a front box unit placed in the driver's area. Via service and diagnostic software tools the control system features can be changed in alignment with operating conditions and customer needs.

The new Thermo King Athenia MkII Electric Heat Pump units are compatible with bus roofs with a radius ranging from 7,5m to flat. To drive down installation costs further and facilitate installation, the electrical compressor has been integrated in the roof unit. An optionally built-in heat exchanger for battery cooling helps to maintain ideal battery operating temperature for hybrid and electric buses and thus, extends battery life and guarantees maximum power capacity.

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Ingersoll Rand (NYSE:IR) advances the quality of life by creating comfortable, sustainable and efficient environments. Our people and our family of brands—including [Club Car®](#), [Ingersoll Rand®](#), [Thermo King®](#) and [Trane®](#)—work together to enhance the quality and comfort of air in homes and buildings; transport and protect food and perishables; and increase industrial productivity and efficiency. We are a \$13 billion global business committed to a world of sustainable progress and enduring results. Thermo King Corp. was founded in 1938 and manufactures transport temperature control systems for a variety of mobile applications, including trailers, truck bodies, buses, shipboard containers and railway cars. For more information, visit www.ingersollrand.com or www.thermoking.com.

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