

Busworld 2023: Webasto Bundles Electric Heating and Air-Conditioning Technology for Thermal Management in Electric Buses

Under the motto “We electrify your bus together,” the electromobility systems partner is exhibiting an intelligent combination of individual electrical components to create a scalable thermal management system.

Gilching, September 27, 2023 – Whether in electric minibuses or city buses – Webasto’s High-Voltage Heaters (HVH) convert electrical energy into heat at an efficiency close to 100 percent. At the Busworld Europe exhibition in Brussels from October 7 to 12 (Hall 7, Booth 7113) the company is exhibiting the latest members of its HVH family that deliver 10 and 12 kilowatts (kW) of heat output respectively. These are the second generation models of the world’s first 800-volt heater to enter series production. Together with the new CoolTop 80-e (CT 80-e) electric rooftop air-conditioner, the heating and cooling units form the basis for feel-good temperatures all year round – from the driver’s cab to the passenger cabin. In conjunction with the intelligent Cronus Smart control unit, Webasto also combines various components from its heating and air-conditioning technology portfolio to create the centrally controllable electric Thermal Management (eTM) system, which keeps both the traction batteries and the passenger cabin at the ideal operating temperature.

Pioneering electric heating

The new models allow Webasto to offer efficient electric heating solutions for all conceivable application scenarios. The HVH 100 Compact and the HVH 100 Compact + each offer a heat output of 10 kilowatts. With a height of just 7 centimeters, they are smaller than a DIN A4 sheet of paper and designed to operate at a voltage range of between 250 and 880 volts. Communication takes place via LIN bus, which facilitates the heater’s technical integration into the vehicle.

The HVH 100 Compact + models with a heat output of 10 kilowatts and the HVH 120 with an output of 12 kilowatts are also compatible with the CAN-protocol. Their compact housing and flexible connectivity options offer manufacturers many options for easily integrating the units into their vehicles. Thanks to precise and virtually stepless control of the maximum output and target temperature, the High-Voltage Heaters always operate at maximum efficiency.

A special heating layer bonded onto the heat exchanger means that they not only deliver heat at the touch of a button, but can also be safely discharged in a fraction of a second by actively discharging the intermediate circuit capacitors. Webasto’s High-Voltage Heaters are protected against cyber attacks in accordance with ISO 21434 while functional safety is ensured in accordance with ISO 26262. Webasto specifies a service life of at least 15,000 hours or 15 years for its electric heaters.

Electric air conditioning technology premiere

Webasto is exhibiting its first all-electric rooftop air conditioner for small buses: the CoolTop 80-e (CT 80-e) with a cooling capacity of 7.5 kilowatts. The air flow rate of the CT80-e is 2,100

cubic meters of air per hour and the unit optionally features a PEPA-F air filter that removes even the smallest particles from the air, including viruses. This compact powerhouse operates in the high-voltage range between 200 and 430 volts and is designed for temperatures from -20 to +45 degrees Celsius. Webasto uses the latest R1234yf coolant to ensure environmentally friendly operation.

Heating and air conditioning technology from a single source

Webasto's electric Thermal Management (eTM) system is a modular solution comprising electric heating and air conditioning technology that controls traction battery thermal management as well as ensuring a feel-good climate for passengers and drivers. For the first time, the company is combining a range of individual components to match the eTM to the heating requirements of the respective vehicle type. The system is based on a heat pump which, in combination with heat exchangers, High-Voltage Heaters, underfloor heating and electric rooftop air conditioners, ensures pleasant temperatures in all areas of the vehicle. Peak energy efficiency values are achieved thanks to the high efficiency of the air-conditioning technology employed and intelligent heat recovery from the electric motor. E-vehicles featuring electric thermal management achieve up to 40 percent greater range because the traction batteries are maintained at a uniform temperature in summer and winter alike. The flexible design options offered by the scalable system, combined with its simple implementation, also assure manufacturers of rapid vehicle integration.

Greater electric range with Range Plus

Another highlight of Webasto's appearance at the exhibition is Range Plus. For electric minibuses and vans, the retrofittable air heater – along with its associated tank – forms a separate heating circuit in the vehicle which relieves the load on the traction batteries in winter. Range Plus is compatible with the sustainable HVO fuel and the system delivers an increase in the overall range of e-minibuses by up to 80 kilometers in the cold season.

“At Busworld 2023, Webasto is underlining its corporate identity as a systems partner for e-mobility. Our Standard Battery System is already powering a large number of electric special-purpose vehicles. It is only logical for us to add fully comprehensive thermal management solutions to our portfolio. This will allow us to increase both vehicle performance and on-board comfort,” comments Heike Niehues, Executive Vice President Webasto Customized Solutions. “On the one hand, our customers benefit from optimally matched components and corresponding expertise in the field of electrification, while on the other, we provide a broad range of services to closely support customers' electrification projects right from the outset.”

About Webasto:

As a global innovative systems partner to the mobility industry, Webasto is one of the 100 largest suppliers to the automotive sector worldwide. In development, manufacturing and sales, the company focuses on roof systems on the one hand and on vehicle electrification on the other hand. The product range includes, openable and fixed panoramic roofs, electric high-voltage heaters and batteries, as well as thermo management solutions. Among the customers of Webasto are manufacturers of passenger cars, commercial vehicles, and boats, as well as dealers and end customers. In 2022, the Group generated sales of over 4 billion euros and employed about 16,800 people at more than 50 locations. The

headquarters of the company, which was founded in 1901, is located in Stockdorf near Munich (Germany).
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