

May 3, 2024

## Rheinmetall has secured more new orders for its innovative heat pump solution for use in electric buses and off-road vehicles – with a total order value in the double-digit million euro range

The technology group Rheinmetall is expanding its electromobility business into new areas of application as planned with two new independent orders for its innovative plug-and-play heat pump solution. The first new order is a major contract in the high single-digit million euro range from an international expert in electric bus conversions, while the second order is from a German expert in off-road electric vehicles and is also worth a single-digit million euro range.

These two new orders mark the next milestone in the Group's marketing and positioning strategy following the market launch of the heat pump module, which was specifically designed for the electrification of drive systems in commercial vehicles, construction machinery, and boats. The intelligent cooling and heating management of the heat pump pre-filled with R1234yf not only increases the range of vehicles and battery service life but also makes driving more comfortable. The heat pumps are already being delivered to the customers, and this still has a term of five years for the first order and seven years for the second.

The first customer is starting the process of converting conventional buses to a modern electric drive by conducting a comprehensive evaluation of the base vehicle and analyzing the operator's operating cycles. This acts as the foundation for modeling a conceptual powertrain and validating it through simulation. After removing the diesel unit and all associated systems, the existing drive compartment is fully scanned for CAD and digitized to develop an electrical e-drive platform tailored to the engine compartment.



The second new customer has designed a stand-alone off-road electric vehicle and is now launching series production. With a background in off-road motorsports, including participation in the Dakar Rally, the developers have designed a robust vehicle for the mining industry with a modular design that makes it suitable for a wide range of applications worldwide, including in developing countries. The customer's basic design for the vehicle has been developed with sustainable production and a circular life cycle in mind, with a clear focus on the recyclability and degradability of the materials used. The heat pump ensures optimized temperature control of a



### ► Key facts

- ▷ Rheinmetall secures more new orders for innovative plug-and-play heat pump solution
- ▷ Clients include a retrofitter of electric buses and an expert in off-road electric vehicles
- ▷ The total order value is in the the double-digit million euro range
- ▷ Other milestones following the market launch of the innovative thermal module
- ▷ Complete system can be flexibly integrated into new and existing vehicle platforms

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72.5 kWh lithium iron phosphate (LFP) battery inside the vehicle. The system voltage is designed for up to 450 V (HV2) and can be increased to 850 V (HV3) if required by the customer. The maximum cooling capacity used is designed for 8 kW.

The number of individual components and connections required for the coolant and refrigerant circuit is rising sharply due to the ever-increasing demands on the complex thermal management of modern electric vehicles, regardless of the respective application. This is where Rheinmetall's new energy recovery system is helping to save important installation space thanks to its compact design as a complete system. The system solution is designed for 400- and 800-volt applications and delivers up to 8 kW nominal cooling capacity and up to 11 kW heating power.

As an active element in thermal management, the innovative and compact heat pump ensures precise conditioning of the battery and electric engine and also provides air conditioning for the interior. A connected coolant circuit is used for cooling or heating. Rheinmetall's optimized thermal management system is making great strides towards economical, efficient, and comfortable electromobility, especially due to its precise and intelligent heat regulation system using water glycol. The system can also considerably increase the service life of components and the range of vehicles.

These new orders signify further success for Rheinmetall in the future market of electromobility with its high growth potential. As these orders demonstrate, this complete system can be integrated into both new and existing vehicle platforms and is also suitable for individual customer-specific applications. More information about the product: [www.rheinmetall.com/energyrecoveryystems](http://www.rheinmetall.com/energyrecoveryystems)