

► POWER SYSTEMS

New at the Eurosatory 2024

17 June 2024

Rheinmetall Chiller – the HVAC System for tactical vehicles

Operations in the extended range of tasks as well as in the context of national and alliance defence take place in various climate zones. Therefore, High-performance air-condition systems in combat vehicles can contribute to maintaining combat effectiveness. Rheinmetall's Power Systems division (BA INVENT) has decades of experience in truck, bus and rail air-conditioning. At the Eurosatory 2024, it is presenting the chiller/HVAC system, a demonstrator of a system that is suitable for both, civilian and military applications. The components used have been validated in vehicles for civilian applications by public transport companies in the EMEA region.

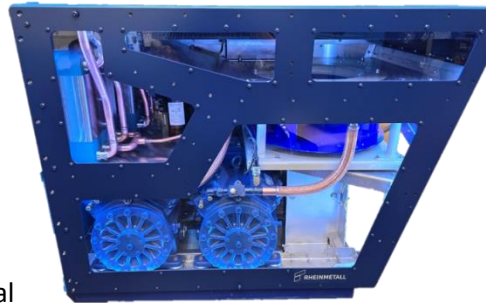
The robust and highly efficient chiller/HVAC system is housed in a special aluminium casing and features an extreme power density. The system has been tested for a maximum ambient temperature of up to 60°C and has a cooling capacity of up to 35 kW.

Thanks to the modular black box design, the chiller/HVAC system can be adapted to a wide range of applications. All refrigerant connections, with the exception of the connections to the service parts, are soldered to minimise the risk of a leakage. Two independent refrigerant circuits provide redundancy in the event of failure of one of the circuits.

The chiller/HVAC system is characterised by a low-noise, special fan design and can be used at variable speeds from 15 to 60 Hz. It has a low-speed reciprocating compressor with high volumetric efficiency, minimised vibrations and low noise emissions.

The compressor is equipped with an oil-sump, an oil-sump heater and an oil-pump. This enables oil return even under extreme conditions with an inclination of up to 60%. A specially developed fan ensures wading ability. In addition to R134a, the system may be adapted for alternative refrigerants like R290 and R1234yf. A yet to be developed CO₂ -solution would also be possible.

The chiller/HVAC system is quick and easy to maintain, and can quickly be replaced in the vehicle. This ensures high availability and a long life-cycle.



► Key facts

- Efficient and robust thermal module for civil and military applications
- Tested for ambient temperatures of up to 60°C
- Two independent refrigerant circuits
- Low-noise fan design

► Contacts

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