

Media Information

Voith Group

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Future Inverter Platform: greater efficiency for electric drives

- Lighter and more compact inverter with high power density
- Complies with latest requirements for cybersecurity in the automotive segment
- Readily adaptable to different applications

HEIDENHEIM, GERMANY. Voith announces another important development – the Future Inverter Platform (FIP) – for the VEDS drive system. The new inverter has been specifically designed to meet the requirements in the commercial vehicle segment and will be integrated into future generations of the VEDS, Voith's innovative electric drive concept for commercial vehicles that has proven highly effective in numerous applications in the bus segment since its introduction in 2021. The FIP technology will go into series production without integrated DMU in 2024 and with integrated DMU in 2025.

As well as the inverter, the new FIP will also incorporate the previously separate drive management unit (DMU) and will therefore offer a much higher power density than the inverter used previously. Within the VEDS, the FIP functions as part of the electrical drive system, but it is also a system in its own right consisting of inverter and control unit. With these changes, Voith addresses OEM demand in the passenger car segment for drive systems with a higher level of integration.

Thanks to the integration of the control unit into the inverter housing, the FIP also reduces the design complexity of the entire electrical drive system. "This integration is the result of Voith's consistent track record of comprehensive system expertise. Users of the VEDS can therefore rest assured that we are delivering a complete system package where all components are precisely matched to one another and work together effectively," explains Manuel Calero, Vice President E-Mobility at Voith.

The reduction of complexity benefits OEMs, because the more integrated the vehicle software controls, the simpler the vehicle design and manufacturing process. For this reason, Voith has designed the FIP to integrate with many different electric drive system components. Furthermore, despite the higher power density, the FIP is very compact and light, weighing in at just 25 kg compared to its 54 kg predecessor.

Another important factor is that because the FIP functions as both an inverter and control unit, it could be a potential target for hackers. From the very outset, Voith's development team focused on ensuring compliance with global cybersecurity standards, making Voith a pioneer for the sector. Beginning in mid-2024, international security standards for cybersecurity, as established by the United Nations Economic Commission for Europe (UNR 155 and UNR 156), will be enforced for the automotive industry. Road vehicles then must meet the ISO standards 26262 and 21434 for functional safety and cybersecurity engineering. Every new vehicle platform will therefore need to be validated accordingly before it is approved.

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As corresponding standards have already been implemented for some time now in the passenger car segment, Voith's team decided to use the latest automotive-grade microcontrollers for the integrated circuits in its new inverter platform. These ensure that the necessary cybersecurity software can be readily implemented on the FIP. Incidentally, the cybersecurity controls integrated into the FIP not just ward off attacks by hostile parties, but the drives will also be unable to make any changes that breach the regulations on functional safety.

Trade visitors to the Busworld Europe trade fair in Brussels to be held October 7-12, 2023, can find out in person about the features and benefits of the FIP at the Voith Booth (No. 520 in Hall 5).

About the Voith Group

The Voith Group is a global technology company. With its broad portfolio of systems, products, services and digital applications, Voith sets standards in the markets of energy, paper, raw materials and transport & automotive. Founded in 1867, Voith today has around 21,000 employees and earns 4.9 billion euros in sales. It has locations in more than 60 countries and is one of Europe's major family-owned companies.

Voith Turbo, a Group Division of Voith, is a specialist for intelligent drive technology, systems and customized services. Voith offers the highest level of efficiency and reliability with its innovative and smart products. Customers from highly diverse industries such as oil and gas, energy,

mining and mechanical engineering, ship technology, rail and commercial vehicles rely on the advanced technologies and digital applications of Voith.



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The Future Inverter Platform (FIP) has been specifically designed to meet the special requirements in the commercial vehicle segment and will be integrated into future generations of the VEDS.

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