



International VDI Conference Electrified Off-Highway Machines

September, 17-18, 2024, Munich, Germany

- Hydrogen and Safety Innovations
- Electrification and Thermal Management
- Advanced Engineering and High-Power Interfaces
- Fully Electric and Modular System

+ **Interactive World Café Session**

+ **Parallel Conference „Connected Off-Highway Machines“**

Meet international Experts from:



An event organized by VDI Wissensforum GmbH
www.vdiconference.com/ 01K0934024



09:00 Registration & Welcome Coffee

10:00 Chair's Welcome and Opening Address

Alex Woodrow, Managing Director, Knibb Gormezano and Partners, UK

I. Hydrogen and Safety Innovations

10:15 Safety Concept Development for Hydrogen Tank Systems for Off-Highway Machines

- Hydrogen is a particularly promising alternative for commercial vehicles and work machines that are not suitable as battery-powered vehicles
- Development process for safety concepts for hydrogen-based gas tank systems (up to 700 bar) with the target to design the system under three major aspects: safe storage, controlled release and support of the refueling process for hydrogen
- Typical safety goals for hydrogen tank systems in the mobile sector
- Constructive (product safety), technical-functional (functional safety), and organizational realization

Dipl.-Ing. Alexander Straub, Software-Development Engineer, ITK Engineering GmbH, Germany

10:45 Research Tractor Fendt Helios - Results from the Field Tests

- H2Agrar in lower saxony
- Tractor design
- Results from the field tests
- Discussion

Dipl.-Ing. (FH) Wolfgang Breu, Team Lead R&AE Zero Emission, AGCO GmbH Marktoberdorf, Germany

11:15 tba

Alex Woodrow, Managing Director, Knibb Gormezano and Partners, UK

11:45  Networking & Coffee Break

II. Electrification and Thermal Management

12:15 Fast Charging with Building Site Electricity?

- Challenges of charging for off highway machines
- Solutions
- Examples

Michael P. Schmitt, CEO, Egility, Germany

12:45 Smart Electrification with Standardized Batteries and Thermal Management Solutions

- Challenges in the electrification of off-highway machinery
- Overview of Webasto electrified product portfolio
- Customer cases - best practices

Stephan Dietrich, Product & Service Management Battery & eTM, Webasto, Germany

13:15  Lunch

14:45 Efficient and Customized Thermal Management Strategies for Battery-Electric, Hybrid and Fuel Cell Machineries

- Key challenges within thermal management of electric & fuel-cell machines
- Current stage of technology
- Simplified battery thermal management
- Modularized and standardized product approach to meet individual demands and requirements
- Technology outlook with natural refrigerants

Josef Graubmann, Managing Director, Ymer, Germany

III. Advanced Engineering and High-Power Interfaces

15:15 Connecting Multiple HV-Networks with Electrical High-Power Interfaces/ Challenges, Solutions & Best Practice

- Electrical safety
- Functional safety
- Operation modes

Florian Asenkerschbaumer, Manager System Development, Dintec GmbH, Germany

15:45 New Electric Axle Drives and 800 V Battery Systems in Battery Electric Applications

- Overview of 800 V electrification systems and analysis
- Trends in current battery storage technologies and power semiconductors
- Application example of vehicle architectures in the off-highway sector

Dipl.-Ing. Hartmut Schneeweiss, Senior Manager Technology & Innovation, eAx solutions GmbH, Berlin, Germany

16:15  Networking & Coffee Break

16:45 Interactive World Café Session

Join us for interactive round table discussions with industry experts. Share and address challenges within your sector, identify problems and needs, and explore solutions. Bring your own experiences and cases to the table. Don't miss out on this chance to connect with your industry colleagues.

17:30 End of conference day one

18:00  Get-together

At the end of the first conference day, we kindly invite you to use the relaxed and informal atmosphere for in-depth conversations with other participants and speakers.

09:25 Chair's Welcome and Opening Address**IV. Fully Electric and Modular System****9:30 Holistically Electric: The EC230 - 23t Crawler Excavator**

- The challenge of sustainable transformation
 - 23t in full battery operation - technology & performance
 - Best practice
 - Holistically electric: charging infrastructure, service, know-how, consulting
- Julia Häser**, Head of Marketing & Product Management, **Christian Paffen**, Chief of Sales, Swecon Baumaschinen GmbH, Siek, Germany

10:00 Development of a Modular Electric Drive System for Off-Highway Applications

- Learn about Deutz AG's advanced 360-volt electric drive system and its applications, including airfield tractors and electric cranes, offering turnkey solutions for various industries
- Development process of E-DEUTZ's electric drive system, ensuring functional safety and meeting diverse customer requirements through cutting-edge technology and engineering practices

Timm Martens M.Sc., Electrification & Green Technologies System Engineering and **Florian Huthmacher**, Development Engineer, Deutz AG, Cologne, Germany

10:30 From Less to Zero: ZF's modular system approach to decarbonize and electrify off-highway machinery

- On the road to Vision Zero
- Modular electric central drive system for off-highway applications
- All-electric and sustainable drive system eTRAC eCD60 for compact vehicles

David Stockbauer-Muhr, Head of Electric Systems Development for Off Highway Applications, ZF Friedrichshafen AG, Germany

11:00 ☕ Networking & Coffee Break

11:45 Application Potential and Limits of Alternative Drive Technologies for Mobile Machinery

- Wide range of power and energy requirements leads to various drive system designs for construction machinery
- Segmentation of the market (battery, hydrogen fuel cell, hydrogen combustion engine, e-fuels) is a cost driver by reducing the number of units
- Energy and power supply for construction sites (electrical power and hydrogen) still needs to be resolved
- Decarbonisation of construction machinery is possible but expensive, requires significant investment incentives

Prof. Dr.-Ing. Frank Will, Chair of Construction Machinery, TU Dresden, Germany

12:15 Recap World Café Session

We will be reviewing the results and key takeaways gained from the diverse perspectives shared by our participants. This is an opportunity to reflect on the ideas and solutions generated during the World Café and to gain a deeper understanding of the challenges and opportunities facing our industry.

12:45 🍴 Lunch

14:15 Virtual Engineering Workflow of an Electric-Hybrid Wheel Loader

- Virtual engineering starting from powertrain presizing to detailed design and integration
- Mean value engine modeling combined with reduced order modeling (ROM) techniques
- Operator-in-the-loop validation ensures that the hybrid wheel loader meets operational requirements and operator expectations

Romain Nicolas, Business developer for Simcenter Amesim, Siemens Digital Industries Software, France

14:45 Closing Remarks

15:00 End of conference

About us



The Association of German Engineers (VDI) is one of the largest technical-scientific associations in Europe. Throughout the years, the VDI has successfully expanded its activities nationally and internationally to foster and impart knowledge about technology-related issues. As a financially independent, politically unaffiliated and non-profit organization the VDI is recognized as the key representative of engineers both within the profession and in public.

Exhibitors

Arcure SA
IPG Automotive GmbH

International VDI Conference

Connected Off-Highway Machines

From Smart Sensors to Smart Systems

Date and venue:

September 17-18, 2024
Munich, Germany

Renowned speakers will present their results on the following topics:

- Digital Innovation & Connectivity in Off-Highway
- Autonomous Systems & Mobile Machines
- Software Integration & Extended Reality
- Data Management & Regulations

<https://www.vdiconference.com/01K0902>

Reasons to attend

Gain valuable insights into the latest trends, challenges, and innovations within the Off-Highway industry.

Connect with industry experts, professionals, and potential collaborators

Stay updated on emerging technologies and their impact on the Off-Highway Industry.

Explore the latest products, tools, and solutions designed specifically for Electrified Off-Highway Machines

Engage with internationally renowned Off-Highway specialists during interactive sessions, breaks and at the evening reception



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Conference venue
Holiday Inn Munich - Westpark
Albert-Rosshaupter-Strasse 45
81369 Munich, Germany
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Das Hotelportal

You will find more hotels
close to the venue at
www.vdi-wissensforum.de/hrs

Hotel room reservation:

A limited number of rooms has been reserved for the benefit of the conference participants at the Holiday Inn Munich - Westpark. Please refer to "VDI Conference". For more hotels: www.vdi-wissensforum.de/hrs

VDI Wissensforum service package:

The conference package includes the conference documents (online), beverages during breaks, lunch and the get-together on September 17, 2024.

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Registration

International VDI Conference

Electrified Off-Highway Machines



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