

VDI



+ Simultaneous translation:
German - English



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9th International VDI Conference

Drivetrain Solutions for Commercial Vehicles

Key topics discussed:

- OEM strategies on the path to zero emission
- Challenges in infrastructure and charging of electric trucks
- Innovations in powertrain development: New concepts like BEV, FCEV & hybrid solutions
- Artificial Intelligence & fast digital twin – New methods for increasing efficiency and optimizing costs
- PTO & ePTO solutions for increased performance and energy efficiency
- E-axle solutions for an optimized range and reduced CO₂ emissions
- Field reports on innovative drive systems



Conference chairman

Dipl.-Ing. Thomas Landsherr, Vice President, Engineering Driveline, MAN Truck & Bus SE, Munich, Germany

+ Free entrance to the parallel event
Dritev 2025

+ Empowering ideas through intensive dialogue:
Speakers Corner & Posterexhibition

+ Networking at the joint evening event

+ Exhibition

With experts from:



DAIMLER
TRUCK



SCHAEFFLER

TRATON



VOLVO



An event organized by VDI Wissensforum GmbH
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July 9th – 10th, 2025
Kongresshaus Baden-Baden, Germany

1st Conference day
Wednesday, July 9th, 2025

08:00 Registration

09:10 Joint welcome of the congress and conference

Dipl.-Ing. Thomas Pfund, President Business Unit E-Motors, Schaeffler Automotive Buehl GmbH & Co. KG, Buehl, Germany

Plenary speeches

Moderation: Dipl.-Ing. Thomas Pfund, Schaeffler Automotive Buehl GmbH & Co. KG, Germany

09:20 Insights into MMA – Mercedes Modular Architecture for BEV and HEV

- MMA – Mercedes Modular Architecture as the upcoming vehicle architecture from Mercedes-Benz with two innovative power-trains: Highly efficient electric drive and an economical hybrid
- Electric drive unit (EDU 2.0) is the first of a new generation of electric drive units from Mercedes-Benz
- 48V hybrid drive system with the new electrified eight-speed dual-clutch transmission 8F-eDCT

Dipl.-Inf. Daniel Hopp, Senior Manager Electric Powertrain eATS 2.x, Mercedes-Benz AG, Stuttgart, Germany

09:45 Vision motorsport

- General opinion of ADAC on the topic of drive technology and electrification
 - Motorsport as a development platform for production technology
- Thomas Voss**, Managing Director, GTM GmbH, Motorsport Director, ADAC e. V., Munich, Germany

10:10 TRATON – On the road to zero emission transport

- Traton's focus on BEV and why hydrogen is seen as a complementary technology
- Modularity and flexibility for a global truck portfolio: Technical designs and future development directions in battery technology
- Boundary conditions for a sustainable transformation: Megawatt charging and infrastructure requirements

Dipl.-Phys. Ulrich Zimmer, Senior Vice President TRATON GROUP R&D Battery & Charging, Nuremberg, Germany

10:35 Volvo Group's roadmap to sustainable transport

- Key insights from Volvo Group as the market leader in electromobility for commercial vehicles
- BEV trucks – today's challenges in global markets: Infrastructure, product cost, portfolio complexity
- Technology enablers and outlook for BEV trucks: Energy storage, charging, electric drive

Dipl.-Ing. Heimo Schreier, Director Electromobility Product & Range Management, Volvo Group Technology, Gothenburg, Sweden

Plenary discussion

11:00 Dialogue with keynote speaker

Moderation: Dipl.-Ing. Thomas Pfund, President Business Unit E-Motors, Schaeffler Automotive Buehl GmbH & Co. KG, Buehl, Germany

11:20 Be interactive – Meet & greet in the exhibition area and car presentation

11:55 Opening of 9th International VDI Conference

Drivetrain Solutions for Commercial Vehicles

Dipl.-Ing. Thomas Landsherr, Vice President, Engineering Driveline, MAN Truck & Bus SE, München (Conference Chariman), Germany
Caroline Körber, Productmanagement, VDI Wissensforum GmbH, Duesseldorf, Germany



Challenges in electrification of heavy-duty transport

Moderation: Dipl.-Ing. Thomas Landsherr, MAN Truck & Bus SE, Germany

12:00 Electrification of Heavy-Duty transport: Challenges for power infrastructure

- Timely decisions required: Uncertainties, regulations, demand forecasts
- Long planning and approval processes in the high-voltage sector: Authorities, skilled workers, investments
- Challenges in grid connections and space availability: Connection times, limited space, prioritizations

Dipl.-Volksw. Eric Ahlers, Head of Strategy & Committees, Netze BW GmbH, Stuttgart, Germany

12:30 Pioneering megawatt-charging and bidirectional energy transfer for battery electric trucks

- Megawatt charging is key for battery electric long-haul trucks in order to increase daily range
- Bidirectional charging offers promising potential for both fleet and grid operators: Cost optimization, peak shaving and grid services
- The NEFTON predevelopment project holistically explores technical solutions and use cases: Vehicle, charging station and infrastructure integration
- 1 MW charging power and bi-directional charging are demonstrated in a vehicle and over 3 MW investigated at the test bench

Dr.-Ing. Fabian Schweizer, Project Manager Predevelopment Truck – Zero Emission Vehicles, Predevelopment Steering & Projects, MAN Truck & Bus SE, Munich, Germany; **Benjamin Langer, B. Eng.**, Head of Product Line E-Drive and Innovation, AVL Software and Functions GmbH, Regensburg, Germany

13:05 Time for Business Lunch – Meet & greet in the exhibition area and car presentation



Optimization of the electric drivetrain

Moderation: Dr.-Ing. Rolf Doebereiner, Product Line Manager, Product Line Vehicle, Electrification & ADAS/AD, Truck & Bus, AVL List GmbH, Graz, Austria

14:30 Innovative system functions for electrified MD/HD powertrains

- Efficiency increasing operation strategy for multi EM topologies
- Vehicle mass estimation for optimized recuperation and interaction with braking system
- Recuperation up to standstill for improved efficiency and drivability

Dr.-Ing., Dipl.-Phys. Michael Guyenet, Senior Manager, System Development BEV Powertrain and Energy Management, Dipl.-Ing. Michael Lehner, Senior Manager, Engineering System Integration, Igor de Sousa Ribeiro, System Engineer, System Development BEV Powertrain and Energy Management, Robert Bosch GmbH, Schwieberdingen, Germany

15:00 Next generation CV-E-powertrain concept for flexible vehicle installation in heavy duty applications

- Requirements and development goals: Flexible vehicle installation, Usability in vehicle applications from 18t to 40t+
- Relevant aspects of future voltage levels for electric vehicles: 800V vs. 1500V; charging times, battery connection
- System characteristics and overall design of IAV's modular electric drive concept: Performance data, phase change cooling potentials (PCC)

Dipl.-Ing. René Kockisch, Team Manager eTransmission, Dipl.-Ing. Rico Resch, Project Manager, Dipl.-Ing. Volker Helbig, Systems Engineer E-Powertrain, Department E-Powertrain & EDS Development, IAV GmbH, Stollberg, Germany

15:30 Multi-criterial operating strategies for electric truck drives under consideration of brake particle emissions

- Global operating point optimization of drive modules with simultaneous minimization of brake particles through predictive control approaches
- Optimization of prediction horizons and control parameters with the help of machine learning
- Influence of the operating strategy on the component design of multi-motor concepts in the context of a drive synthesis

Alexander Koss, M. Sc., Research Associate, Anna Rozum M. Sc., Research Associate, Robin Zick, M. Sc., Research Associate, Energy Management & Drivetrains, Institute for Automotive Engineering (ika), RWTH Aachen University, Germany

16:00 Be interactive – Meet & greet in the exhibition area and car presentation

Zero emission powertrain: Future of mobility

Moderation: Dr.-Ing. Bernd Meurer, Head of Product Group, Automated Connected Electrified Trailer, ZF Group, Commercial Vehicle Systems, Productline Bus & Trailer, ZF CV Systems Hannover GmbH, Hannover, Germany

16:45 Hydrogen technologies as a short-term solution for decarbonizing heavy transport: Evaluating hydrogen ICE and fuel cells in the transition to zero emission

- Two-step approach with hydrogen as complementary ZEV technology to BEV
- H₂-ICE as industrialized carbon-free short term technology
- FCEV catching up as real zero emission technology

Dipl.-Ing. Florian Lindner, Development Engineer Exhaust After-treatment, System Development Aftertreatment Calibration, Dr.-Ing. Stefan Buhl, Chief Engineer Hydrogen Technologies, Engineering Powertrain, Dr.-Ing. Andreas Broda, Vice President, Fuel Based Propulsion Systems, MAN Truck & Bus SE, Nürnberg, Germany

17:15 Electric powertrain solutions for emergency vehicle – More than just an electric drive in commercial vehicles

- Holistic integration approach: Vehicle architecture, Drivetrain layout, Redundancy
- Powertrain design optimized for firefighting use: Central-Drive, Axle-Drive, Energy-Backup-Unit
- Outstanding performance for more sustainable firefighting: Emergency cycle, Acceleration 0-50mph, Disaster capability

Dipl.-Ing. Markus Schachner, Senior Vice President, Head of Product Development, Rosenbauer International AG, Leonding, Austria

17:45 Using a fast digital twin in the cloud to optimize energy request, range prediction and aging of the battery of BEV trucks

- AI-based digital twin of BEV vehicles focusing on energy flow and aging
- Cloud storage and connection to the real vehicle on the road: Connectivity, cloud deployment, and IT security
- Optimization of energy demand and battery SOH (State of Health) through digital twin in the cloud: Predictive calculations, integration of traffic and weather data, optimized actuator control

DI Michael Glensvig, Project Manager Model Based Development, Dipl.-Ing. Michele Soranno, Validation Methods Engineer, Powertrain Engineering, AVL List GmbH, Graz, Austria; Dipl.-Ing. Sanjin Gumbarevic, DevOps Engineer, AVL-AST d.o.o., Zagreb, Croatia

18:15 End of the 1st conference day

18:45 Get-together at the 'Kurhaus Baden-Baden'

2nd Conference day

Thursday, July 10th, 2025



E-axle: Efficiency and innovation for electric mobility

Moderation: Dipl.-Ing. Josef Schäffler, Senior Expert Propulsion Engineering, Magna Powertrain, ENGINEERING CENTER STEYR GMBH & CO KG, Sankt Valentin, Austria

08:30 Affordable powertrain with multi speeds powershift reducer for LCV electrified axle

- Architecture principle for powershift multispeed reducer vs single speed
- Driving cycles definition and simulation inputs for LCV range up to 7.5 tons
- Simulation results for battery, CO₂ equiv and TCO benefits for both architectures

Dipl.-Ing. Loïc Vassieux, Product Technical Manager, e-drive & Reducer system platform, **Dipl.-Ing. Elie Geffroy**, Technical Synthesis Leader – Research & Innovation, VALEO POWER, Amiens, France

09:00 Process innovation in powertrains: A path to CO₂ reduction

- CO₂ and Sustainability: Importance of a sustainable economy, global CO₂ emissions, truck contributions, and Schaeffler's CO₂ reduction targets
- Product Innovation: Introduction of Schaeffler HD e-Axle, deep dive into HD E-Motors with focus on CO₂ balance, efficiency and performance
- Technology and Vision: Detailing our bonding and dip-rolling technology with supporting test results and concluding the impact of Schaefflers powertrain technology on global CO₂ emissions

Dipl.-Ing. Florian Ziefle, Director Product Group Heavy Duty eDrives, Business Unit E-Motors, Schaeffler Automotive Buehl GmbH & Co. KG, Buehl, Germany

09:30 The e-axle for an efficient, electrical long-haul truck

- Concept and design of an e-axle for long haul traffic: Topologies, packaging space
- Overview of main components and their function: HV, transmission, cooling system
- Application in vehicle portfolio for long haul

Dipl.-Ing. Bertram Wunderlich, Manager eTorque system design, Design and Development eDrive/TransAxle, Daimler Truck AG, Leinfelden-Echterdingen, Germany

10:00 Innovative shiftable electric axle for the electrification of trailers

- E-axle for trailers: Optimization of the range; reduction of CO₂ emissions; functional with existing tractor units
- Shiftable transmission: Dual Hall sensor; voice coil actuator; precise angular switching
- Shift sequence control: Shift simulation, probability of shifting in; shifting process on the test bench

Adel Turic, M. Sc., Research Assistant, Prof. Dr.-Ing. Stephan Rinderknecht, Head of institute, Institute for Mechatronic Systems, Darmstadt University of Technology, Germany; Dr.-Ing. Daniel Schöneberger, Chief Executive Officer, InnoShifting GmbH, Darmstadt, Germany



10:30 Be interactive – Meet & greet in the exhibition area and car presentation



Advanced PTO solutions

Moderation: Dipl.-Ing. Dominique Lheureux, Commercial Vehicles Module Director, Valeo Power, Amiens, France

11:15 Driving with activated hot shift PTO on AMT gearbox

- Scania modular thinking – The Hot shift PTO mechanical design optimizing part- and production costs
- Engaged gearbox PTO while driving offering expanded functionality for the customer with the help of smart software
- Maintaining safety while driving: How to overcome safety obstacles and ensure safe PTO operation

Fredrik Borgström, M. Eng., Development engineer, PTO, Johan Åslund, B. Sc., Design engineer, PTO, Scania CV AB, Södertälje, Sweden

11:45 ePTO – Evolution of power take-offs for electrified commercial vehicles

- Transition from ICE to BEV – Key impact on power distribution
- Challenges for vehicle integration: Hardware (package), software integration into vehicle system, EMC (vehicle and bodybuilder requirements)
- High voltage safety aspects and future operating strategies: System functionality in terms of HV safety, truck-trailer system, extended functionalities

Dipl.-Ing. Christian Titz, Team Leader, Powertrain Development, Dipl.-Ing. (FH) Fabian Griefser, Development Engineer, Engineering Powertrain – Transmission, MAN Truck & Bus SE, Munich, Germany; Engin Serif, M. Sc., Development Engineer, Capgemini Engineering Service GmbH, Munich, Germany

12:15 Multifunctional converter for bidirectional energy transfer in commercial vehicles

- Device with multiple electrical I/O operation modes: Charging, Vehicle to Load AC, Vehicle to Load DC
- Use cases and applications in the areas of municipal transportation and traffic
- Modular concept and structure: topology, technical specifications, modularity in the system

Marco Wolf, B. Sc., Engineering Project Manager, Electrification of Power Take Offs in NKW, ZF Friedrichshafen AG, Schweinfurt, Germany

12:45 Time for Business Lunch – Meet & greet in the exhibition area and car presentation



Efficient zero emission propulsion technologies

Moderation: Christian Krajewski, M. Sc., Director development axles, transmission, e-drive, e-components – Daimler Truck AG, Stuttgart, Germany

14:15 Highly efficient electric propulsion system development using digital twin and AI

- Cycle efficiency target of commercial vehicle is very high and impacts TCO
- Highly optimized sub-components are needed for this high efficiency targets
- High optimization of electric motor, inverter and gear set require sophisticated models and computing capability

Rahul Sagar Plavullathil, M. Sc. Automotive Systems Engineering, Head of R&D, Driveline, Mattia Contardi, M. Sc. in Electrical Engineering, M. Sc. Energy Management for Powertrains, eDriveline System Development Manager, FPT Industrial SpA, Turin, Italy; Dr. Abdelhadi Besri, Head of Electric Drive, PhD-Eng-M. Sc. Electrical Engineering – Power Electronics and eDrives. FPT Motorenforschung AG, Arbon, Switzerland

14:45 Zero emission hybrid for commercial vehicle: Comparison of FCS and H₂-ICE based powertrains for long haul application

- PEM Fuel cell and hydrogen engine based powertrain: H₂-ICE, PEM fuel cell system, battery pack, cooling system, vehicle integration
- Hybrid powertrain topology definition and component dimensioning: Parallel vs. serial hybrid; dimensioning of battery capacity, ICE power, FCS power
- Vehicle simulation and energy flow analysis on defined drive cycles

Dr.-Ing. Christoph Schörghuber, Lead Engineer System Simulation, Commercial Vehicle Systems, AVL List GmbH, Steyr, Austria

15:15 Hybrid BEV – A suitable concept for commercial vehicles?

- Comparative analysis of hybrid powertrain configurations
- Hybrid BEVs, that extend an electric powertrain platform, and traditional ICE-based parallel hybrid powertrain topologies
- Insights from the SISAL project, a hybrid technology demonstrator for light commercial vehicles

Dr.-Ing. Joschka Schaub, Department Manager Controls – Motor, Hybrid and Fuel Cell Powertrains, Dipl.-Ing. Peter Zwar, Team Leader & Senior Technical Specialist Hybrid Controls, Dr.-Ing. Markus Ehrly, Team Leader Emission Simulation, FEV Europe GmbH, Aachen, Germany

15:45 Closing remarks by the conference chairman

15:50 End of 9th International VDI Conference Drivetrain Solutions for Commercial Vehicles



Joint plenary session

Moderation: Dipl.-Ing. Thomas Pfund, President Business Unit E-Motors, Schaeffler Automotive Buehl GmbH & Co. KG, Buehl, Germany



16:00 Awarding of the best presentation for junior engineers



16:05 Common closing remarks



16:15 End of the International VDI congress Dritev 2025

Advisory board



1st row from left to right:

Dr.-Ing. Rolf Doebereiner, Product Line Manager, Product Line Vehicle, Electrification & ADAS/AD, Truck & Bus, AVL List GmbH, Graz, Austria

Christian Krajewski, M. Sc., Director development axles, transmission, e-drive, e-components – Daimler Truck AG, Stuttgart, Germany

Dipl.-Ing. Thomas Landsherr, Vice President, Engineering Driveline, MAN Truck & Bus SE, Munich, Germany (Conference chairman)

2nd row from left to right:

Dipl.-Ing. Dominique Lheureux, Commercial Vehicles Module Director, Valeo Power, Amiens, France

Dr.-Ing. Bernd Meurer, Head of Product Group, Automated Connected Electrified Trailer, ZF Group, Commercial Vehicle Systems, Productline Bus & Trailer, ZF CV Systems Hannover GmbH, Hannover, Germany

Dipl.-Ing. Josef Schäffler, Senior Expert Propulsion Engineering, Magna Powertrain, ENGINEERING CENTER STEYR GMBH & CO KG, Sankt Valentin, Austria

Excerpt from poster exhibition

Simulation, testing and road compliance of a novel series-parallel truck drivetrain

Geir Brudeli, M. Sc., CTO & Founder, Brudeli Green Mobility AS, Hokksund, Norway

High Power Charging: Design and use of CCS charging interfaces in utility vehicles

Dipl.-Ing. Rik Stellbrink, Product Manager Automotive Systems, Phoenix Contact E-Mobility GmbH, Schieder-Schwalenberg, Germany

Automation potential in digital powertrain design for electric commercial vehicles using Matlab Simulink

Michael Siegel, M. Eng., Research Associate, Faculty of Mechanical and Civil Engineering, Hochschule Landshut, University of Applied Sciences, Landshut, Germany

The digital twin in small series production

Lukas Anderl, M. Eng., Research Associate, Faculty of Mechanical and Civil Engineering, Hochschule Landshut, University of Applied Sciences, Landshut, Germany

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Held in German only

VDI workshops, Tuesday, July 8th, 2025

9.00 a.m to 17.00 p.m, Kongresshaus Baden-Baden, Germany

These one-day seminars take place on the day before the conference and can be booked separately. They are offered exclusively in German.

Deepen your knowledge and engage with peers before the main conference begins on these topics:

Künstliche Intelligenz im Antriebssystem: Entwicklung, Betrieb und Bewertung (Artificial Intelligence in the powertrain system: Development, operation, and evaluation)

Further details:
www.vdi-wissensforum.de/01ST805025



Schwingungs- und Geräuschverhalten von Antriebssträngen (Vibration and noise behavior of powertrains)

Further details:
www.vdi-wissensforum.de/01ST808025



Parallel congress

July 9th – 10th, 2025, Baden-Baden, Germany

International VDI-Kongress Dritev 2025

Free entry with your conference ticket!

Main Topics:

- Architecture and design of vehicle propulsion systems
- E-motor, power electronics, energy storage and supply
- Sustainability and CO₂ neutrality
- Thermal management, operating behavior, acoustics
- Simulation, Digitalization and AI
- Transmission systems and fluids

Conference chairman:

Dipl.-Ing. Thomas Pfund, President Business Unit E-Motors, Schaeffler Automotive Buehl GmbH & Co. KG, Buehl, Germany

With lectures from:

ADAC | ARRK Engineering | Audi | AVL | BorgWarner | Continental Engineering Services | FEV Europe | FVA | GKN Driveline International | hofer powertrain | InfiMotion Technology Europe | Lubrizol | Magna | Mercedes-Benz | Ovako | Petronas Lubricants International | Robert Bosch | Shell Global Solutions | SKF | TRATON GROUP | TREMEC | VDA | VisIC Technologies
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<input type="checkbox"/> VDI workshop Künstliche Intelligenz im Antriebssystem (01ST805025) EUR 990.-	<input type="checkbox"/> VDI workshop Schwingungs- und Geräuschverhalten von Antriebssträngen (01ST808025) EUR 990.-
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Accommodation: A limited number of rooms has been reserved for participants. Please book your room early. Booking options for hotels can be found at <https://www.vdiconference.com/drivev/participant-information>

Service package: The price includes event documents (e-book), coffee breaks, beverages during breaks, lunches and the evening reception.

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