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6th International Conference on Gear Production 2025

Key topics discussed:

- **Challenges in gear production for e-mobility**
- **Innovative process monitoring and quality inspection**
- **New materials and heat treatment**
- **Additive manufacturing of gears**
- **Bevel and face gear cutting**
- **Manufacturing of high-order tooth flank modifications**

Presidency:

Prof. Dr.-Ing. Thomas Bergs, MTI, RWTH Aachen University, Germany
Prof. Dr.-Ing. Christian Brecher, WZL, RWTH Aachen University, Germany
Prof. Dr.-Ing. Karsten Stahl, FZG, Technical University of Munich, Garching, Germany

+ Parallel events

International Conference on Gears 2025

International Conference on High Performance Plastic Gears 2025

+ Exhibition

With experts from:

LEHRSTUHL FÜR ANTRIEBSTECHNIK · CONTECH Software & Engineering GmbH · FLENDER · Fraunhofer IWU Fraunhofer-Institut für Werkzeugmaschinen und Umformtechnik IWU · FZG · GRI GEAR RESEARCH INSTITUTE · Gearbox by Gamesa · ikerlan MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE · JOHNSON ELECTRIC · MTI RWTH AACHEN UNIVERSITY · OGASAWARA PRECISION LABORATORY LTD. · opto-surf · OVAKO · RIAS Since 1917 · SEW EURODRIVE · TEAM23 · TECHNISCHE UNIVERSITÄT DRESDEN · WZL RWTH AACHEN UNIVERSITY · zhaw

Event organized by VDI Wissensforum GmbH
www.vdiconference.com/02TA411025
Phone +49 211 6214-201 • Fax +49 211 6214-154
#vdi_gears

September 10 – 12, 2025, Garching/Munich, Germany

1st Conference day
Wednesday, September 10th, 2025

08:15 Registration

Plenary lectures

Every participant gets a voice – you will be involved by digital polls during the speeches.

09:30 Joint welcome and opening of the conferences
- International Conference on Gears 2025
- International Conference on High Performance Plastic Gears 2025
- International Conference on Gear Production 2025

Prof. Dr.-Ing. Karsten Stahl, Full Professor, Institute of Machine Elements, Director, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

Caroline Körber, Productmanagement, VDI Wissensforum GmbH, Duesseldorf, Germany

09:55 Welcome address by:

Prof. Dr.-Ing. Prof. h. c. Christoph Gehlen, Dean, TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

10:00 **Prof. Dr.-Ing. Burkhard Pinnekamp,** former Head of Central Technology, RENK GmbH, Augsburg, Germany; President, Research Association for Drive Technology (FVA), Frankfurt, Germany; Honorary Professor, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

10:10 **Matthew E. Croson,** President, American Gear Manufacturers Association (AGMA), Alexandria, USA

10:15 **Keynote session:**
AI and digitalization – Impact on the future of gears
Moderation: Prof. Dr.-Ing. Karsten Stahl, FZG, TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

With digital polls during the speeches

Welcome to the age of chaos: Tech-driven, AI-powered, customer-centric, different
- Tech-Driven: Digitization, automation, IoT increase efficiency and enable new business models
- AI-Powered: AI transforms development and maintenance, unlocking new potentials despite limitations
- Customer-Centric: AI enables tailored solutions and faster, more precise customer responses

Fabian Ziegler, Founder & Managing Director, TEAM23 GmbH, Augsburg, Germany

Powered by AI – Leading the future of drive technology
- The "Digital Engineer": AI-driven design and optimization of "Flender One" gearboxes
- Closed loop data utilization with AI: Continuous adaptation and right-sizing in gearbox development
- Digital end-to-end backbone for future AI value creation

Dr.-Ing. Jan Reimann, Project Director "Flender One", Dipl.-Ing. Julia Zundel, Head of Digital Business, Dr.-Ing. Tim Sadek, Head of Technology & Innovation Flender GmbH, Bocholt, Germany

Opportunities and challenges of AI applications in an industrial context
- The role of AI in production
- Requirements for the implementation of AI in production: Data, models, processing
- Potential of AI applications in production: Deep dive and application examples

Prof. Dr.-Ing. Christian Brecher, Full Professor, Chair of Machine Tools, Laboratory for Machine Tools and Production Engineering (WZL), Faculty for Mechanical Engineering, RWTH Aachen University, Germany

Efficient maintenance for safe operation through automated condition monitoring
- DriveRadar®: Functional components, innovative forecasts, IT and data security, use-cases
- Contribution on sustainability and future developments
- Potential of smart maintenance: Transparency, early detection of faults, reduced downtimes

Dipl.-Ing. (DH) René Maisenhelder, Manager, Service Field Solutions, Condition Monitoring & Analysis, SEW-EURODRIVE GmbH & Co KG, Bruchsal, Germany

+ Discussion with plenary speakers

12:00 **Time for working lunch** – Meet & greet in the exhibition area, poster presentation area and GearArena

Opening of
6th International Conference on Gear Production 2025

Challenges in e-mobility: NVH and roughness
Moderation: Prof. Dr.-Ing. Christian Brecher, Full Professor, WZL, RWTH Aachen University, Germany

13:30 **Robust product design and process parameters with engineering AI – practical example of NVH/acoustics in e-transmissions**
- Calculate target values and tolerances for microgeometry of gears and all other influence parameters which may have an impact on NVH/acoustic
- Predict process parameters with method and engineering AI: Grinding wheel dressing geometry for final gear finishing processes, grinding shift speed, grinding wheel dressing time
- Cost and time savings: 30 % cost reduction and 50 % time savings, with real-time quality control via AI

Dipl.-Ing (FH) Frank Thurner, CEO, Head of Digitalization, Engineering with AI/ML, Contech Software & Engineering GmbH, Fürstenfeldbruck, Germany

14:00 **Quiet BEV Gears: Innovative material and design solution**
- Innovative use of powder metallurgy (PM) process for enhanced NVH performance
- AI-driven gear design solutions with: Net-shape compaction features, improved noise transfer path, enhanced damping
- Proven success with > 15dB noise reduction

Dr.-Ing. Philipp Kauffmann, Senior Manager, Research and Innovation, Preetham Jonnalagadda, M. Sc., Engineer, Patricia de Oliveira Löhrer, M. Sc., Senior Engineer, Research and Innovation, Johnson Electric Aachen GmbH, Aachen, Germany

14:30 **Optimizing gear microgeometry for e-mobility: Metrological requirements and the need for revised specifications**
- Function-oriented gear specification for e-drives: Friction losses caused by roughness
- Multisensor approach for surface analysis: Amplitude vs. gradient-based parameters
- Capable metrology in the shopfloor environment

Boris Brodmann, Head of strategic research & development, OptoSurf GmbH, Ettlingen, Germany

15:00 **Coffee break** – Meet & greet in the exhibition area, poster presentation area and GearArena

Process integrated quality inspection
Moderation: Christian Westphal, M. Sc., Chief Engineer, Head of Gear Technology, WZL & MTI, RWTH Aachen University, Germany

16:00 **Process development, quality monitoring and fatigue test of additively manufactured 1.6657 case hardening steel for gear applications**
- Analytical approach for printing optimization of 1.6657: Powder bed fusion, analytic models, process mapping

- Process monitoring for properties control of 1.6657 gears: Melt pool monitoring, Porosity features evaluation, production quality management
- Shape to shape printing parameter transfer: Cube matrix, gear design, vector merging

Dr. Briac Lanfant, Senior Research Associate, Additive Manufacturing, Institute of Product Development and Production Technologies (IPP), ZHAW Zurich University of Applied Sciences, Winterthur, Switzerland

16:30 Analysis of the influencing variables for tool condition monitoring during gear hobbing

- Analogy trials for wear investigation
- Methods of data analysis: Feature engineering, descriptive and predictive analytics
- Influence of the sensor position and the process parameters

Steffen Hendricks, M. Sc., Research Assistant, Dr.-Ing. Mareike Davidovic, Chief Engineer, Prof. Dr.-Ing. Thomas Bergs, Full Professor, Chair of Manufacturing Technology, Manufacturing Technology Institute – MTI, Faculty for Mechanical Engineering, RWTH Aachen University, Germany

17:00 Quantification of wear on gear cutting tools using computer vision methods

- Comparison of traditional and deep learning-based computer vision methods for wear detection on gear cutting tools
- Validation of the algorithm by comparing manually measured and algorithmically generated wear curves

Melina Kamratowski, M. Sc., Research Assistant, Dr.-Ing. Mareike Davidovic, Head Engineer Gear Manufacturing, Gear Technology Department, Prof. Dr.-Ing. Thomas Bergs, Full Professor, Chair of Manufacturing Technology, Manufacturing Technology Institute – MTI, Faculty for Mechanical Engineering, RWTH Aachen University, Germany

17:30 End of the lectures
– Switch to the plenary session (Lecture room A) –

17:35 Awarding of the best paper by

Dr.-Ing. Franz Völkel, Sr. Vice President R&D, Business Division Automotive Bearings, Schaeffler Technologies AG & Co. KG, Herzogenaurach, Germany

Prof. Dr.-Ing. Karsten Stahl, Full Professor, FZG, TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

17:45 Dinner Speech
Innovation on fire: When human intelligence and artificial intelligence collaborate

'We stand on the threshold of an era of extreme productivity – a symbiosis of human developmental power and the computing strength of AI. It is our responsibility to seize this opportunity – while also embracing a commitment: To unlock the 'gold in our minds' and collaborate with AI at eye level. This requires a radical expansion of our neuro-knowledge to develop neuro-loyal modules, processes, and tools in a structured and pragmatic way – and to integrate them strategically into business processes.'

Dr. Karin Koert-Lehmann, MY InnoTrinsic/Rethink & Move, Krefeld, Germany

18:30 Organized bus transfer to the evening reception

Get-together

19:30 Evening reception at the 'Löwenbräukeller' in Munich

Join us for a special evening at the'Löwenbräukeller' – a chance to enjoy tradition, connect, and exchange ideas in a relaxed atmosphere.

You are invited!

2nd Conference day
Thursday, September 11th, 2025

Improved gear performance: Material and quality inspection

Moderation: Prof. Dr.-Ing. Thomas Bergs, Full Professor, MTI, RWTH Aachen University, Germany

08:30 Investigations on the tooth root load-carrying capacity of carbo-nitrided gears containing high amounts of retained austenite

- Microstructures with high amounts of retained austenite: Hardness, retained austenite content, residual stress
- Experimental investigations of the tooth root load-carrying capacity in the pulsator test rig
- Increase of tooth root load-carrying capacity through stabilized retained austenite

Adrian Sorg, M. Sc., Research Associate, Institute of Machine Elements, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany; Mustafa Tarik Boyraz, M. Sc., Research Scientist, Materials Science, Leibniz Institute for Materials Engineering – IWT, Bremen, Germany

09:00 Relevance of case hardening depth on gear performance, challenges on manufacturing and evaluation of big gears

- Gear heat treatment: Deformation, case-hardening depth inhomogeneity, test-bar control
- Non-Destructive Testing (NDT) measurement of case-hardening depth in gears: Electromagnetic signal, correlation with destructive testing, challenges
- Case-hardening depth: Affection on calculation, optimum range, evaluation

Ainhoa Okariz Gabellanes, Industrial Eng., Material Science & Production Technologies Engineer, Gearbox by Gamesa (Siemens Gamesa), Alfredo Fernandez Sisón, M. Sc. Mech. Eng., Gearbox Engineering Manager Gearbox by Gamesa (Siemens Energy), Zamudio, Spain

09:30 Combining photogrammetric methods with Tooth Contact Analysis (TCA) for enhanced quality assurance of gearboxes

- 2D-3D tooth flank mapping via photogrammetry: Photogrammetry, 3D data, tooth flank analysis
- Quadratic modelling of displacement behaviour: Variation, Model, Approximation
- Automated contact pattern correction using TCA: Validation, Automation, Optimisation

Dipl.-Ing. Constantin van Oss, Research Associate, Dr.-Ing. Stefan Schumann, Senior Engineer, Prof. Dr.-Ing. Berthold Schlecht, Full Professor and Head of Institute of Machine Elements and Machine Design, Faculty of Mechanical Science and Engineering, Technische Universität Dresden, Germany

10:00 Coffee break – Meet & greet in the exhibition area, poster presentation area and GearArena

Special machining

Moderation: Christian Westphal, M. Sc., Chief Engineer, Head of Gear Technology, WZL & MTI, RWTH Aachen University, Germany

11:00 New rolling machine for large gear applications

- Research at cross-rolling process characterized by two round tools with outer gearings: Tool construction, clamping concepts, forming simulations, rolling trials module 4 mm
- Realization of prototype machine for hot forming process/gear rolling of larger gear applications: Machine dimensioning process, rolling trials module 9.5 mm
- Gear measurements: Actual results/optimization possibilities/ alternative components

Dipl.-Ing. Matthias Milbrandt, Scientific Employee, Department Bulk Metal Forming/Radiation Safety, Fraunhofer Institute for Machine Tools and Forming Technology IWU, Chemnitz, Germany

11:30 Numerical cutting simulation of globoidal worm gears meshing with arbitrary shaped gears

- Modelling of the meshing-interference in the production of globoidal worm gears
- Impact of different manufacturing methods on tooth contact: Tool kinematics, tooth flank clearance and gear overlap
- Consideration of assembly and manufacturing deviations

Dr.-Ing. Christian Kirchhoff, Team Leader Worm and Crossed Helical Gears, Prof. Dr.-Ing. Manuel Oehler, Head, Chair of Drive Technology (ante), Ruhr University Bochum (RUB), Germany

12:00 Meshing limit line of plane enveloping hourglass worm with 2DOF

- Limit line theory of 2DOF engagement
- Determining tooth surfaces scope of cutting worm proposed
- Methodology to compute limit point: Equations, iteration, envelope

Prof. Dr. Yaping Zhao, Professor, Xiaonan Zhang, Ph.D. student, School of Mechanical Engineering and Automation, Northeastern University, Shenyang, China

12:30 Time for working lunch – Meet & greet in the exhibition area, poster presentation area and GearArena

Additive manufacturing: Improved operational behavior

Moderation: Prof. Dr.-Ing. Thomas Bergs, Full Professor, MTI, RWTH Aachen University, Germany

14:00 Tooth flank load capacity analysis for binder jetting gears

- Alternative, resource-efficient gear manufacturing chains
- New manufacturing methods for optimized gear and gearbox performance: Additive manufacturing, binder jetting, powder metallurgy
- Gear power density: Tooth flank load capacity, pitting damage, simulation of local contact stress

Emil-Elias Breuer, M. Eng., Research Assistant, Dr.-Ing. Mareike Davidovic, Head Engineer Gear Manufacturing, Gear Technology Department, Prof. Dr.-Ing. Thomas Bergs, Full Professor, Chair of Manufacturing Technology, Manufacturing Technology Institute – MTI, Faculty for Mechanical Engineering, RWTH Aachen University, Germany

14:30 Bending fatigue performance characterization of gear teeth manufactured by laser-powder Directed Energy Deposition (DED)

- Traditional bending fatigue test method was adapted to better suit additively manufactured gear materials
- Gear tooth samples were manufactured from Dievar material and tested
- Results presented include the test methodology, stress-life data, metallurgical analysis, and fracture analysis

Dr. Aaron Isaacson, Managing Director, Gear Research Institute and Head, Materials and Mechanicals Development, Penn State University, Matthew Wagner, Senior Research & Development Engineer, Materials and Mechanicals Development, Penn State University, Gear Research Institute, State College, USA; Dr. Diego Montoya-Zapata, R&D Additive Manufacturing Engineer, Ikergune, Inzu Group, Elgoibar, Spain

15:00 High ratio gearbox with very low bearing loads

- Design of damping structures
- Enhancing vibration damping in gears via additive manufacturing
- Integrating lattice structures for lightweight gear design

Guilherme Fernandes Guimarães, M. Sc., Research Assistant, Matheus Fernandes, M. Sc., Research Assistant, Prof. Dr. Ronnie Rego, Professor, Manufacturing Competence Center, Aeronautics Institute of Technology, São José dos Campos, Brazil

15:30 Coffee break – Meet & greet in the exhibition area, poster presentation area and GearArena

New processes for cutting of bevel and face gears

Moderation: Prof. Dr.-Ing. Karsten Stahl, Full Professor, FZG, Technical University of Munich, Garching, Germany

16:30 Cutting method using a scraping-cutter for involute conjugate gears including face gears

- Meshing contact theory and practicality of non-parallel axis gears: Involute cylindrical gear, meshing contact line of action, constant velocity contact
- Gear cutting method of non-parallel axis gears: External bevel shaped gear, inner bevel shaped gear, transmission error
- Prototyping and evaluation of involute conjugate gears

Noritsugu Maeda, B. Sc., Research and development engineer, OGASAWARA PRECISION LABORATORY LTD., Kanagawa, Japan; Prof. Dr. Syuhei Kurokawa, Professor, Kyushu University, Fukuoka, Japan

17:00 Generation of spiral bevel gears by gear skiving method

- Generating method for curved tooth gears: Gear skiving, tooth trace, spiral angle
- Mathematical model of skived tooth surfaces: Position, normal, curvature
- Tooth contact analysis of skived tooth surfaces: Contact ellipse, contact path, transmission errors

Peng Wang, Ph.D., Associate Professor, College of Mechanical and Energy Engineering, Beijing University of Technology, China

17:30 Feed rate improvement for face milling bevel gear on a CNC bevel gear cutting machine

- Ring-dexel cutting simulation method for face milling bevel gears, enabling precise determination of material removal rates (MRR)
- Real-time feed rate optimization through CNC software for improved efficiency
- Linear relationship between MRR and tool torque to optimize feed rates

Yi-Pei Shih, Ph.D., Professor, Department of mechanical engineering, National Taiwan University of Science and Technology; Dr. Bor-Tyng Sheen, Developer of FG CAD/CAM Software, Dragon-City Technology Co., Taipei City, Taiwan

18:00 End of the lectures

Get-together

18:00 Evening reception at the university

We are pleased to invite you to our evening reception at the end of the second conference day. Enhance your personal network and use the relaxed and informal atmosphere for deepening talks with other participants and speakers.

Source: Uli Benz/TUM

3rd Conference day
Friday, September 12th, 2025

Micro geometry of gears
Moderation: Christian Westphal, M. Sc., Chief Engineer, Head of Gear Technology, WZL & MTI, RWTH Aachen University, Germany

08:30 A manufacturable higher-order tooth flank modification for enhanced bevel gear performance
- Advanced tooth flank modifications using higher-order polynomials to improve gear meshing and reduce contact pressures
- Optimization framework that targets bending stress reduction and enhanced tolerance to misalignment
- Precision manufacturability ensured through specialized numerical strategies for modern CNC-controlled bevel gear generators

Eugeniu Grabovic, Ph.D., Assistant professor, Prof.-Ing. Alessio Artoni, Ph.D., Associate Professor, Prof.-Ing. Marco Gabiccini, Ph.D., Associate Professor, Department of Civil and Industrial Engineering, University of Pisa, Italy

09:00 A gear flank high-order modification method based on the electronic gearbox
- A mathematical model of continuous generating gear grinding: Continuous generating gear grinding, calculation of tooth flank, gear meshing principle
- Gear flank high-order modification method: Polynomial trajectory, intelligent algorithm, electronic gearbox
- Experimental verification: Polynomial interpolation, trajectory validation, gear grinding

Professor Xiaoqing Tian, Ph.D., Director, Intelligent Manufacturing Equipment and Technology Institute, School of Mechanical Engineering, Hefei University of Technology & Anhui Engineering Laboratory of Intelligent CNC Technology and Equipment, Hefei, China; Yukai Sun, Ph.D. student, Intelligent Manufacturing Equipment and Technology Institute, School of Mechanical Engineering, Hefei University of Technology, Hefei, China

09:30 Targeted micro geometry scattering for NVH optimization of cylindrical gears in continuous generating grinding
- Targeted micro geometry scattering improves the NVH behavior of cylindrical gears
- Fast dressing methods enable high productivity in the continuous generating grinding process
- Simulation and evaluation of possible micro geometry scattering through the use of special dressing gears

Alexander Mann, M. Sc., M. Sc., Research Associate, Christian Westphal, M. Sc., Chief Engineer, Head of Gear Technology, Prof. Dr.-Ing. Christian Brecher, Full Professor, Chair of Machine Tools, Laboratory for Machine Tools and Production Engineering (WZL), Faculty for Mechanical Engineering, RWTH Aachen University, Germany

10:00 Coffee break – Meet & greet in the exhibition area, poster presentation area and GearArena

Material quality and heat treatment
Moderation: Dr.-Ing. Joachim Thomas, Managing Director, ZG Hypoid GmbH, Aschheim, Germany

11:00 Form-irregularity of crater-expression of Debye-ring at X-ray diffraction measurement for checking gear steel quality
- Strong correlation exists between the scattering or the standard deviation of Debye-ring crater height and prior-austenite grain size
- Capability of detecting the coarsening of prior-austenite grains with high-speed analog-measurement of successive cross-section of Debye-ring by scanning
- Proposal of Debye-ring shape analysis to substitute the etching method for checking steel quality

Prof. h.c. Dr.-Ing. Aizoh Kubo, President, Dr.-Ing. Masahiro Nagae, Research fellow, Research Institute for Applied Sciences, Kyoto, Japan

11:30 Eliminating manufacturing process steps by alloying
- Novel alloying strategy to improve surface integrity and fatigue strength of case carburized gears
- Increased performance of as-carburized gears while keeping standard heat treatment processes
- Synergy effects between steel grade and process selection: Performance, reliability, manufacturing efficiency

Elias Löthman, M. Sc., Manager – Testing and Validation, Technical Specialist – Applications, Patrik Ölund, M. Sc., SVP & Head of Group R&D, Ovako Sweden AB, Hofors, Sweden; Christoph Gallo, M. Sc., Application Engineer, Ovako GmbH, Erkrath, Germany

12:00 Numerical prediction of hardness and residual stress in induction hardened 42CrMo4 steel gears
- Low-time-consuming Finite Element Method (FEM) simulation models: FEM, Ansys, fast and accurate
- Induction hardening process definition and optimisation: Inductor geometry, electrical variables, scanning speed
- Evaluation of the influence of induction hardening on fatigue performance: Fatigue, mechanical properties, residual stresses

Unai Segurajauregi, Ph.D., Industrial Engineer, Researcher, Aritz Goñi, Industrial Engineer, Ph.D. Student, Mikel Escalero, Ph.D., Industrial Engineer, Researcher, Mechatronic Technologies, Ikerlan, Mondragon, Spain

12:30 Closing remarks

12:45 Awarding of the best presentation for young engineers by the conference president

Prof. Dr.-Ing. Karsten Stahl, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

Caroline Körber, Productmanagement, VDI Wissensforum GmbH, Duesseldorf, Germany

+ Lunchtime snack

14:15 End of the conference

Presidency

Prof. Dr.-Ing. Thomas Bergs, Full Professor, Chair of Manufacturing Technology, Manufacturing Technology Institute – MTI, Faculty for Mechanical Engineering, RWTH Aachen University, Germany

Prof. Dr.-Ing. Christian Brecher, Full Professor, Chair of Machine Tools, Laboratory for Machine Tools and Production Engineering (WZL), Faculty for Mechanical Engineering, RWTH Aachen University, Germany

Prof. Dr.-Ing. Karsten Stahl, Full Professor, Institute of Machine Elements, Director, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

Scientific support:

VDI Society Product and Process Design

The VDI SOCIETY PRODUCT AND PROCESS DESIGN (VDI-GPP) and its technical divisions provide all sectors with verified knowledge on the design of products and processes and their optimization in terms of quality and the time- and cost-benefit ratio.

www.vdi.eu

Gears interactive – new ideas, more added value for your business

GearArena

Gather hands-on experience in the transmission world!

Take a look at individual gear components, gain an insight into how the different components interact and compare design and workmanship!

You will find an on-site contact person from the exhibitor to answer all your questions.

FZG lab tours

Get the chance to visit innovative laboratory facilities!

Seize the opportunity and visit the nearby test and laboratory facilities at the Gear Research Center (FZG). Several guided tours with different core topics offer opportunities of gaining deeper insights into a variety of innovative gear test rigs and laboratory equipment.

For registration meet at the FZG information desk during the conference.

Speakers meetup

Do you still have unresolved questions?

You can address your questions to the speakers right after the lecture during the coffee break. Take the chance to say hello to your favorite speakers and to connect with them. They will be available for at least 15 minutes after their session.

Poster exhibition with impulse talks

The poster exhibition is combined with a 5-minute talk.

The compact style of presentation called the '5-minute rapid' presentation will provide you with all information in a clear, succinct manner. Poster presentations are scheduled during the coffee breaks. Presentation times will be announced on-site.

Two gear community nights

Your networking hotspot for the international gear community!

Enjoy the evening reception at the 'Löwenbräukeller' as well as another social event at the university. The 'Löwenbräukeller' is a restaurant with a long tradition offering modern Bavarian cuisine. Both – the get-together at the FZG and the brewery visit – offer you an excellent opportunity to network with your peers and catch up on trends.

Source: VDI Wissensforum GmbH

Questions, you will get an answer to:

- What are the challenges and solutions in gear production for e-mobility?
- How can additive manufacturing be applied to produce high-performance gears?
- Which innovations are transforming gear metrology and inspection?
- How do advanced materials and heat treatments affect load-carrying capacity in gear applications?
- How can manufacturing processes for bevel and face gears be optimized?

Reasons why you should visit the conference:

- Solutions for NVH and efficiency challenges in e-mobility gear systems
- Advanced additive manufacturing processes for high performance gears
- Integrated process monitoring and data-based tool condition diagnostics
- Material and heat treatment strategies for enhanced load-carrying capacity
- New manufacturing methods for bevel and face gears

Conference venue:

FZG TUM

How to find us

Find all travel information at a glance!

www.mec.ed.tum.de/en/fzg/contact-and-directions/fzg/

Parallel conferences

Visit for free!

International Conference on Gears 2025

September 10 – 12, 2025, Garching/Munich, Germany

Source: © NORD DRIVESYSTEMS Group

Key topics:

- AI in gear design and gear failure prediction
- Numerical methods and multiscale simulation tools to improve gear performance
- Optimization of gear design and geometry
- Condition monitoring and predictive maintenance
- Advancements in NVH simulation and optimization
- Innovative gear materials

Presidency:

Prof. Dr.-Ing. Karsten Stahl, Full Professor, Institute of Machine Elements, Director, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany
Dr.-Ing. Bernhard Bouché, Director of Research and Development Mechanics, Getriebebau NORD GmbH & Co. KG, Bargteheide, Germany
Prof. i.R. Dr.-Ing. Dr. h.c. Bernd-Robert Höhn, TUM emeritus of excellence, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany
Prof. Dr.-Ing. Burkhard Pinnekamp, former Head of Central Technology, RENK GmbH, Augsburg; President, Research Association for Drive Technology (FVA), Frankfurt, Germany; Honorary Professor, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

Further details and the final program can be found here:
www.vdi-gears.eu

Parallel conferences

6th International Conference on High Performance Plastic Gears 2025

September 10 – 12, 2025, Garching/Munich, Germany

Source: © FZG, Technische Universität München; Scholz HTIK

Key topics:

- Advanced simulation and design optimization
- Lubrication and materials selection
- Testing methods
- Load-carrying capacity and fatigue prediction
- Wear behaviour
- NVH optimization

Presidency:

Prof. Dr.-Ing. Karsten Stahl, Full Professor, Institute of Machine Elements, Director, Gear Research Center (FZG), TUM School of Engineering and Design, Technical University of Munich, Garching, Germany

Conference Board:

Dr.-Ing. Marco Baccalaro, Senior Manager Gear Development, Engineering Mechanics and Hydraulics, Robert Bosch GmbH, Heilbronn, Germany
Ingo Decker, M. Eng., Gear Development, Group Wide Components, Corporate Research & Development, ZF Friedrichshafen AG, Friedrichshafen, Germany
Dr.-Ing. Ulrich Kissling, Advisor, KISSsoft AG, Bubikon, Switzerland
Dr.-Ing. Andreas Langheinrich, Berg, Germany

Further details and the final program can be found here:
www.vdiconference.com/02TA409025

Exhibition & sponsorship

As an exhibitor or sponsor you can position your company with a clearly perceptible presence within a selected circle of participants. Get in contact with top-class attendees at this conference and present your products and services to a specialist audience in your market without any coverage waste.

Your contact person:
Vanessa Ulbrich
Project Consultant Exhibition & Sponsorship
Phone: +49 211 6214-918
Email: ulbrich@vdi.de

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- ARRK Engineering GmbH
- baier & michels GmbH & Co. KG
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- Delrin Switzerland Sàrl
- Ecoroll AG Werkzeugtechnik
- Eval Europe NV
- EVAMO
- Evonik Industries AG
- Framo Morat GmbH & Co. KG
- FVA GmbH
- IMS Gear SE & Co. KGaA
- KISSsoft AG
- LEHVOSS Group
- Manner Sensortelemetrie GmbH
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- Smart Manufacturing Technology Ltd., UK
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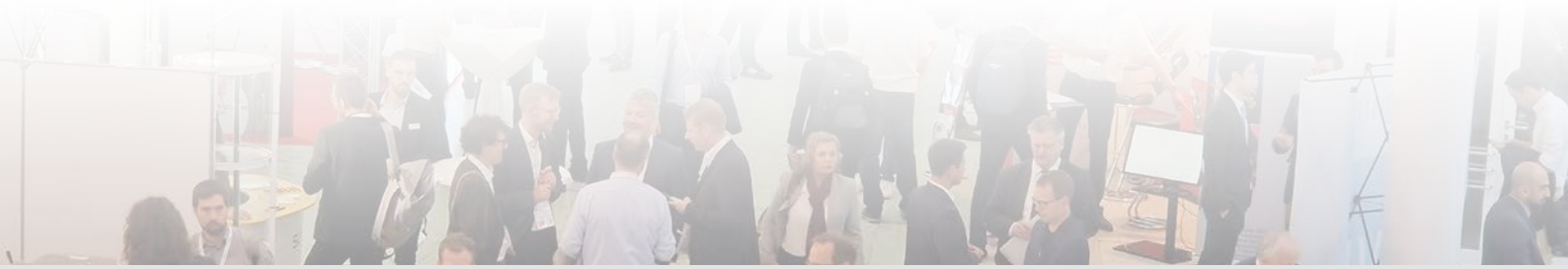
- Telemetrie Elektronik GmbH

(April 2025)



VDI Wissensforum

6th International Conference on Gear Production 2025

Innovating gear manufacturing: Quality, precision, future technologies

VDI Wissensforum GmbH | VDI-Platz 1 | 40468 Duesseldorf | Germany

You need help?
Please contact us!

VDI Wissensforum GmbH
P.O. Box 10 11 39
40002 Duesseldorf, Germany
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www.vdiconference.com/02TA411025

Ticket includes entrance to the parallel conferences:
• Gears 2025
• High Performance Plastic Gears 2025

✓ Please register for (price per person plus VAT):

6th International Conference on Gear Production 2025
September 10 – 12, 2025, **Garching near Munich, Germany** (02TA409025)
EUR 1,690.-

1111

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