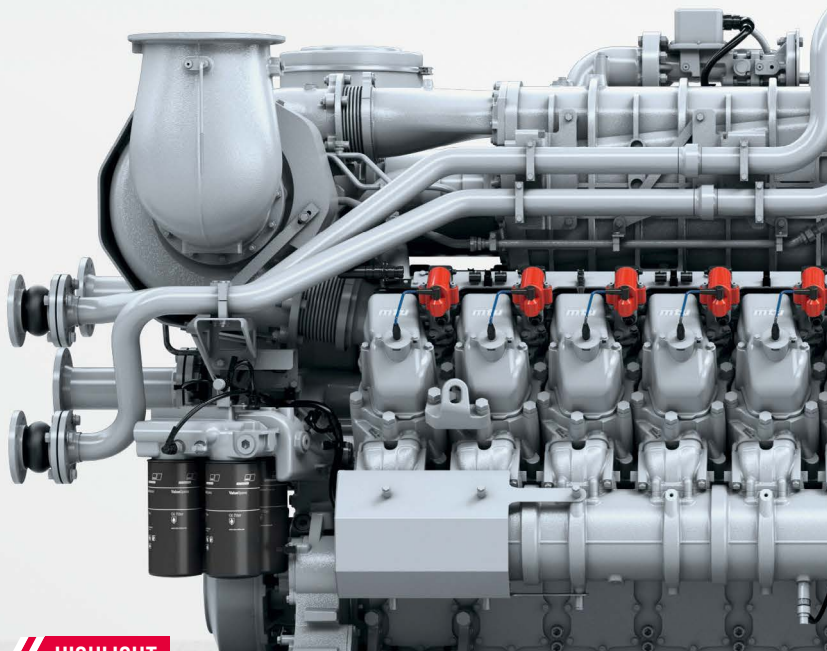


Heavy-Duty, On- and Off-Highway Engines 2019

Challenge: CO₂ limits

26. 11. – 27. 11. 2019

Friedrichshafen, Germany



HIGHLIGHT

Visit to Rolls-Royce Power Systems,
including a look at the new MTU microgrid

Challenge: CO₂ limits

/ NEW DIESEL, GAS AND DUAL-FUEL ENGINES

New large engines, components
and concepts

/ POLLUTANT EMISSIONS

New concepts and solutions

/ REDUCING CO₂ EMISSIONS

Legislative requirements
and potential solutions

KEYNOTE SPEAKERS

Dr. Heinz-Jürgen Büchner, IKB Deutsche Industriebank AG
Senior Executive, Ricardo UK Ltd

Dr. Achim Schaadt, Fraunhofer Institute for Solar Energy Systems



**Dr. Alexander
Heintzel**
Editor-in-Chief
ATZ | MTZ Group

Welcome

The increasingly stringent exhaust emission limits for diesel engines represent a major challenge for the manufacturers of large engines for mobile, stationary and maritime applications. One example of this is the agreement by the EU member states to reduce by 30 % the CO₂ thresholds for trucks and buses from 2019 levels by 2030. For this reason the theme of this year's annual MTZ Conference "Heavy-Duty, On- and Off-Highway Engines" is "The challenge of CO₂ limits".

The key topics at the conference, which takes place on 26 and 27 November 2019 in Friedrichshafen, are new engines and concepts, improving the basic engine and reducing pollution. The event also includes a trade exhibition and a visit to the Rolls-Royce MTU plant. Don't miss this opportunity to find out about the latest solutions, expand your network and make valuable contacts.

I look forward to welcoming you to the conference.

On behalf of the Scientific Advisory Board

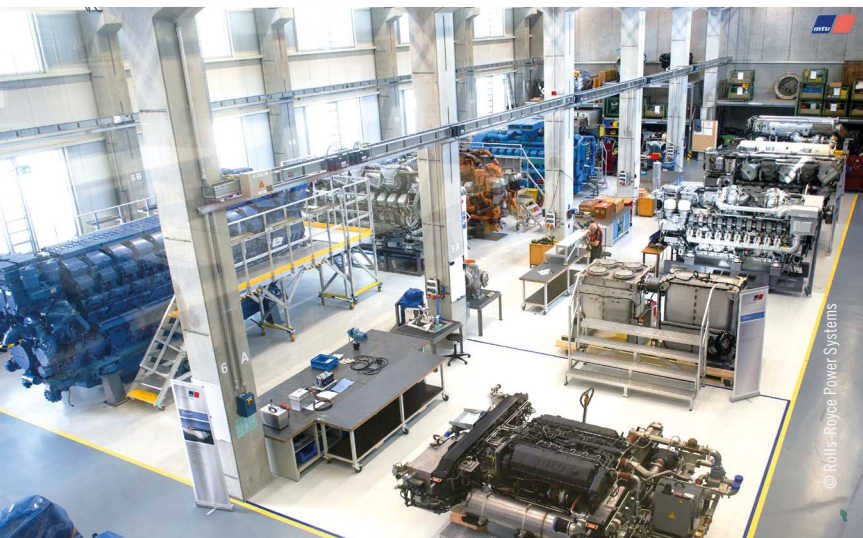
Stay at the cutting edge!

- ✓ Technical presentations from internationally renowned speakers
- ✓ Networking in the expert community
- ✓ Innovative products and services

Heavy-Duty, On- and Off-Highway Engines

Manufacturers of large engines and related components face mounting pressures: they are expected to meet rising demands for engine output, while also reducing fuel consumption, emissions and assembly space.

New concepts for engines, emissions reduction and drivetrain optimization are called for in order to overcome these challenges. Combining presentations, in-depth discussions and networking possibilities, the international MTZ Conference “Heavy-Duty, On- and Off-Highway Engines” offers you the ideal platform.



Scientific Advisory Board

Our Scientific Advisory Board, which is made up of prominent figures from the relevant field, provides support during the planning phase of the conference and helps to identify suitable topics.

With its expertise the board has made a valuable contribution to the choice of themes for the lecture program.



Prof. Dr. Peter Eilts
Technical University
of Braunschweig

Scientific Director of the Conference

Detlev Baudach
Tenneco GmbH

Rolf Brück
Continental Emitec GmbH

Dr. Heiner Bülte
DEUTZ AG

Bernd Danckert
ICCL Ltd.

Rudolf Ellensohn
Liebherr Machines Bulle S.A.

Dr. Alexander Heintzel
Editor-in-Chief ATZ | MTZ Group

Dr. Michael Krüger
Robert Bosch GmbH

Dr. Rainer J. Lehnen
Eberspächer Exhaust Technology
GmbH & Co. KG

Dr. Andreas Lingens
Woodward L'Orange GmbH

Börge Nielsen
Daimler AG

Dr. Andreas Pfeifer
MAHLE GmbH

Prof. Dr. Gerhard Reiff
KST-Motorenversuch GmbH & Co. KG

Dr. Hans-Josef Schiffgens

Wolfgang Schröppel
MAN Truck & Bus SE

Andy Skipton-Carter
Ricardo UK Ltd

Dr. Martin Teigeler
Rolls-Royce Power Systems AG

Dr. Ioannis Vlaskos
Winterthur Gas & Diesel Ltd.

Prof. Dr. Georg Wachtmeister
Technical University of Munich

Dr. Wolfgang Warnecke
Shell Global Solutions (Deutschland) GmbH

08:45

Welcome and opening of the conference
Dr. Alexander Heintzel, Editor-in-Chief ATZ | MTZ Group

09:00 – 10:30

KEYNOTE LECTURES

Moderation: Prof. Dr. Peter Eilts,
Director, Institute of Internal Combustion Engines (ivb), TU Braunschweig

KEYNOTE

09:00

Future challenges in the markets for offroad and heavy vehicle engines
Dr. Heinz-Jürgen Büchner, Managing Director Industrials,
Automotive & Services, IKB Deutsche Industriebank AG

KEYNOTE

09:30

A vision for the future (2035) portfolio of heavy-duty ‘engines’
N. N., Senior Executive, Ricardo UK Ltd, UK

KEYNOTE

10:00

The role of synthetic fuels in an integrated energy system
Dr. Achim Schaadt, Head of Department Thermochemical
Processes Hydrogen Technologies, Fraunhofer Institute for Solar
Energy Systems (ISE) [in cooperation with ICCL Ltd., Cyprus]

10:30

Refreshment break with coffee and tea in the exhibition area

11:00 – 13:00

NEW ENGINES

Moderation: Dr. Ioannis Vlaskos, Senior Advisor Research & Development,
Winterthur Gas & Diesel Ltd., Switzerland

11:00

MTU series 4000 for natural gas operation in ships – challenges for high-speed gas engines in mobile applications
Dr. Carsten Baumgarten, Director R&D Gas Engines,
MTU Friedrichshafen GmbH

11:30

DEUTZ engine portfolio below 56 kW to meet EU Stage V NRMM emission standard
Christian Opitz, Team Leader Thermodynamics Compact Engines,
DEUTZ AG

12:00

Compact and powerful: the new 9-liter diesel engine from MAN for off-highway applications
Tobias Herrmann, Lead Engineer Validation Offroad Engines,
MAN Truck & Bus SE

12:30

Meeting IMO III / EPA tier 4 regulations – challenges and solutions from the view of a solution provider
Dominik Linder, Functional Team Leader Testing Series 4000
Marine, MTU Friedrichshafen GmbH

13:00

Lunch in the exhibition area

14:15 – 15:45

EMISSIONS I

Moderation: Dr. Michael Krüger, Senior Vice President Engineering
Commercial and Off-Road Vehicles, Robert Bosch GmbH

14:15

CatVap® – a new heating measure for exhaust aftertreatment system
Robert Szolak, Head of Group Process Development Hydrogen
Technologies, Fraunhofer Institute for Solar Energy Systems (ISE)
[in cooperation with ICCL Ltd., Cyprus]

14:45

A novel low-cost aftertreatment solution for lean-burn gas engines
Dr. Matthew Keenan, Global Technical Expert – Exhaust Emissions,
Ricardo UK Ltd, UK

15:15

CFD simulation of particle deposition in exhaust gas treatment systems
Dorian Holtz, Team Lead Advanced Particle Simulation, FVTR GmbH
[in cooperation with Winterthur Gas & Diesel Ltd., Switzerland]

15:45

Refreshment break with coffee and tea in the exhibition area

HIGHLIGHT


16:10

Visit to Rolls-Royce Power Systems, including a look at the new MTU microgrid

In the foyer of the Jean-Raebel Building at the headquarters of
Rolls-Royce Power Systems, you will be welcomed by the CEO
Andreas Schell. There you will be shown an exhibition that will give
you an opportunity to learn more about the company’s Green and
High-Tech programme and the latest MTU technological solutions.

The programme also includes the most recent development projects
and a visit to the MTU Training Centre for an overview of the current
engine portfolio. Finally, in the new Microgrid Validation Centre, you
will experience how Rolls-Royce Power Systems supplies heat and
power in an environmentally friendly and efficient manner at the
location itself.

19:15

 **Networking dinner at Dornier Museum Friedrichshafen**
Enjoy a pleasant evening and interesting conversations over dinner
with colleagues and speakers.

08:30 – 10:00

BASE ENGINE

Moderation: Dr. Hans-Josef Schiffgens

- 08:30

Variably honed cylinder liners, iron based cast pistons and variably coated piston rings as PCU system for friction loss and TCO reduction
Dr. Daniel Hrdina, Head of PCU Technology, MAHLE GmbH
- 09:00

Parameter study concerning the appearance of micron and submicron oil droplets on the piston, piston ring and cylinder liner surfaces during blow-by and the evaluation of countermeasures
Magnus Lukas Lorenz, Engineer for Durability and Functional Testing HDEP and MDEG Engines, Daimler AG
- 09:30

Use of virtual sensors in stress-related design and operation-specific prediction of service life
Martin Diesch, Research Assistant Reliability Engineering, Institute of Machine Components (IMA), University of Stuttgart [in cooperation with MTU Friedrichshafen GmbH]

10:00 Refreshment break with coffee and tea in the exhibition area

10:30 – 12:00

EMISSIONS II

Moderation: Dr. Heiner Bülte,
Head of Performance and Emissions, DEUTZ AG

- 10:30

Real-world emissions testing experience using PEMS, across construction, locomotive and waterborne applications
Nick Molden, Founder & CEO, Emissions Analytics, UK
- 11:00

Model-based injector deposit detection
Michael Hinrichs, Product Engineer PhD, John Deere GmbH & Co. KG [in cooperation with TU Darmstadt]
- 11:30

Potential and challenges of multiple injection strategies for maritime fuels in large engines
Benjamin Stengel, Scientific Assistant, Chair of Piston Machines and Internal Combustion Engines (LKV), University of Rostock

12:00 Lunch in the exhibition area

13:00 – 14:30

NEW CONCEPTS

Moderation: Børge Nielsen, Director Engine Design,
Testing and R&D Platform Management, Daimler AG

- 13:00

The recuperated split-cycle engine as a sustainable heavy-duty solution
Nick Owen, Technical Director, Dolphin N2 Limited
[in cooperation with University of Brighton; Ricardo UK Ltd, all UK]
- 13:30

Potential of low pressure EGR in combination with electric turbocharging for heavy-duty applications
Harsh Sankhla, Team Leader Diesel Powertrain, FEV Europe GmbH
[in cooperation with FEV Group GmbH]
- 14:00

Modern hybrid propulsion systems for rail and marine applications: environmental and customer benefits from optimized system integration of proven diesel technology with the latest electrical innovations
Martin Urban, Vice President Modular System Integration, MTU Friedrichshafen GmbH

14:30 Refreshment break with coffee and tea in the exhibition area

15:00 – 16:30

CO₂

Moderation: Dr. Andreas Lingsens,
President/CEO, Woodward L'Orange GmbH

- 15:00

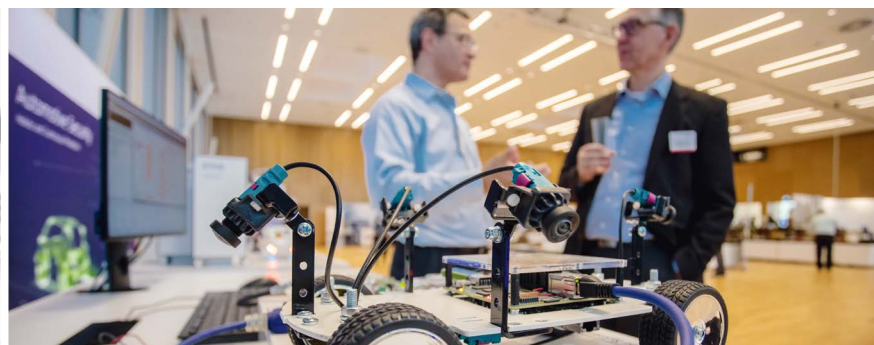
Achieving the proposed EU heavy-duty truck 2030 CO₂ legislation
Önder Bulut, Senior Simulation Engineer, Ricardo Prague s.r.o, Czech Republic [in cooperation with Ricardo UK Ltd, UK]
- 15:30

Reducing CO₂ emissions in heavy-duty engines with alternative fuels
Paul Wang, Engineering Project Team Leader, Caterpillar Inc., USA
- 16:00

Is methane the heavy-duty fuel of the future?
Dr. Max Kofod, Fuel Scientist Technology Maturation & Future Portfolio, Shell Global Solutions (Deutschland) GmbH
[in cooperation with Shell Projects & Technology, Netherlands]

16:30

Closing remarks
Dr. Alexander Heintzel, Editor-in-Chief ATZ | MTZ Group



Ricardo

With more than 3,000 employees, Ricardo is a leading research and development service provider of sustainable mobility and renewable energy with a clear focus on engine, driveline, and vehicle development. With our global headquarters based in the UK and technical centres and offices across USA, Europe and Asia we offer innovative technology and product development as well as delivering prototype manufacture and niche volume production.

In the field of heavy-duty and large engines, Ricardo has a wide range of experience from research up to support of series programmes. Ricardo provides low-emission, fuel-efficient, and powerful drive unit solutions for conventional and electrified powertrains and has also developed a wide range of solutions for exhaust aftertreatment to meet European, Japanese, and US legislation, and low-cost solutions for emerging markets.

Ricardo delivers concept development, simulation, design work, product development, application, and testing. Our test facilities include more than 30 modern industrial engine test beds for heavy-duty and large engines, battery, e-machine and powertrain testing enabling us to develop the next generation of low-emission and efficient powertrains for commercial vehicles for on- and off-highway, marine, rail, clean energy, and power generation applications and meet the standards for future emission and greenhouse gas legislation.

Cooperation partner



www.ricardo.com

Your presentation platform

Take this opportunity to present your latest products and services to the specialist audience: as an exhibitor in our exclusive exhibition and/or as a sponsor with an attractive advertising presentation. Make use of this industry meeting place to make valuable contacts with customers. For information on the various presentation options, please contact:

Elke van Lon
Phone +49 611 7878-320
elke.vanlon@springernature.com

Sponsors



www.kst-motorenversuch.de

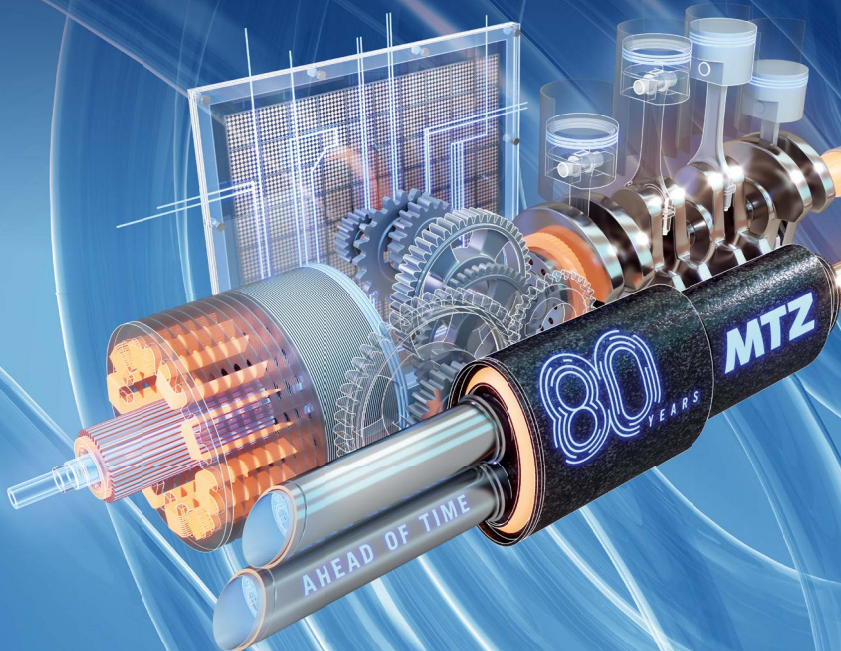


www.poppe-potthoff.com

Media partners



THE LOOK INTO THE FUTURE.



**GET YOUR
FREE TRIAL
NOW!**



MTZ has successfully accompanied the development of engines and powertrains for the past 80 years. The internationally leading technical and scientific magazine for decision-makers in powertrain development and production sees itself as an information platform on future powertrains – conventional, electrified or purely electric. MTZ promotes the transfer of information between manufacturers, suppliers, service providers and research and development centers all over the world, in German and English, in print and digital editions.

www.mtz-magazine.com

Registration fee

€ 1,395.– plus VAT

This includes the conference documentation, the catering during breaks and the evening event on 26.11.2019.

Date

26. 11. – 27. 11. 2019

Venue

Graf-Zeppelin-Haus
Olgastraße 20
88045 Friedrichshafen, Germany

Languages used in the presentations

German and English with simultaneous interpreting
(German – English / English – German)

Hotels

Some hotels have room blocks at reduced prices for the participants.
You can find more information on the events page of our website.

Online Registration and Further Information:

www.atzlive.de/en/heavyduty



Participants

The MTZ Conference “Heavy-Duty, On- and Off-Highway Engines” is aimed worldwide at experts from engine and vehicle manufacturers in the fields of commercial vehicles, off-highway and marine applications, stationary engines, suppliers and development partners, teaching staff and research assistants from universities, representatives of authorities and associations and engineers active in these fields.

Further Information and Online Registration:



www.atzlive.de/en/heavyduty

Heavy-Duty, On- and Off-Highway Engines 2019
26. 11. – 27. 11. 2019, Friedrichshafen, Germany

Your contact partner

Marc Vestweber
Abraham-Lincoln-Straße 46
65189 Wiesbaden, Germany

Phone +49 611 7878-132
Fax +49 611 7878-452
ATZlive@springernature.com

The organizer

ATZlive // Spotlight on Powertrain and Vehicle Engineering

Our events are firm fixtures in the diaries of automotive engineers and engine specialists. We offer a range of innovative conferences on the latest topics in the world of automotive engineering and engine technology, from the perspective of research, development and applications.

Our close collaboration with the editorial teams of our specialist magazines ATZ and MTZ keeps us fully up-to-date on the latest topics and trends on the market.

Springer, with its automotive technology brands in the ATZ and MTZ Group, is part of Springer Nature, one of the world's leading publishing groups for scientific, educational and specialist literature.