

Program

13th Powertrain Manufacturing Conference

Powertrain Production 2020 –
Global Networks
New Processes
Resource Efficiency

November 17–18, 2015
darmstadtium | Darmstadt | Germany



TECHNISCHE
UNIVERSITÄT
DARMSTADT

PTW
TU DARMSTADT

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www.powertrain-conference.de

Preface

Welcome to the 13th Powertrain Manufacturing Conference

Powertrain Production 2020 – Global Networks New Processes Resource Efficiency

Today, powertrain manufacturing is characterized by huge innovations with regards to environmental and product safety: The primary motivation being reduction of CO₂-emissions and friction, whereby development of new and efficient manufacturing processes for the automotive industry become crucial. Furthermore, new downsizing and hybrid technologies demand new manufacturing processes in order to comply with increasingly strict emission norms.

The **13th Powertrain Manufacturing Conference** at PTW, Darmstadt provides a glimpse into the current and future trends in manufacturing strategies, innovative machine tool concepts and cutting tool solutions for automotive powertrain components.

The networking between industry and academic research institutes offer an ideal platform for development of future-oriented products, processes and exchange of ideas.

We are looking forward to seeing you in Darmstadt.

Kind regards,



Prof. Dr.-Ing. E. Abele
Head of Institute PTW



Prof. Dr.-Ing. J. Metternich
Associate Director of Institute PTW

Objectives

The goal of the conference is to inform about new manufacturing strategies, innovative machine tool concepts and latest cutting tool solutions. At the same time the conference provides an ideal networking platform for key players of the automotive powertrain manufacturing industry.

Topics covered for the conference participants in the lecture series regarding new manufacturing technologies:

- **CO₂-Reduction**
Consequences for Powertrain Manufacturing
- **Friction Reduction**
New Production Solutions for Powertrain Manufacturing
- **Industry 4.0**
New Approach for Powertrain Manufacturing?
- **New Transmission Generation**
Challenges in Manufacturing of Powertrain Components
- **New Dimensions in Powertrain Production**
Approaches to increase process Stability
- **Energy Efficiency**
Potentials in Powertrain Manufacturing

Advisory Committee



Prof. Dr.-Ing. E. Abele
PTW, TU Darmstadt
Darmstadt, Germany



Dr.-Ing. A. Mootz
EMAG Automation GmbH
Heubach, Germany



Dr.-Ing. D. Kress
Mapal Dr. Kress KG
Aalen, Germany



Dr.-Ing. W. Polley
Daimler AG
Stuttgart, Germany



Dipl.-Ing. J. Kruszynski
Walter AG
Tübingen, Germany



Dr.-Ing. U. Reuter
Audi AG
Ingolstadt, Germany



Dipl.-Ing. M. Maier
Gebr. Heller
Maschinenfabrik GmbH
Nürtingen, Germany



Dr.-Ing. D. Sahn
Adam Opel AG
Rüsselsheim, Germany

Program | Tuesday, November 17, 2015

- 08:30 am **Registration**
- 09:00 am **Welcome speech**
Dr. Manfred Efinger,
Chancellor of TU Darmstadt (DE)
- 09:05 am **Inauguration of the conference**
Prof. Dr. Eberhard Abele
Head of PTW, TU Darmstadt (DE)
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Keynote Session

- 09:10 am **Future challenges in powertrain development and manufacturing**
Prof. Dr. Peter Gutzmer, Vice Chairman of the Executive Board, Schaeffler AG (DE)
- 09:40 am **The new Mercedes engine family – a modular engine and production concept**
Dr. Torsten Eder, Director of the Center of Competence Engine Development, Daimler AG (DE)
- 10:10 am **Paradigm shift in machine tool industry – Thoughts of a Chinese machine tool manufacturer**
Guan Xiyou – Chairman of Shenyang Machine Tool (Group) Co., Ltd. (SYMG) (CN)
- 10:40 am *Coffee Break, Exhibition*
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Challenge: CO₂-Reduction – Consequences for Powertrain Manufacturing

- 11:00 am **CO₂-Reduction – Impact on Powertrain Manufacturing**
Dr. Dietmar Sahn & Dr. Wolfgang Geis-Drescher & Rudi Spieß, Adam Opel AG (DE)
- 11:30 am **Innovative tool concepts for difficult-to-cut materials**
Dr. Uwe Schleinkofer,
CERATIZIT Austria GmbH (AUT)
- 12:00 pm **Future challenges in manufacturing of turbo charger components**
Dr. Jürgen Adam,
BorgWarner Turbo Systems GmbH (DE)
- 12:30 pm *Lunch Break, Exhibition*

**Challenge: Friction Reduction - New Production
Solutions for Powertrain Manufacturing**

01:30 pm **Formhoning of Cylinder Bores using a Piezo-Hydraulic Hybrid Tool**
Prof. Dr. Klaus Dröder &
Dr. Hans-Werner Hoffmeister & Thomas Große,
IWF, TU Braunschweig (DE)

02:00 pm **Advanced honing – Gehring’s contribution to lower fuel consumption**
Dr. Sebastian Schöning,
Gehring Technologies Holding GmbH (DE)

02:30 pm **Machining solutions for the production of coated cylinder liners**
Bernd Zapf,
Gebr. Heller Maschinenfabrik GmbH (DE)

03:00 pm *Coffee Break, Exhibition*

**Challenge: Industry 4.0 – New Approach for
Powertrain Manufacturing**

03:30 pm **Big data analytics of manufacturing processes**
Dr. Volker Kreidler,
SAP AG, Head Industrie 4.0 (DE)

04:00 pm **Global challenges in automobile powertrain production**
Christoph Sieben, Audi AG (DE)

04:30 pm **Solutions for Powertrain – Productivity in production and service**
Dr. Henning Rudolf, Siemens AG (DE)

05:15 pm **Transfer to PTW**
(alternative departure 05:45 pm)

06:00 pm **Guided tour through the machine park of PTW**

07:00 pm *Finger-food and discussions at PTW machine park*

10:00 pm **Transfer back to the hotel**

Program | Wednesday, November 18, 2015

09:00 am **Inauguration of the second conference day**
Prof. Dr. Eberhard Abele,
Head of PTW, TU Darmstadt (DE)

Challenge: New Dimensions in Powertrain Production – Approaches to increase Process Stability

09:00 am **Deburring tool and process development for cross-drilled holes**
Sebastian Güth, PTW, TU Darmstadt (DE)

09:30 am **Deburring of powertrain components using industrial robots**
Dominik Landhäußer,
KADIA Produktion GmbH + Co., Germany

10:00 am **Advanced cutting solutions for increased process stability**
Andreas Elenz, Walter AG, Germany

10:30 am *Coffee Break, Exhibition*

Challenge: Energy Efficiency – Potentials in Powertrain Manufacturing

11:00 am **Energy efficient manufacturing – Example for innovative machine tool concepts**
Martin Beck, PTW, TU Darmstadt (DE)

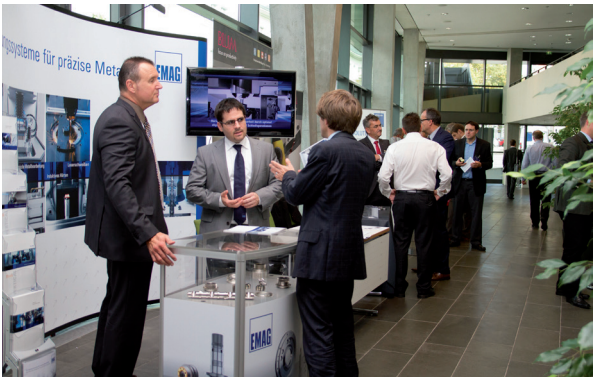
11:30 am **Potentials in energy efficient powertrain manufacturing by using MQL**
Prof. Dr. Eckehard Kalhöfer, Stiftungslehrstuhl
Spanende Fertigung, HTW Aalen (DE)

12:00 pm **Energy efficient tool concepts – the role of the MQL technology**
Dr. Stefan Sattel, Gühring KG (DE)

12:30 pm *Lunch Break, Exhibition*

Challenge: New Transmission Generations – Challenges in Manufacturing of Powertrain Components

- 01:30 pm **Laser welding technology in gear production – Potentials for weight optimized powertrain components**
Matthias Beranek,
TRUMPF Laser- und Systemtechnik GmbH (DE)
- 02:00 pm **Gear wheel manufacture via Laser Additive Manufacturing**
Tobias Kamps, Fraunhofer IWU Augsburg (DE)
- 02:30 pm **Grinding of Automotive Gears - Challenges and Solutions**
Dr. Antoine Türich, Gleason Corporation (DE)
- 03:00 pm **Innovative gear machining solutions providing a competitive advantage**
Kenneth Sundberg,
Sandvik Tooling Deutschland GmbH (DE)
- 03:30 pm **Summary of the conference**
Prof. Dr. Eberhard Abele,
Head of PTW, TU Darmstadt (DE)
- 03:45 pm **End of the conference**



Guided tour through PTW machine park

In the evening of the first day of the conference, we will provide a guided tour through the PTW-Lab. Participants of this special event can look forward to an interesting exhibition in the machine park at PTW. Afterwards the conference participants will have the opportunity to network and discuss the impressions of the first conference day.

Industrial Exhibition

The exhibition accompanying the conference is a perfect opportunity for all participants to discuss their specific problems face-to-face with the representatives of the multinational companies. Within the exhibition various suppliers to the automotive industry will present new products and trends.



Language

Lectures are conducted in English.

Sponsors and Exhibitors of the PMC 2015



Exhibitors of the PMC 2015



Conditions of attendance

- Registration:** Please register online at www.powertrain-conference.de
After your payment for the registration you will get a participant confirmation mail from the conference authority.
Conference registration will be accepted until October 30th, 2015.
- Conference Fee:** **Until October 1st:**
€ 790.- | Industrial Representatives
€ 690.- | project partners of PTW
- After October 1st:**
€ 890.- | Industrial Representatives
€ 790.- | project partners of PTW
10 % discount for each additional participant from the same company
All prices plus German VAT
- Payment:** Please make sure that the conference fee is paid 14 days prior to the conference. Otherwise we would have to ask you for the transfer voucher.
- Cancellation:** A cancellation is possible for a service charge of € 100.- plus German VAT until two weeks prior to the conference. For a request after that date, the fee is non-refundable. We kindly ask you to cancel your registration in written form, either by mail or fax.
- Location:** darmstadtium
Wissenschaft | Kongresse
Schlossgraben 1
64283 Darmstadt, Germany

Accommodation

There is a significant number of rooms reserved in different hotels in the city at special rates. Please find further information about the conference and the registration form on our homepage. www.powertrain-conference.de

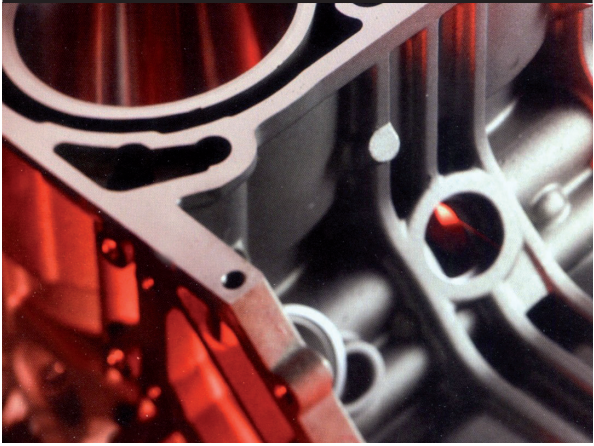
How to find the conference venue



darmstadtium

Wissenschaft | Kongresse
Schlossgraben 1,
64283 Darmstadt, Germany
Phone: +49 (0)6151-7806-0
www.darmstadtium.de





Technische Universität Darmstadt
**Institute of Production Management,
Technology and Machine Tools (PTW)**
Otto-Berndt-Str. 2
64287 Darmstadt, Germany

Prof. Dr.-Ing. E. Abele
Prof. Dr.-Ing. J. Metternich

www.powertrain-conference.de

Contact:

Thomas Heep

Phone: +49 (0)6151-16-76137

E-Mail: heep@ptw.tu-darmstadt.de

Christian Daume

Phone: +49 (0)6151-16-3134

E-Mail: daume@ptw.tu-darmstadt.de

Registration:

Ellen Schulz

Phone: +49 (0)6151-16-3556

Fax: +49 (0)6151-16-3356

E-Mail: schulz@ptw.tu-darmstadt.de
