AGENDA

New Production Technologies in Aerospace Industry

November 18th and 19th 2015 at the Hannover Centre for Production Technology (PZH, Garbsen, Germany)
Greetings

Dear Ladies and Gentlemen,

A continuous development of advanced manufacturing technologies has been accredited with the aerospace industry. Year after year the demand for economic manufacturing, reduction of fuel consumption while increasing the range at the same time is pursued. This requires a high level of productivity and maximum quality. To achieve these goals, an up-to-date technological development within the industry is necessary.

With new machine developments, innovative production engineering, efficient process planning and organization concept, production technology makes an essential contribution to the further development of globally active companies.

New Production Technologies in Aerospace Industry
You are cordially invited to our 15th Machining Innovations Conference for Aerospace Industry. As in recent years, experts and scientists will report on current trends, research results, innovations and challenges within production engineering.

The focus of this year’s Aerospace Conference will be the manufacturing of complex structural components. Continuous development of new weight-optimized materials is a major challenge for the entire production chain, which could be optimized through process planning and simulation. Also in this year, scientific presentations will complete the event by discussing latest development trends and results. That enables close networking of industry and research at an international level.

Furthermore, our conference offers an ideal forum to exchange experiences with the present participants.

We look forward to having exciting presentations and inspiring discussions with you in Hannover!

Dipl.-Ing. Gerd Weber
Chairman of the Machining Innovations Network e.V.,
Head of Varel/Bremen Site at Premium AEROTEC GmbH

Prof. Dr.-Ing. Berend Denkena
Member of the Board of the Machining Innovations Network e.V.,
Head of Institute of Production Engineering and Machine Tools,
Leibniz Universität Hannover

Dipl.-Ing. Gerd Weber

Prof. Dr.-Ing. Berend Denkena
## Program | Overview and Structure

### Framework Program | November 18\(^{th}\)
- Introduction and Welcome
- Keynote Speeches
- Overview of Parallel Sessions 1 & 2

### Parallel Sessions

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### Evening Event

### Framework Program | November 19\(^{th}\)
- Welcome
- Keynote Speeches
- Overview of Parallel Sessions 3 & 4

### Parallel Sessions

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Preface of Machining Innovations Network e.V. and Information about the Machining Innovations Conference 2015
Gerd Weber, Chairman of the MIN e.V., Head of Varel Plant, Machining Innovations Network e. V. and Premium AEROTEC GmbH

Welcoming Speech (Auditorium)
08:50 a.m.

Keynote Speeches
09:15 a.m. High Performance Cutting of Aluminum and Titanium Aircraft Components – Challenges and Trends
Dr.-Ing. Matthias Lange, VP Manufacturing, Premium AEROTEC GmbH

09:50 a.m. Driving Innovation and Technology in Machine Tool Industry
Dr. Rüdiger Kapitza, Chairman, DMG Mori AG

10:25 a.m. Coffee Break

Parallel Sessions 1 & 2: 11:00 a.m. – 12:30 p.m.
Session 1: Machining & Virtual Production
Location: Auditorium
Session 2: Scientific Presentations – CIRP Sponsored Conference Part
Location: Seminar room 2

12:30 p.m. Lunch Break and Guided Tour in the Machining and Machine Tool Laboratory

Parallel Sessions 1 & 2: 02:30 p.m. – 03:30 p.m.
Session 1: Machining & Virtual Production
Session 2: Scientific Presentations – CIRP Sponsored Conference Part

03:30 p.m. Coffee Break

Parallel Sessions 1 & 2: 04:00 p.m. – 05:00 p.m.
Session 1: Machining & Virtual Production
Session 2: Scientific Presentations – CIRP Sponsored Conference Part

05:45 p.m. End of first conference day

Evening program (Details on page 8)
07:30 p.m. Beginning of Conference Dinner
Burg Königsworth (Free Shuttle Service will be available)
Parallel Sessions 1 & 2 | November 18th

Session 1: Machining & Virtual Production (Auditorium)

11:00 a.m. On the way to ALM: Chances & Challenges for the Future Industrial Production  
Peter Sander, VP Emerging Technologies & Concepts, Airbus Operations GmbH

11:30 a.m. Advances in Tool Development for High Performance Cutting of Titanium Alloys  
Dr. Rachid M’Saoubi, AMRC Partnership Manager, Seco Tools AB

12:00 p.m. UTC Aerospace Systems is well positioned to compete in the Aerospace Industry  
Aboelezz Faiez, Director of Advanced Manufacturing Technologies, UTC Aerospace Systems

12:30 p.m. Lunch Break and Guided Tour in the Machining and Machine Tool Laboratory

02:30 p.m. Challenging Aerospace Production  
Paul Smith, Business Segment Manager – Aerospace, Sandvik Coromant

03:00 p.m. Analysis of Dynamic Shrink Fit Chuck Failures  
Dr.-Ing. Dennis Heinisch, Scientist, Baker Hughes INTEQ GmbH

03:30 p.m. Coffee Break

04:00 p.m. Monitoring the Quality of the Tool Clamping in the Tool Interface  
Dr.-Ing. Stefan Bonerz, Technology Manager, Ott-Jakob Spanntechnik GmbH

04:30 p.m. Influence of Additive Manufacturing on Hydraulic Expansion Chuck Technology  
Dr.-Ing. Peter Müller-Hummel, Head of Aerospace & Composites, Mapal Dr. Kress KG

Session 2: Scientific Presentations – CIRP Sponsored Conference Part (Seminar room 2)

11:00 a.m. Gedankenexperiment about the Phenomena Governing an Electrical Discharge Between two Electrodes in the Electric Discharge Metal Removal Process  
Prof. Walter Lindolfo Weingaertner, Head of the Precision Engineering Laboratory, Universidade Federal de Santa Catarina

11:30 a.m. Intelligent and Flexible Manufacturing Systems for Advanced Aerospace Components  
Dr. Markus Stanik, Managing Director, Elb-Schliff Werkzeugmaschinen GmbH

11:50 a.m. Ultrafast Feed Drilling of Carbon Fiber Reinforced Thermoplastics  
Y. Kakinuma; T. Ishida; R. Koike; T. Aoyama

12:10 p.m. Advances in tool grinding and development of shaft tools for machining of fibre reinforced plastics  
E. Uhlmann; N. Schröer

12:30 p.m. Lunch Break and Guided Tour in the Machining and Machine Tool Laboratory

02:30 p.m. Simulation and evaluation of different process strategies in a 5-axis re-contouring process  
B. Denkena; V. Böß; D. Nespòr; F. Rust

02:50 p.m. Experimental Research on the Electrochemical Machinability of selected γ-TiAl alloys for the manufacture of future Aero Engine Components  
F. Klocke; T. Herrig; M. Zeis; A. Klink

03:10 p.m. Value oriented maintenance and asset innovation for the aerospace industry  
N. Blechschmidt

03:30 p.m. Coffee Break
Framework Program | November 19th

### Welcoming Speeches (Auditorium)

**08:50 a.m. Opening**
Prof. Dr.-Ing. Berend Denkena, Head of Institute of Production Engineering and Machine Tools, Leibniz Universität Hannover, Member of the Board of the MIN e. V.

**09:00 a.m. Welcome Speech**
Prof. Volker Epping, President, Leibniz Universität Hannover

### Keynote Speeches

**09:15 a.m.** Spindle Heads for High Performance Cutting in the Aerospace Industry  
*Dr.-Ing. Anton Mayer, Executive Board, Franz Kessler GmbH*

**09:50 a.m.** Preparation of High Volume Production at Fokker Aerostructures  
*Richard Cobben, Vice President Technology, Fokker Aerostructures*

**10:25 a.m. Coffee Break**

### Parallel Sessions 3 & 4: 11:00 a.m. – 12:30 p.m.

**Session 3: Machine Tool Technologies**  
*Location: Auditorium*

**Session 4: Scientific Presentations – CIRP Sponsored Conference Part**  
*Location: Seminar room 2*

**12:30 p.m. Lunch Break**

### Parallel Sessions 3 & 4: 01:30 p.m. – 03:00 p.m.

**Session 3: Machine Tool Technologies**  
**Session 4: Scientific Presentations – CIRP Sponsored Conference Part**

**03:00 p.m. End of Conference**
Session 3: Machine Tool Technologies (Auditorium)

11:00 a.m. Optimal Path and Motion Generation – a Prime Key to Success
Dr. Wilfried Steiger, Application Engineer, FANUC Europe Corporation

11:30 a.m. Robotic Milling Application in Aerospace
Dirk Eickhorst, Senior Manager Technology (R&D), Brötje-Automation GmbH

12:00 p.m. The Evolution of Advanced Flexible Manufacturing Systems
Marcus Burton, Group Managing Director, Yamazaki Mazak

12:30 p.m. Lunch Break

01:30 p.m. CFRP Machining Applications at TAI
Onur Bahtiyar, NC Engineering Leader, Turkish Aerospace Industries Inc. (TAI)

02:00 p.m. Requirements on Machine Tools with Today’s Technologies
Peter Hermanns, Vice President Stand-Alone Machines, Grob-Werke

02:30 p.m. Friction Stir Welding Using 5 Axis CNC Machining Centers
Adalbert Ottenwälder, Chief Operating Officer, Matec Maschinenbau

Session 4: Scientific Presentations – CIRP Sponsored Conference Part (Seminar room 2)

11:00 a.m. Virtual High Performance Machining of Aerospace Parts
Prof. Yusuf Altintas, NSERC Pratt & Whitney Canada Industrial Research Chair Professor,
Manufacturing Automation Laboratory, University of British Columbia

11:30 a.m. Investigation on Additive Manufacturing of tungsten carbide–cobalt by
Selective Laser Melting
E. Uhlmann; A. Bergmann; W. Gridin

11:50 a.m. An evaluation of cutting edge and machinability of inclined planetary motion milling
for difficultto-cut materials
H. Tanaka; M. Kitamura; T. Sai; K. Yanagi

12:10 p.m. Model-based investigation of thermal loading in milling processes including chatter
M. Schweinoch; R. Joliet; P. Kersting; A. Zabel

12:30 p.m. Lunch Break and Guided Tour in the Machining and Machine Tool Laboratory

01:30 p.m. An Experimental study on Turning of AL 6063 under cryogenic Pre cooled condition
S. Murugappan; S. Arul; P. Sridhar

01:50 p.m. Optimized and Cost-Efficient Compression Moulds Manufactured by Laser Beam
Melting for the Production of Thermoset FRP Aircraft Components
J. Wulfsberg; M. Fette; A. Herrmann; P. Sander

02:10 p.m. Enabling an Industrial Robot for Metal Cutting Operations
B. Denkena; T. Lepper

02:30 p.m. Technological and Economical Assessment of Alternative Process Chains for Blisk Manufacture
F. Klocke; M. Zeis; D. Heinen; J. Kerkhoff; A. Klink
Location: Burg Königsworth
Under the old arches of the castle you can interact with other participants, exchange ideas and enjoy the excellent conference dinner in a very special atmosphere.

On the evening of November 18th we invite you to a conference dinner at the castle Königsworth in downtown Hannover.

In the special atmosphere of an old beer brewing cellar you will have the chance to get in touch with other conference participants.

Address
Burg Königsworth
Königsworther Straße 27
30167 Hannover

We are looking forward to lively discussions before and after dinner in an appealing and historical atmosphere sitting between the old and impressive copper tanks.
Accommodation and Hotel Offers

For your stay in Hannover we reserved a certain hotel allocation near the conference venue or the dinner location. Please address all hotels directly for bookings. For booking the rooms to the prices listed below, please indicate the keyword “MIC2015”.

- **Hotel Landhaus am See****
  Seeweg 27-29
  30827 Garbsen
  Phone: +49 5131 4686-0
  info@landhausamsee.de
  Distance to PZH: 3 km
  Distance to Burg Königsworth: 12 km
  Rate: 90 EUR
  (Single/per night, incl. breakfast)

- **City Hotel Hannover***
  Limburgstrasse 3
  30159 Hannover
  Phone: +49 511 3607-0
  info@cityhotelhannover.de
  Distance to PZH: 12 km
  Distance to Burg Königsworth: 2 km
  Rate: 72 EUR
  (Single/per night, incl. breakfast)

- **Hotel-Restaurant Bullerdieck****
  Bürgermeister-Wehrmann-Straße 21
  30826 Garbsen-Frielingen
  Phone: +49 5131 458-0
  info@bullerdieck.de
  Distance to PZH: 8 km
  Distance to Burg Königsworth: 17 km
  Rate: 87 EUR
  (Single/per night, incl. breakfast)

- **Hotel Amadeus****
  Fössestraße 83
  30451 Hannover
  Phone: +49 511 219760
  info@hotelamadeus.de
  Distance to PZH: 10 km
  Distance to Burg Königsworth: 2 km
  Rate: 75 EUR
  (Single/per night, incl. breakfast)

- **Hotel Globotel***
  Porschestraße 8
  30827 Garbsen
  Phone: +49 5131 492-0
  info@globotel.de
  Distance to PZH: 1 km
  Distance to Burg Königsworth: 11 km
  Rate: 62 EUR
  (Single/per night, incl. breakfast)
Conference Venue

Hannover Centre for Production Technology (PZH)
of the Leibniz Universität Hannover
An der Universität 2
30823 Garbsen

www.pzh-hannover.de

Transfer
A Shuttle service will be provided between the conference venue (PZH), the offered hotels and the evening event (Burg Königsworth). For the following routes, transportation is organized:

Directions – November 18th:
Centre for Production Technology (PZH) ➔ Hotels
Hotels ➔ Evening Event Burg Königsworth
Evening Event Burg Königsworth ➔ Hotels

The exact schedule can be found in the conference documents.

Overview of the PZH
The number of participants is limited. The participation fee includes conference documents, two lunches, one dinner, coffee and soft drinks during the breaks and shuttle service between the conference venue and the evening event.

All presentations will be translated simultaneously into German and English.

The certificate of participation and invoice will be sent to you after receiving your registration. If you cancel your registration by October 31st 2015, we will refund the participation fee deducting an administrative charge of 50 EUR. Otherwise, the participation fee must be paid in full.

For further information about the conference please visit the website of the Machining Innovations Network e.V. www.mic-conference.com

Host
The conference is hosted by the Machining Innovations Network e.V. in cooperation with the Institute of Production Engineering and Machine Tools of Leibniz Universität Hannover, Germany.

Gerd Weber
Chairman of the Board of Machining Innovations Network e.V. and Head of the Varel/Bremen site at Premium AEROTEC GmbH

Prof. Dr.-Ing. Berend Denkena
Board Member of Machining Innovations Network e.V. and Head of Institute of Production Engineering and Machine Tools of Leibniz Universität Hannover

Contact
For organisational questions and further, detailed information please contact:

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Fax +49 511 762-5115
grabowski@ifw.uni-hannover.de
I hereby acknowledge my participation in the 15th Machining Innovations Conference for Aerospace Industry on November 18th and 19th 2015 in Hannover, Germany. Please send me a certificate of participation.

Please mark with a cross where applicable.

☐ 650 EUR per person plus VAT
   Participation on November 18th and 19th 2015

☐ 550 EUR for members of the Machining Innovations Network e.V. plus VAT
   Participation on November 18th and 19th 2015

☐ 400 EUR per person plus VAT
   Participation only on November 18th 2015

☐ 400 EUR per person plus VAT
   Participation only on November 19th 2015

Last Name  First Name  Title

Company/Institute

Address  ZIP Code, Residence

Phone  Fax

E-Mail

If you wish to register further participants, please make copies and send the information separately. The above-mentioned data will be included in the list of participants, which will be handed over to each conferee.

Place, Date  Signature