

## **International Conferences**

**“New Developments in Sheet Metal Forming”  
May 4th / 5<sup>th</sup> May 2010**

**“Hydroforming of Sheets, Tubes and Profiles ”  
6<sup>th</sup> May 2010**

**Conference Chairman: Prof. Dr.-Ing. M. Liewald MBA**

# **“New Developments in Sheet Metal Forming”**

## **4th / 5th May 2010**

**This International Conference gives a review of new developments in sheet metal forming. Aim of this conference is to present the state-of-the-art in sheet metal forming from a practical and scientific point of view. Furthermore market tendencies are displayed as well as future prospects on relevant manufacturing processes.**

**9.00**

**Prof. Dr.-Ing. M. Liewald MBA**

**Institute for Metal Forming Technology (IFU), Universität Stuttgart**

## **Welcome and Introduction**

**9.15**

**Dr. sc. techn. D. Hundt, President,**

**Bundesvereinigung der deutschen Arbeitgeberverbände (BDA)**

## **Germany - Centre of Innovative Industries in the Heart of Europe**

- **Economical state of today**
- **Economic challenges**
- **Future of the “MINT” Initiative**
- **Outlook: Europe**

**9.40**

**Dr. V. Chaillou, COO  
ESI Group, France**

### **The Challenge of the Virtual Manufacturing Chain to Achieve End to End Virtual Prototyping**

- **Software Development for Virtual Manufacturing**
- **Stamping Simulation**
- **Chaining of Simulation Disciplines**

**10.05**

**Dipl.-Ing. J. Bleher, Managing Director  
TRUMPF Laser- und Systemtechnik, Germany**

### **New Developments in the Process Chain Warmforming**

- **Warmforming**
- **Hot forming**
- **Laser cutting**
- **Induction**
- **Laser machining**
- **Hot forming solutions**

## Innovations Management / Innovations Research

**11.00**

**Prof. Dr.-Ing. Dr.-Ing. E.h. D. Spath, Director,  
Institute for Human Factors and Technology Management, Universität Stuttgart**

### **From Evolutionary to Revolutionary Innovations**

- **People need a future**
- **Future needs innovation**
- **Innovation needs research**
- **Accelerating innovation processes**
- **New approaches in innovation management**

**11.25**

**Prof. Dr.-Ing. B. Scholz-Reiter, Managing Director  
BIBA - Bremer Institut für Produktion und Logistik GmbH, Universität Bremen, Germany**

### **Sustainable Ramp-Up Management in SMEs of the Automotive Electronic Industry**

- **Ramp-Up Management**
- **Production Networks**
- **Knowledge Management**

**11.50**

**Prof. Dr.-Ing. habil. B. Awiszus, Head of Chair**

**Ostfalia University of Applied Sciences, Fachhochschule Braunschweig**

### **Integrated Simulation Process Chains in the Vehicle Development**

- **Integrated process simulation**
- **Mapping of simulation results**
- **Interface definition**
- **Storage of simulation data in a product data management system**
- **Development of reference processes and workflows**
- **Module cockpit - status lights**

**12.15**

**Dipl.-Ing. K. Aida, President & CEO**

**AIDA Engineering Ltd., Japan**

### **Servo Press Technology - Innovation, Strategy and Efficiency - New Developments in Japan and Europe**

- **Servo presses**
- **Latest developments**
- **Innovations**
- **Energy management**
- **Data transfer**
- **Reduction of tryout time**

## Materials and Forming Processes

2.15

**Dr. W. Kubli, CEO & President  
Autoform, Switzerland**

### **More Efficient Processes by Comprehensive Digital Process Planning**

- **Geometry based process plan**
- **Cost optimization**
- **The ideal process**
- **Robust forming processes**
- **Digital tryout support**

2.40

**Dr.-Ing. J. Overrath, Member of the Executive Board  
ThyssenKrupp Sofedit SAS**

### **Current Trends in the Material and Manufacturing Development for Hot Stamping Parts**

- **Hot stamping**
- **Material development**
- **Tailored tempering**
- **Process technology**

### 3.05

**Dr.-Ing. M. Sindel, Quality Assurance Materials Engineering, Head Aluminium Technology, Audi AG, Germany**

### **Quality Requirements for Sheet Metal Components in Automotive Light Weight Construction at Audi**

- **Material requirements**
- **Design requirements**
- **Process chain**
- **Quality**
- **Aluminium alloys**

### 3.30

**Dipl.-Ing. U. Kneiphoff, Senior Engineer, ThyssenKrupp Steel Europe**

### **Advanced Forming Technologies with Innovative Steel Grades, InCar Prototyping Report**

- **T<sup>3</sup> Profil forming process**
- **New multiphase steel grades**
- **Magnesium flat sheet products**
- **Prototyping**



## Lightweight Construction

4.30

**Dr.-Ing. K.-H. Füller, Manager Metals, Forming Technologies  
Daimler AG**

### **Lightweight Design with Metals – Challenge for Forming Technologies**

- **Lightweight**
- **Steel**
- **Aluminium**
- **Magnesium**
- **Titan**
- **New process chains**

4.55

**Dipl.-Ing. N. Koch, Group Leader  
Adam Opel GmbH, Germany**

### **Thin Sheet Strategy at Opels**

- **Blank thickness reduction**
- **Weight reduction**
- **Surface defects**
- **High strength materials**
- **Strain hardening**
- **Pre-straining**

**5.20**

**Prof. Dr.-Ing. H. Hoffmann, Head of Institute  
Institute for Metal Forming and Casting, TU München, Germany**

### **Process Stability of Magnesium AZ31 Shearing**

- **Magnesium**
- **Shearing**
- **Experimental tool for heated shearing**
- **Continuous stroke**
- **Mechanisms of flaking**

**Wednesday 5<sup>th</sup> May, 2010**

## **Tools**

**8.30**

**Prof. Dr.-Ing. K. Roll, Manager,  
Daimler AG, Germany**

### **Innovative Methods for the Design of Forming Tools in Automotive Manufacturing - Status Report**

- **Outline of the BMBF project IMAUF**
- **Elastic tool elastic machine**
- **Approaches regarding structure optimisation**
- **Geometry compensation**
- **Potential concerning quality and cost**

**8.55**

**Dipl.-Ing. C. W. Eckard, Managing Director  
CES Eckard GmbH, Germany**

### **Weight Optimisation of Large Stamping Tools by Using Force Flow Methods**

- **Weight optimisation**
- **Force flow method**

**9.20**

**Dr.-Ing. B. Haller, Head Die Design  
Audi Hungaria Motors Kft, Hungary**

### **Design Accompanied Die- and Press Simulation**

- **Collision verification**
- **Securing number of strokes**
- **Reduction first assembly time**
- **Optimisation of the motion sequence of the transfer**

**9.45**

**Dipl.-Ing. S. Huhn, Software Product Manager  
Forming Technologies Deutschland GmbH**

### **On Process Planning Methodologies for Sheet Metal Stampings**

- **Process planning**
- **Tool cost estimation**
- **Progressive dies**
- **Transfer dies**
- **Forming feature recognition**

## Warm Forming, High Strength Steel

### 2.10

**Dipl. Ing. (FH) R. Kelsch MBA, Head Technology  
voestalpine Polynorm GmbH & Co. KG**

### **New Developments in Heat Supported Forming of Aluminium Sheet Metal**

- **Forming techniques**
- **Heating technologies**
- **Aluminium alloys 5xxx, 6xxx, 7xxx**
- **Examples, improvements**

### 2.35

**Prof. Dr. T. Altan, Director  
Engineering Research Center for Net Shape Manufacturing (ERC/NSM), Ohio State University,  
USA**

### **Challenges in Forming Advanced High Strength Steels**

- **Springback**
- **Formability**
- **Flow stress**

**3.00**

**Dr.-Ing. E. Schaeper, Forming Customer Support  
ArcelorMittal, Germany**

### **Prediction of the Formability of Hot Stamped Parts**

- **Hot stamping**
- **Numerical simulation**
- **Formability limits**
- **Laser welded solutions**
- **Press hardened steels Usibor**

## Robust Processes

**4.00 pm**

**Dipl.-Ing. W. Wiedenmann, Area Manager Sales and Marketing,  
Andritz Kaiser GmbH**

### **Increase of Production Output with Servo Presses - Limits and Chances**

- **Overview of actual servo drive technology of presses**
- **Report of delivered facilities**
- **Chances and limits of the servo technique**
- **Short presentation of new innovations**
- **Estimation of general market development**

**4.25**

**Dipl.-Ing. A. Emrich**

**Group Leader Simulation & VR, Die & Stamping Manager Quality & Strategy  
Adam Opel GmbH, Germany**

### **Validation of the Robustness of Sheet Metal Forming in Simulation**

- **Process robustness**
- **Reduction of scatter**
- **Target results**
- **Stochastic analysis, DoE**

**4.50**  
**Prof. Dr.-Ing. M. Liewald MBA, Director**  
**Institute for Metal Forming Technology (IFU), Universität Stuttgart, Germany**

**Detection and Closed-loop Control of Local Part Wall Stresses for Optimisation of Deep Drawing Processes**

- **Deep drawing**
- **Closed-loop control**
- **Sensors**
- **Part wall stress**
- **FEA**
- **Optimisation**

**5.15**

**Close**



# **“Hydroforming of Sheets, Tubes and Profiles”**

## **6th May 2010**

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**9.00**

**Prof. Dr.-Ing. M. Liewald MBA**

**Institute for Metal Forming Technology (IFU), Universität Stuttgart**

### **Welcome and Introduction**

**9.15**

**Prof. Dr.-Ing. M. Liewald MBA**

**Institute for Metal Forming Technology (IFU), Universität Stuttgart**

### **State-of-the-Art and Recent Developments in Hydroforming in Europe**

**9.40**

**Dipl.-Ing. P. Freytag, Managing Director**

**Salzgitter Hydroforming GmbH & Co. KG**

### **Hydroforming - Manufacturing and Development from a Serial Production Producers Perspective**

- **Market development**
- **Specific material characteristics**
- **Tolerances in serial production**
- **New applications and features**

**10.05**

**Dr. S. Geißler, Managing Director  
fischer Hydroforming GmbH, Germany**

### **Increase of Benefit of Hydroforming Process by Integration of Additional Process Steps**

- **Joining by hydroforming**
- **Cutting by hydroforming**
- **Bending by hydroforming**
- **Cost advantage**
- **Efficient manufacturing**
- **Additional benefit by hydroforming**

**11.00**

**Dipl. Ing. C. Merten, Product Manager  
Schuler SMG GmbH & Co. KG.**

### **EXFREE - Expansions Free IHP, a Process Variant with New Applications**

- **Origin and description**
- **Compared with conventional IHP**
- **Process flow and equipment**
- **Applications and examples**

**11.25**

**Prof. Dr. G. Liu, Assistant to Dean**

**Harbin Institute of Technology, Harbin, PR China**

### **Hydroforming of Thin-Walled Tubular Parts of Stainless Steel and Aluminium Alloy**

- **Hydroforming of Y-shaped tube**
- **Approaches to avoiding wrinkling and cracking for thin-walled tube**
- **Finite element analysis on effects of preforming and loading path on plastic deformation, wrinkles and thickness distribution, etc.**
- **Forming limit of small radii on components with various cross-sections**

**11.50**

**Prof. Dr. S. Kivivuori, Professor**

**Aalto University School of Science and Technology, Espoo, Finland**

### **Research Based Innovations for Tube Hydro Forming Process, Products and Materials Testing**

- **Tube hydro forming**
- **Process innovation**
- **Product innovation**
- **Materials research**

**12.15**

**Dr. A. Mentella, VM Support Engineer  
ESI Italia**

## **New Potential Application for Tube and Sheet Hydroforming in Furnishing and Household Hardware**

- **Tube hydroforming**
- **Double sheet hydroforming**
- **Flexible manufacturing**
- **Low volume production**

**2.15**

**Dr.-Ing. A. Hauger, Head Division Body  
Muhr und Bender KG, Germany  
Dipl.-Ing. H.-W. Scholz, Head Development Axis, Components Chassis  
Volkswagen AG, Germany**

## **Hydroforming of Tailor Rolled Tubes Using the Example of Axle Components**

- **Flexible Rolling for Tailor Rolled Tubes**
- **Design layout**
- **Process chain and production tolerances**
- **Lightweight design with adjusted metal sheet thicknesses**
- **Deriving part families**
- **Outlook for complex components and spaces**

**2.40**

**Prof. Dr.-Ing. B. Engel**

**Institute for Production Technology and Machine Tools, Universität Siegen, Germany**

### **Tube Bending - Process Variable for Hydroforming**

- **Free-form bending**
- **Machine and tooling concept**
- **Process window**
- **Forming strategy**

**3.05**

**Prof. Dr.-Ing. Dipl. Wirtsch.-Ing P. Groche, Director**

**Institute for Production Engineering and Forming Machines Technische Universität Darmstadt, Germany**

### **Customised Material for Hydroforming**

- **Potentials by the use of customised material**
- **Manufacture for customised material**
- **Subsequent processing through tube hydroforming**
- **Subsequent processing through sheet hydroforming**

**4.00**

**Dipl.-Ing. C. Bolay, Scientific Assistant**

**Institute for Metal Forming Technology (IFU), Universität Stuttgart, Germany**

### **Enhanced Process for Double Sheet Hydroforming**

- **Die concept**
- **FEA and process control**
- **Die design**
- **Experimental investigations**

**4.25**

**Dr.-Ing. S. Wagner**

**Institute for Metal Forming Technology, Universität Stuttgart, Germany**

### **Die Concepts for Hydroforming of Low Volumes**

- **Die design, costs**
- **Addendum design**
- **Process combination**

**5.40**

**Closing Remarks: Prof. Dr.-Ing. M. Liewald MBA**

# **Guided Tours to Industrial Companies**

**3rd May 2010**

**Audi AG, Neckarsulm**

**Läpple Werkzeugbau GmbH, Heilbronn**

**Daimler AG, Sindelfingen**

**TRUMPF Werkzeugmaschinen, Ditzingen**



## Participation Fee

**You can apply for each of the following conferences:**

<b>Sheet Metal Forming, 4th/5<sup>th</sup> May</b>	<b>2 days 890.- €</b>
<b>Hydroforming, 6<sup>th</sup> May</b>	<b>1 day 490.- €</b>
<b>Sheet Metal- and Hydroforming, 4th – 6<sup>th</sup> May</b>	<b>3 days 1280.- €</b>

## Venue

**The International Conference takes place in  
the Schwabenlandhalle in Fellbach (near Stuttgart)**

**Tainer Str. 7, 70734 Fellbach**