EUROPEAN TRAINING CENTER FOR HOT STAMPING TECHNOLOGY
– 5th PHS Suppliers Forum –

www.hotforming-academy.com
The GRUNDIG AKADEMIE was founded by Max Grundig more than 38 years ago. He was one of Germany’s most successful entrepreneurs and set the akademie up as a non-profit organization.
Since then GRUNDIG AKADEMIE has been a reliable training partner for many companies, organizations and individuals. The academy offers a broad range of professional education, from technical vocational schools to open enrolment courses in management, IT and engineering and long term vocational training with certified diplomas.
During the past 10 years, press hardening has become a fully established and recognized technology in both science and industry for the production of ultra-high-strength structural components. Specifically within the automotive industry. Apart from the obvious and valuable improvement in car performance, such as safety and lightweight design, the production process is also one focus of trends in technology development in the field of press hardening.

Owing to the additional process parameter of temperature, the energy and resource efficiency of such processes is one of the most important challenges. These include alternative process steps and process chains as well as zero defect manufacturing by intelligent process control. Alongside the high energy effort required for heating up the blanks to austenitization temperature; the production floor space requirement is also comparably high, particularly for heating devices. Due to the growing product variety in automobile production, combined with shorter product life cycles, the flexibility of production processes becomes more and more significant, which is also true for press hardening. This includes production organization as well as flexibility of production devices.

However, it has become clearly understood and obvious during these years of appliance in industrial scale, that press hardening is an inevitably knowledge-driven technology. Without an accurate and clear understanding of the governing thermo-mechanical mechanisms, paired with systems and tool engineering, it is perhaps possible to move along to the “low-end” of technology but impossible to reach the “high-end”. The acquisition of substantial knowledge, therefore, constitutes the main “key” to be successful in the aforementioned sense.

The GRUNDIG AKADEMIE PHS-Trainings, each focusing on a particular aspect of technology, provides comprehensive access to valuable and extensive knowledge on hot sheet metal forming.

Dipl.-Ing. Frank Schieck
Following on from the highly successful international trainings and seminars on HOT STAMPING TECHNOLOGY during the last five years, the upcoming EUROPEAN Compact Training represents what the GRUNDIG AKADEMIE has proven and continues to provide in the press-hardening world:

HIGH QUALITY TRAININGS SPECIFICALLY DEDICATED TO PHS TECHNOLOGY.

Clearly, the leading players in industrial press hardening technology rely on the high standard of the GRUNDIG AKADEMIE’s training program to qualify their engineering staff.

Therefore, we would like to invite you to participate in this two-day event (Wednesday to Thursday) and encourage you to take the opportunity to taking home facts and information

- Practical experience of current Tier1 projects
- Strategic insights into global Tier1 suppliers
- Innovative strategies for material- and tool-manufacturers
- Important impulses for future facility planning
- Valuable contacts with representatives of the world’s leading OEM-suppliers network

KEY PLAYERS

- Luke Reini (General Motors Company, Global Vehicle Engineering, Detroit, MI, USA)
- Dirk Landgrebe (Fraunhofer Institute IWU, Chemnitz, Germany)
- Frank Schieck (Fraunhofer Institute IWU, Chemnitz, Germany)
- Manuel Lopez (Gestamp BIW, Sant Esteve Sesrovires, Spain)
- Robert Vollmer (Technical University Graz, Institute for Tools & Forming, Graz, Austria)
- Fritz Ebner & Gerhard Schöfl (Ebner Industriefenbau GmbH, Leonding, Austria)
- Christian Hezler (voestalpine PHS, Schwaebisch Gmuend, Germany)
- Gerhard Jesner (Böhler Edelstahl GmbH & Co. KG, Kapfenberg, Austria)
- Christian Conrad (Fraunhofer Institute IZFP, Saarbruecken, Germany)
- Eric Kam (AutoForm Engineering USA, Inc., Troy, MI, USA)
- Michael Fritz (Trumpf Laser- und Systemtechnik GmbH, Ditzingen, Germany)
- Christian Palm (Schuler Pressen GmbH, Waghäusel, Germany)
- Johannes Bührle (Zwick Roell Materials Testing Machines, Ulm, Germany)
- Jana von der Heydt (WISCO Tailored Blanks GmbH, Duisburg, Germany)
- Artur Akimow (Neue Materialien Bayreuth, Bayreuth, Germany)

Bringing together the total picture on

- Press Hardening Methods in Automotive Application
- Materials and Coatings, Process and Alloy Influences on PHS Impact Performance - Key Note
- Heating Technologies
- Tool and Plant Technologies
- Industry 4.0 in the Press Shop - Key Note
- Quality Control & Process Monitoring
- Process Simulation
- Follow-up Operations (Laser-Cutting and Joining Methods)
- Automotive Trends and Challenges - Key Note

With technology inputs from the leading players and guided as a “common thread” from Dipl.-Ing. Frank Schieck (Fraunhofer Institute for Machine Tools and Forming Technology, IWU). Being in control of the complexity of PHS technology requires a comprehensive understanding of what needs to be included accurately in sense of materials performance, process technology and part design. In a series of short presentations, representatives from leading players in Industrial Hot Stamping describe and illustrate key aspects and state-of-the-art procedures. The entire thematic completion will be brought together by the knowledge and commentaries of internationally renowned experts.

WEDNESDAY, October 26th | 10:00 a.m. – 06:15 p.m.

Thematic completion of technology inputs from the leading players and guided as a “common thread” from Dipl.-Ing. Frank Schieck ( Fraunhofer Institute for Machine Tools and Forming Technology, IWU). Being in control of the complexity of PHS technology requires a comprehensive understanding of what needs to be included accurately in sense of materials performance, process technology and part design. In a series of short presentations, representatives from leading players in Industrial Hot Stamping describe and illustrate key aspects and state-of-the-art procedures. The entire thematic completion will be brought together by the knowledge and commentaries of internationally renowned experts.

THURSDAY, October 27th | 10:00 a.m. – 06:15 p.m.

Within the selected topical units, specialized skills are given to provide insight and understanding in process monitoring strategies, in simulations based on process design and design optimization, dies and tools and in post-processing technologies.

Additionally, the participants will have an understanding of the interactions within each individual technical content in the 4 units.

- Unit CT-1: Simulation (AutoForm)
- Unit CT-2: Tooling (Schuler)
- Unit CT-3: Process Monitoring & Product Quality Control (T&F, Fraunhofer IZFP, Zwick)
- Unit CT-4: Laser Application (Trumpf)

The participants will circle through the 4 interactive units in small training groups.
# Short PHS Training Course

## Day 1: October 26th, 2016

### General Introduction

**10:00 a.m.**
**Welcome**
Christian Kovacs
(GRUNDIG AKADEMIE, Nuremberg, Germany)

### Module 1: Press Hardening Steel (PHS) in Automotive Application

**10:05 a.m.**
**General Introduction – Press Hardening vs. Cold Forming**
Frank Schieck (Fraunhofer IWU, Chemnitz, Germany)

**10:20 a.m.**
**Developments in PHS-Plant-Technology for the new PHS-Directform-Process**
Christian Hezler (voestalpine PHS, Schwaebisch Gmuend, Germany)

**10:45 a.m.**
**Update on New Zinc Coated Material for Hot Stamping**
Manuel Lopez (Gestamp BW, Sant Esteve Sesrovires, Spain)

**11:05 a.m.**
**Innovative Process Concept for the Production of Thin-Walled Press-Hardened Components**
Artur Akimow (Neue Materialien Bayreuth, Bayreuth, Germany)

**11:30 a.m.**
**Key Note / Process and Alloy Influences on PHS Impact Performance**
Luke Reini (General Motors Company, Global Vehicle Engineering, Detroit, USA)

**11:50 a.m.**
Business Lunch

### Module 2: Tool Steel, Tailored Blanks and Coatings

**1:00 p.m.**
**Importance of Tooling for Overall Process Chain**
Frank Schieck (Fraunhofer IWU, Chemnitz, Germany)

**1:10 p.m.**
**Current Changes of Tooling Technology in Hot Stamping**
Robert Vollmer (T&F, Graz, Austria)

**1:30 p.m.**
**Latest Developments of Tool Steels for Hot Stamping**
Gerhard Jesner (BÖHLER Edelstahl GmbH & Co KG, Kapfenberg, Austria)

**1:50 p.m.**
**Optimizing Parameters for Hot Formed Tailored Blank Applications**
Jana von der Heydt (WISCO Tailored Blanks GmbH, Duisburg, Germany)

**2:10 p.m.**
Short Break

### Module 3: Press Hardening Steel (PHS) in Automotive Application

**2:40 p.m.**
**History of Press Hardening – from Nish Product to large Scale Production**
Frank Schieck (Fraunhofer IWU, Chemnitz, Germany)

**2:50 p.m.**
**From First Draft to Serial Production: Increase ROI with Turnkey Hot Stamping Solutions**
Christian Palm (Schuler Pressen GmbH, Waghäusel, Germany)

**3:10 p.m.**
**Production Experiences with Tailored Tempering Solutions in PH-Furnaces**
Fritz Ebner & Gerhard Schöfl (Ebner Industrie- fenbau GmbH, Leonding, Austria)

**3:30 p.m.**
**Reliable Materials Testing in Support of Efficient Hot Forming Processes**
Johannes Bührle (Zwick Roell Materials Testing Machines, Ulm, Germany)

**3:50 p.m.**
**Testing of PHS CarBodyParts - Process Integrated, Reliable and in a Matter of Seconds!**
Christian Conrad (Fraunhofer IZFP, Saarbruecken, Germany)

**4:10 p.m.**
**Outlook Laser Machines - Developments in Laser Technology for even higher Productivity**
Michael Fritz (Trumpf Laser- und Systemtechnik GmbH, Ditzingen, Germany)

**4:30 p.m.**
Short Break

### Module 4: Trends and Challenges in PHS

**4:50 p.m.**
**Key Note / Industry 4.0 in the Press Shop: Smart Model Supply Chain for Press Hardening**
Dirk Landgrebe (Fraunhofer Institute IWU, Chemnitz, Germany)

**5:10 p.m.**
**Energy- and Resource Efficient Press Hardening - Where the Journey is heading to**
Frank Schieck (Fraunhofer IWU, Chemnitz, Germany)

**5:25 p.m.**
**Key Note / Automotive Trends and Challenges**
Luke Reini (General Motors Company, Global Vehicle Engineering, Detroit, USA)

**5:55 p.m.**
**Open Forum, Final Remarks & Lessons Learned**
Frank Schieck (Fraunhofer IWU, Chemnitz, Germany)

**6:15 p.m.**
End of Day 1
On the second day we will split the conference into four groups for the hands-on trainings. By doing so you will have the opportunity to put your know-how into practice by participating at the exclusive hands-on trainings. In four different units at these training locations, you will gain an understanding of the crucial PHS-processes. Several key players in the press hardening technology will host the trainings. We will walk you to our training partners which training locations are only a few minutes away from each other.

**GROUP „RED“**

<table>
<thead>
<tr>
<th>Location: Convention Center, Saal 3A</th>
<th>„How it Works“ – Short Introduction on Contents and Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:55 a.m.</td>
<td>Christian Kovacs (GRUNDIG AKADEMIE, Nuremberg, Germany)</td>
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**Unit 1:**

Hands-On Experience; Process Inputs for Press-Hardening Engineering and Simulation

Eric Kam (AutoForm Engineering USA, Inc., Troy, MI, USA)

**Unit 2:**

Hands-On Press Hardening Tools Engineering

Christian Palm (Schuler Pressen GmbH, Waghäusel, Germany)

**Unit 3:**

Process Monitoring & Product Quality Control

Robert Vollmer (T&F, Graz, Austria, Christian Conrad and Johannes Bührle Fraunhofer Institute IZFP, Saarbruecken, Germany and Zwick Roell, Ulm, Germany)

**Unit 4:**

Profound Understanding of the State of the Art Laser Cutting Process and its Key Components

Michael Fritz (Trumpf Laser- und Systemtechnik GmbH, Ditzingen, Germany)

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Christian Palm (Schuler Pressen GmbH, Waghäusel, Germany)

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The color of your name badges, you will receive on the first day of the event, tells you where and in which unit you start the training day. It is important to keep your name badges after the first event day.

After the hands-on trainings on the second day, we will all have the opportunity to get together for discussions and networking in the Foyer of the Convention Center.

### GROUP „BLUE“

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<td>Process Monitoring &amp; Product Quality Control Robert Vollmer (T&amp;F, Graz, Austria, Christian Conrad and Johannes Bührlie Fraunhofer Institute IZFP, Saarbruecken, Germany and Zwick Roell, Ulm, Germany)</td>
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<td>Profound Understanding of the State of the Art Laser Cutting Process and its Key Components Michael Fritz (Trumpf Laser- und Systemtechnik GmbH, Ditzingen, Germany)</td>
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<td>01:00 p.m.</td>
<td>Business Lunch, Convention Center, Foyer</td>
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<td><strong>Unit 1:</strong> 02:15 p.m.</td>
<td>Hands-On Experience; Process Inputs for Press-Hardening Engineering and Simulation Eric Kam (AutoForm Engineering USA, Inc., Troy, MI, USA)</td>
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<td><strong>Unit 2:</strong> 03:45 a.m.</td>
<td>Hands-On Press Hardening Tools Engineering Christian Palm (Schuler Pressen GmbH, Waghäusel, Germany)</td>
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<td>05:15 p.m.</td>
<td>Networking Reception, Convention Center, Foyer</td>
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<td>End of Day 2</td>
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The GRUNDIG AKADEMIE is extending its highly successful and OEM-accepted training and qualification program for hot forming as well as PHS. Our particular attention is paid to:

**Support**
Throughout the entire market entry each customer is supported with an individual curriculum and assisted in optimizing the current running processes.

**Individual Training Curriculum**
Each curriculum in addition to the training period for the trainee is specific to each individual job description, job experience and the requested skills.

**Practical Exercises**
All training measures pay particular attention to focusing on integrating the participants interactively with practical exercises.

**Real Live Work Simulation**
The hands on contents are transferred at the furnace, press, specified measuring devices or at the simulation computer into deep expert know how.

**Optimal Transformation**
Limited sized groups are responsible for optimal transformation of the contents.
WHAT CAN YOU EXPECT FROM OUR TRAININGS?

ADDITIONAL TRAININGS

The additional trainings offer a wide range of suitable add on courses referring to the technology in complex metal forming, press hardening and hot stamping.

ONSITE EXECUTIVE TRAININGS

These trainings consist of concentrated and specific knowledge transfer in the form of seminar lectures and discussions, including joint field visits in the relevant fields (including the production, materials laboratory, receiving stock, finished goods, etc.).

ADVANCED TRAININGS

These trainings combine theoretical explanations of the respective core area with experimental internship in the laboratory and final analytical examination of generated press hardened parts.

FOUNDATION TRAINING

The range of this training begins with the stages of the art press hardening process, through solution-based problem solving approaches and finishes with new innovative ideas in the hot forming sector.

“We work continuously to set the standards in further education, to include the newest technologies and in doing so retain the innovative ability for our partners.”

Christian Kovacs, Technical Sales Manager, GRUNDIG AKADEMIE
VENUE

The EUROPEAN TRAINING CENTER FOR HOT STAMPING TECHNOLOGY will take place in Hanover, Germany, on October 26th - 27th, 2016 during the 24th International Sheet Metal Working Technology Exhibition EuroBLECH2016 (www.euroblech.com).

It takes place at the Convention Center (Saal 3A and Saal 11) within the fairground of the Deutsche Messe AG. (www.messe.de/homepage_e). The access to the EuroBLECH 2016 is not included!

GRUNDIG AKADEMIE

The GRUNDIG AKADEMIE is one of the most internationally renowned institutions in postgraduate training. The qualification in “Press Hardening” is internationally accredited and focused on the needs of each individual company. The specified seminars are aimed at combining practical experience, fundamentals and innovative technologies on the shop floor.

Most Modern Learning Concepts and Learning Facilities
Partnership with Leading Institutes
Each Training includes Laboratory Internships
The continuation of the successful series of conferences will take place during the International Trade Fair for Machine Tools, manufacturing and automation technology (intec) and the International Supplier Fair.

Our focus is this time will be on the topic: The digital factory as a resource-efficient product. In this context will realize i.a. industry-related presentation of the results of the E3-lead project. In addition to the lectures on the previous day we will offer individual workshops on the three components of the E3-concept: efficient technology, energy-saving factory and human as factor of success.

We would like to open up the possibility of the meeting and the seminars to experience future production already and invite you for 8 March to Leipzig.