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Tuesday, May 21	1:30-3:00pm	FIA Marketing Committee <i>Forging 101</i>					
		Presses & Hammers Track A	Heating Track B	Tooling & Materials Track C	Facilities & Processes Track D	Software Simulation Track E	Automation Track F
	1 2:10-2:35 p.m.	Campbell Press Repair <i>Basics of PM Inspections</i>	Schlager Industrie Ofenbau GmbH <i>Forging Furnaces for Large Aerospace Parts with Heat Treat and Quenching</i>	Ellwood Quality Steels <i>Remitting Capabilities of Ellwood Quality Steels</i>		Tkach Consulting, LLC <i>Impressions Die Forged Product Design Considerations 101</i>	Absolute Welding & Machining <i>Using Advanced Robotic Welding to Address Problems in the Forging Industry</i>
	2 2:45-3:10 p.m.	SMS Group GmbH <i>Lightweight Forging</i>	Electrotherm <i>Fully Automated Heat Treatment Lines</i>		Carlesa NDE Services <i>Applying Non-destructive Examination Methods to Forge Presses</i>		Automated Cells & Equipment (ACE) <i>Forging Automation 101</i>
	3 3:20-3:45 p.m.	FICEP S.p.A <i>Smart Forging with DD Screw Press with KERS</i>		Gerdau <i>Forging Metallurgy 101</i>		PhotoGAUGE <i>Measure your Dies and Forgings using your Smart Phone</i>	
4 3:55-4:20 p.m.	American GFM Corporation <i>GFM Radial Forging- Shaping Future Innovations</i>	Inductoheat - An Inductotherm Group Company <i>Induction Heating for Forging 101</i>	TimkenSteel Corporation <i>International Lightweight Forging Initiative and High-Strength Steels</i>	GERB Vibration Control Systems <i>Forging Machine Foundations 101</i>	QForm/Forge Technology Inc. <i>Easy and Accurate Ring Rolling and Wheel Rolling Simulations in QForm</i>	DANGO & DIENENTHAL Group <i>Reasons to Modernize a Forging Plant with First-Class Equipment</i>	
	Track A	Track B	Track C	Track D	Track E	Track F	
Wednesday, May 22	5 9:30-9:55 a.m.	Campbell Press Repair <i>Maintenance and Repair Tips for Forging Equipment</i>	IQ Technologies, Inc. <i>Forging Process Improvement using Intensive Quenching Immediately After Forging Operations are Completed</i>	Weld Mold Company <i>What are you Waiting For? Flood Welding Works.</i>	GERB Vibration Control Systems <i>Modern Foundation Systems for Forging Presses and Hammers</i>	Transvalor Americas Corp <i>Transvalor Americas Introduces FORGE NxT 3.0- The Most Capable Forging Simulation Software</i>	Feedall Automation <i>Evolution of Productivity in Billet Feeding</i>
	6 10:05-10:30 a.m.	Erie Press Systems <i>Advances in Press Control</i>	Inductoheat- An Inductotherm Group Company <i>Top 10 Advances in Induction Heating for Forging</i>	Finkl Steel <i>Value Engineering for Optimal Die Performance</i>	FUCHS Lubricants Company <i>Graphite Influence of the Properties on the Lubricant Performance</i>	Scientific Forming Technologies Corp. <i>DEFORM- "The State of the Art" in Process Simulation</i>	Linsinger Maschinenbau GmbH <i>Optimization of Blank Weights for Automated Large Diameter Forging Lines</i>
	7 10:50-11:15 a.m.	Ajax-CECO <i>Pre-Processing for Better Material Utilization</i>	Interpower Induction <i>Induction Heating for Forging</i>	TimkenSteel Corporation <i>Achieving Affordable Power Densification in Steel Components through Cleanliness, Strength and Toughness</i>	Moffitt Corporation <i>Lowering Forge Temperature with a CFD-Modeled Natural Ventilation System</i>	Asahi Forge Group <i>Changing your Work Environment - What Can We Do?</i>	Blast Cleaning Technologies <i>Make Shotblasting Work for You- 10 Steps to Success</i>
	8 11:25-11:50 a.m.	Schuler, Inc. <i>Mechanical Forging Presses from Single Stroke to High Performance Servo Presses</i>	Ajax- TOCCO Magnethermic <i>"PowerForge" and "PowerZone" Digital Billet and Bar Heating Technology</i>	Uddeholm USA <i>Solving Tooling Challenges in Today's Emerging Environment</i>	Dynamic Surface Technologies International <i>Engineering Surface Treatments to Provide the Maximum Tool Life</i>	Metal Forming Research Corporation (MFRC) <i>Intelligent Metal Forming Simulation - Solution Accuracy</i>	Hauhinco <i>Revolutionary Technology for Billet Descaling in a Production Environment</i>
	9 2:10-2:35 p.m.	SMS Group GmbH <i>Forging Line Concepts for Aluminum Suspension Components</i>	DANGO & DIENENTHAL Group <i>Equipment for Heat Treatment Plants</i>	Superior Die Set <i>Die Sets in the Forging Environment</i>	VibroDynamics <i>Installation &amp; Isolation of Forging Hammers</i>	QForm/Forge Technology, Inc. <i>Find and Fix Defects Quickly with QForm's New Simulation Tools for Forging Ring Rolling and Heat Treatment</i>	Videx Machine Engineering <i>Videx Hot Forging Line</i>
	10 2:45-3:10 p.m.	LASCO Engineering Services <i>Virtual Commissioning of Forging Machines</i>	Fives North American Combustion <i>The Integration of Automated Heat Treat and Forging Processes</i>	Cor-Met, Inc. <i>Open Press and Seamless Ring Rolling Tooling: Repairs and Enhancements by Welding</i>	Oelheld U.S. <i>Forging Lubricants</i>	FIERF <i>Building Your Future Workforce at Community Colleges</i>	Schuler, Inc. <i>Advanced Press Cell for Isothermal, Open and Closed Die Forging</i>
	11 3:30-3:55 p.m.	Hatebur Meatforming Equipment Ltd. <i>Hatebur High Quality Precision Hotformed Parts</i>		Valbruna Slater Stainless, Inc. <i>Electro Slag Rapid Remelting (ESSR) for Stainless Steels: A New, Faster, More Efficient and Reliable Process</i>	Molygraph Lubricants <i>New Innovations in Forging Lubricants</i>	Advanced Technology International <i>Forging Defense Manufacturing Consortium (FDMC) Updates and Opportunities for FIA Members</i>	
12 4:05-4:30 p.m.	Siempelkamp L.P. <i>Aerospace Forging in 2019</i>	Transcon Conveyor <i>Conveyors &amp; Conveyor Maintenance 101/ Conveyors in Forging Applications</i>	ACERALAVA SAU, Tubacex Group <i>Aceralava Melting Shop Possibilities</i>	SGGT Hydraulik GmbH <i>High End Descaling in Forgings</i>	THORS LLC <i>Conquering the Skills Gap through E-Learning</i>	Gerdau <i>Safety 101</i>	
	Track A	Track B	Track C	Track D	Track E	Track F	
Thursday, May 23	13 9:40-10:05a.m.	Hydromec <i>Ring Rolling Development and Data for Lamination of Profiled Rings</i>	SMS Elotherm GmbH <i>EloForge 4.0: The New Benchmark for Inductive Bar and Billet Heating</i>				
	14 10:15-10:40a.m.	Tkach Consulting, LLC <i>Forging Process Design &amp; Equipment Selection 101</i>	CEFI Induction Heating <i>Bar Heater vs. Billet Heater; Hot Forging vs. Warm Forging</i>	Akron Steel Treating Company <i>Heat Treating 101 for Lean Part Makers in Industry 4.0</i>			
	15 10:50-11:15a.m.		ThermTech <i>Critical Considerations for Accurate Forging Heat Treatment Validation</i>	Gerdau <i>New Developments on Clean Steel for Lightweight Automotive Applications</i>	Advanced Technology International <i>Future Forging Customers 101</i>		

## **Forging 101- Why Forging?**

FIA Marketing Committee

Booth #NA

The FIA Marketing Committee will present the benefits of forgings over castings. The focus will be on how forgings are made and how quality is added through each step of the process. They will also explain how you can inquire for forgings with potential partners at the show.

1A

## **Basics of PM Inspections**

Campbell Press Repair

Booth #701

This presentation will cover the fundamentals of forging hammer and press preventative maintenance inspections. We will review basic inspection information and check sheets. Show photos and drawings of component parts and where to look for problems. We will also go over some standard clearances and tolerance checks. This talk will be good for those starting out in maintenance or doing PM inspections.

1B

## **Forging Furnaces for Large Aerospace Parts with Heat Treat and Quenching**

Schlager Industrie Ofenbau GmbH

Booth #519, 529

Schlager Industrie has vast experience in furnaces for the Aerospace Industry. Choosing the correct firing equipment and engineering the mechanical structure of the furnaces is critical to meet the needs of Aerospace customers. These design criteria will be discussed. Also, heat treat methods and choice of quenching media will be described for forgings up to 60 MT. Correct choices are important for elimination of cracks and maintaining uniformity.

1C

## **Remitting Capabilities of Ellwood Quality Steels**

Ellwood Quality Steels

Booth #429

Ellwood Quality Steels is installing a state-of-the-art VAR and ESR re-melting facility in support of the forging industry. This presentation will cover the new technology, capabilities, and added material offerings from Ellwood Quality Steels.

1E

## **Impression Die Forged Product Design Considerations 101**

Tkach Consulting, LLC

Booth #NA

This presentation will include a general discussion of key points which influence the type of forging processes required for economic production. We will compare and contrast the cold, warm and hot forging processes including the strengths of each process, the degree of net shape which can be achieved, tooling costs and equipment type. Finally, general guidelines will be presented for the development of raw forging designs including stock allowances based on forging process and subsequent machining, tolerances, drafts and parting lines.

1F

**Using Advanced Robotic Welding to Address Problems in the Forging Industry**

Absolute Welding & Machining

Booth #431

We will explore how Absolute Welding and Machining's use of advanced robotic welding of forging dies and components can help forgers address the significant problems experienced in their operations as listed in the "2019 Forging Business Outlook".

2A

**Lightweight Forging**

SMS Group GmbH

Booth #728

The forging line for aluminum wheels (truck and car) combines different groups of components for flexible and economic production of big lots of these parts. The preparation of the pre-material for this process, heating to forging temperature, closed-die forging, the spin forming and the final heat-treatment of the aluminum wheels are included in this concept.

2B

**Fully Automated Heat Treatment Lines**

Electrotherm

Booth #519, 529

Electrotherm offers fully automated turnkey projects including advanced control and HMI. Discuss design and automation considerations for heat treat lines and special challenges presented by both high and low temperature applications. Meeting AMS standards will be discussed. Automated quenching (water and oil) will be covered along with possible advantages of fast air cooling. Some prior installations will be discussed which show advanced over the last 7-10 years.

2C

**Forging Metallurgy 101**

Gerdau (GSN)

Booth #123

We will discuss the fundamentals of special bar quality (SBQ) steelmaking and its effect on the quality of steel forgings.

2D

**Applying Non-destructive Examination Methods to Forge Presses**

Carlesa NDE Services

Booth #948

We will discuss our application on non-destructive examination to forge presses and how it can benefit operations. We will cover preparation and planning, necessary access to critical components, safe application of NDE procedure, and why regular NDE application is important to mitigate and manage risk of press failure.

2F

**Forging Automation 101**

### Automated Cells & Equipment (ACE)

Booth #929

In this presentation you will learn all facets of how to approach your automation project. You'll discover solutions to your specific forging automation challenges and also engage during case study discussions.

3A

### **Smart Forging with DD Screw Press with KERS**

FICEP S.p.A

Booth #739

FICEP, important worldwide manufacturer of forging presses, developed a revolutionary "DIRECT DRIVE" system for screw presses. This new DD screw press, based on the concept of linear motor, has an "EXTREME HIGH TORQUE FRAMELESS MOTOR", designed to drive directly the screw of the press and guarantees highest performance and efficiency.

3B

### **Induction Heating 101 for Forging**

Inductoheat

Booth #301

Induction Heating for Forging 101 will focus on presenting the basics of induction heating and how it applies to billet heating for forging. The presentation will review the theory of induction heating, outline the key criteria's for design, illustrate equipment, present advanced features and discuss recommended preventative measures of an induction billet heater.

3D

### **Forging Machine Foundations 101**

GERB Vibration Control Systems

Booth #218

A properly planned foundation is an integral part in maintaining long-term performance of machinery. This presentation will guide the attendee through the project planning essentials required for a successful approach to foundation design, including an introduction to soil investigation, remediation, proper foundation design of monolithic and isolated mat foundations. The goal is to reduce foundation related problems, like settlement over the life of the machine.

3E

### **PhotoGAUGE: Measure your Dies and Forgings Using your Smartphone**

PhotoGAUGE

Booth #749

PhotoGAUGE technology acquires and converts a series of images from an inexpensive camera into a high-quality 3D scan, compares it to a CAD model and produces an automated metrology report. It is particularly well-suited to forgings because of their natural texture; a few illustrative applications will be presented.

4A

### **GFM Radial Forging- Shaping Future Innovations**

American GFM Corporation

Booth #248

GFM Radial Forging provides versatility to meet the requirements and target objectives for future innovations in the automotive, oil and gas, energy generation, medical and railroad industries. New developments by the GFM organization in the Radial Forging technology will empower suppliers and manufacturers with new possibilities in component design and manufacturing

4C

### **International Lightweight Forging Initiative and High-Strength Steels**

TimkenSteel Corporation

Booth #313

The Lightweight Forging Initiative is an international consortium focused on how optimized forging impacts the lightweighting potential of an automobile or highway truck drivetrain. TimkenSteel was one of 40 organizations offering input, and results were announced in 2018. Our testing demonstrates how high-strength, clean steels further increase this lightweighting potential.

4E

### **Easy and Accurate Ring Rolling and Wheel Rolling Simulations in QForm**

QForm/Forge Technology Inc.

Booth #118

Ring and wheel rolling processes have been difficult to simulate due to the complexity of the process dynamics and the relatively small area of deformation on a large rotating work piece. QForm has many features including a dual mesh method that make these simulations easy, accurate and relatively fast. The simulation may include the full sequence of operations from upsetting the ingot through rolling and heat treating. The mandrel and cone positions can be defined by graphs from the actual rolling machines. Real world examples of various types of production will be compared to simulated results.

4F

### **Reasons to Modernize a Forging Plant with First-Class Equipment**

DANGO & DIENENTHAL Group

Booth #801

A key point to satisfy the industrial sector is energy savings as well as maintenance friendliness as far as vital parts of a production is concerned. DANGO & DIENENTHAL has proven over decades to be ahead in this field. All machinery is customized and of modular design. This ensure the least-expensive operating cost in the market.

5A

### **Maintenance and Repair Tips for Forging Equipment**

Campbell Press Repair

Booth #701

The demands on forging equipment is only exceeded by the demands by your customer for quality, price and delivery. Consequently, uptime and dependability are important for your forging equipment. This presentation will cover some important tips for the maintenance and repair of your forging hammers, presses and upsetters.

5B

**Forging Process Improvement Using Intensive Quenching Immediately After Forging Operations Are Completed**

IQ Technologies, Inc.

Booth #915

The presentation presents results of evaluation of the application of the Direct from Forge Intensive Quenching (DFIQ™) process to steel forgings obtained in production conditions in three forging shops under the PROFAST government contract. Forgings of different configurations, weights and types of steels were subjected to the DFIQ process using a portable 600-gallon IQ water tank. Benefits of the DFIQ process are discussed.

5C

**What Are You Waiting For? Flood Welding Works.**

Weld Mold Company

Booth #704

With improved productivity and infinite useful tooling life, a dedicated die weld shop should be a no brainer. Upgrading the equipment should be considered a capital improvement and as essential as a billet heating upgrade. Robotics have an increasing role in forging die welding and is still beneficial in the flood welding process

5D

**Modern Foundation Systems for Forging Presses and Hammers**

GERB Vibration Control Systems

Booth #218

A properly planned foundation is an integral part in maintaining long-term performance of machinery. GERB Spring-VISCODAMPER mounts provide superior vibration isolation and settlement protection for Forging Hammers, Presses, Lathes, CMMs and other forge-shop equipment. Coupled with a GERB designed foundation you can expect a reduction in settlement, machine wear, precision equipment errors due to vibration, and operator fatigue.

5E

**FORGE NxT 3.0- The Most Capable Forging Simulation Software**

Transvalor Americas Corp.

Booth #309

Transvalor Americas Introduces FORGE NxT 3.0- The industry proven forging simulation solution. The session will cover new functionalities and improvements, customer benefits and real life customer case studies.

5F

**Evolution of Productivity in Billet Feeding**

Feedall Automation

Booth #1029

We have found that our forging customers continue to seek out solutions in their manufacturing operations to increase overall productivity. Over the past 25 years, we have witnessed an increase implementation for specific feeding and part handling automation with

these customers. However, not all automation provides the same level of productivity (i.e. cost-benefit) when it comes to accurately handling billets and other forged products.

6A

**Advances in Press Control**

Erie Press Systems

Booth #229

Review of a new press control platform which employs energy saving techniques and enables maintenance personnel to interrogate the “entire” control system from the operator interface. This platform incorporates animated hydraulic schematics screens that display the status of solenoid valves, proportional valves (commanded and actual position), motor speeds, and hydraulic pressures. Lastly, from the operator interface, the operator and maintenance personnel can access the press control schematics and data sheets of control devices on the machine.

6B

**Top 10 Advances in Induction Heating for Forging**

Inductoheat

Booth #301

The presentation will discuss the latest technological advancements available in the induction forging industry. From advanced surface to core temperature control and robotic interfaces, to automated billet purge systems, this presentation will focus on how incorporating these items can improve production throughout, decrease downtime, and provide more consistent product quality

6C

**Value Engineering for Optimal Die Performance**

Finkl Steel

Booth #901

Value engineering is a common tool used in manufacturing to assign resources to the most critical components of a project. When selecting a die steel for closed-die forging applications, the options do not have to be simply low- or high-end alloys. Rather, by assigning value to lifespan, ready to use delivery timeline, and re-sinking costs, a performance-optimized die steel can be realized. Case studies are presented that demonstrate the value of one optimized alloy over conventional low- and high-end options.

6D

**Graphite Influence of the Properties on the Lubricant Performance**

FUCHS Lubricants Company- Lubrodal Division

Booth #615

Graphite is a well-known solid lubricant in the forging industry. The decreasing cycle time of the presses and the more and more complex structure of the forged part itself are changing the demands on the lubricant and other properties will become more important for the performance of the die lubricant.

6E

**DEFORM- “The State of the Art” in Process Simulation**

Scientific Forming Technologies Corp.

Booth #212

The DEFORM system is process simulation software enabling engineers to analyze metal forming, heating and heat treatment processes on a computer. By replacing shop floor trials, manufacturers have lowered costs, improved quality and reduced development time. Recent DEFORM applications in forging, secondary processing, material modeling and optimization will be presented

6F

**Optimization of Blank Weights for Automated Large Diameter Forging Lines**

Linsinger Maschinenbau GmbH

Booth #339

Every forging process starts with the preparation of the forging blanks. Requirements to the forging process are constantly increasing in terms of material saving, productivity and yield. The use of state-of-the-art automated cold circular sawing systems enables higher quality and productivity, while producing to tightest weight tolerances.

7A

**Pre-Processing for Better Material Utilization**

Ajax-CECO

Booth #418

Abstract

7B

**Induction Heating for Forging**

Interpower Induction

Booth #207

This talk will cover the latest technology in induction power supplies with real world applications and benefits. System design by application to offer the best solution.

7C

**Achieving Affordable Power Densification in Steel Components through Cleanness, Strength and Toughness**

TimkenSteel Corporation

Booth #313

Increased power density in mechanical power transmission components means greater durability, allowing existing designs to achieve greater capacity, or reduced size and mass for lightweighting. Trends toward steel composition and cleanness, as well as new ultra-high strength, high-toughness grades, enhance overall design and provide affordable solutions for critical, power-dense components.

7D

**Lowering Forge Temperature with a CFD-Modeled Natural Ventilation System**

Moffitt Corporation

Booth #809

Many forges have insufficient or ineffective ventilation, leading temperatures to rise to dangerous levels. Natural Ventilation is the answer to excessive heat problems in forging



facilities, allowing hot air to evacuate by itself. Computational Fluid Dynamics (CFD) modeling can better determine how air moves throughout a space, and allows for the testing of modifications and improvement. Using CFD modeling, a ventilation engineer can ultimately determine the best ventilation solution. Utilizing better designed ventilation, forges of all shapes and sizes are able to lower their temperatures by as much as 40 degrees.

7E

### **Changing Your Work Environment-What Can We Do?**

Asahi Forge Group

Booth #408

We will emphasize the core 3 principles of “Good Associate”, “Good Work Environment” and “Good Equipment” to help people understand how Asahi Forge prepares and moves forward to have Clean, Comfortable and Cool working facility.

7F

### **Make Shotblasting Work for You- 10 Steps to Success**

Blast Cleaning Technologies

Booth #919

In today’s challenging business climate, the important focus on safety and reliability has changed our thinking on blast equipment operations. We can improve or replace existing equipment by focusing on key areas such as improved safety, increased productivity, more reliability and less unplanned downtime, lower operational costs, and PLC controls with system diagnostics.

8A

### **Mechanical Forging Presses from Single Stroke to High Performance Servo Presses**

Schuler, Inc.

Booth #413

Comparison of line concepts for aluminum forging. As a leading supplier of cold, warm and hot forging systems, Schuler offers a large selection of forging presses. We show the solutions for different volumes. Especially in aluminum, forging is on increasing need for forged cast parts in the car manufacturing. According to the general conditions, as well as part geometry and batch sizes, various line concepts can be realized from an economic point of view.

8B

### **“PowerForge” and “PowerZone” Digital Billet and Bar Heating Technology**

Ajax TOCCO Magnethermic

Booth #418

Ajax TOCCO continues to produce state of the art, all digital induction forging billet and bar heating systems. This advanced technology now features “Recipe Builder” which is designed to take the guess work out of setting up single and multi-zone induction heaters. This technology offers optimal energy efficiency, increased up time and reduced change over time

8C

### **Solving Tooling Challenges in today’s Emerging Environment**

Uddeholm USA

Booth #845

The focus of our offerings is to improve the tooling performance of closed die impression forging with improvements in tooling steel, heat treatment and coatings. We have been recommending for many years that standard conventional H13 does not have the longevity required for high volume forging applications. We are developing grades that have better thermal fatigue resistance, better resistance to plastic deformation, and have the ability to improve hot hardness. These new products, in tandem with heat treatment developments to enhance the characteristics most likely to minimize tooling surface damage will be discussed, along with new coatings to offset damage currently seen in surface enhanced tools.

8D

### **Engineering Surface Treatments to Provide the Maximum Tool Life**

Dynamic Surface Technologies International

Booth #148

Every Forging die has a unique environment in which it operates. The combination of the operating temperature, forces present, steel chemistry, quality of the heat treatment and surface treatment define how long the tool will survive, or it's Tool Life. Maximizing Tool Life is the utmost importance!

8E

### **Intelligent Metal Forming Simulation – Solution Accuracy**

Metal Forming Research Corporation (MFRC)

Booth #130

Intelligent remeshing technology is very important for highly accurate predictions of metal forming processes. Several industrial case studies and examples will be presented where the simulation results are validated and have resulted in massive reduction of development time and costs. The emphasis would be on a process optimal design in development of forging processes.

8F

### **Revolutionary Technology for Billet Descaling in a Production Environment**

Hauhinco

Booth #1031

Scale formation on Billets between exiting the furnace and insertion into the press poses one of the greatest challenges to forging quality. To address this, Hauhinco has developed a descale package which utilizes high pressure water at minimal flow, rapid cycle time, and billet size flexibility. The concept and parameters will first be examined, for determining the spray box design, from nozzle sizing, layout and versatility (to accommodate the full range of billet sizes), to the enclosure which both contains and flushes the scale. Secondly, the supporting water hydraulic equipment, including pumps, valves and fluid conditioning will be considered. Finally, real before and after data will be compared in this production application.

9A

### **Forging Line Concepts for Aluminum Suspension Components**

SMS Group GmbH

Booth #728

Forged Aluminum components will become a key factor to achieve future targets of reduced carbon dioxide emissions of passenger cars and light commercial vehicles. SMS group commits

itself as a company and supports the automobile industry with state-of-the-art forging equipment and process/solutions and is proud to present the latest developments thereof.

9B

### **Equipment for Heat Treatment Plants**

DANGO & DIENENTHAL Group

Booth #801

DANGO & DIENENTHAL Hollerbach, located in Hamm, Germany, has been contributing to the Forge Fair 2019 reporting about the benefits of an Automated Heat Treatment. Fully automated heat treatment plants have recently been installed in China and Germany. The benefits and opportunities of those facilities will be shown in this paper.

9C

### **Die Sets in the Forging Environment**

Superior Die Set

Booth #213

The presentation will cover the various uses for die sets for post-forging operations and the selection of appropriate die set construction for the task. Information presented will address some common problems facing forgers using a combination of over 95 years of corporate experience in die set manufacturing, real world knowledge from the forge shop floor, and mechanical stress calculations supported with finite element analysis.

9D

### **Installation & Isolation of Forging Hammers**

Vibro/Dynamics LLC

Booth #401

Modern forging hammers and presses hit harder and run faster than in the past. With sensitive offices, neighbors, and equipment near the forging operation, it is of great importance to select the best site and isolation system.

9E

### **Find and Fix Defects Quickly with QForm's New Simulation Tools for Forging Ring Rolling and Heat Treatment**

QForm/Forge Technology Inc.

Booth #118

The latest version of QForm has new features and tools designed to allow users to instantly identify and fix forming defects such as flow through defects and cold shuts that have previously been difficult to spot with simulation software. QForm's Intuitive workflow structure combined with the fastest network and client server multi-core and multi-task options allows users to very quickly investigate and solve problems to develop new jobs and enhance existing forming technologies without press trials. Advanced computational features like dual mesh method, fully thermally and mechanically coupled simulations, and an extensive selection of damage criteria for different deformed materials and low cycle fatigue tool failure prediction, open the way to accurate and quick analysis and optimization of the most complex metal forming processes. QForm has specialized modules for ring rolling, extrusion, heat treatment and microstructure evolution prediction for steels, titanium, aluminum and nickel-based alloys.

9F

**Videx Hot Forging Line**

Videx Machine Engineering

Booth #800

Videx has launched a new Hot Forging line which consists of 6-10 machines and is the first and only true Hot Forging line in the world for long and large bolts. This line replaces the traditional separate forging presses and trimming operations machine and is making use of automation instead of separate robots. Come hear about this new hot forging line and what it could do for you!

10A

**Virtual Commissioning of Forging Machines**

LASCO Engineering Services

Booth #102

Virtual Commissioning of a new technique for testing and refining the programs in complicated automated lines. Using actual controllers and programs connected with simulations, the refinement process can largely be done in the home office rather than in the field. It also can be done ahead of the installation procedure so that interactions/collisions may be checked. This saves between 80-90% of the commissioning time normally done on-site of customers' facilities.

10B

**The Integration of Automated Heat Treat and Forging Processes**

Fives North American Combustion, Inc.

Booth #409

The industry is moving to integrated process systems. The Fives Group, anchored in its knowledge of the forging and heat treat processes, is uniquely positioned to provide scheduling, material movement, and combustion heating to the industry. This presentation discusses system design, integration, and optimization for a fully automated forge/heat treat cell.

10C

**Open Press and Seamless Ring Rolling Tooling: Repairs and Enhancements by Welding**

Cor-Met, Inc.

Booth #817

Seamless ring rolled forgings are manufactured by upsetting, punching, sizing, and radial-axial rolling operations. Tooling for near-net forgings is exposed to force, temperature, abrasion, and demanding environments. Cost effective repairs to address tool wear and minimize press/mill downtime are achieved by welding. Opportunities are provided with guidelines for cost reduction.

10D

**Forging Lubricants**

oelheld U.S., Inc

Booth #126

Increasingly sophisticated and complex forging processes require new varieties of release agents thus making more traditional forming processes a thing of the past. Besides its perennial and

internationally best-selling AirForge (glass coating) products, oelheld is more and more penetrating the market of water miscible forging products for the hot and warm forging

10E

**Building Your Future Workforce at Community Colleges**

Forging Industry Educational and Research Foundation (FIERF)

Booth #146

Community colleges are an excellent resource for finding skilled employees. Take aways from this presentation will include best practices for developing a collaborative action plan with your local community colleges, feeding your future workforce pipeline and upskilling your current employees based on your needs.

10F

**Future Forge: Advanced Press Cell for Isothermal, Open and Closed Die Forging**

Schuler, Inc.

Booth #413

In aviation, components must safely perform the required functions under the most adverse operating conditions. At the same time there is a demand for longevity and low weight of the component. For the first time, forging functions such as closed die, open die and isothermal forging are combined into a simple automated machine concept. At the heart of the system is a multifunctional press with a force of 2,000 tons, which Schuler has specially designed for the various process requirements.

11A

**Hatebur High Quality Precision Hotformed Parts**

Hatebur Metalforming Equipment Ltd.

Booth #519,529

An up to date view on “What Hatebur Hotformers are doing in the market TODAY”

11B

**Conveyors & Conveyor Maintenance 101/ Conveyors in Forging Applications**

Transcon Conveyor

Booth #113

The use of conveyors in forging applications often require specialized conveyor designs. This presentation will outline conveyor design criteria to meet specific forging operational requirements, including different types of conveyors; design criteria for heavy loads, hot parts, and easily damaged parts; integration of quenching operations and thermal management; and separating scrap from parts.

11C

**Electro Slag Rapid Remelting (ESSR) for Stainless Steels: A New, Faster, more Efficient and Reliable Process**

Valbruna Slater Stainless, Inc.

Booth #601

The work addresses the development of the Electro Slag Remelting process at Valbruna, instead of the traditional forging or blooming operations needed in case of traditional ESR ingot

remelting. A mechanical properties comparison has been made in order to highlight the differences between the ESR and the AOD process.

11D

**New Innovations in Forging Lubricants**

Molygraph Lubricants

Booth #512

This presentation shows new and current trends in Forging lubricants. Emerging technologies in Forging processes have enabled higher productivity and development of complex components. Molygraph's range of state of the art Graphited and Non-Graphited Forging Lubricants will help you achieve higher performance and productivity from your Forging processes.

11E

**Forging Defense Manufacturing Consortium (FDMC) Updates and Opportunities for FIA Members**

Advanced Technology International

Booth #1012

The FDMC PRO-FAST program sponsored by the Defense Logistics Agency supports modernization of forging supply chains critical to the Nation's defense. PRO-FAST involves forge shops, small businesses universities on a variety of technical and enterprise projects. Perhaps your forge will want to participate in current and future projects.

11F

**Safety 101**

- **The Prevention of Severe Injuries and Fatalities**
- **Using Safety.BLR.com as a Major Safety Resource Tool**

Gerdau (GSN) & FIA Safety & Environmental Committee

Booth #123

Serious events and fatalities (SIFs) do not show reduction rates comparable to less serious workplace injuries. This problem raised serious questions. Many multi-national corporations experiencing this pattern sought to develop a better understanding of the causes and correlates of SIFs. Data was compiled and analyzed. The result of this research ultimately leads to a better understanding of SIF causes and establishment of new paradigms for SIF prevention.

FIA recently added a new membership benefit, a free subscription to [Safety.BLR.com](http://Safety.BLR.com). Joe Lyons will explain how the Safety.BLR.com platform is a robust tool of safety documents, training, daily newsletters, up-to-date OSHA information, and chat forums hosted by subject matter experts in the safety field. Safety and human resource professionals find Safety.BLR.com to be an essential resource that assists them in their daily duties and keeps them updated on any new OSHA requirements.

12A

**Aerospace Forging in 2019**

Siempelkamp L.P.

Booth #501

As aerospace technology and manufacturing requirements are evolving, the demand on aerospace forgers are continuously increasing. To stay competitive in this challenging market, Siempelkamp offers the most technologically advanced press. Every aspect of the forging press needs to be considered when designing and supplying such equipment from the mechanical systems, hydraulics, and electrical/electronic controls.

12C

**Aceralava Melting Shop Possibilities**

ACERALAVA SAU, Tubacex Group

Booth #912

Aceralava product range possibilities based on special grades strongly demanded in several markets with chemistry restrictions, limited inclusion level, and metallurgical properties in addition to those requested on applicable codes and standards. Aceralava provides to all his customers products matching with exactly needs for all projects they are involved, specific products to be developed and high technological requirements, either metallurgical, or mechanical and corrosion resistance requirements. A large list of products can be made and/or developed at Aceralava facilities supported by the most efficient tools and technologies, aid computer assistance to improve the final result either in quality and/or cost.

12D

**High End Descaling in Forgings**

SGGT Hydraulik GmbH

Booth #519,529

The use of hydraulic descaling systems in Forges is becoming more and more standardized. The demand on high surface quality, productivity enhancement by saving of secondary process and intermediate times are standing in the focus, as well as the improved die lifetime, where 20% and more can easily be achieved at a temperature drop of only 10 degrees Celsius in the process. Beyond the implementation options and the features to be achieved, a local customer's experience will also be a part of this presentation.

12E

**Conquering the Skills Gap through E-Learning**

THORS eLearning Solutions

Booth #448

Over the next decade approximately 3 ½ million manufacturing jobs will need to be filled. The skills gap is expected to result in 2 million of those jobs going unfilled. Why? Because most companies suffer from one or all of these 3 challenges – They are not able to find skilled employees to fill these jobs, some are not able to retain skilled employees and some don't develop their skilled employees to go with the changing industry trends. What is required is a modern, carefully planned and strategic training program. And eLearning provides an excellent and effective way to bridge the skills gap as it is affordable, customized as per the learners' needs, accessible from anywhere at any time and results in continuous learning. Moreover there are real life case studies to relay relevant learning. Learning Objectives: 1. How e-Learning can help manufacturing industry overcome the skills gap by capturing all the experiential or tribal knowledge of their knowledge experts and develop into very interactive visual courses which

anybody can learn. 2. How these tools work to accelerate training in the manufacturing industry, which can impact a company's productivity and profits.

13A

**Ring Rolling Development and Data for Lamination of Profiled Rings**

Hydromec

Booth #519,529

Hydromec is an industry leader in Hydraulic Forging Presses and Ring Rolling Equipment. In the recent years, there has been development of technology at Hydromec that will offer great benefit to forgers. These benefits include ability to roll laminated profiled rings, and reduce forging allowances using new techniques for developing more effective rolling curves. Easy user interface software and flexible equipment design can be shown to improve rolling process for all forgers.

13B

**EloForge 4.0: The New Benchmark for Inductive Bar and Billet Heating**

SMS Elotherm GmbH

Booth #728

A new generation of induction bar and billet heaters for the Forging shops was developed by SMS Elotherm over the last few years. The expert system iZone is directly optimizing the heating system to minimize energy consumption and scrap reduced heating. A “stand by” system reduces recycling material to a minimum in case of external faults.

13C

**Heat Treating 101 for Lean Part Makers in Industry 4.0**

Akron Steel Treating Company

Booth #915

In this discussion we will discuss why we heat treat parts and how heat treaters obtain the commonly desired “value added” properties for the part end user: a proper balance of surface hardness and core ductility (strength and toughness) for reliably long part service life at a total lower cost of manufacture. We will also discuss the “how it works” of heat treating – some of the basic metallurgical science behind heat treating processes and the types of equipment used by heat treaters. In addition to an introduction to the traditional art and science of heat treating, the author will also introduce a new “grainular metallurgy” approach to advanced heat treating theory and practice for lean part manufacture in Industry 4.0.

14A

**Forging Process Design & Equipment Selection 101**

Tkach Consulting, LLC

Booth #NA

This presentation will include a general discussion of key points which influence the type of forging processes required for economic production. We will compare and contrast the cold, warm and hot forging processes including the strengths of each process, the degree of net shape which can be achieved, tooling costs and equipment type. Finally, general guidelines will be



presented for the development of raw forging designs including stock allowances based on forging process and subsequent machining, tolerances, drafts and parting lines.

14B

**Bar Heater vs. Billet Heater; Hot Forging vs. Warm Forging**

CEFI Induction Heating

Booth #519,529

While heating materials to be forged seems easy enough to understand, there are many details which contribute to the complexity of designing an appropriate system to handle and heat the parts. This presentation will break down some of the details that many not be so obvious when pursuing a particular application. What must be considered when heating billets or bars, hot or warm, or unusual shapes and materials? We'll cover some of the challenges and solutions devised from the experts at CEFI Induction Heating.

14D

**Future Forging Customers 101**

Advanced Technology International

Booth #1012

Scientific Forming Technologies Corp.

Booth #212

This presentation will project the forging customer of the future. The customer will be afforded a wide variety of manufacturing technologies to compete with forging, e.g. additive manufacturing, casting, machining, powder metallurgy. Customers will have new design tools to create solid models heavily engineered to meet demanding application requirements. They will be spinning the digital thread in characterizing forging design. The customer's suppliers will need to be able to collaborate quickly through secure content management systems. These suppliers will also invoke design tools to optimize the forging design, tooling design, forging process design, and subsequent secondary operations especially machining, finishing, and heat treatment. The next generation forging customer will be supported by a buying team that will continue to search for the best, low cost supplier around the world. In anticipation of that forging customer of the future, the forging industry needs to prepare accordingly with tools, technology, and talent to bring to bear the value of forgings, namely strength, toughness and durability. This presentation will strive to excite and inspire forgers to be ready for that future while improving its competitiveness today.

15B

**Critical Considerations for Accurate Forging Heat Treatment Validation**

ThermTech

Booth #403

This presentation is designed to give attendees an insight into common processing challenges and quality test pitfalls that can be easily avoided when addressed during the design or quoting phase of a forging project. Using real life examples, several common challenges will be discussed along with ideas for avoiding recurrence

15C

**New Developments in Clean Steel for Lightweight Automotive Applications**

Gerdau (GSN)

Booth #123

In steelmaking, the importance of clean steels has grown significantly with the evolution of lightweight vehicles. Gerdau's R&D team will present initiatives on clean steels produced from its continuous caster. New practices have been developed to reduce size and frequency of inclusions and improvements have been validated using the latest testing techniques.