

FIERF Report to Members

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Focus in the coming year...

Implementation of the Roadmap

- ❖ Improve Market Positioning
- ❖ Develop Future Workforce
- ❖ Develop Current Workforce
- ❖ Advocate Public Policy Agendas
- ❖ Establish Industry Guidelines and Best Practices
- ❖ Enhance Material Options and Usage
- ❖ Reduce Energy Costs & Inefficiencies
- ❖ Advance Forging Technology

Improve Market Positioning

❖ Customer Education

- Evaluation of forged, cast iron & cast aluminum Steering Knuckle (2004)
- Fatigue Performance comparison & life prediction of forged steel and ductile cast iron crankshafts (2007)
- Effect of As-Forged Surface Finish



Develop Future Workforce

- ❖ Pursue collaborative relationships with educational institutions
- ❖ Implement sustained recruitment efforts designed to attract talent to the industry
- ❖ Work with universities to establish internship and apprentice programs

FIERF Magnet School Activities

- ❖ Charles W. Finkl Scholarships
- ❖ Summer Internships
- ❖ Undergraduate Research Grants
- ❖ Graduate Fellowships
- ❖ Forging Achievement Award Paper Competition
- ❖ Forging Career Center — www.forgingcareers.com



Develop Current Workforce

Find ways to better retain talented people and expand the labor pool for new hires

❖ Add Forging-specific Courses to Forging University

- Safety & Health Orientation
- Hammer Safety
- Press Safety



Enhance Material Options & Usage

- ❖ Develop better ways to minimize and process material waste in the forging process
- ❖ Work within the supply chain to improve efficiency in material logistics
- ❖ Work through partnerships and collaborative efforts to enhance the range of material options available to the forging industry



FIERF Sponsored Material Research

- ❖ *Effect of Nickel Content on the Thermal Processing of 4330 Alloys, Illinois Institute of Technology*
- ❖ *Modeling & Microstructural Development of INCOLOY® 945 During Hot Deformation, Colorado School of Mines*
- ❖ *Effects of Forging on the Tensile Properties and Microstructure of Magnesium Alloys, Case Western Reserve University*

Reduce Energy Costs & Inefficiencies

❖ Find ways to reduce costs & inefficiency around the use of energy within the forging process, including developing better heating systems, using alternative energy sources, maintaining better control, and improving energy management of forging operations themselves

- Energy Efficiency & Savings Tools on www.forging.org
- 3-D Temperature Profile
- Design of a Robust Temperature Specification for a Billet Induction Heating System

Advance Forging Technology

- ❖ Pursue greater automation of the forging process
- ❖ Pursue innovations in the tools, equipment and process of forging
- ❖ Develop new tool materials and invoke process modeling to extend die life
- ❖ Develop new lubricants that can improve die life

FIERF Sponsored Research

- ❖ *Feasibility Study of A17075 Near Net Shape Superplastic Forging* – Missouri University of Science & Technology
- ❖ *Forging Process Monitoring & Diagnosis Through Signature Analysis of Tonnage Signals* – University of Michigan
- ❖ *Tempering Behavior of Hot Forging Die Steels* – Colorado School of Mines

Industry Research in Progress

- ❖ Application of Advanced Die Materials & Lubrication Systems for Reduction of Die Wear in Warm and Hot Forging, Ohio State University
- ❖ Magnetic Field Processing in Forging and Heat Treatment, Oak Ridge National Lab
- ❖ Development of Next Generation Heating Systems for Scale Free Reheating
- ❖ Ultra-Fast Boriding for Improved Energy Efficiency and Reduced Emissions in Materials Processing Industries

Corporate Giving Campaign

- ❖ Nearly \$800,000 in contributions and pledges
- ❖ Forging Industry Association Support
- ❖ Anvil Society Members are Very Important Partners!

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