



## Who Should Participate?

The Cold & Warm Precision Forging Workshop is valuable for participants from the following areas:

- Plant management
- Product development and design
- Production engineering/planning
- Technical purchasing
- Everyone involved in the production of cold and warm forged parts

### How to Register

If you plan to participate in the Cold & Warm Forging Precision Workshop please use the registration form on the back of this invitation. Simply fill out and fax the form to 734.207.7222. Upon receipt of your registration we will send you a confirmation, directions and a list of recommended hotels in the area.

The workshop fee is \$165.00

### The Location

The workshop will be held at St. John's Conference Center in Detroit's western suburb of Plymouth, Michigan. Located just off the Sheldon Road exit of M-14, St. John's is convenient to Detroit Metropolitan Airport, many freeways and hotels. A detailed map will be sent to you after we receive your registration.

### Your Contact

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# Registration

Registration Deadline: August 23, 2004

Yes, please register me for the Cold & Warm Precision Forging Workshop on September 8, 2004 held at St. John's Conference Center in Plymouth, Michigan. The registration fee (including the networking dinner) is \$165.00. Please send a confirmation with directions and lodging information to my e-mail address listed below.

Yes, I will attend the pre-workshop networking dinner at Ernesto's on Tuesday, September 7, 2004 at 7:00 p.m.

Name (first and last):

Company Name:

Address:

City, State, Zip:

Phone:

Fax:

E-mail:

Date/Signature:

Enclosed is our check # \_\_\_\_\_ for \$165.00 made payable to Schuler Inc.

Please issue an invoice to:

Company Name:

Address:

City/State/Zip:

Reference Purchase Order #

For Schuler Inc. to invoice your company, a P.O. number must be provided.

Please charge to VISA/MC

Card #

Exp. Date:

Name as it appears on card:

Authorized Signature/Date:

## 2<sup>nd</sup> Cold & Warm Precision Forging Workshop

Guest Speaker Ken Berger of GKN



September 8, 2004  
St. John's Conference Center  
Plymouth, Michigan

Please copy and fax to 734/207.7222

# Cold & Warm Precision Forging





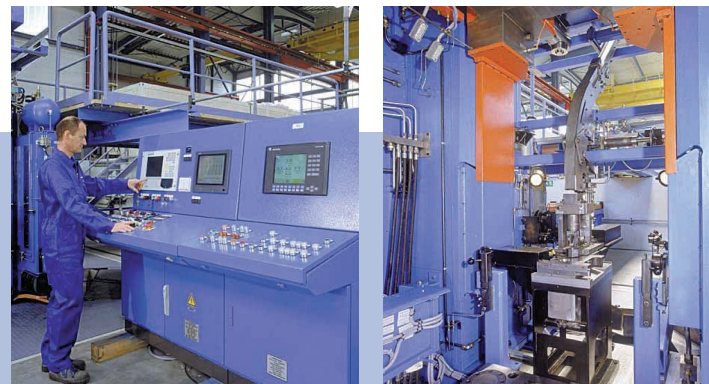
## Welcome to the 2<sup>nd</sup> Cold & Warm Precision Forging Workshop

The precision forging industry continues to face pressures in cost cutting and demands for even tighter part tolerances. New research in areas such as simulation, coatings, lubricants and press design offer insights into ways to tackle these challenges.

Once again the Cold & Warm Precision Forging Workshop will bring the experts, the intelligence and the forging community together for a full day workshop on trends, innovations and tools you need to keep up within the industry. The Workshop will be held September 8, 2004 in Plymouth, Michigan. This event is hosted by the Engineering Research Center for Net Shape Manufacturing (ERC/NSM) at Ohio State University, Schuler Inc., Scientific Forming Technologies Corporation and Bemers & Co.

Please plan on attending this worthwhile industry event where you'll gain immediate benefits that you can take directly into your work environment. A networking dinner courtesy of **SCHULER** will be held the evening before the Workshop and offers you another opportunity to discuss the issues with your peers, speakers and moderators.

We look forward to seeing you at the Cold & Warm Precision Forging Workshop.



### Meet your Workshop Moderators

Thomas Berndt - *Manager Process Development, Schuler Presses*

Uwe Konnerth - *Manager Process Development, Schuler SMG*

Rudi Schubert - *Product & Sales Manager, Schuler Inc.*

Professor Taylan Altan - *ERC/NSM Ohio State University*

Hein Schoenau - *Division Manager Design Metal Flow Forming, Schuler Presses*

Ken Berger - *Engineering Manager, GKN*

John Walters - *Vice President, Scientific Forming Technologies Corporation*

Karl-Heinz Bemers - *President, Bemers & Co.*

### Networking Dinner

Please join us on the evening before the workshop, September 7, 2004, for a networking dinner with the participants, speakers and moderators at Ernesto's in Plymouth, Michigan at 7:00 p.m. Take advantage of this relaxed event to get to know peers in your industry and discuss the day-to-day issues that challenge you and others.

If you plan to attend this dinner, please mark it accordingly on the registration form at the back of this invitation.

## Workshop Schedule

September 8, 2004

- 8:00 - 8:30 a.m. **Registration and Continental Breakfast**
- 8:30 - 8:45 a.m. **Opening Remarks**  
Professor Taylan Altan, ERC/NSM Ohio State University
- 8:45 - 9:15 a.m. **Evolution of the Forging Process for CVJ Outer Races**
  - Maximizing throughput
  - Customer expectations
 Ken Berger, GKN
- 9:15 - 10:00 a.m. **New Samples from the Forging Industry**
  - Increase the complexity of forgings-near, near-net manufacturing
  - Reduction of secondary machining
 Thomas Berndt, Schuler Presses
- 10:00 - 10:15 a.m. **Morning Break**
- 10:15 - 11:00 a.m. **Material Properties & Cold Forging Lubricants**
  - How to evaluate them
  - How they effect the process
 Professor Taylan Altan, ERC/NSM Ohio State University
- 11:00 - 11:45 a.m. **Using Process Simulation to Optimize Cold and Warm Forming Processes**  
**Tool and Die Failure in Cold and Warm Forming**  
John Walters, SFTC
- 11:45 - 12:30 p.m. **Lunch Break**  
(lunch will be provided)
- 12:30 - 1:15 p.m. **Die Lubrication Equipment**
  - Increased die life
  - Cycle time improvements
 Karl-Heinz Bemers, Bemers & Co.
- 1:15 - 2:00 p.m. **Economical Solutions for Solid Forming on Mechanical and Hydraulic Presses**
  - Press Characteristics
  - New Developments
  - Automation
  - Advantages
  - Examples
 Uwe Konnerth, Schuler SMG  
Rudi Schubert, Schuler Inc.  
Hein Schoenau, Schuler Presses
- 2:00 - 2:30 p.m. **Afternoon Break**
- 2:30 - 3:15 p.m. **Cold Forging in a Global Market Place**
  - What can we do to remain competitive
 Professor Taylan Altan, ERC/NSM Ohio State University
- 3:15 - 3:45 p.m. **Panel Discussion with Workshop Speakers and Moderators**
- 4:00 p.m. **End of Workshop**

Workshop Schedule