

# Deep Draw

## Technology Seminar

January 22, 2009  
Nashville, TN



Get the tools  
you need to  
**improve** your  
production  
performance

### Learn latest technologies

- Tool design techniques
- Diagnostic tools and techniques

6363 Oak Tree Blvd.  
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216-901-8800  
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## Overview

- Understand how sheetmetal strength, reduced thickness, speed of forming, coatings, type of lubricant, surface temperature, and hardness affect formability for a given part and tool design.
- Learn about several current troubleshooting tools, such as an ultrasonic thickness gauge.
- Understand how and why sheet metal properties are the key to successful robust forming.
- Tooling design principles for large parts deep draw
- Draw development and new technology in blankholding
- Troubleshooting and diagnosing tooling problems
- New technology in tool materials and coatings and selection guidelines
- Using diagnostic tools to understand your process
- Using finite element analysis to make die build more efficient and cost effective

## Tooling and Design Principles

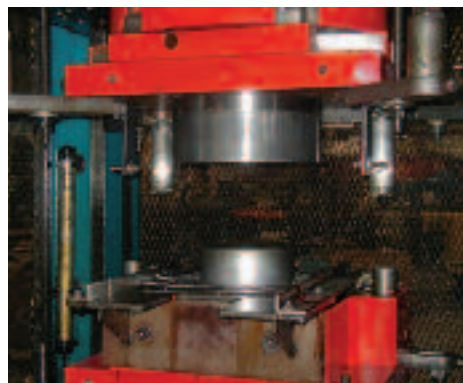
### **Peter J. Ulintz** **Manager, Advanced Product Development** **Anchor Manufacturing Group**

This presentation will provide a technical discussion including fundamental concepts and techniques for designing and building deep draw tooling. Topics include: press selection, drawing cups, drawing boxes and drawing complex shapes. Discussion includes design considerations, draw die development, blank holder (draw pad) considerations, draw beads, troubleshooting and diagnosing tooling problems.

## Tool Materials & Coatings

### **Patricia Miller** **Bohler-Uddelholm North America**

The proper selection of tool steels and surface treatments can improve production performance. This session will provide an update on tool materials and coatings, provide guidelines on selecting the proper tooling materials for a specific application, and provide case examples illustrating productivity.



## Program

## Sheetmetal & Lubrication

### **Stuart P. Keeler, President** **Keeler Technologies, LLC**

Sheetmetal and lubricants always have been an important (though often neglected) inputs to forming deep drawn parts. Today, weight reduction programs require both increased strength and reduced sheet thickness that make forming even more difficult. Discussion topics include how sheetmetal strength affects stretching, bending, and cup drawing; springback controls dimensional variation; forming speed; earing; and hardness tests. Lubrication topics include coefficient of friction tests, surface conditions for binder flow, effect of heat, coated products, and new lubricant concepts. This segment will close with a short summary of current troubleshooting techniques for sheared edge tears, circle grids, forming limit diagrams, and ultrasonic thickness gauges.

## Computer Forming Simulation

### **Peter J. Ulintz**

Forming simulation on the computer, sometimes called the virtual press shop, has the potential to radically reduce both design and die tryout time. How the programs work, information the programs generate, and their applications are described in simple, understandable language. Several case studies will show solutions to actual press shop problems.

## Who Should Attend

This seminar is designed for those using single-station, progressive and transfer dies in hydraulic and mechanical presses.

- Designers
- Engineers
- Supervisors
- Operators
- Tool & Die Makers
- Plant or Operations Managers

## Schedule

**January 22, 2009**

7:30 a.m. – 8:00 a.m. Continental Breakfast/  
Meet and Greet

8:00 a.m. – 4:00 p.m. Seminar

Breakfast, lunch and refreshment breaks provided.

## Seminar Location/ Hotel Accommodations

### Sheraton Music City Hotel Nashville

777 McGavock Pike  
Nashville, TN 37214  
Phone: 615-885-2200  
Rate: \$129 (plus tax)

Please call the hotel directly to make a room reservation. Reference Precision Metalforming Association (PMA) to receive the special rate of \$129 (plus tax). PMA rate is available through January 1. Rooms at this rate made after the January 1 date are subject to availability. Hotel accommodations include complimentary shuttle service to and from the Nashville International Airport.

## Register today:

### Deep Draw Technology Seminar January 22, 2009 | Nashville, TN

**FAX** 216-901-9190

**MAIL** PMA–Attn: Michelle Underwood  
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**ONLINE** [www.pma.org/register](http://www.pma.org/register)

**Questions?** Please call Michelle at 216-901-8800 x163

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