

For more information on these sponsors, click on the logos below.



## Contents

- 3 Product Designs with Metal Stampings
- 5 Continuous Improvement

### Die Components

- 8 Retracting Punches
- 10 Use of Inserts
- 12 Blanking with a Shaped Punch or Die
- 14 Lancing and its Peculiarities
- 16 Broken Punch Heads
- 18 Specialty Topics for Dies

### Burrs

- 21 Bypass Burrs
- 23 Eliminating Burrs in the Die
- 25 Acceptable Burr Standards
- 27 Standards for Burrs

### Stampings

- 30 Part Tolerances
- 32 On Visual Inspection
- 34 Inconsistencies in Metal Stampings
- 36 Fractures in Metal Stampings

### Catalogs, Videos and Animations from the Sponsoring Companies

#### AP&T North America, Inc.

##### Videos:

- [Four-Axis SpeedFeeder—Tank Head Production](#)
- [Destack and Load Square Blanks](#)
- [Destack and Load Round Blanks](#)
- [Three-Axis SpeedFeeder—Pick and Place Demo](#)
- [Load and Unload Mechanical Press—Large Parts](#)
- [Press Line—Load and Unload Mechanical Presses](#)
- [Twin Mounted Three-Axis Speedfeeder Application](#)

##### Literature:

- [AP&T Product Guide](#)
- [Press Automation](#)
- [Automation Equipment Leaflet](#)
- [Presses](#)
- [Tooling](#)
- [Hydroforming](#)

#### ToolPax Corp.

##### Videos:

- [For Buyers of Tooling Components](#)
- [For Sellers of Tooling Components](#)

##### Literature:

- [Save \\$1 per minute by Automating Designs and Price Estimates for Custom Tooling](#)

#### Compass Technologies

##### Literature:

- [Die Design Software](#)
- [Integrated Machining Software](#)
- [Die Simulation \(Virtual Die Tryout\) Software](#)
- [Blank Development and Forming Analysis Software](#)
- [CAD Translators](#)
- [Engineering Services](#)

#### Metalist Intl. Inc.

- Power Point: (Mac users, [click here](#))
- [Large Capacity Full-Service Press Rebuild, Repair, & Parts](#)
- [New and Used Equipment Dealer](#)

#### AIRAM Press Co. Ltd.

##### Video

- (Windows Media Player file)

- 38 The Black Art of Shaving
- 40 Problems with Drawing Rectangular Parts
- 43 Troubleshooting
- 45 Problems with Short Bends
- 47 Problems with Material Roll
- 49 Problems with Forming Partial Tubes
- 51 Large Formed Parts, Thin Material
- 53 With the Grain or Cross Grain
- 55 Wire-Screen Metal Stampings
- 57 Blank the Part and Hold It in the Strip
- 59 Product Consistency
- 61 Interlocked Parts
- 63 Slave Strips
- 65 Extrusions and Projections in Metal Stampings
- 68 Forming a Closed Box
- 70 Stop Blocks
- 72 Coining
- 74 Forming a 90-Deg. Bend

- 76 Slug-Return Problems

### Design

- 79 Die Refinement
- 81 Several Types of Liabilities in Designing
- 83 Making Parts Flat
- 85 Evolving Tightened Standards for Metal Stampings
- 87 Whenever Possible, Eliminate Those Secondary Operations
- 89 Product Design Precept
- 91 Changing Requirements of Die Design
- 94 Redefinition of Product Drawings in Preparation for Die Design
- 96 Strip Layout for Progressive Generation of Stamped Parts
- 98 Die Layout the Traditional Way
- 101 Layout of the Punch Section
- 103 Bridge-Stripper Layout
- 105 Spring-Stripper Layout

- 107 Strip Growth
- 109 Calculating Flat Blank Lengths
- 111 Part Orientation and Pitch-Length Determination
- 113 Cross Sections
- 116 Definition of Details
- 118 The Material List
- 120 Dimensioning
- 122 Designing for Maintenance

### Metalforming Products

- 124 Coil/Sheet Handling and Feeding
- 124 Die Components
- 124 Die Protection and Sensing
- 124 Manufacturing/Design Software
- 124 Material Handling/Automation
- 124 Part Handling
- 124 Press Monitoring and Control
- 125 Presses
- 125 Quick Die Change
- 125 Tool Steels
- 125 Tooling/Tool Change

To visit these sponsors' websites, click on the logos below.

