Coining Inc.
Micro-Stampings Overview

www.ametek.com
Micro-Stampings and Solder Preforms

- More Than 100 Presses
  - 3 ton to 85 ton
  - High speed (>2000 strokes/min)
  - High precision, 4 post presses
  - Hot presses for stamping Mo, W, etc.

www.ametek.com
Coining Differentiators

- **Material Processing Capability**
  - In-house advanced casting, rolling and cladding
  - Plating to customer specifications
  - Custom alloys available

- **Tool & Die Capability**
  - More than 15,000 dies on-hand
  - Customized designs available
  - Tooling designed to match material characteristics
  - Progressive stamping up to 16 stations
  - Deep draw designs available
  - In-house EDM based tool manufacturing

- **Parts Delivered Clean Room Ready**

- **Industry Leading Applications Support Team**

[www.ametek.com](http://www.ametek.com)
Applications Support

Experienced Engineering Team

- Our material scientists and manufacturing engineers have more than 100 years experience

Analytical Capabilities

- ICP (Inductively Coupled Plasma) for elemental analysis of melts
- DSC (Differential Scanning Calorimetry) to evaluate proper melting point and characteristics
- XRF (X-Ray Fluorescence) to verify thickness of plated coatings
- Wetting Tests to ensure optimal wetting and spread of solder alloys
- SEM with EDS capability for detailed metallurgical analysis and FA
- LECO O2, N2, C and S analyzers

www.ametek.com
Stampings Capabilities

- **Capabilities Include**
  - Stamping
  - Coining
  - Drawing
  - Punching

- **A Wide Variety Of High Precision Parts Available**
  - From simple to complex shapes
  - Thicknesses less than 1 mil

- **All Tooling Designed, Manufactured & Maintained In-House**
  - Enables rapid prototyping
  - Ensures prime condition of tooling
## Stamping Capabilities

### Rectangles & Discs

<table>
<thead>
<tr>
<th>Dimensions Side or Dia. (inches)</th>
<th>Rectangle &amp; Disc</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.005 to 1.0 ± 0.0004</td>
<td></td>
</tr>
<tr>
<td>1.0 to 3.0 ± 0.002</td>
<td></td>
</tr>
<tr>
<td>3.0 to 6.0 ± 0.003</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thickness (inches)</th>
<th>Rectangle &amp; Disc</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0005 to 0.030 ± 0.0001 *</td>
<td></td>
</tr>
<tr>
<td>0.030 to 0.125 ± 0.001</td>
<td></td>
</tr>
</tbody>
</table>

- Gold, Tin, Silver, Nickel, Kovar™, Stainless Steel, CRS

* Dependent on material

Note: All dimensions, thicknesses and tolerances are typical. Other specifications available upon request.
Stamping Capabilities
Washers & Frames

<table>
<thead>
<tr>
<th></th>
<th>Washer</th>
<th>Frame</th>
</tr>
</thead>
</table>
| **Dimensions** *    | ID: 0.015 to 1.0 ± 0.0004
ID: 1.0 to 3.0 ± 0.002 |
|                     | OD: 0.030 to 1.0 ± 0.001
OD: 1.0 to 3.0 ± 0.002 |
| **Thickness**       | 0.001 to 0.030 ± .0005  |
|                     | 0.030 to 0.125 ± 0.001  |
| **Material**        | Gold, Tin, Silver, Nickel, Kovar™, Stainless Steel, CRS |

* Note: High aspect ratios available: thickness to width ratio approaching 3X

Note: All dimensions, thicknesses and tolerances are typical. Other specifications available upon request.
Stamping Capabilities
Headers

<table>
<thead>
<tr>
<th></th>
<th>Dimensions (inches)</th>
<th>Thickness (inches)</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.200 to 1.0 ± .0004</td>
<td>.025 to .050 ± .001</td>
<td>Copper, Nickel, Kovar™, Stainless Steel, CRS, 52 Alloy</td>
</tr>
<tr>
<td></td>
<td>1.0 to 2.0 ± .003</td>
<td>.050 to .1875 ± .002</td>
<td></td>
</tr>
</tbody>
</table>

Note: All dimensions, thicknesses and tolerances are typical. Other specifications available upon request.
Stamping Capabilities
Covers

<table>
<thead>
<tr>
<th></th>
<th>Covens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (inches)</td>
<td>0.070 to 1.0 ± 0.0004</td>
</tr>
<tr>
<td></td>
<td>1.0 to 2.0 ± 0.003</td>
</tr>
<tr>
<td>Thickness (inches)</td>
<td>0.005 to 0.030 ± 0.001</td>
</tr>
<tr>
<td>Material</td>
<td>Nickel, Kovar™, Stainless Steel, CRS</td>
</tr>
</tbody>
</table>

Note: All dimensions, thicknesses and tolerances are typical. Other specifications available upon request.
# Stamping Capabilities

## Various Standard Shapes

<table>
<thead>
<tr>
<th></th>
<th>Base Plate</th>
<th>Bent Parts</th>
<th>Battery Can</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions (inches)</strong></td>
<td>.200 to 1.0 ± .0004</td>
<td>.200 to 1.5 ± .005</td>
<td>.100 to 1.0 ± .0004</td>
</tr>
<tr>
<td></td>
<td>1.0 to 2.0 ± .002</td>
<td>1.0 to 2.0 ± .003</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.0 to 6.0 ± .003</td>
<td></td>
<td>2.0 to 6.0 ± .003</td>
</tr>
<tr>
<td><strong>Thickness (inches)</strong></td>
<td>.002 to .050 ± .001</td>
<td>.005 to .125 ± .002</td>
<td>.025 to .050 ± .001</td>
</tr>
<tr>
<td></td>
<td>.050 to .125 ± .002</td>
<td></td>
<td>.050 to .1875 ± .002</td>
</tr>
<tr>
<td><strong>Material</strong> *</td>
<td>Gold, Tin, Silver, Nickel,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Copper, Kovar™, Stainless</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Steel, CRS, Tungsten (W),</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Molybdenum (Mo), others</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Note: For Base Plates, Coining Can Stamp W and Mo Up to 0.040” Thick

Note: All dimensions, thicknesses and tolerances are typical. Other specifications available upon request.
Tape on Reel and Waffle Packaging

- Fully Automated High Speed Tape & Reel Machines
  - Parts placed in individual pockets allowing for automatic placement into circuitry

- Fully Automated High Speed Waffle Loading
  - Machines place parts in waffle trays allowing automatic pick and placement of preforms and other components
Key Benefits To Working With Coining

- **In-House Materials Science Knowledge Combined With Tool And Die Expertise**
  - Enables fabrication of precision complex stamped parts
  - Ensures rapid delivery of high quality parts

- **Delivery Of Low- And High-Volume Micro-Stampings**

- **Reliable On Time Delivery Schedules**

[www.ametek.com](http://www.ametek.com)
For More Information

Website:
http://www.ametek-ecp.com/

Headquarters:
Coining, Inc.
15 Mercedes Drive
Montvale, NJ 07645
P: +1-201-791-4020