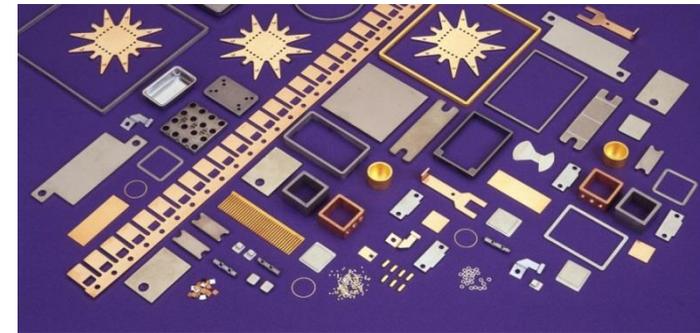




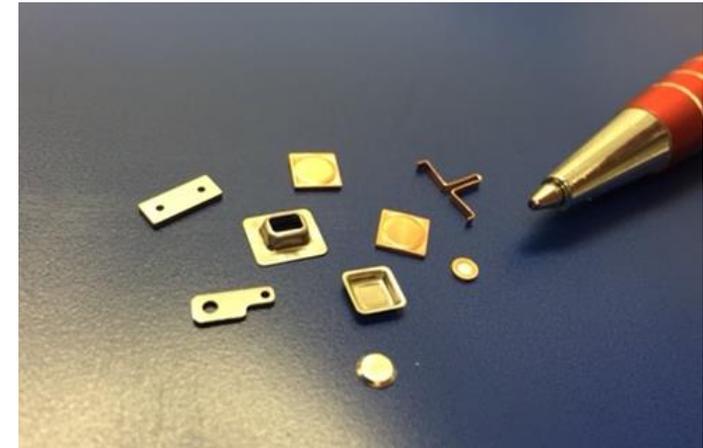
Coining Inc. Micro-Stampings Overview





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.





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**





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



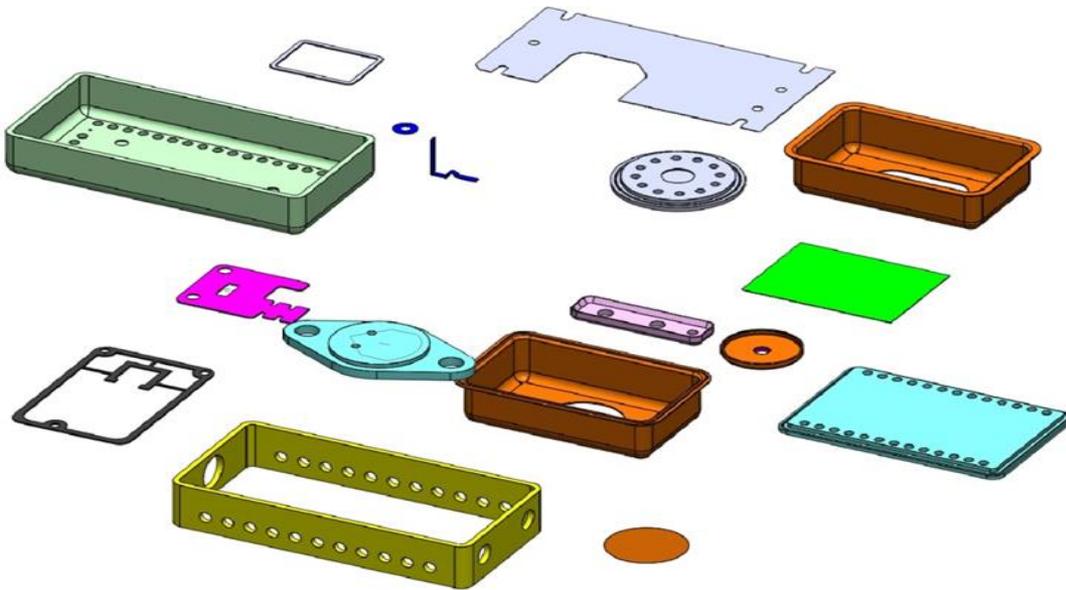
ICP



SEM



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

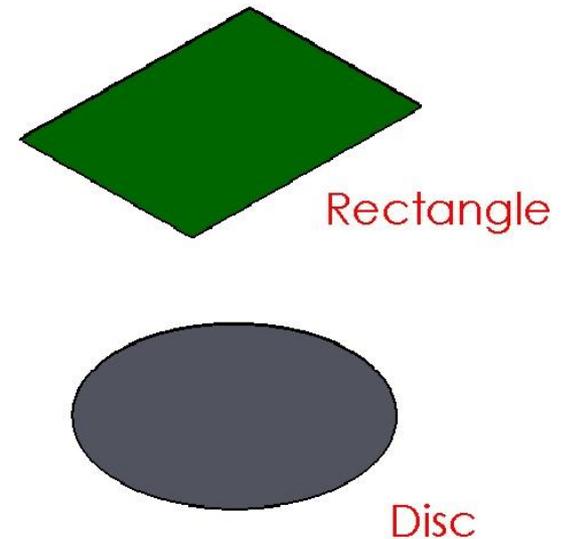


Stamping Capabilities

Rectangles & Discs

	Rectangle & Disc
Dimensions Side or Dia. (inches)	0.005 to 1.0 \pm 0.0004 1.0 to 3.0 \pm 0.002 3.0 to 6.0 \pm 0.003
Thickness (inches)	0.0005 to 0.030 \pm 0.0001 * 0.030 to 0.125 \pm 0.001
Material	Gold, Tin, Silver, Nickel, Kovar [™] , Stainless Steel, CRS

* Dependent on material

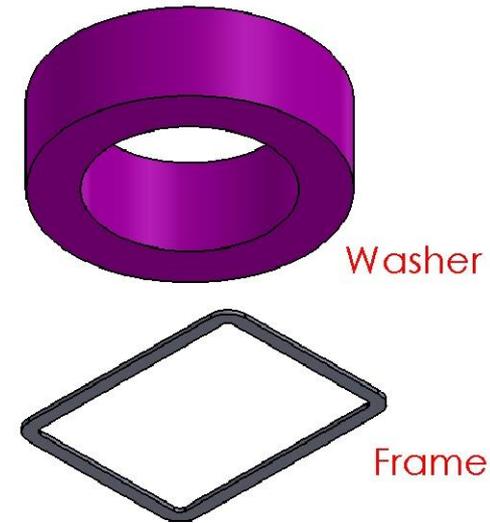


Note: All dimensions, thicknesses and tolerances are typical. Other specifications available upon request.



Stamping Capabilities Washers & Frames

	Washer	Frame
Dimensions * (inches)	ID: 0.015 to 1.0 \pm 0.0004 ID: 1.0 to 3.0 \pm 0.002 OD: 0.030 to 1.0 \pm 0.001 OD: 1.0 to 3.0 \pm 0.002	ID: 0.040 to 1.0 \pm 0.001 ID: 1.0 to 3.0 \pm 0.002 OD: 0.060 to 1.0 \pm 0.001 OD: 1.0 to 3.0 \pm 0.002
Thickness (inches)	0.001 to 0.030 \pm .0005 0.030 to 0.125 \pm 0.001	
Material	Gold, Tin, Silver, Nickel, Kovar [™] , Stainless Steel, CRS	



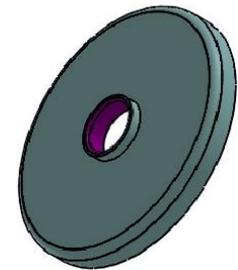
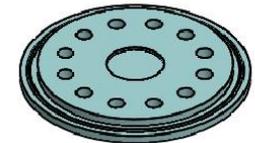
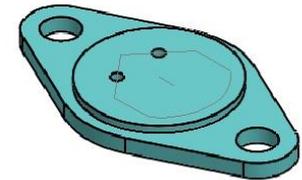
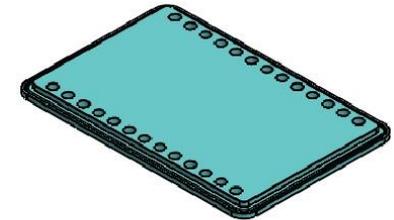
* Note: High aspect ratios available: thickness to width ratio approaching 3X

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



Stamping Capabilities Headers

	Headers
Dimensions (inches)	.200 to 1.0 ± .0004 1.0 to 2.0 ± .003
Thickness (inches)	.025 to .050 ± .001 .050 to .1875 ± .002
Material	Copper, Nickel, Kovar [™] , Stainless Steel, CRS, 52 Alloy

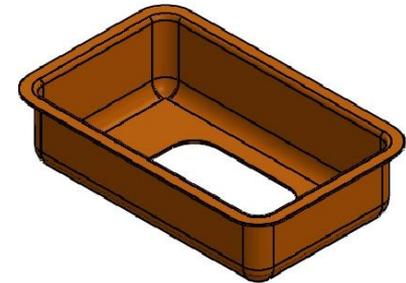


Note: All dimensions, thicknesses and tolerances are typical. Other specifications available upon request.

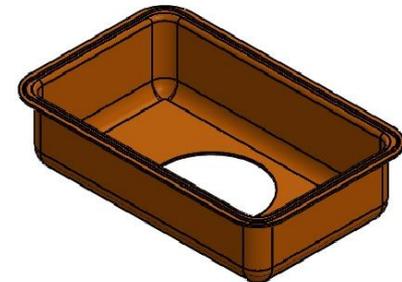


Stamping Capabilities Covers

	Covers
Dimensions (inches)	0.070 to 1.0 \pm 0.0004 1.0 to 2.0 \pm 0.003
Thickness (inches)	0.005 to 0.030 \pm 0.001
Material	Nickel, Kovar [™] , Stainless Steel, CRS



Cover without Weld Projection



Cover with Weld Projection

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

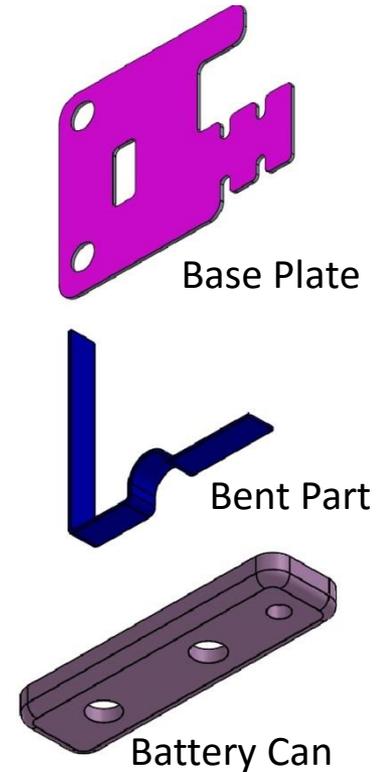


Stamping Capabilities

Various Standard Shapes

	Base Plate	Bent Parts	Battery Can
Dimensions (inches)	.200 to 1.0 \pm .0004 1.0 to 2.0 \pm .002 2.0 to 6.0 \pm .003	.200 to 1.5 \pm .005	.100 to 1.0 \pm .0004 1.0 to 2.0 \pm .003
Thickness (inches)	.002 to .050 \pm .001 .050 to .125 \pm .002	.005 to .125 \pm .002	.025 to .050 \pm .001 .050 to .1875 \pm .002
Material *	Gold, Tin, Silver, Nickel, Copper, Kovar [™] , Stainless Steel, CRS, Tungsten (W), Molybdenum (Mo), others		

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

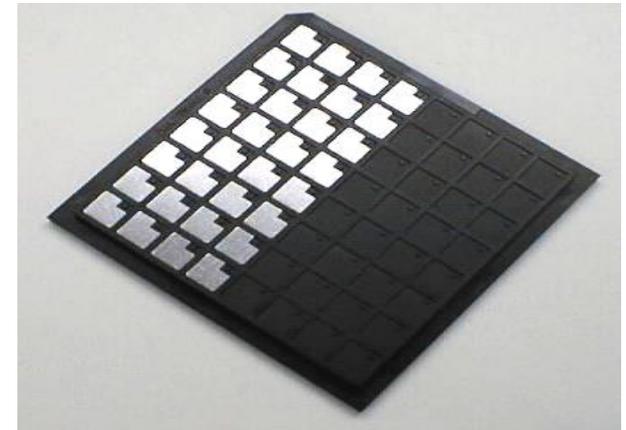


Note: All dimensions, thicknesses and tolerances are typical. Other specifications available upon request.



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**