



SOLDERING AND BRAZING PREFORMS

Quick, precise and efficient responses to our customers' needs is our standard.

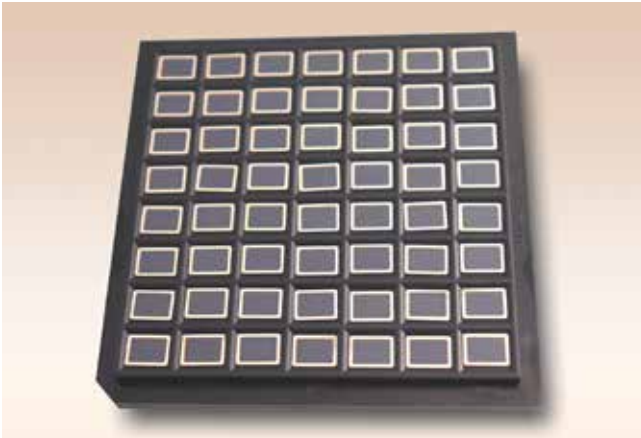
Our primary business at COINING is the fabrication of high-quality metal stampings and preforms for the electronics industry.

Our capabilities include:

- Casting
- Rolling
- Cladding
- Plating
- Tool and die making
- Stamping
- Custom-automated packaging

The COINING Quality Commitment

Our fully staffed and highly trained quality control department strives to ensure that our customers always receive the finest parts available. Our tight in-process controls allow us to strive continually for zero defects. Special packaging requests such as waffle packs, vacuum-sealed, argon-filled jars, and nitrogen-filled jars are available upon request.



Waffle pack packaging method.



High temperature metal pouring into a casting mold.

COINING only purchases raw materials from suppliers with a proven ability to provide quality product on time. We inspect all incoming raw materials. Analytics are required and available to our customers on request.

Our quality policy is simple. COINING will produce and deliver quality products on time, and provide services that meet or exceed our customers' quality and production goals. To us, this is more than a job. It's an attitude.

All of our departments are specially equipped and staffed to work with maximum efficiency. We typically respond to a request for quotation within a single business day.

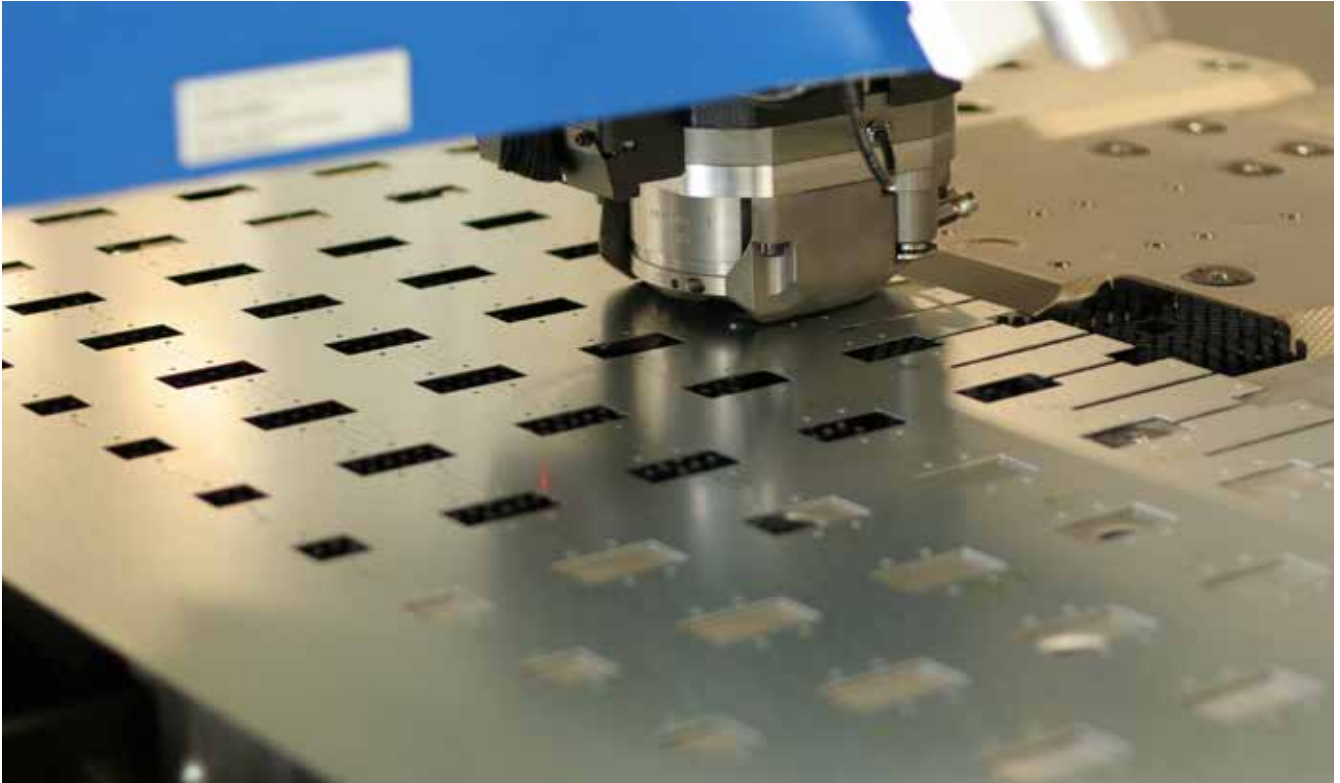
We can have samples of standard shapes or those from our open tooling list in a customer's hands within two weeks. It is not uncommon for us to ship in as little as a few days. Prototypes of custom shapes involving special tooling require more time, especially if the application is particularly challenging. With our specialized staff and customer friendly service, we are dedicated to filling every order on time.

And, to satisfy all of our customers' production needs, we offer these capabilities in house:

- Extrusion and continuous casting
- Rolling
- Tool and die making
- Stamping
- Deburring

Casting and Rolling

With our in-house casting and rolling capabilities, we make strip on a daily basis. We stock many alloys with base metals of gold, silver, lead and tin in strip form. We can roll as thin as 0.0005" (12.5 μ m). Our typical tolerance on many gauges is +/- 0.0002" (5 μ m). Our standard alloys always are ready to be punched for delivery.



Sheet metal being stamped.

Cladding and Plating

We stock a wide variety of copper, molybdenum and Kovar multilayer cladded materials. Cladding is a process by which different metal layers are metallurgically bonded without adhesives or filler materials. COINING specializes in supplying stamped and plated Kovar and molybdenum tabs, covers, terminals and heatsinks. We routinely plate shapes as small as 0.010" (0.25 mm). If required, we can supply parts stamped from plated strips as an alternative.

Tooling

We can make custom part design a reality. Our fully equipped tool and die department with its wire EDM capability brings craftsmanship and modern technology together to satisfy our customers' every need. All dies are made in house. Delivery with a new tool is generally between two and six weeks, depending on the complexity of the part.

Our standard tooling list is available upon request.

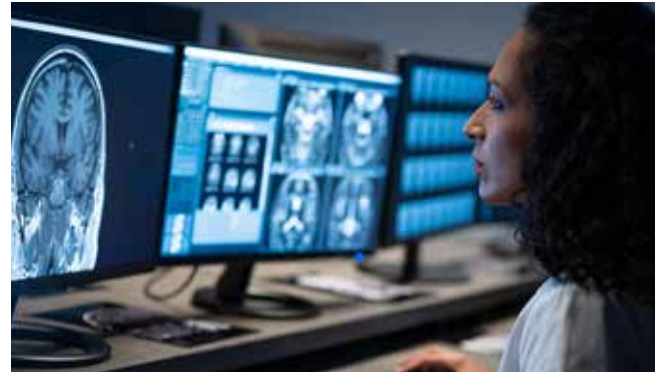
Stamping

We can produce standard, custom and complex shapes quickly and efficiently. All stamping is done in-house in our highly integrated production facility. All jobs, regardless of size, have a lot number and quality control documents that accompany them throughout our process. We routinely carry out in-process inspections. Our standard tool list (discs, frames, rectangles, squares and washers) is among the most extensive in the industry with shapes ranging from 0.0035" (90 μ m) square to shapes over 6" (15 cm). Our custom fabrication capabilities are limited only by the physical constraints of the materials at hand. Essentially, if a shape is possible, it's almost certain that COINING can fabricate it, quickly, precisely and efficiently.

Lead-Free Alloys

Drawing on its extensive industry experience and expertise in lead-free technology, COINING is able to provide a comprehensive array of lead-free alloys and preforms. Advantages include:

- More than one hundred 100% lead-free alloys with melting points (both eutectic and non-eutectic) ranging from 90°C to 1100°C. Customer requirements typically can be met with one of these alloys.
- Precision stamping capabilities supported by an extensive inventory of standard tools, including discs, frames, rectangles, squares and washers. COINING’s in-house ability to rapidly build complex dies from micro to macro scale. That ability allows for the expeditious delivery of standard, custom and complex shapes in sizes ranging from 0.0035” (0.09 mm) to over 6” (15 cm), and as thin as 0.0005” (12.5 μm).
- An experienced team of R&D metallurgists, work with our customers to develop a custom alloy if an existing alloy does not meet their lead-free needs.
- Completely integrated manufacturing capability that allows COINING to efficiently move from creation of an alloy to the completion of a finished part.



Doctor analyzing X-rays of the brain.

No single “magic” lead-free alloy can be universally substituted for all existing lead-based soldering alloys. Our customers’ specific needs define the best lead-free substitute. COINING’s experience and expertise ensure that each customer receives the highest quality product quickly and efficiently.

Lead is a known environmentally toxic element with significant adverse human health effects. As such, it is the focus of a global effort to eliminate or reduce its use wherever possible. European Union directives (WEEE/RoHS/REACH) ban its use in many applications. Japan also has banned many of its industrial uses with the Americas moving in that direction as well.

Companies that fail to heed these regulations and eliminate the use of lead wherever possible face severe consequences, ranging from loss of customers and applications to outright prohibition from participating in certain markets. Manufacturers and consumers worldwide increasingly demand lead-free products.

What is affected by lead-free?

Household appliances

IT and telecommunications equipment

Consumer electronics

Lighting equipment

Electrical and electronic tools

Medical devices and equipment

Monitoring and control instruments

Automotive electronics



Gold strip going through the rolling machine.

COINING uses a variety of elements to manufacture a broad range of compositions for use as lead-free soldering and brazing alloys. Combined with its extensive tool list and precision stamping capabilities,

COINING is able to expedite the completion of an order. When necessary, our in-house metallurgists will work with customers to provide a custom solution tailored to their specific needs.

Contact Us

Ask An Engineer a technical question, by simply scanning the QR code and drop us a line.



Partial List of Lead-Free Alloys									
Alloy #	Element 1 and Wt%		Element 2 and Wt%		Element 3 and Wt%		Element 4 and Wt%		Density Gr/cc
3024	In	44	Sn	42	Cd	14	-	-	7.96
3033	In	51.5	Bi	32	Sn	16.5	-	-	7.31
3003	In	52	Sn	48	-	-	-	-	7.3
361	Bi	57	Sn	42	Ag	1	-	-	8.59
349	Bi	57	Sn	43	-	-	-	-	8.59
3006	In	97	Ag	3	-	-	-	-	7.38
3000	In	100	-	-	-	-	-	-	7.31
2147	Sn	88.5	In	8	Ag	3	Cu	0.5	7.43
2165	Sn	91.2	Zn	8.8	-	-	-	-	7.28
340	Sn	93.5	Bi	5	Ag	1.5	-	-	7.29
2155	Sn	93.3	Ag	3.1	Bi	3.1	Cu	0.5	7.43
2156	Sn	92	Bi	4.7	Ag	3.3	-	-	7.46
2128	Sn	96.3	Ag	2.5	Cu	0.7	Sb	0.5	7.38
2010	Sn	95	In	5	-	-	-	-	7.29
2136	Sn	96.5	Ag	3	Cu	0.5	-	-	7.37
2138	Sn	95.5	Ag	3.9	Cu	0.6	-	-	7.39
2133	Sn	96	Ag	3.5	Cu	0.5	-	-	7.38
2005	Sn	96.5	Ag	3.5	-	-	-	-	7.37
2009	Sn	95	Ag	5	-	-	-	-	7.4
2112	Sn	99.3	Cu	0.7	-	-	-	-	7.31
2061	Sn	97	Cu	3	-	-	-	-	7.33
2000	Sn	100	-	-	-	-	-	-	7.3
2067	Sn	97	Sb	3	-	-	-	-	7.28
2024	Sn	65	Ag	25	Sb	10	-	-	7.81
10004	Au	80	Sn	20	-	-	-	-	14.52
10121	Au	79	Sn	21	-	-	-	-	14.34
10013	Au	78	Sn	22	-	-	-	-	14.18
10003	Au	88	Ge	12	-	-	-	-	14.67

Typical Alloys

Alloy #	Element 1 and Wt%		Element 2 and Wt%		Element 3 and Wt%		Element 4 and Wt%		Density Gr/cc
3025	In	50.9	Sn	49.1	-	-	-	-	7.31
3026	In	74.7	Cd	25.3	-	-	-	-	7.73
1059	Sn	37.5	Pb	37.5	In	25	-	-	8.42
349	Bi	57	Sn	43	-	-	-	-	8.54
361	Bi	57	Sn	42	Ag	1	-	-	8.59
3006	In	97	Ag	3	-	-	-	-	7.38
1058	Sn	43	Pb	43	Bi	14	-	-	8.99
3002	In	80	Pb	15	Ag	5	-	-	7.85
2129	Sn	53	Pb	37	Bi	10	-	-	8.65
2021	Sn	70	Pb	18	In	12	-	-	7.79
3000	In	100	-	-	-	-	-	-	7.31
3008	In	70	Pb	30	-	-	-	-	8.18
3004	In	60	Pb	40	-	-	-	-	8.52
2023	Sn	65	Pb	30	Ag	5	-	-	8.31
2035	Sn	60	Pb	38	Ag	2	-	-	10.71
2031	Sn	62	Pb	36	Ag	2	-	-	8.42
1054	Pb	60	Sn	37	Ag	3	-	-	9.39
2036	Sn	60	Pb	37	Ag	3	-	-	8.49
2037	Sn	60	Pb	36	Ag	4	-	-	8.48
3005	In	50	Pb	50	-	-	-	-	8.89
2030	Sn	62	Pb	38	-	-	-	-	8.37
2044	Sn	63	Pb	37	-	-	-	-	8.4
2032	Sn	60	Pb	40	-	-	-	-	8.51
2020	Sn	70	Pb	30	-	-	-	-	8.16
2017	Sn	90	Pb	10	-	-	-	-	7.56
2012	Sn	95	Pb	5	-	-	-	-	7.42
1053	Pb	60	Sn	40	-	-	-	-	9.28
1052	Pb	60	In	40	-	-	-	-	9.29
2010	Sn	95	In	5	-	-	-	-	7.29
10008	Sn	90	Au	10	-	-	-	-	7.77
2005	Sn	96.5	Ag	3.5	-	-	-	-	7.37
2004	Sn	97	Ag	3	-	-	-	-	7.36
2007	Sn	96	Ag	4	-	-	-	-	7.38
2003	Sn	97.5	Ag	2.5	-	-	-	-	7.35
2061	Sn	97	Cu	3	-	-	-	-	7.33
1036	Pb	85	Sn	15	-	-	-	-	10.47
2000	Sn	100	-	-	-	-	-	-	7.3
2067	Sn	97	Sb	3	-	-	-	-	7.28
2002	Sn	99	Sb	1	-	-	-	-	7.28
2016	Sn	90	Sb	10	-	-	-	-	7.22
1042	Pb	75	In	25	-	-	-	-	9.97
1068	Pb	92.5	Sn	4	Ag	3.5	-	-	11.08
1033	Pb	88	Sn	10	Ag	2	-	-	10.73
1038	Pb	81	In	19	-	-	-	-	10.27
1027	Pb	90	Sn	10	-	-	-	-	10.74
10004	Au	80	Sn	20	-	-	-	-	14.52
1017	Pb	93.5	Sn	5	Ag	1.5	-	-	11.02
10013	Au	78	Sn	22	-	-	-	-	14.18
1019	Pb	92.5	Sn	5	Ag	2.5	-	-	11.01
2000	Sn	100	-	-	-	-	-	-	7.29
1028	Pb	90	In	5	Ag	5	-	-	10.99
1029	Pb	90	Sn	5	Ag	5	-	-	10.99
1010	Pb	95	In	5	-	-	-	-	11.04

Typical Alloys

Alloy #	Element 1 and Wt%		Element 2 and Wt%		Element 3 and Wt%		Element 4 and Wt%		Density Gr/cc
1013	Pb	95	Ag	2.5	Sn	2.5	-	-	11.16
1066	Pb	95.5	Ag	3	Sn	1.5	-	-	11.22
1012	Pb	95	Sn	3.5	Ag	1.5	-	-	11.11
1018	Pb	92.5	In	5	Ag	2.5	-	-	11.01
1004	Pb	97.5	Ag	2.5	-	-	-	-	11.32
1008	Pb	96	Ag	4	-	-	-	-	11.3
1011	Pb	95	Sn	5	-	-	-	-	11.03
1005	Pb	97.5	Ag	1.5	Sn	1	-	-	11.26
1071	Pb	97.5	Sn	1.5	Ag	1	-	-	11.24
1007	PB	97	Sn	3	-	-	-	-	11.15
1003	Pb	98	Sn	2	-	-	-	-	11.22
1001	Pb	99	Sn	1	-	-	-	-	11.28
1069	Pb	99	Sb	1	-	-	-	-	11.26
1000	Pb	100	-	-	-	-	-	-	11.34
10003	Au	88	Ge	12	-	-	-	-	14.67
10088	Au	98.85	Si	3.15	-	-	-	-	15.7
10002	Au	98	Si	2	-	-	-	-	16.85
10027	Au	82	In	18	-	-	-	-	14.9
20211	Ag	60	Cu	30	Sn	10	-	-	9.57
20221	Ag	45	Cd	24	Zn	16	Cu	15	9.1
20233	Ag	56	Cu	22	Zn	17	Sn	5	9.2
20212	Ag	50	Cd	18	Zn	16.5	Cu	15.5	9.18
20205	Ag	61.5	Cu	24	In	14.5	-	-	9.5
20206	Ag	15	Cu	80	P	5	-	-	7.62
20232	Ag	45	Cu	27	Zn	25	Sn	3	8.91
20274	Ag	60	Cu	25	Zn	15	-	-	9.42
20256	Ag	65	Cu	20	Zn	15	-	-	9.49
20219	Ag	50	Cu	34	Zn	16	-	-	9.25
40489	Cu	95	P	5	-	-	-	-	7.5
20305	Cu	50	Zn	33	Ag	17	-	-	8.46
20213	Ag	71.5	Cu	28	Ni	0.5	-	-	10
20204	Ag	72	Cu	28	-	-	-	-	10.01
20234	Ag	80	Cu	20	-	-	-	-	10.14
20203	Ag	90	Cu	10	-	-	-	-	10.31
20249	Ag	71.15	Cu	28.1	Ni	0.75	-	-	9.99
20263	Ag	68.5	Cu	26.8	Pd	4.7	-	-	10.09
20271	Ag	58.5	Cu	31.5	Pd	10	-	-	10.08
20235	Ag	92.8	Cu	7.2	-	-	-	-	10.36
10042	Au	60	Ag	20	Cu	20	-	-	13.79
20240	Ag	65	Cu	20	Pd	15	-	-	10.33
20208	Ag	54	Pd	24	Cu	22	-	-	10.41
10009	Au	65	Cu	35	-	-	-	-	13.76
10041	Au	80	Cu	20	-	-	-	-	15.67
10018	Au	82	Ni	18	-	-	-	-	15.95
10007	Au	50	Cu	50	-	-	-	-	12.22
20200	Ag	100	-	-	-	-	-	-	10.49
10011	Cu	65	Au	35	-	-	-	-	11.01
10033	Cu	75	Au	25	-	-	-	-	10.35
10098	Au	69	Ag	25	Pt	6	-	-	16.04
10001	Au	100	-	-	-	-	-	-	19.3
10016	Au	99.98	P	0.02	-	-	-	-	19.29
10023	Au	99.94	P	0.06	-	-	-	-	19.21
40400	Cu	100	-	-	-	-	-	-	8.96

SOLDERING AND BRAZING PREFORMS



COINING at a glance

COINING, a world-class AMETEK business, makes tiny components that have a big impact on people's lives. From sensors to satellites, there isn't much happening in the world today that doesn't include the products we make.

For people who demand precision, flexibility, and speed, COINING is the world leader in custom alloys and solder preforms. We also offer specialized bonding wire, precision thermal management materials, and hermetic solutions. In fact, we're the largest solder preform manufacturer in the world. With a broad range of products, the most extensive library of preform dies in the industry – about 15,000 different tools, and our very own COINING Labs to make custom alloys, we can move faster-to-market than anyone else.



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