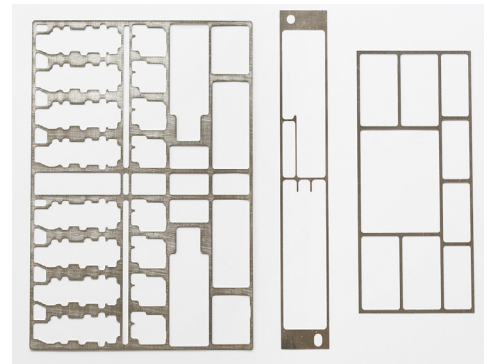


# Solder and Braze Preforms

## Overview

Solder and braze preforms provide exceptional solutions for attaching electronic circuitry and packaging electronic devices, providing both good thermal and electrical conductivity as well as an interface for electronic connections. Alloy selection and shape geometry/dimension are critical decision points and the Hermetic Solutions Group not only understands the intricate physical and chemical requirements for solder and braze preforms, it excels at helping customers select the best solution for any application.



## Technical Advantages

### Metallurgical Expertise

The Hermetic Solutions Group has deep experience working with a wide range of solder and braze alloys including: 63Sn/37Pb (melt range 183° C); 96.5Sn/3.5Ag (melt range 221° C); 80Au/20Sn (melt range 280° C); 88Au/12Ge (melt range 356° C) and 72Ag/28Cu (780° C melt range).

### Flexible Options

Extensive tooling available for all common shapes plus low cost options for more complex geometries. With special attention paid to managing extremely tight tolerances, we offer square, rectangular and disc shape preforms commonly used to attach electronic components. We also offer frame shaped preforms that are often required for the construction of electronic packages and washer shaped preforms to attach hermetic feed-thrus for electronic components. Typical tolerances are +/-0.003" for both length and width (tighter tolerances are available) and 10% of thickness tolerances are typical. We use optical CMM, toolmaker scopes, and optical comparators to inspect completed preforms. We also provide micro-tack welding of preforms to components.

### Short Lead Times

Quick turn prototyping and manufacturing at our new 25,000 square foot state-of-the-art facility allows for maximum flexibility to support customer material, geometry and volume requirements. Short lead times of 1-3 weeks are typical.

### Process Control

Our in-house manufacturing of high purity solder and braze alloys using processes such as casting, rolling, slitting, stamping, forming, machining, and wire EDM allows us to control every step in the manufacturing process.

### Commitment to Quality

Our commitment to quality is second to none. It includes solderability testing and third-party ICP analysis to confirm preform integrity. The Hermetic Solutions Group's Hi-Rel Alloys division is ISO 9001:2008 certified.

**HERMETIC SOLUTIONS GROUP***Enabling Technology*

The Hermetic Solutions Group supplies a number of different solder and braze alloys, including those listed below. Please let us know if you have a different alloy in mind and we'll provide all the chemical and physical data you may require to determine the optimal solution for your application.

F Degree Liquidus	F Solidus	F Eutectic or Melt Point	Composition	C Degree Liquidus	C Solidus	C Eutectic or Melt Point	Density gm/cm	Density Troy oz/in
		315	100 In			157	7.31	3.85
361	361	x	63 Sn/37 Pb	183	183	x	8.4	4.43
365	345		60 In/40 Pb	185	174		8.52	4.49
370	361		60 Sn/40 Pb	188	183		8.5	4.48
408	356		50 In/50 Pb	209	180		8.86	4.67
414	361		50 Sn/50 Pb	212	183		8.87	4.67
415	361		90 Sn/10 Pb	213	183		7.55	3.98
424	361		52 Pb/48 Sn	218	183		8.95	4.72
430	430		96.5 Sn/3.5 Ag	221	221		7.36	3.88
432	361		95 Sn/5 Pb	222	183		7.42	3.91
437	383		60 Pb/40 In	225	195		9.3	4.9
460	361		60 Pb/40 Sn	238	183		9.28	4.89
536	536	x	80 Au/20 Sn	280	280	x	14.51	7.64
		558	90 Pb/5 Ag/5 Sn			292	11	5.8
565	549		92.5 Pb/5 Sn/2.5 Ag	296	287		11.02	5.81
		572	92.5 Pb/5 In/2.5 Ag			300	11.02	5.81
597	558		95 Pb/5 In	314	292		11.06	5.83
612	590		98.5 Pb/1.5 Sb	322	310		11.23	5.92
673	673	x	88Au/12Ge	356	356	x	14.67	7.73
		621	100 Pb			327	11.35	5.98
1436	1436	x	72 Ag/28 Cu	780	780	x	10.01	5.27
		1762	100 Ag			961	10.5	5.53
		1945	100 Au			1063	19.3	10.17
		2826	100 Pd			1552	12.02	6.33

X=Eutectic

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