GINCOM TECHNOLOGY

METAL PROCESSING: CLADDING, ROLLING AND EXTRUSION

Metal strip is the basic material used in GINCOM precision stampings. GINCOM has the ability to alloy, cast, roll, clad and slit a wide variety of the metals used in its stampings. CINCOM also rolls and slits vendor supplied material as needed to meet custom specifications.

➢ Cladding Defined

Metal cladding is a precision multi-step manufacturing process where two or more metals are bonded or joined together under regulated high pressure and temperature. Through this process, we create a reliable, high quality, low cost clad strip to stamping companies working in the microelectronics industry as well as other manufacturing markets.

➢ Cladding Parameters

This in-house capability also permits us to rapidly respond to urgent customer requirements. While cladding requires the bonding of multiple metals together, there is a variety of custom specifications to be considered that affect the manufacturing process on a metal by metal basis. In order to assure a quality bond, the metals must be thoroughly cleaned and then pre-brushed to assure an oxide free bonding surface. At GINCOM the pre-brushing step occurs both in line with the bonding process and offline in a separate operation depending on the metals being bonded.

➢ Tempering of Clad Metals

A bonded metal then goes through a rolling and annealing process. This rolling and annealing process helps insure strong intermetallic growth between the metals being joined. As with strip, rolling clad material “hardens” the material, while annealing “softens” the material so that it can be rolled further. To get to the desired material thickness, a combination of rolling and annealing is normally required.

➢ Continuing Clad Process

The clad material is annealed and rolled, and then the material is cross-sectioned to verify proper layer thickness. The material can now be slit to the desired width and coiled to the proper length as per either in-house or customer specifications.

➢ Solder Clads

Solder clad materials eliminate the need for either the placing of a separate preform, or a hand soldering
operation. The volume of solder is tightly controlled when using clad materials and, in general, can be located in the exact area where it is needed.

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➢ Rolling Equipment
GINCOM has both an extensive and expanding rolling department, complete with induction furnaces, casting equipment, rolling mills and slitters. This equipment gives GINCOM the flexibility to create custom metal alloys for experimental purposes, unique production alloys and specialty strip materials to meet the needs and application requirements of our customer.

➢ Alloying for Rolling
Alloying is a process where two or more metals are melted together to form a different homogeneous material. Alloys often have different physical properties compared to the constituent metals. Alloys are often preferred over base metals for a variety of reasons. These are inclusive of higher or lower melting points, for special conductivity attributes or improved thermal expansion values, to name a few. Depending upon the alloy, GINCOM will use either an induction furnace or a casting operation to produce the alloyed material. Significant care is taken to reduce contaminants and oxidation to meet industry standards.

➢ Rolling Process
Metal strip is manufactured in a four step process at our GINCOM facility. First, an alloy is calculated, measured, inspected and melted. Once melted, the alloy is cast, typically into bars. The bars are then rolled to the proper thickness and slit to the proper width.

➢ Solder Wire Extrusion Process GINCOM extrudes various formulations of solder wire through a precise process. We start with a large diameter solid ingot that is heated and pressed through a die to a desired end product diameter. The procedure we employ is direct extrusion with no lubrication. The diameter of the solder wire is constant and ranges from .020" upward.

➢ Extrusion Tools and Equipment The dies built by GINCOM for this process are manufactured to stringent tool specifications from hardened steel. This ensures consistency from batch to batch. This also permits GINCOM to be flexible with its die usage depending upon the solder formulation and regulated high pressure controls. The products are manufactured on either horizontal or vertical extrusion presses as dictated by the diameter and volume.

➢ Solder Wire Products
Standard diameters are readily available on spools that range in capacity from 80 mtrs up to 400 mtrs. GINCOM also develops and produces specialty or custom extruded requirements as well. The most common of the standard extruded solder types are lead based 95.5 Pb/2.5 Ag/2 Sn and lead free 96.5 Sn/3.5 Ag also known as Sn 96. Typical diameters range from .020 to .030. All finished products are supplied with a Certificate of Analysis. All spools are of the foil feed variety and are vacuum packed after spooling.

Ordering information:
GINXX XX X

Size: example Width: .250inch
Thickness: .002 inch
The P/N should be “GIN25002

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