



Specialists in Cladding all Ferrous Non-Ferrous and Precious Metals

Benefits of Clad Metal

Clad metals offer the opportunity to combine desirable properties and/or characteristics of individual metals and alloys into a material "system" that provides improved characteristics over the individual metals:

- Strength
- Electrical Properties
- Thermal Properties
- Corrosion Resistance
- Density
- Magnetic Properties
- Wear Resistance
- Formability
- Weldability/Joinability/Brazability
- Conservation/Cost Reduction
- Appearance
- Compatibility/Corrosion Resistance

Inlays Clads

Inlays represent one of the most sophisticated uses of clad metals. Through the use of an inlay, designers can incorporate materials such as gold, silver, platinum and palladium with less expensive materials such as copper, brass and stainless steel. This combination puts the characteristics of a precious metal exactly where you need it, yet allows dissimilar characteristics such as heat sinking, spring and welding to be designed into a product. Inlay cladding has several advantages over selective plating. The process allows the use of virtually any wrought alloy, ensuring a highly consistent composition, and allowing many alloys to be used which ordinarily could not be plated. Through careful selection of materials, a surface can be attained that is denser, harder and more wear resistant than a plated surface. Clad Metal Specialties' state-of-the-art production processes assure you of optimum bond integrity. Precious metals can be located selectively to close tolerances resulting in substantial savings. By assisting customers in their design and using our advanced manufacturing techniques, Clad Metal Specialties can provide the highest quality material combinations. Upon request, Clad Metal Specialties will gladly run small sample quantities.

Overlay Clads

Overlay cladding is a process by which dissimilar layers of metals are bonded together. This is a metallurgical process which uses no adhesives or filler materials. It is accomplished through the use of extreme pressure and, in some cases, heat. The process can produce what are commonly called single clad (two layers), double clad (three layers), and in some specific instances as many as seven layers. All Clad Metal Specialties overlays are custom made to your exact specifications. Our processes have the capability of bonding such dissimilar metals as nickel to gold, tin to copper, silver to aluminum. The combinations available, limited only by the designers imagination, can be manufactured in widths from .100" to 6",

and thicknesses from .001" to .125".

Typical combinations for the semiconductor industry include silver double clad on aluminum, lead and tin alloys clad on all base metals including gold, tin, gold silicon and gold germanium clad on nickel Iron, Kovar, molybdenum and copper.

Combinations produced for the switch and electromechanical industries include silver and silver contact materials clad to all available base materials (copper, Kovar, phosphor bronze and brass). Silver brazing alloys are available clad to all base metals as discussed above.

Contact Materials

The main objective of a contact material system is to combine the advantages of a number of materials into one system that provides improved characteristics over a single metal. Clad contact materials can combine the conductivity of copper, the tensile strength of steel and the contact resistance of silver into one cost effective stamping. By putting the exact amount of precious contact material on a heat-sinking base such as copper and then combining this with the support of steel, the designer can be used to produce contact materials in several configurations including contact tapes with weld rails for high speed automatic assembly, inlays for progressive die stamping of contact arms and switch parts and full overlays for producing contact buttons and heavy duty circuit breaker parts.

Rolling, Slitting and Annealing

This valuable service allows you to convert unusable inventory into usable inventory.

In a sample situation, a customer sends us 16" wide coils of metal and requests that we slit it to 3" wide. We would make five cuts at 3" wide and generate 1" of scrap. To carry it one step further, suppose the coil you have is .050" thick and your requirement is for .030" thick at 3" wide; we would slit the incoming coil to five cuts at 3.125", roll the material to the new thickness of .030" and then re-slit the coils to 3". The reason for the extra slitting step is that when rolling from .050" to .030" the material will spread and in most cases customers require an exact width at + .005" for their stamping operation. Now suppose the incoming material at .050" is in the annealed condition (soft) and the customer requires it back in the same condition. Since rolling from .050-.030" will harden the material, it must be reannealed prior to final slitting. This process can be used on any material that is available in coil form.

Most common materials include but are not limited to, copper and copper alloys, various brasses, nickel and nickel alloys, aluminum and aluminum alloys, precious metals including gold, silver, platinum and palladium and some of the more exotic materials such as niobium, indium, zinc and molybdenum. Our state-of-the-art equipment can turn obsolete and excess inventory into money-saving products.