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Eight Good Reasons for Mechanical Plating

Mechanical plating is an effective means of applying zinc, tin, aluminum or other ductile metals or mixtures thereof to metal substrates. It has a number of advantages over conventional plating and coating processes.

- The most important reason for mechanical plating is the assurance of product reliability through **the elimination of hydrogen embrittlement**. Mechanical plating is the method preferred by many engineers for hardened fasteners and stressed components.
- **Elimination of lengthy pre-plating and post-plating baking cycles.** The ASTM has developed standard practices (ASTM B649 and B850) which recommend baking cycles before and after electroplating to prevent hydrogen embrittlement. For extremely hard parts, baking cycles can be quite extensive - in some cases, as long as 40 hours.
- **Mechanical plating is the best way to avoid the extra expense of long baking cycles.** Customers can visually confirm that parts have been mechanically plated - something that cannot be done to confirm baking cycles. Mechanical plating has a matte finish easily distinguishable from electroplating's bright finish. In addition, Mechanical plating has **the ability to plate sintered metal parts** (powder metallurgy) without costly impregnation.
- The ability to plate parts which tangle; the glass impact media used in the process tends to prevent parts from tangling. This mechanical plating process characteristics makes this technology an ideal choice for plating hardened steel springs.
- **The ability to plate flat parts;** the media prevents flat parts from masking one another, making sure that all surfaces are plated. This makes mechanical plating an ideal process for plating flat stampings and washers.
- Because mechanical plating consumes all the chemistry in each process cycle, there is no build-up of contamination in the bath. This assures users of **long-term product and process consistency**.
- The ability to apply leachant-sealants after the chromate conversion coating or trivalent passivate to enhance the corrosion protection of the process with little incremental expense. **A zinc deposit of 0.0005" with Hyperguard™ 326™ and a leachant-sealant topcoat will get over 500 hours of salt spray** and coatings that deliver over 1,000 hours are achievable. This can also be achieved with the RoHS Compliant **Hyperguard™ 326™ and a Sealer**, at 0.001" of Zinc.
- **Attractive economics for coating thicknesses above 0.0005".** This is due primarily to the fact that in mechanical plating the process for thick coatings is only slightly longer than the cycle for thin coatings (unlike electroplating, where the plating time is directly proportional to the plating thickness). The cost of additional plating thickness in mechanical plating is only slightly more than the cost of the plating metal.