PEF Microstructures Potted Case Studies

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This paper shows real-time applications where photo electroforming (PEF) in nickel has been adapted to overcome challenges and demands from several industries and applications. All are microstructures that allow the customer to measure better, reduce overall size, and/or increase the operational characteristics of their device.

We will examine a series of mini/potted case studies, including the following:

1. Reducing size and cost and increasing performance of miniature microphones and speakers, mostly for hearing aids but also for other miniature acoustic devices. This demonstrates the ability of electroforming to create a true 3-D part that eliminates expensive automated manufacturing, forming, and testing equipment.
2. Making ultra high-density electronic HDI circuits. This process takes technology from the CD and DVD manufacturing world into the micro-electronics world, reducing to one-quarter the size being achieved today while significantly reducing manufacturing and overhead costs.
3. Depositing ultrafine features onto substrates with multilevel deposition masks, which used to be single level but were limited in aperture size where the aspect ratio of the aperture is a determining factor in size and tolerance.
4. Replicating nanostructure in nickel. A growing area that is an alternative to costly silicon structures.