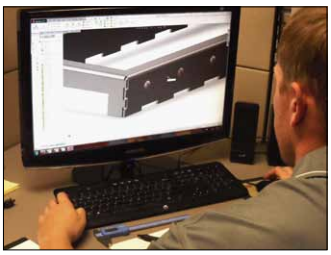
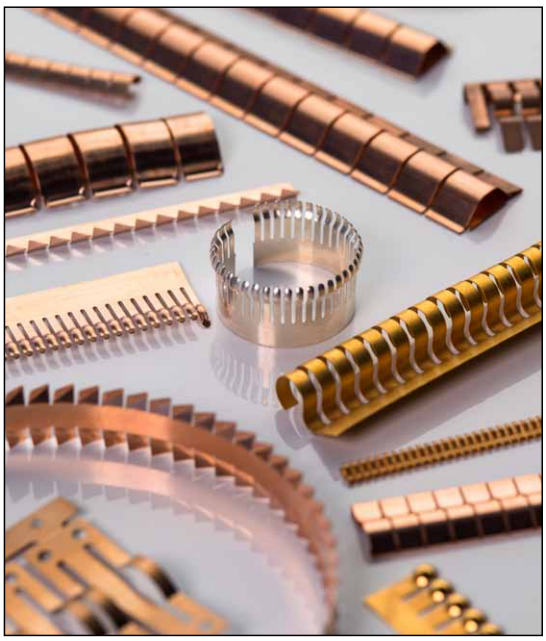
3D SOFTWARE AND THE EVOLUTION OF EMI/RFI SHIELD DESIGN



Computers have changed our lives in countless ways, from controlling the engine in your car to providing data in seconds that would have taken months to assemble in the past. Along the way CAD systems were developed by driven software engineers. As this software evolved these programs began working in the world of three-dimensional parts, offering a screen view of a complete part. This then evolved into the ability to mate various parts together on-screen, pointing out areas that have interference.

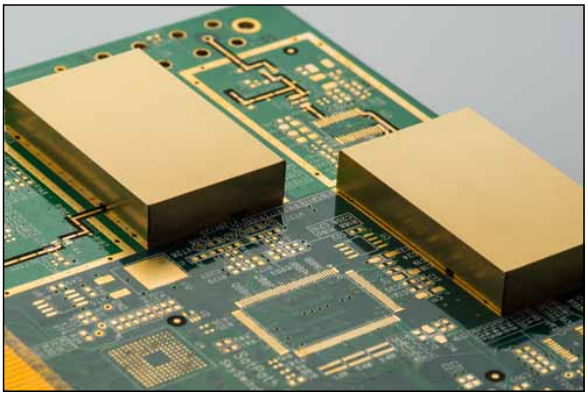


Over the years over one hundred varieties of finger-stock gaskets have been developed, along with the ability to customize for given applications.

Fast-forward to the world of EMI/RFI shielding for the electronics industry, an industry that is new in the relative terms of the metal forming industry. The first challenge was shielding the equipment contained within an enclosure from a static field. This was accomplished with metal enclosures and conductive gasketings, creating a Faraday Cage allowing the charge to be equally distributed around the enclosure and equaling out the charge inside the box.

A new product was developed—standard off-the-shelf "finger stock" was applied to the openings and the result was the shielding protection required to successfully operate a piece of electronic equipment to FCC regulations.

As the density of electronics increased many fold over time, new solutions were required. Issues ranged from large enclosures to localized EMI/RFI shielding challenges within the footprint of a printed circuit board. Instead of standard off-the-shelf solutions, every new design required a custom Faraday Cage that could require from one to twenty or more shields on a given board.



Board level shields used to address localized EMI/RFI issues within a printed circuit board by creating individual Faraday Cages.

Original finger-stock designs were hand-drawn prints taking days to develop. How could an engineer possibly use custom board shields if each part would take days to draw before review? The arrival of 3D CAD programs, able to design both one- and two-piece parts very quickly, changed everything. A custom design could now be sent electronically to plotting machinery, allowing for instantaneous photo-plotting before being sent to prototype production equipment.

In the past a new design from concept to prototype delivery would require 4 to 6 weeks. Today, with 3D computer software working hand-in-hand with production equipment, board shields can be ready to go in a matter of days. Today, the print generated has finer detail, allowing the engineer in charge to proceed with confidence that the shield will fit properly on the board the first time. Since all tolerances are controlled by computer software, the fit and finish is miles beyond what had been provided in the past.

3D SOFTWARE AND THE EVOLUTION OF BOARD SHIELD DESIGN (cont'd)

Without 3D CAD software the industry would not have evolved to its current level. Today, shields are in thousands of products, making sure that the unit is protected and that internal interference is not causing issues with other pieces of equipment in the surrounding area. We thank the visionaries who brought part design to the computer screen for these abilities.

Whatever your industry, whatever your application, Orbel's custom design and manufacturing process means engineered solutions designed to your exact demands. Start to finish, from conception through delivery, Orbel offers today's most effective EMI/RFI shielding, photo-etched precision metal parts, precision metal stampings, and electroplated metal foils. For more information, visit Orbel.com or call 610-829-5000.