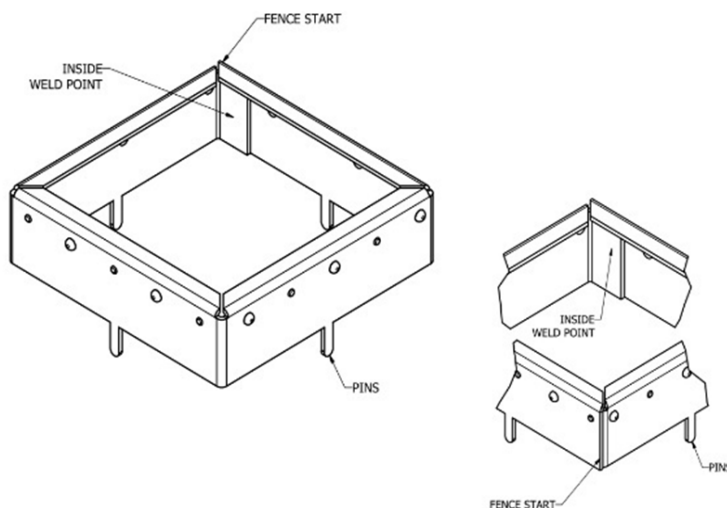


DESIGN GUIDANCE FOR APERTURES IN BOARD LEVEL SHIELDING

Design Guidance for Apertures in Board Level Shielding

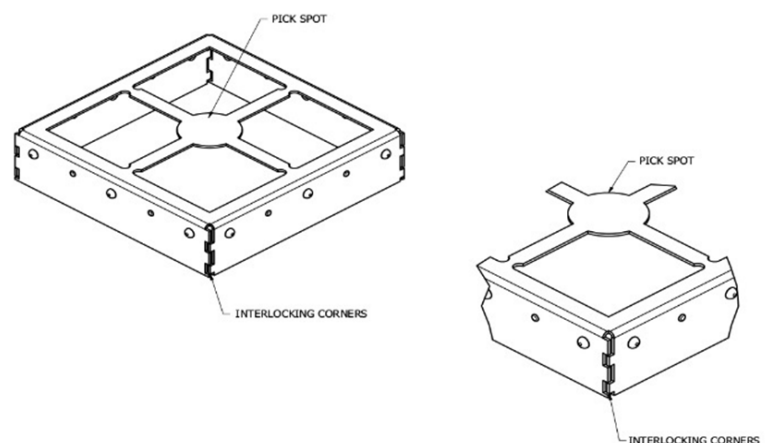
In this article we are going to explore the various design features that Leader Tech implements on its Slot-Lok product line (a fully custom electromagnetic interference (EMI) board level shield) which are advantageous for obtaining maximum shielding effectiveness while still upholding excellent structural integrity of the shield.



The ideal solution for eliminating any openings in an EMI board level shield is to use our Slot-Lok Pro shield design, which consists of a cover and a wrap-around & welded fence, such that the corners of the shield are completely closed. This solution is ideal for low to mid volume applications, as this shield design is not suitable to be tooled for very high volume applications and is not suitable for automatic placement.

Shown left: Slot-Lok Pro Shield with Welded Corners

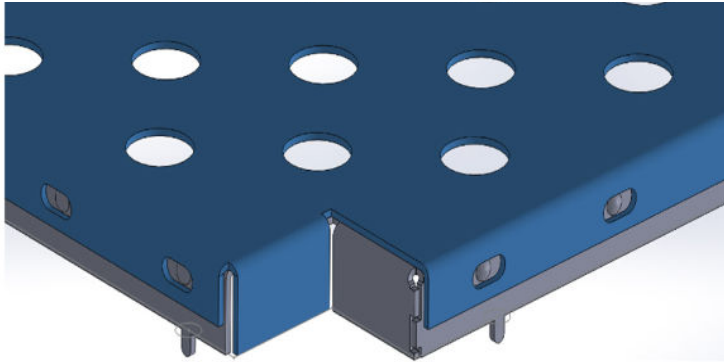
The most cost effective design option for any volume application is our Slot-Lok Standard shield design, which consists of a formed-down frame & mating cover. This shield design is suitable for high volume tooling and automatic placement. However due to the nature of the design, there will be slight apertures in the corners of the frame. To alleviate this, our 'Interlocking Corners' feature has been specifically designed to break up any large gaps and still allow for excellent shielding effectiveness.



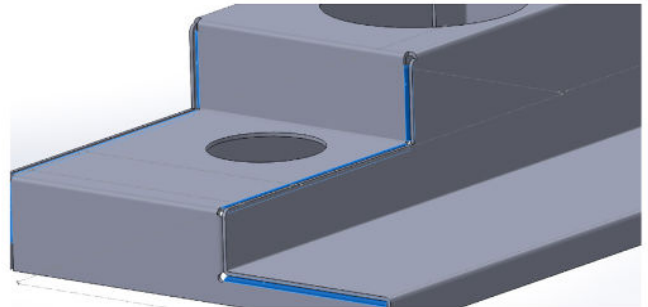
Shown right: Slot-Lok Standard Shield with Interlocking Corners

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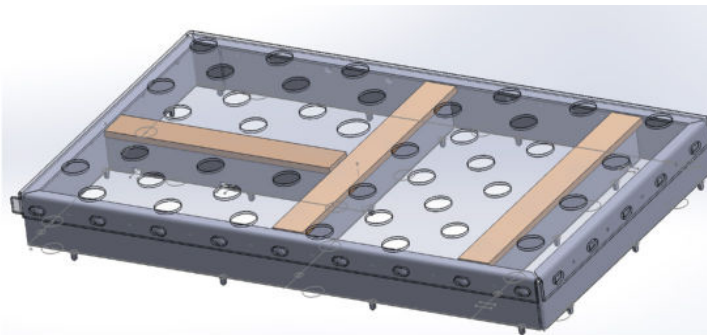
When a Slot-Lok Standard shield with a complex shape or inside corners needs to be used for a particular application, it is beneficial to utilize the cover since the frame by itself may be unable to close up all of the large gaps that may exist. Additionally, for large 1-piece shielded enclosures it is common practice to solder the corners closed, or use folded under weld tabs for more complex designs.



Cover (Blue) Used to Close Up Large Aperture in Frame (Grey)



Complex 1-Piece Shield with Folded Under Weld Tabs Shown in Blue



*Conductive Fabric over Foam Gaskets (Orange) Used to Seal Gaps
Between Cavities*

For high frequency applications where a multi-cavity shield design is needed to shield individual components on a printed circuit board (PCB), there is the potential for EMI leakage between cavities that could affect the overall shielding effectiveness. In order to prevent this cross-cavity contamination, Leader Tech uses Fabric Shielding Gaskets (FSG) or Conductive Foam Shielding (CFS) gaskets to seal the gaps between the underside of the cover and the top of the internal walls. Furthermore, whenever a few additional dB of attenuation is still needed to comply with specifications, Microwave Absorber material can be mounted on the inside surface of the cover to absorb additional electromagnetic energy.

The aforementioned recommendations are just a few of the several design techniques that we employ here at Leader Tech. Be sure to contact one of our Applications Engineers today for design guidance & pricing on any of your current projects.