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TECHNICAL DESIGN CRITERIA PANELS & JOINTS

The PEI process for manufacturing enclosures involves cutting flat sheets of plastic into panels that are bent and assembled into a fabricated assembly. As such, how the panels are designed to fit together is a key factor in the success of the enclosure. Panel joints that have gaps or misalignments can be a major detractor to an otherwise functional enclosure. Furthermore, poorly fitting joints have less strength than those that are made to within established tolerances.

To improve the mechanical strength of the joints and to eliminate problems associated with misalignment, all of our joints are developed using a tongue & groove interlock. Because the plastic panels have a wall thickness, we are able to cut slots or grooves into one panel while machining a step into the mating panel. Then, during the bonding process the mating materials are melted and re-fused as a continuous plasticized weldment. For glued joints the process is the same but the welding medium is the epoxy chemicals instead of the polyolifins.

At PEI, we have developed machining, bending, and assembly techniques that ensure that the fit of all joints is never compromised. With our specialized cutting equipment and tools, we have developed methods and specifications that allow us to mate surfaces within .003" of each other. Furthermore, through controlled R&D projects we have established manufacturing specifications that reduce the introduction of human error and increase the tolerance window such that process variations have a minimum or no effect on part quality.

If you are in the process of designing an enclosure that PEI will be building, you do not need to be concerned with the construction of the panels or joints. That is what PEI will be doing after the assembly drawings have been approved. What you should be considering at the early design stage is the general shape of the enclosure and the location of components, PCB's, displays, panels, etc. Once we are brought into the project, we will work with you in defining which panels are bent, which ones are bonded and which ones are fastened with screws, inserts, and other types of hardware.

If you have any questions about how you should be constructing your enclosure, please do not hesitate to call our technical group for guidance and direction. As a customer of PEI, you will always be entitled to early-stage technical assistance at no charge.

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