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MANUFACTURING PROCESS BENDING

There are two types of bends that we typically perform in order to produce aesthetically and structurally sound enclosures. The one used on nearly every enclosure assembly is what we call the 'Point Bend.' This type of bend involves scoring/cutting one of the surfaces of the plastic material, applying a directed, concentrated heat source at that bend point/line, and then physically bending the panel to the proper angle. This type of bend is usually done to create a change in angles between to adjacent surfaces.

The second type of bend is better described as a sweep, arc, or curve. For these bends, we do not apply heat, but rather perform a cold-rolling process on the specific curvature area. The reason for this cold-roll approach is that experience has shown adding heat to an 'uncontrolled surface' reduces the process tolerance window to the point that warpage, shrinkage, and surface deformation (such as gloss) becomes difficult to control. Typically, such variables would be controlled with fixtures, jigs, or other hard tooling...which defeats the benefits of our 'No Tooling' process! As such, we leave the heat forming process to injection molding or thermoforming and, instead, concentrate our capabilities on providing true alternatives to those capital investment types of processes.

A key element of our cold-rolling process has to do with preparing the panel for the bend. In order to incorporate such features in our designs, we have developed unique, yet subtle cut profiles for those bend areas. As such, it should be stated here that the first step in providing arcs and curves involves the surface preparation by the CNC routing process, which means that these types of features are programmed into our process long before the panels are physically bent in assembly.

Finally, we should note the limitations of our process with regard to bends and curves. While we can incorporate many of the surface shapes that most enclosure customers require, we cannot produce domes or spherical features. Because we do not use tooling in our process, there is no way to change the geometry of the material to produce these types of shapes. To do so would require that the dimensional surface area of the plastic panel(s) be altered, which involves plasticizing and re-forming the plastic material. At that point, we would be using an injection molding or thermoforming process that requires hard tooling, longer leadtimes, etc. etc. etc.!

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