



Diecutting and Concavity

Diecutting is the most cost effective and widely used method for fabricating custom foam packaging. A flat die is used to stamp out a foam design from a plank of foam. The dieboard is laser cut with the desired shapes of the design. The steel rule is cut and bent into the desired shape and placed into the dieboard all the way through so that the back edge of the steel rule is flush with the backside of the dieboard.

The steel rule is essentially an elongated razor blade made of hardened steel. Steel rule comes in different heights but generally 1 1/2" or 2" rule is used for diecutting foam. The height is measured from the back edge of the rule to the peak of the cutting edge. The steel rule comes in a variety of thicknesses and for diecutting foam generally a center beveled, straight or serrated rule are used.

Center Beveled Straight Steel Rule- is commonly used for cutting thinner foam sheets, Polyurethane and Polyester. The cutting edge is centered between the two faces of the rule.

Center Beveled Serrated Steel Rule - is commonly used for cutting Polyethylene and thicker foam sheets. The cutting edge has a wavy edge and is centered between the two faces of the rule.

During diecutting, high pressure is applied to the backside of the dieboard pushing the die down through the foam sheet. Due to the high compression the material compresses and when the pressure is released concavity forms the edge of the diecut foam. During diecutting the outer edges do not remain flat. There is a deformation which has a concave shape. The concavity will vary with material type. Variables which may contribute toward concavity are:

- Foam Density
- Foam Thickness
- Cutting Rule Type
- Cutting Rule Height
- The Die

Willard Packaging uses a variety of different methods in order to help reduce concavity. When designing custom foam packaging, we take into consideration the process of manufacturing so that the end product gives the best solution for each design.

