

## IX. GULLWING LEAD FORMING

Proper gullwing lead forming is accomplished by a combination of appropriate tool design and reasonable specifications. Let's examine the variables, which result from footprint layout and tool design.

### Edge Distance

Since PCB real estate is always at a premium, fine pitch package users logically design the footprint of a given component to be as small as possible. This translates into an edge distance (or "shoulder") the tool must use for clamping prior to forming. If the surface clamping area is too small, it can result in inconsistent tip-to-tip dimensions, excessive springback, and skewing. It may even cause damage to hermetic seals if there is insufficient clearance. Fancort recommends a minimum edge distance of .035" from the meniscus or braze point to the centerline of the radius.

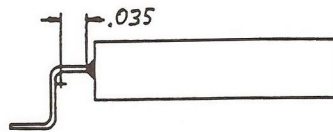


Figure 8: Minimum Edge Distance

### Springback and Tip-to-Tip

Forming tools are designed for the thickest lead material within the stated tolerance, and so care must be taken by end-users to specify a tolerance on the tip-to-tip that relates to the variations in material thickness. For example, if the operator attempts to form a component where the leads are thinner than the tool is intended to process, springback will increase the tip-to-tip dimension dramatically. In short, as the lead thickness tolerance is tightened, so the overall tip-to-tip tolerance may be tightened. Leg height also has an effect; the longer the leg, the greater the impact of springback.