



## Die Tolerances

Customers count on us as their diemaker for expert advice. When the tolerance question comes up we like to make sure there is an understanding that this is a very broad topic and that such request for a "Tight tolerance" should not be tossed around loosely. If a tight tolerance of .005" to .020" is required then the die needs to be measured before it ships out to our customer. Consider your required tolerance and the construction limitations that could occur and affect the die's tolerance. The realistic tolerance of a steel rule die can range from .010" - .060". Please see some of the factors that should be considered when requesting a tolerance for the cut size.

### Steel Rule:

- ◆ Rule Camber
- ◆ Rule Dish
- ◆ Knife Height
- ◆ Thickness of the knife

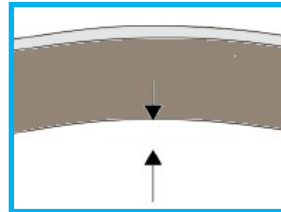
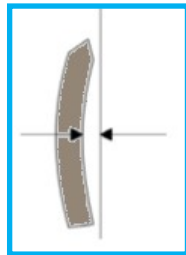
### Laser cut Dieboards:

- ◆ Squareness of the Kerf
- ◆ Tightness of the Kerf
- ◆ Bridge placement
- ◆ Number of Bridges

### Bending Steel Rule:

- ◆ Geometry of the part
- ◆ Side Bevel vs. Center Bevel
- ◆ Length of the part
- ◆ Bridge Heights

**Cross Camber or Dish:** The vertical curvature of the rule from its base to its tip. The degree of Dish can be determined by laying the rule flat on a known flat and level surface. Dish tolerance is based on the height of the knife.



**Camber:** The variation of Parallelism between the top or bottom edge and a known straight edge. The Gap along a 30" span has an industry acceptable tolerance:

- ◆ Under 2" high: +/- .016"
- ◆ 2" and higher: +/- .032"

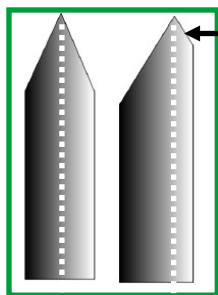
### Rule Height:

Higher rule will increase the tolerance of the die. Keep in mind that closed shapes will double the tolerance.

Rule Heights	Height tolerance
0.937"	+/- 0.001"
1.25"	+/- 0.00125"
2"	+/- 0.002"
3"	+/- 0.003"



Extra bridges help maintain the correct cut size. Bridges add strength to the die and help keep long spans straight.



### Back Bevel

- 2pt: .005"
- 3pt: .007"
- 4pt: .010"

Support back bevels must be considered when using Side Bevel rule.

The cut edge of side bevel knife is not in the middle of the blade; making a perfect radi impossible to achieve. The excess can cause a low or high spot in the die. High spots can cause die to breakdown quicker and



**Bridge height is critical.** It is important for the integrity of the blade, the strength of the die and flatness of the die. Low bridges will not allow the die to settle to the backer plate and too high will make knife weak. "Daylight" in the bridge will allow the die to settle in.

Probe and Coordinator Measuring are available upon request. For more information on measuring and reports available, contact your customer service rep at Sharples.