

Twist, Bow & Camber effects on Shearing Strips

TWIST, BOW AND CAMBER

When shearing narrow strips, varying degrees of bow, twist and camber will be evident.

Bow and Twist

(See Figures 6 & 7)

Bow and twist are produced by the blade pushing the strip down during the cut, thereby, creating bending forces at the shear point. On a slower acting hydraulic shear, the strip will fall under the pull of gravity increasing the tendency for the part to bow and twist.

The amount of bow and twist is directly related to the following factors:

1. Type of Material
2. Thickness of Material
3. Length of Strip
4. Width of Off Cut
5. Speed of Shear
6. Rake of Top Blade

Other less important factors that contribute to the amount of twist and bow:

1. Incline of Top Blade
2. Sharpness of Blades
3. Gib Clearance

4. Blade Clearance

Camber

(See Figures 8)

Unlike twist and bow, camber is caused by internal stresses in the material. The force of shearing relieves stresses in the blank at the sheared edge causing the off cut to deform slightly. This cambering affect has virtually no relation to the shear configuration. Using highly stressed, inferior material will result in more camber in narrow off cut parts. Camber can only be

TWIST vs. DROP WIDTH
.390 IN. / FT. RAKE

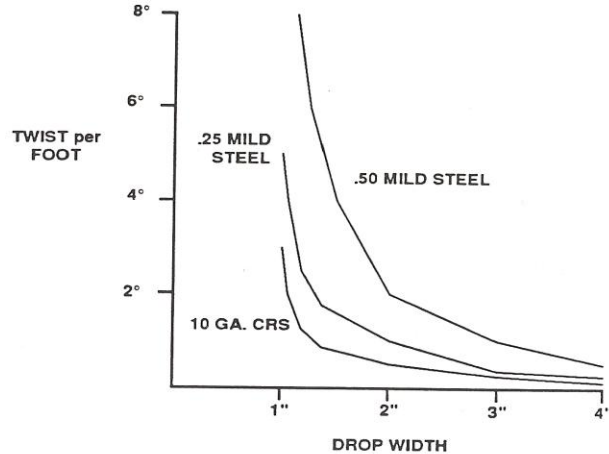


Figure 7

BOW vs. DROP WIDTH
.390 IN. / FT. RAKE

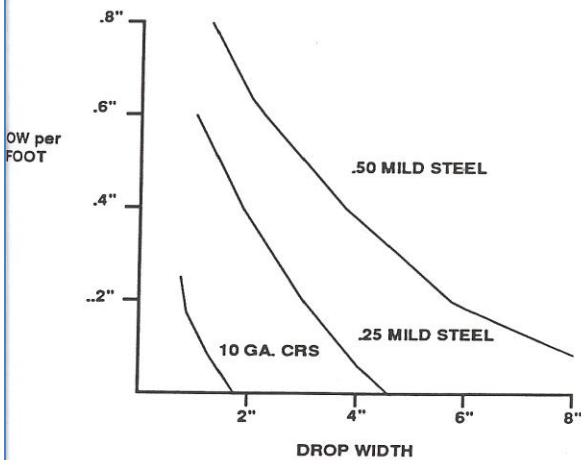


Figure 6

CAMBER vs. DROP WIDTH
.390 IN. / FT. RAKE

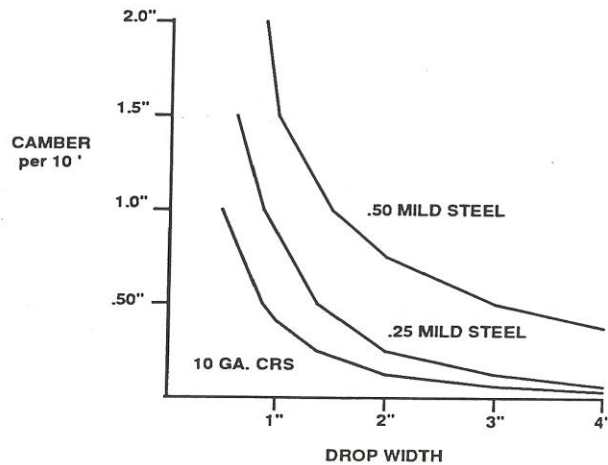


Figure 8