

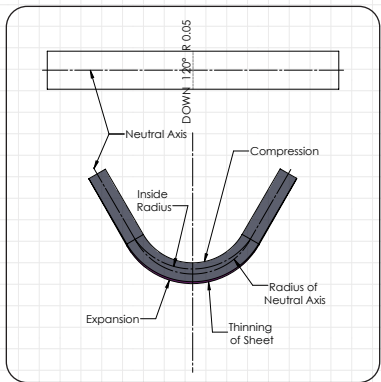
5 mistakes to AVOID while DRAFTING SHEET METAL PARTS

Sheet metal part drawing and drafting need minute detailing as metal thickness, type and fabrication process have a significant effect on the part geometry. Here are five mistakes a CAD drafter must avoid while developing drawings for sheet metal fabricators.

1 Overlooking bend feature

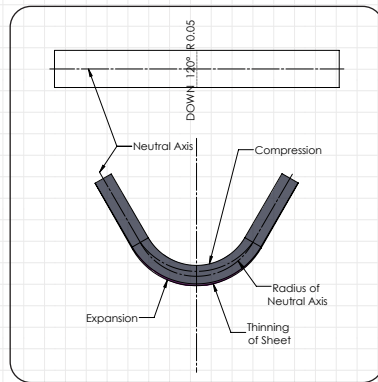
Mistake

Not considering K-factor when there is a bend in sheet metal part.



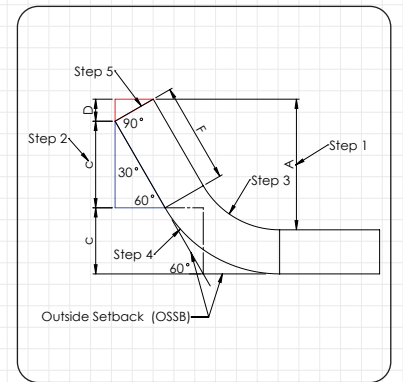
Effect

It will lead to spring back effect resulting in part failure and waste of raw material



Solution

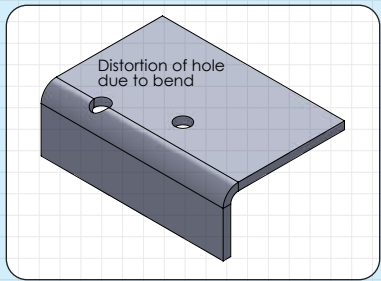
Based on material type, use appropriate value of K-factor



2 Cuts & Holes near bend lines

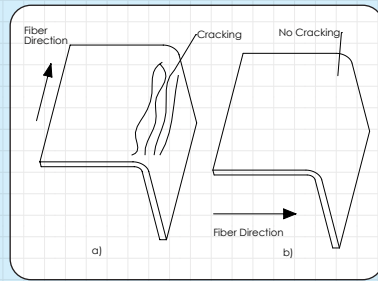
Mistake

Punching holes close to the axis about which the part bends



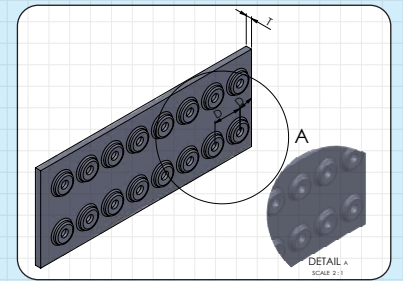
Effect

Part will deform and may fail in the press break



Solution

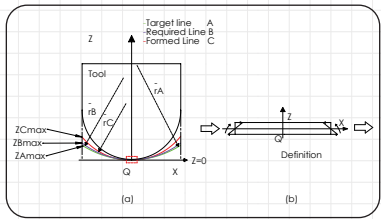
Maintain a distance of $4T$, [T = sheet thickness] to avoid tearing



3 90° curve at corners

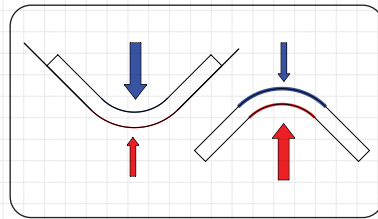
Mistake

Designing a perfectly perpendicular bend without considering tool radius



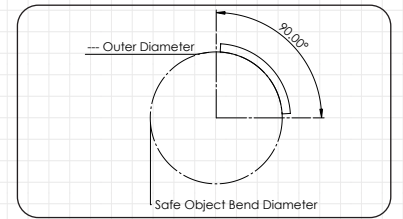
Effect

Tool radius is imprinted on the sheet metal part and it will result in deviation from ideal conditions



Solution

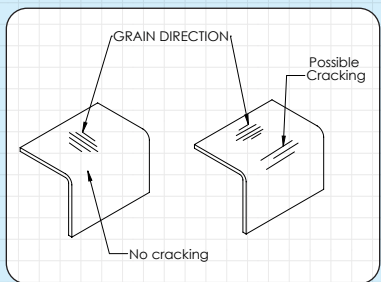
Calculating internal & external bend radius. The most common value for internal bend radius is 0.030 in.



4 Not considering grain direction

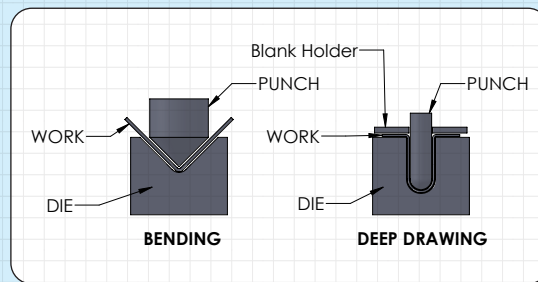
Mistake

Bending parallel to the grain direction while cold-rolling in a press brake.



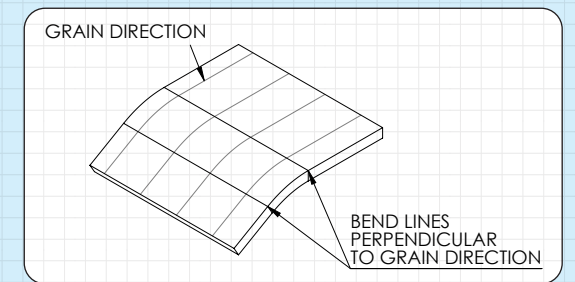
Effect

Sheet is the strongest when bent against the grain direction, requires more power, & results in cracks at bend



Solution

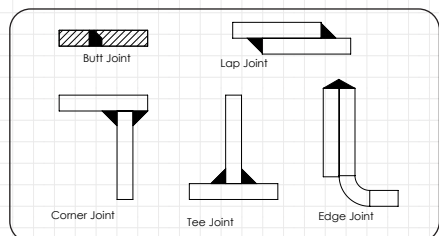
Bending the part perpendicular to grains for stronger and smoother bend



5 Designing for weldments

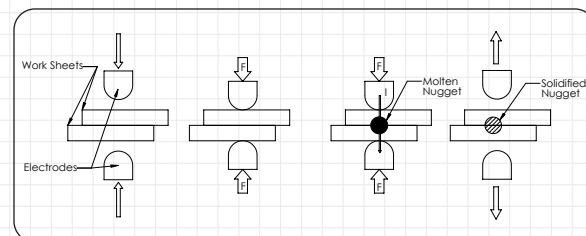
Mistake

Designing weldments close to each other or not leaving minimum clearance



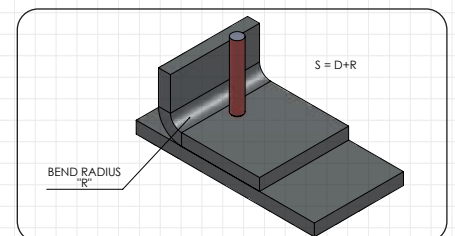
Effect

If the space between two consecutive welds is not sufficient, the heat causes the metal to melt & shunting occurs



Solution

Keep min. distance of a spot-weld diameter (D) plus one bend radius ($D + R$) between the electrode and the form



CAD drafters at Hitech CADD Services consider these design aspects along with many more to help you save costs, reworks, time, and raw material. Get in touch with us today for perfect sheet metal CAD drafting.