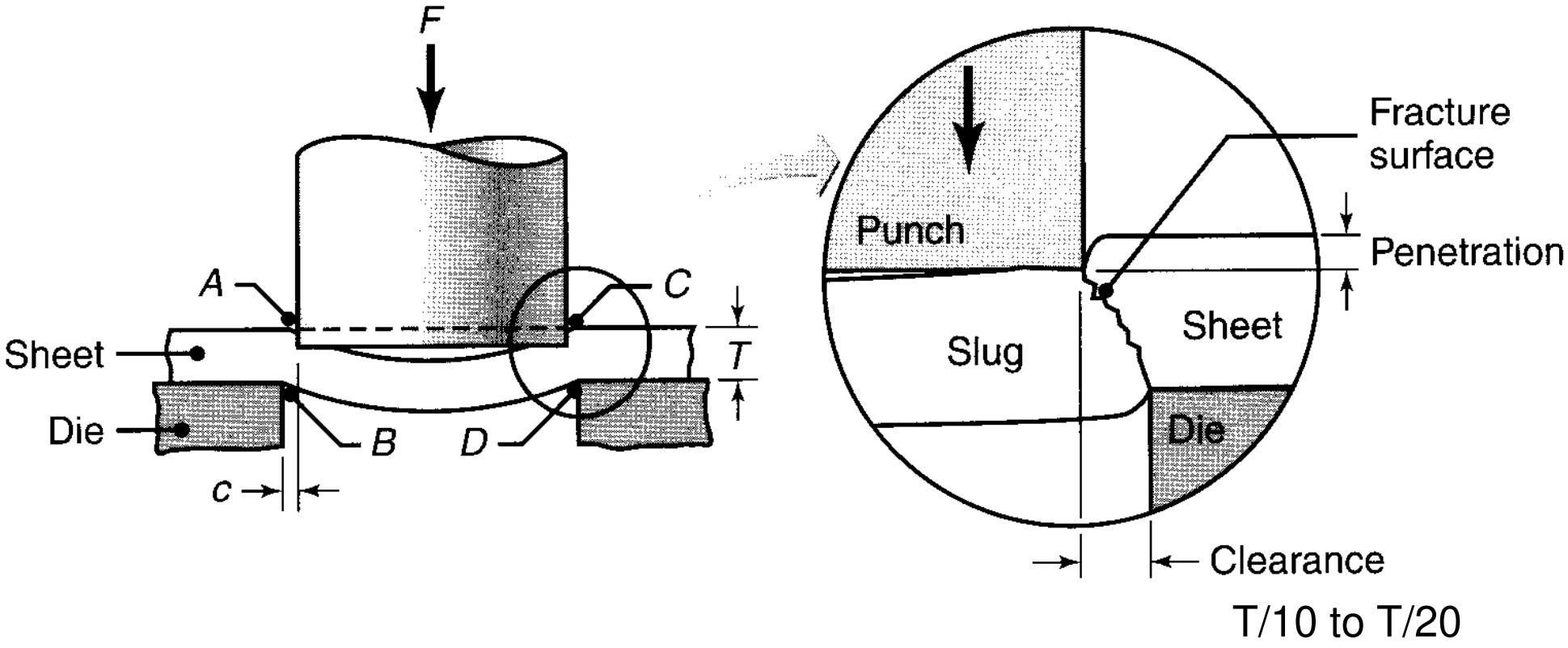
Metal Forming – BSc 2024/25-1

Sheet Metal Forming

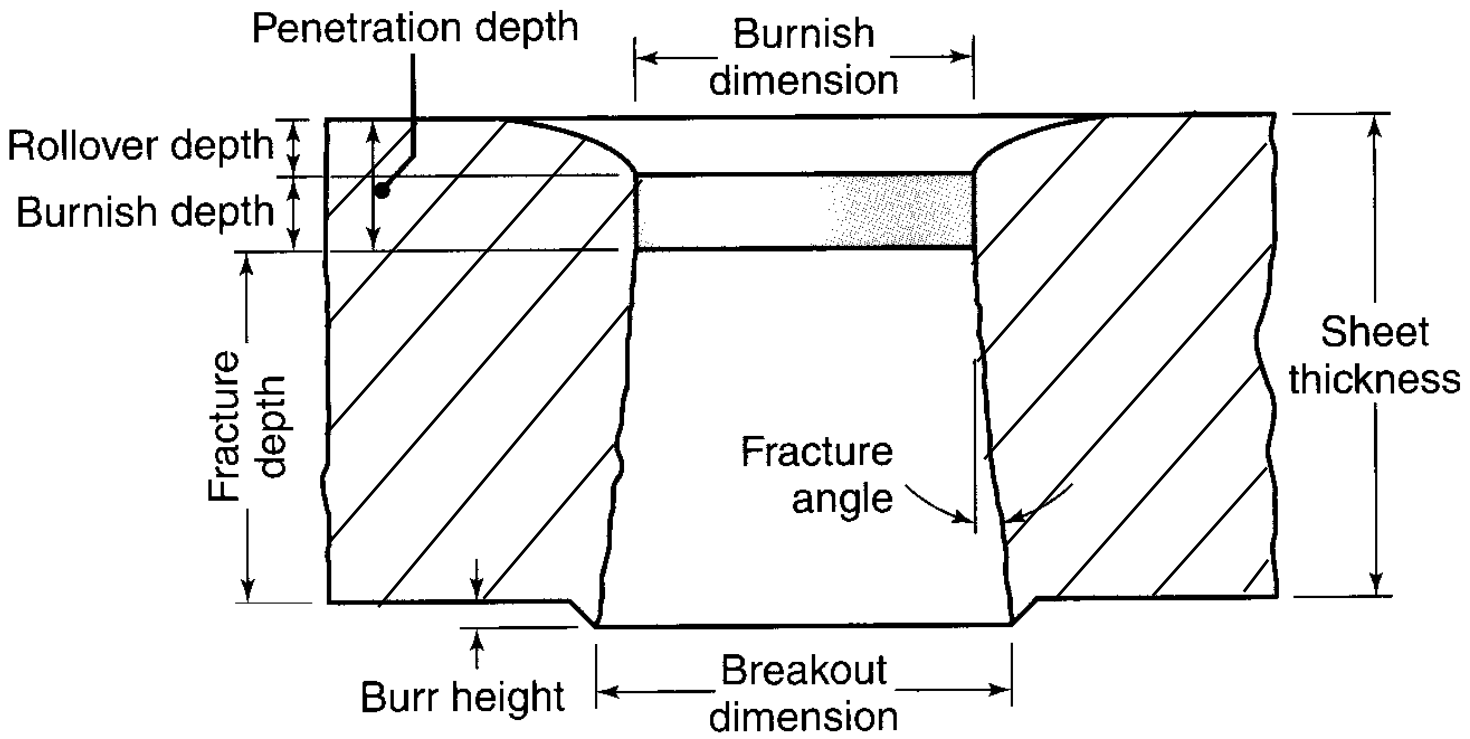
Shearing, spinning etc.

Shearing – material separation



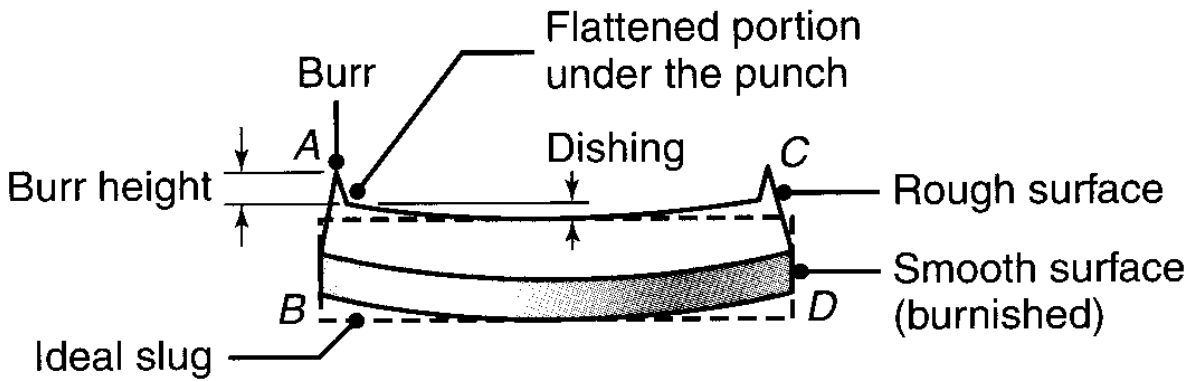
The hole is defined by the punch, the slug by the die !

Shearing – punching and blanking



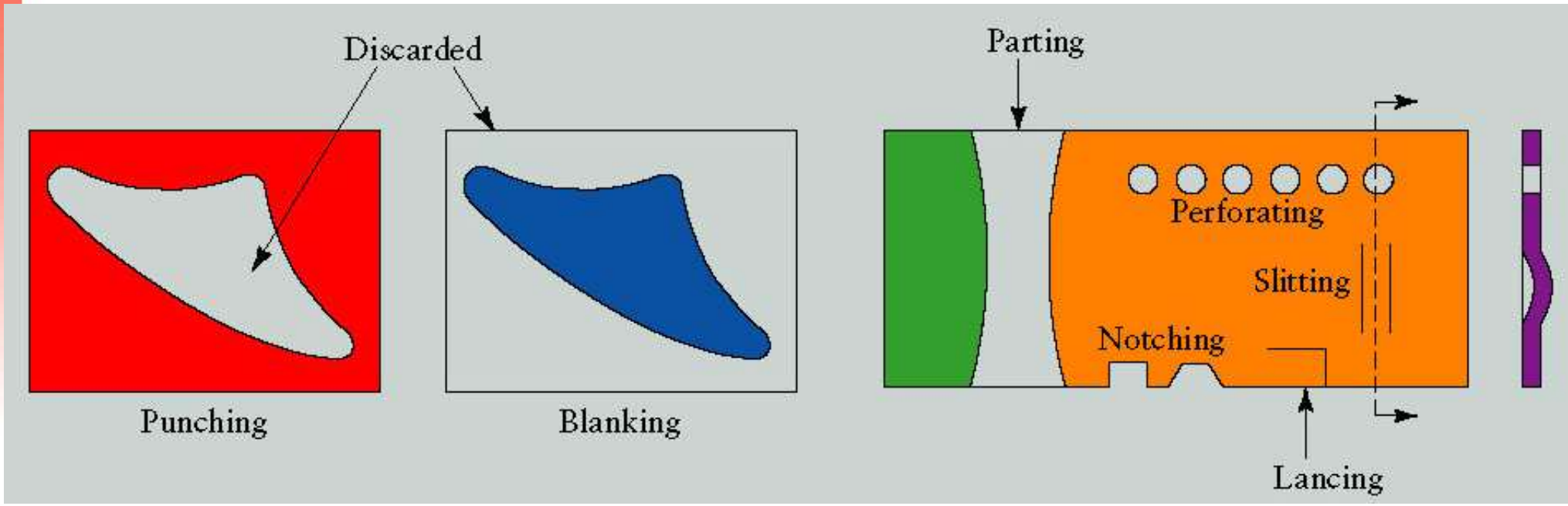
(b)

Punched hole

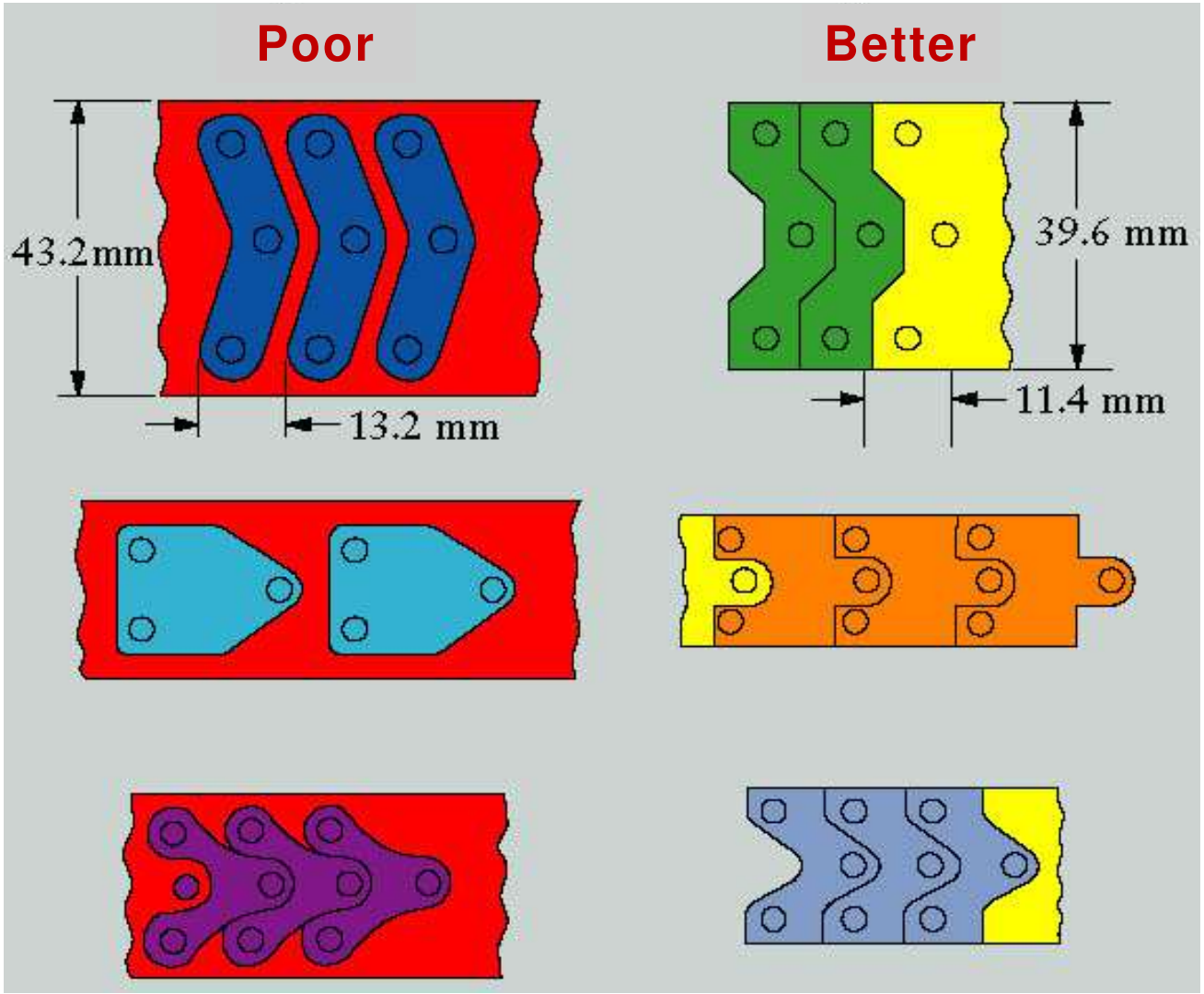


Blanked piece

Shearing – punching, blanking etc.

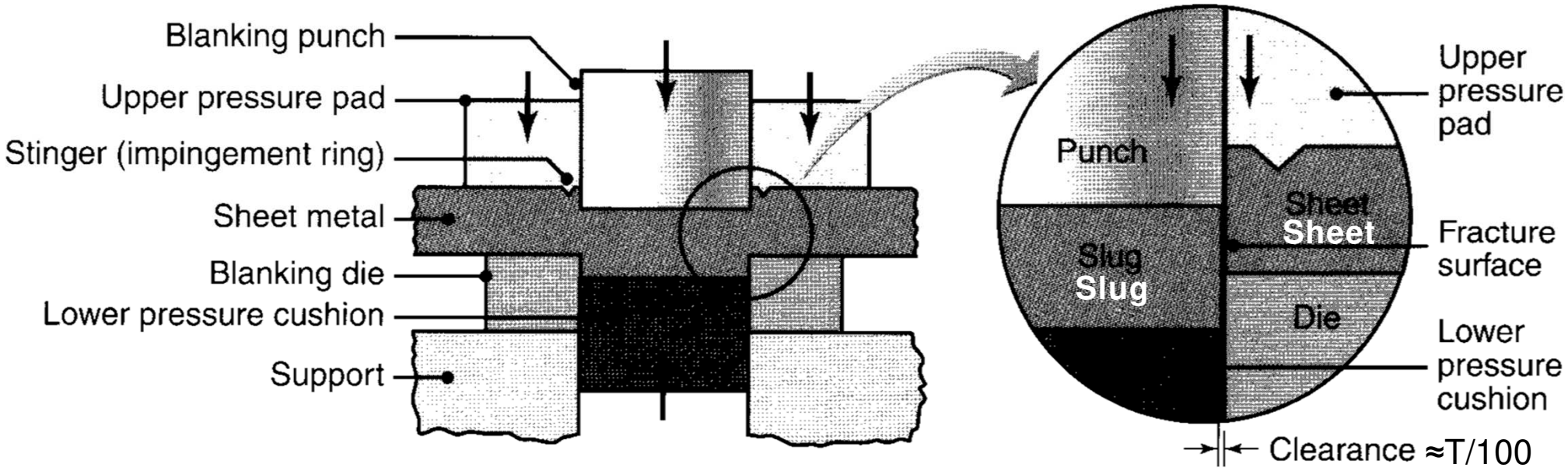


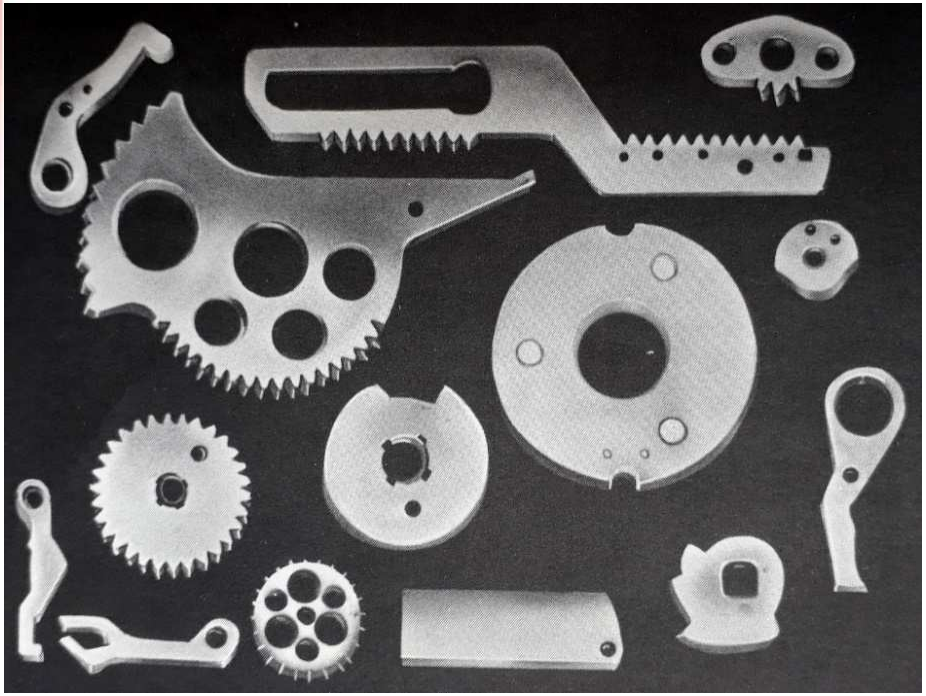
Efficient nesting of blanks



Optimal material utilization in blanking

Shearing – fine blanking

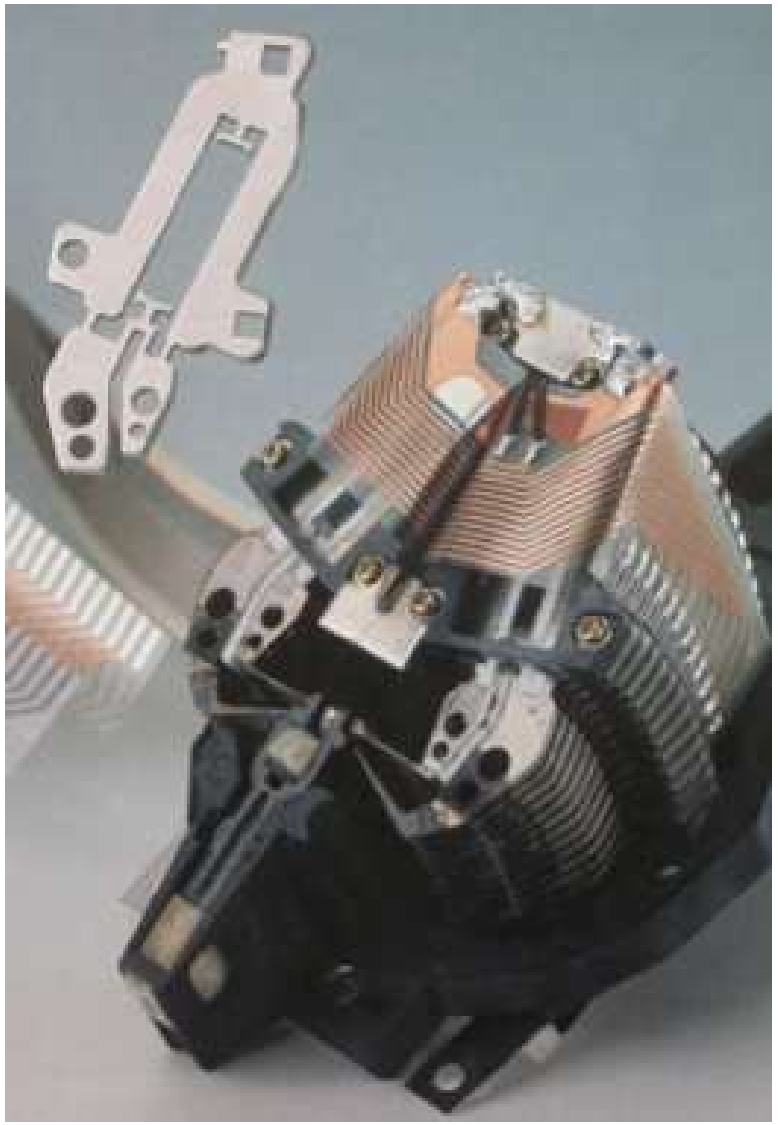




small radius

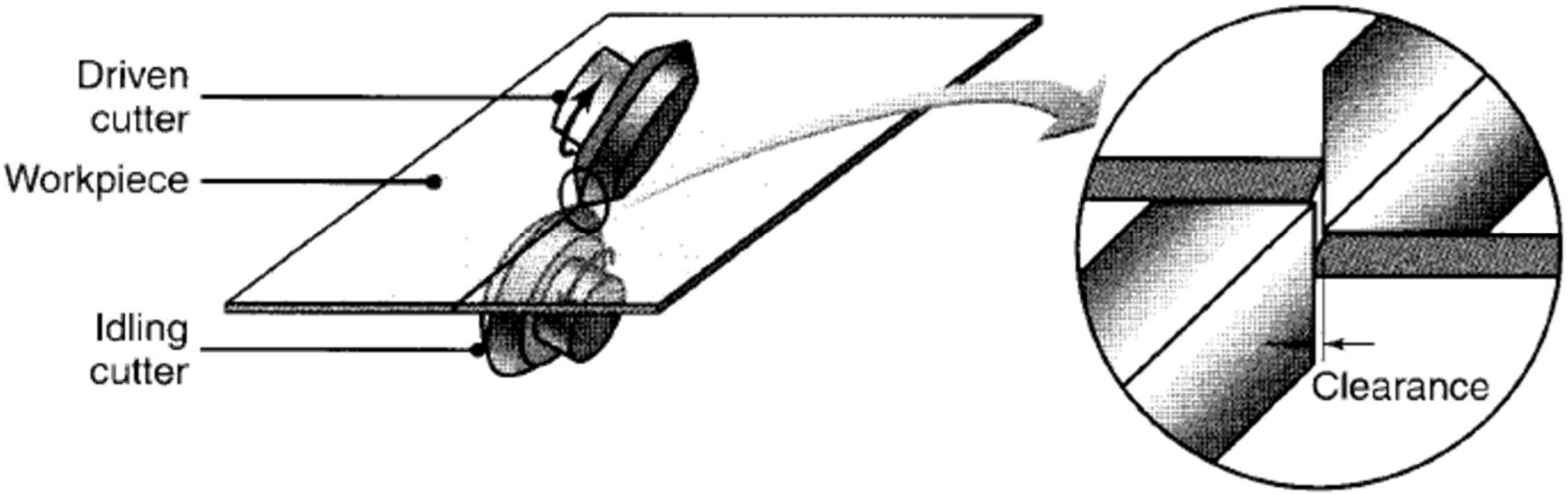
small burr

Shearing – fine blanking



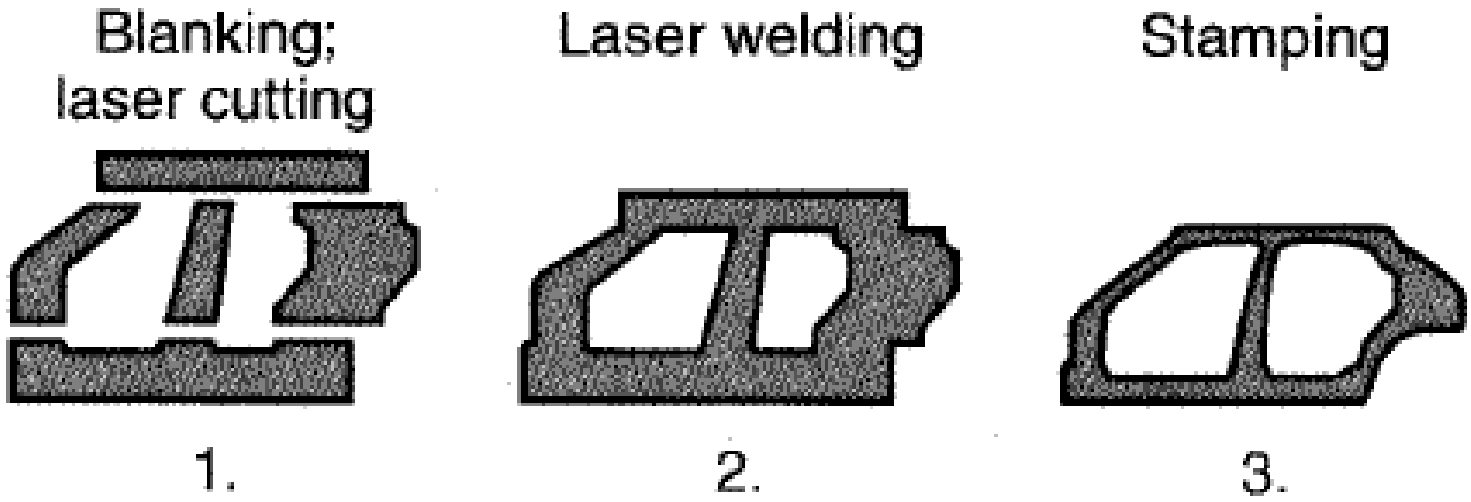
The best quality houses are able to provide fine-blanking tolerances of +/- 13 µm.

Shearing – Slitting with rotary knives

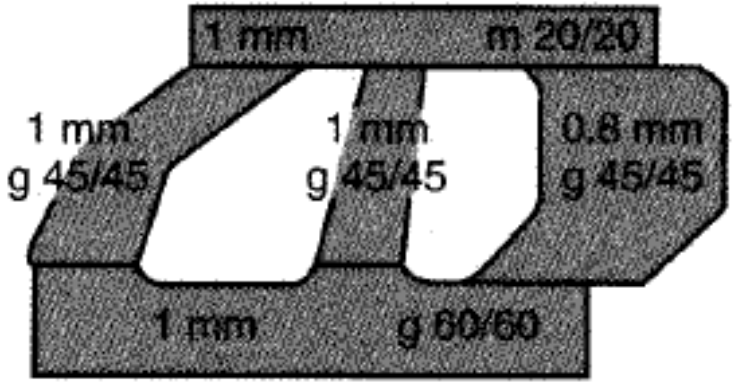


Cutting of strips from sheets or coils.

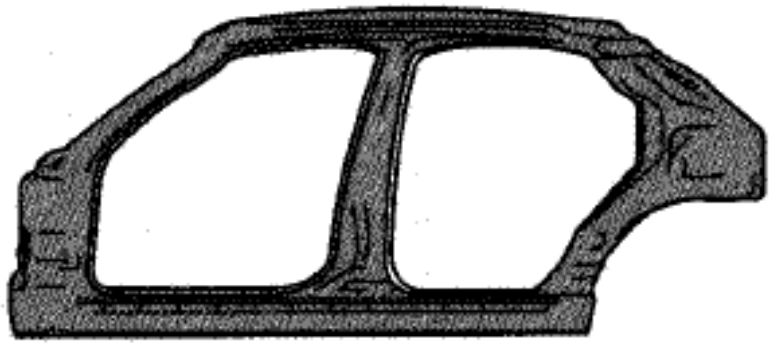
Shearing – Tailor welded blanks



Production of an outer side panel of a car body.

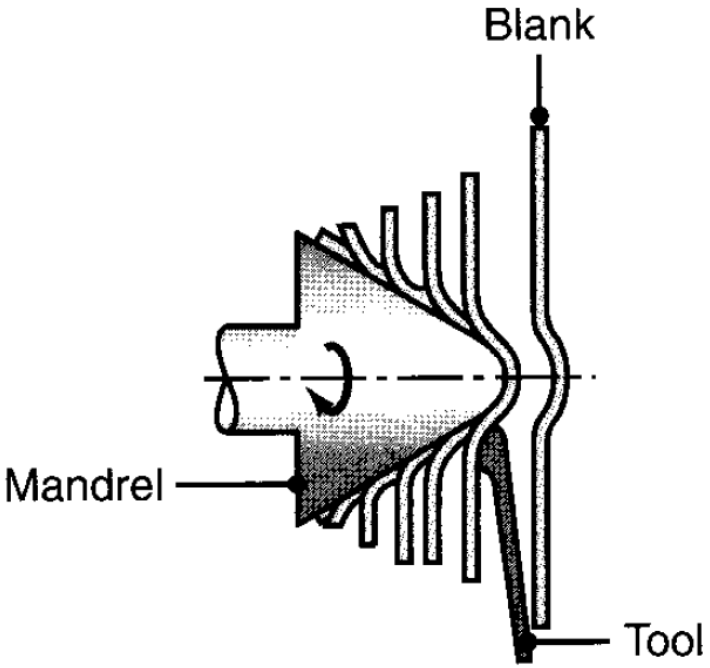


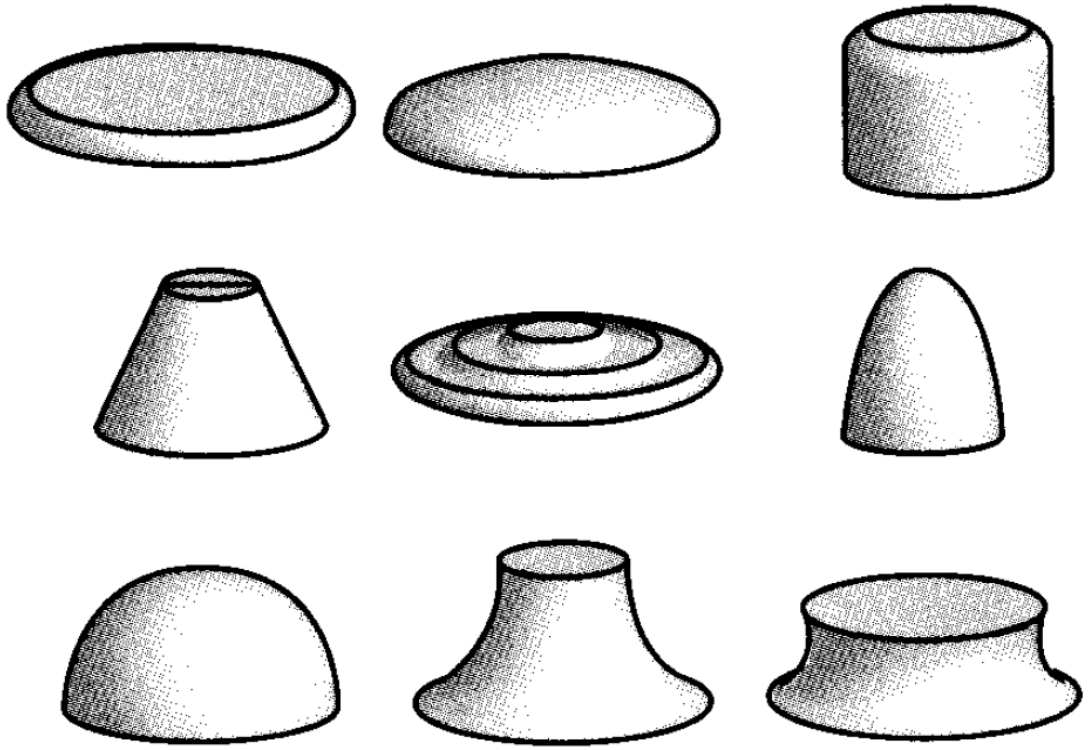
(b)



(c)

Spinning

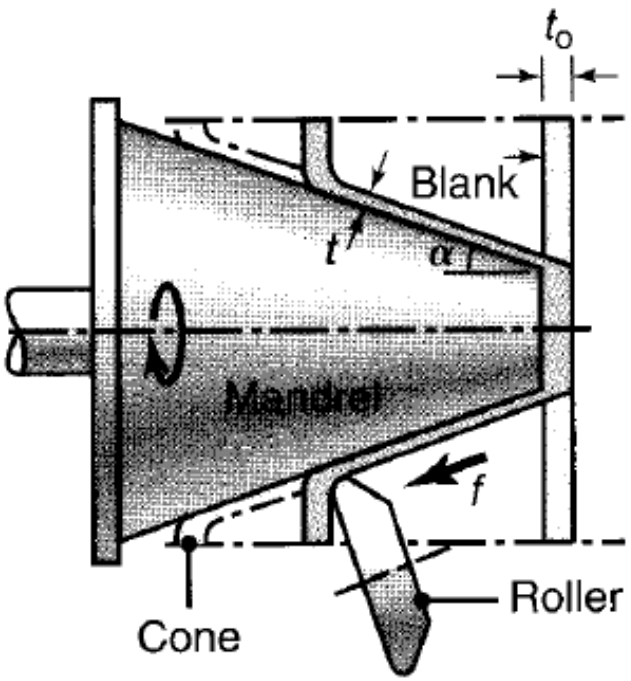




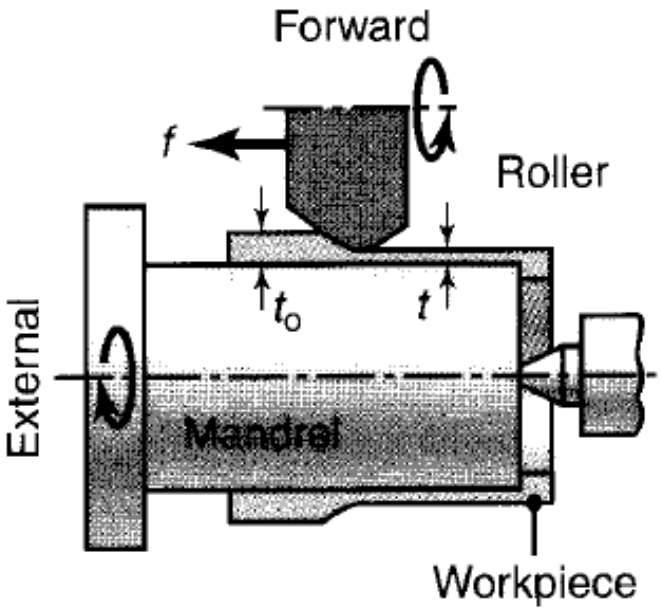
The wall thickness is about constant !

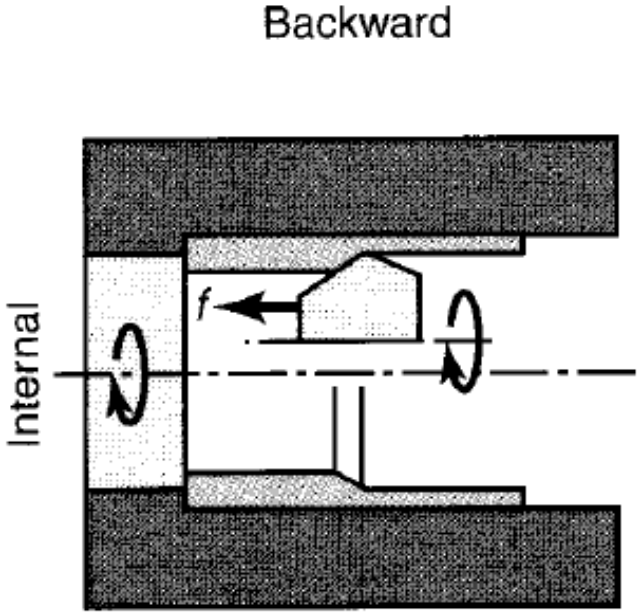
Spinning

Shear-spinning



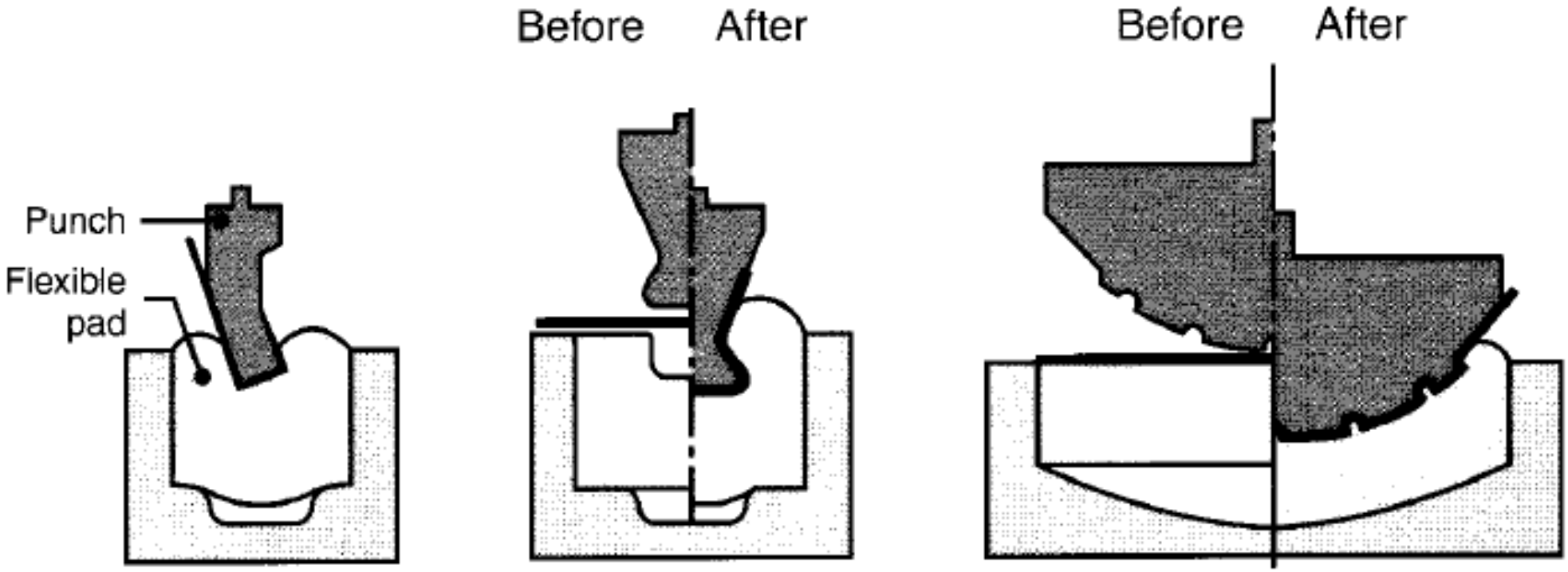
Tube-spinning





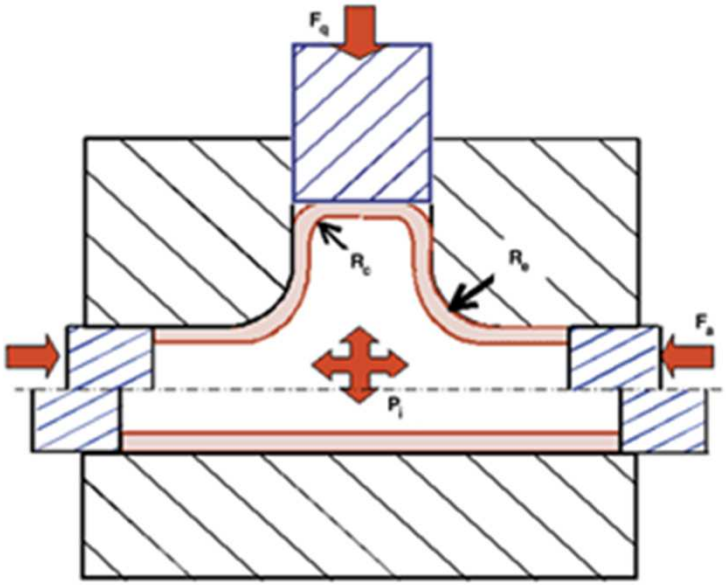
The wall thickness is reduced !

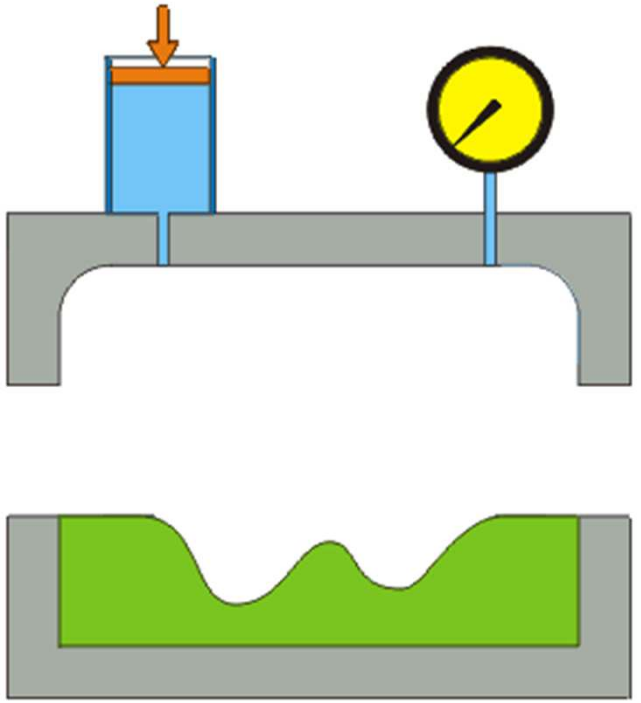
Rubber forming



The outer surface of the sheet is protected from damage or scratches: no contact with a hard metal surface during forming.

Hydroforming





Thank you for your attention!