

Shearing and its classification

Sheet Metal Forming

Involves methods in which sheet metal is cut into required dimensions and shape; and/or forming by stamping, drawing, or pressing to the final shape

A special class of metal forming where the thickness of the piece of material is small compared to the other dimensions

Cutting into shape involve shear forces

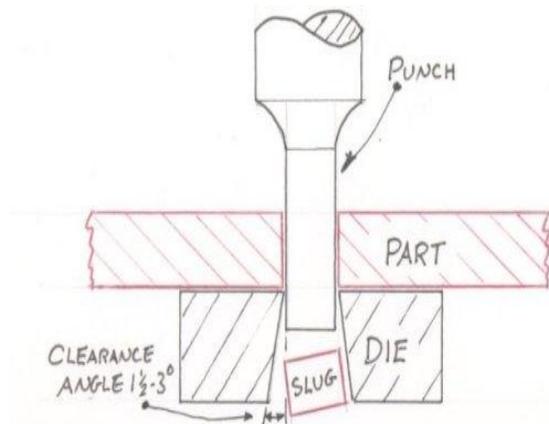
Forming Processes involve tensile stresses

The Major operations of sheet Metal are;

- 1) Shearing,
- 2) Bending,
- 3) Drawing and
- 4) Squeezing

Shearing

The mechanical cutting of materials without the information of chips or the use of burning or melting for straight cutting blades: shearing for curved blades: blanking, piercing, notching, trimming

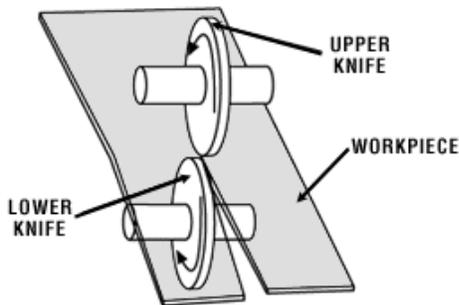


Classifications of Shearing Processes

- Slitting
- Piercing
- Blanking
- Notching
- Shaving
- Trimming
- Cutoff
- Dinking

Slitting

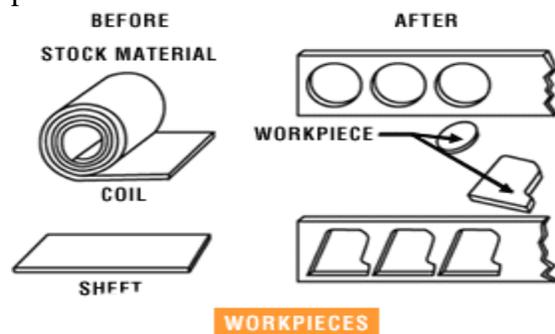
shearing process used to cut rolls of sheet metal into several rolls of narrower width
used to cut a wide coil of metal into a number of narrower coils as the main coil is moved through the slitter.



SLITTING PROCESS

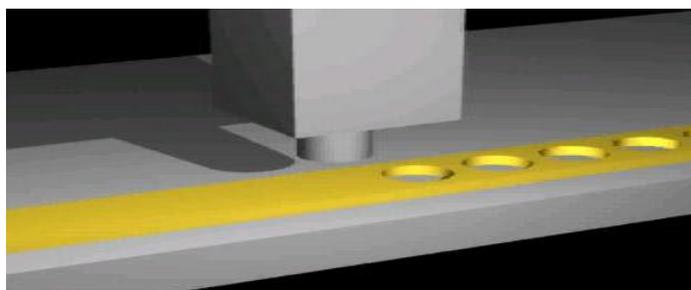
Blanking

during which a metal workpiece is removed from the primary metal strip or sheet when it is punched.



WORKPIECES

Piercing



Notching

same as piercing
- edge of the strip or blank forms part of the punch-out perimeter

Nibbling

Produces a series of overlapping slits/notches

Shaving

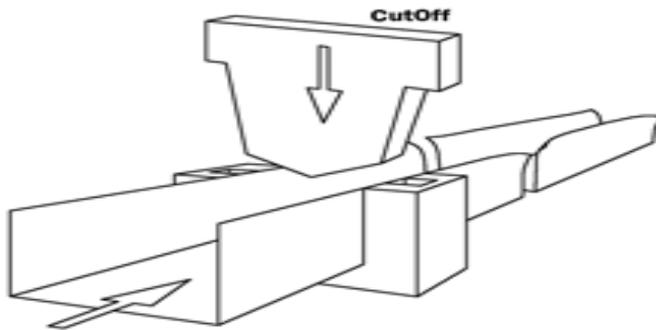
- finishing operation in which a small amount of metal is sheared away from the edge of an already blanked part
- can be used to produce a smoother edge

Trimming



Cutoff

Punch and die operation used to separate a stamping or other product from a strip or stock



Dinking

Used to blank shapes from low-strength materials such as rubber, fiber and cloth

Bending

The plastic deformation of metals about a linear axis with little or no change in the surface area.

The purpose of bending is to form sheet metal along a straight line

Springback

The elastic recovery of the material after unloading of the tools

