

Turning, Boring and Related Processes



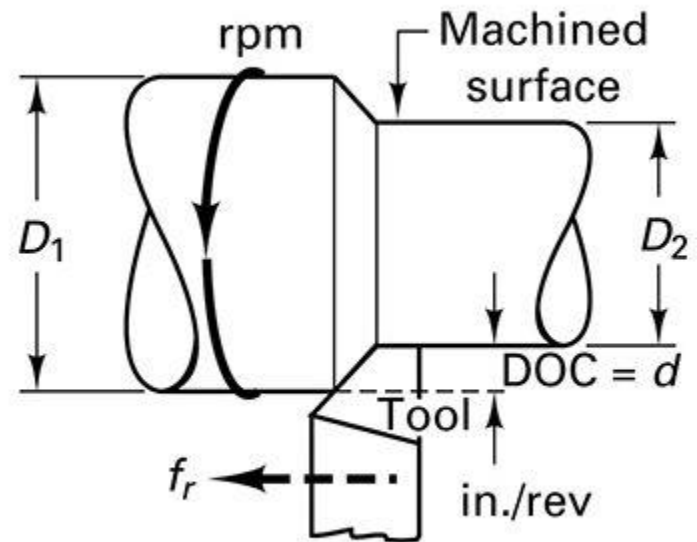
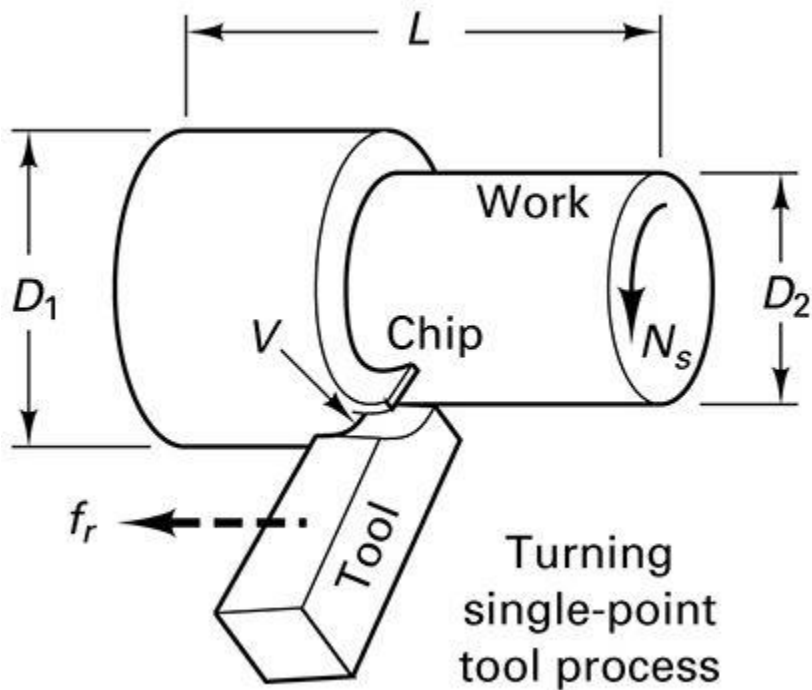
Straight Turning

[Watch Video Here](#)

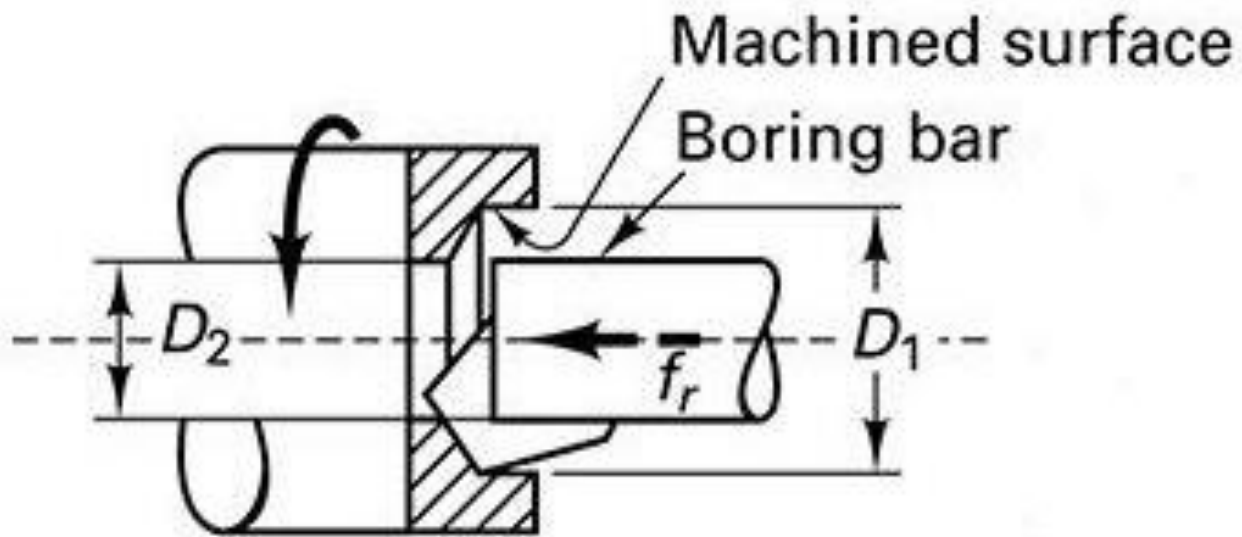
Turning Process



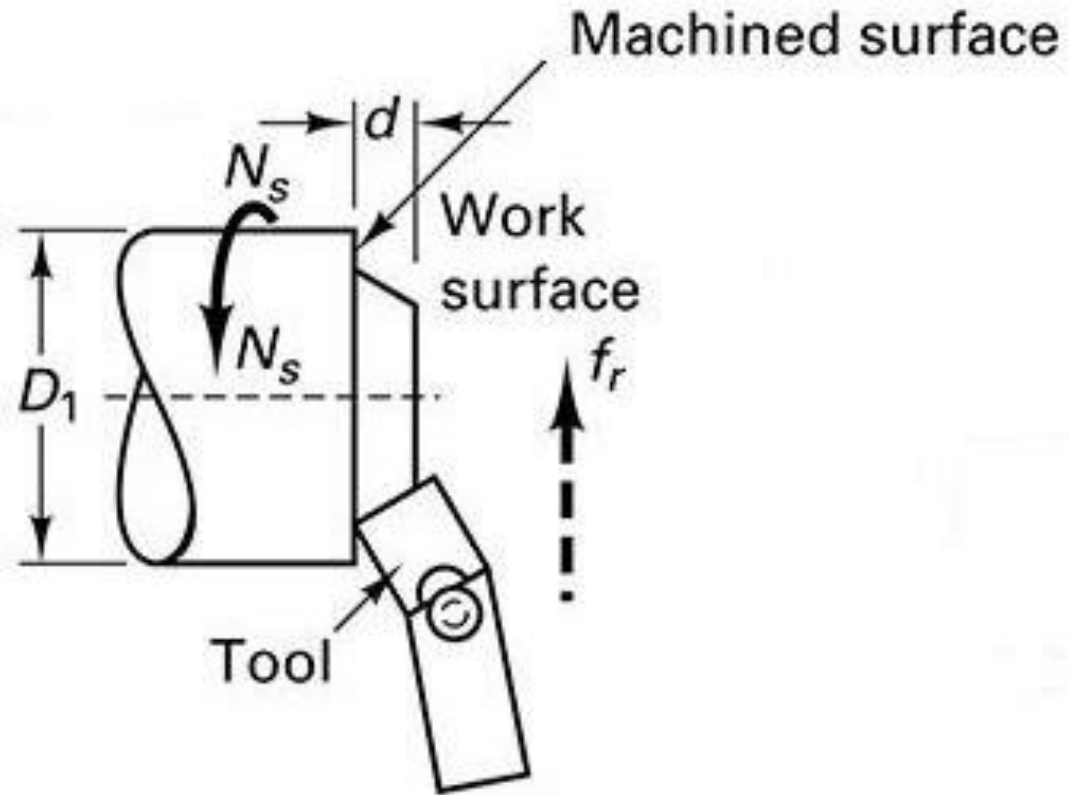
Turning Basics



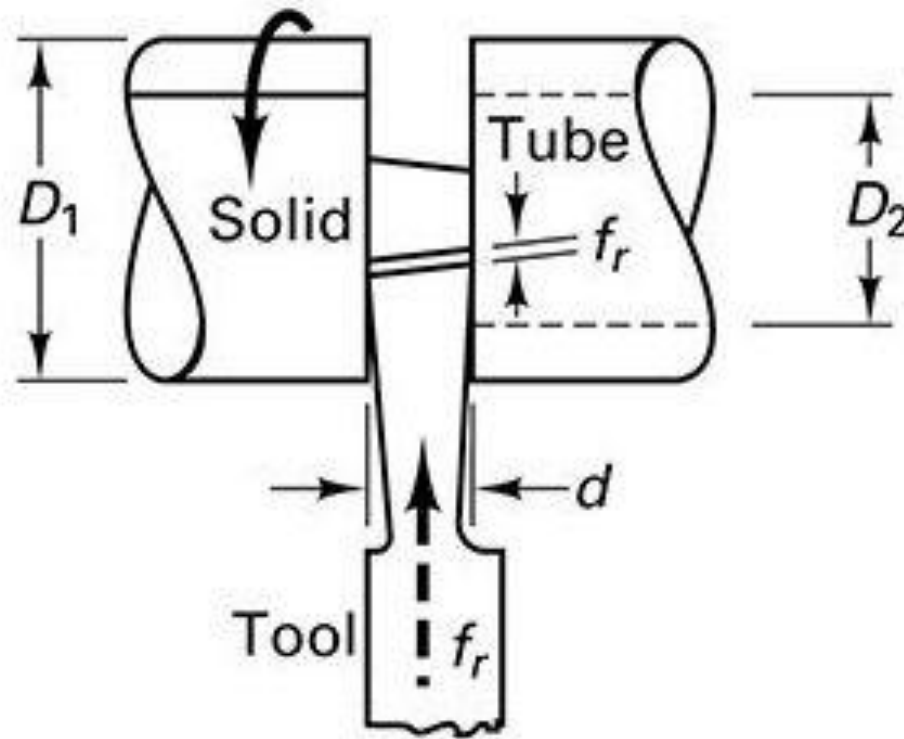
Boring Basics



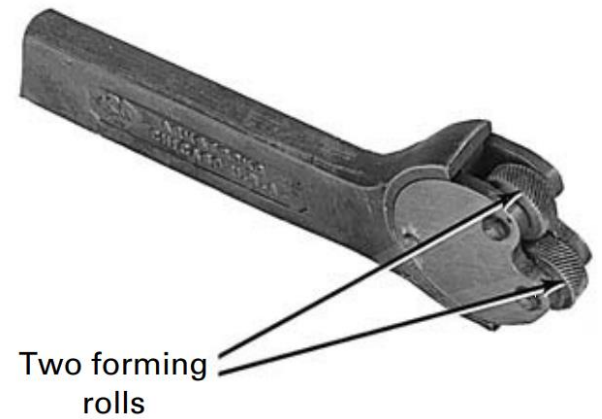
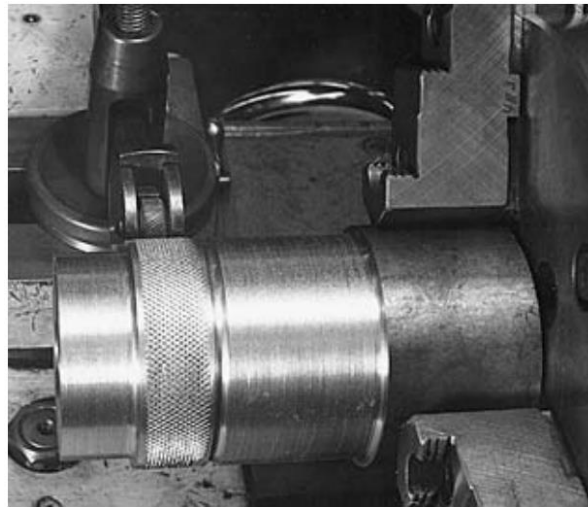
Facing Basics



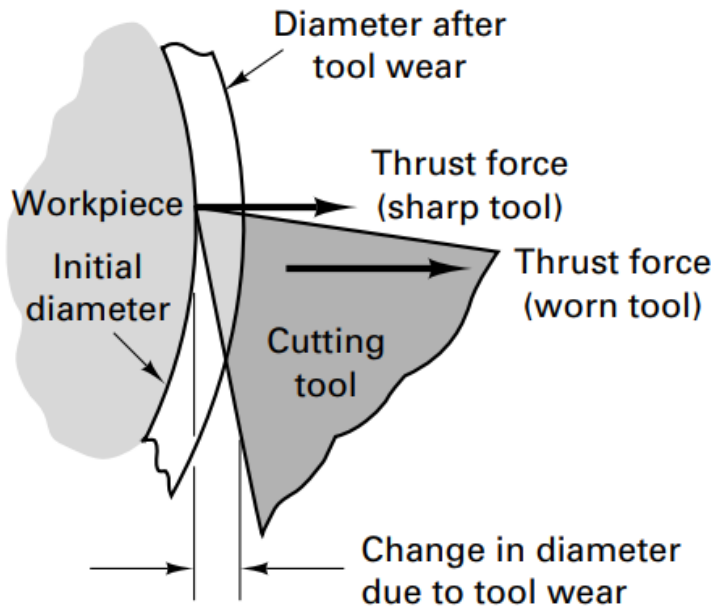
Cutoff or Parting Basics



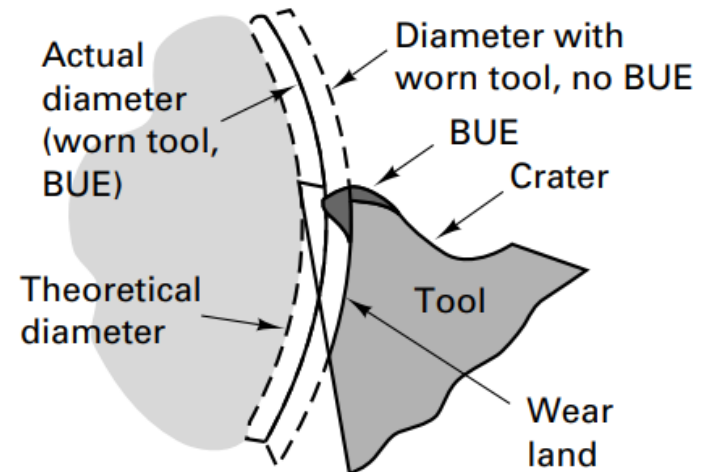
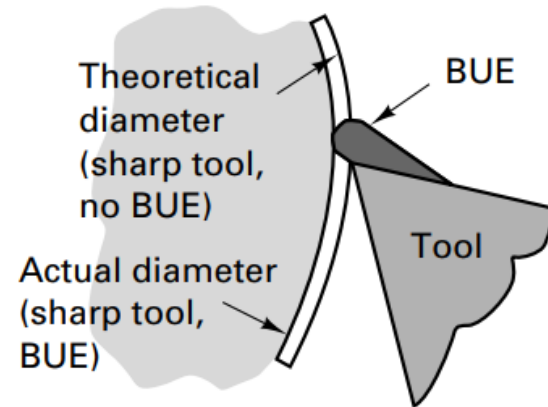
Knurling



Tool Wear and BUE

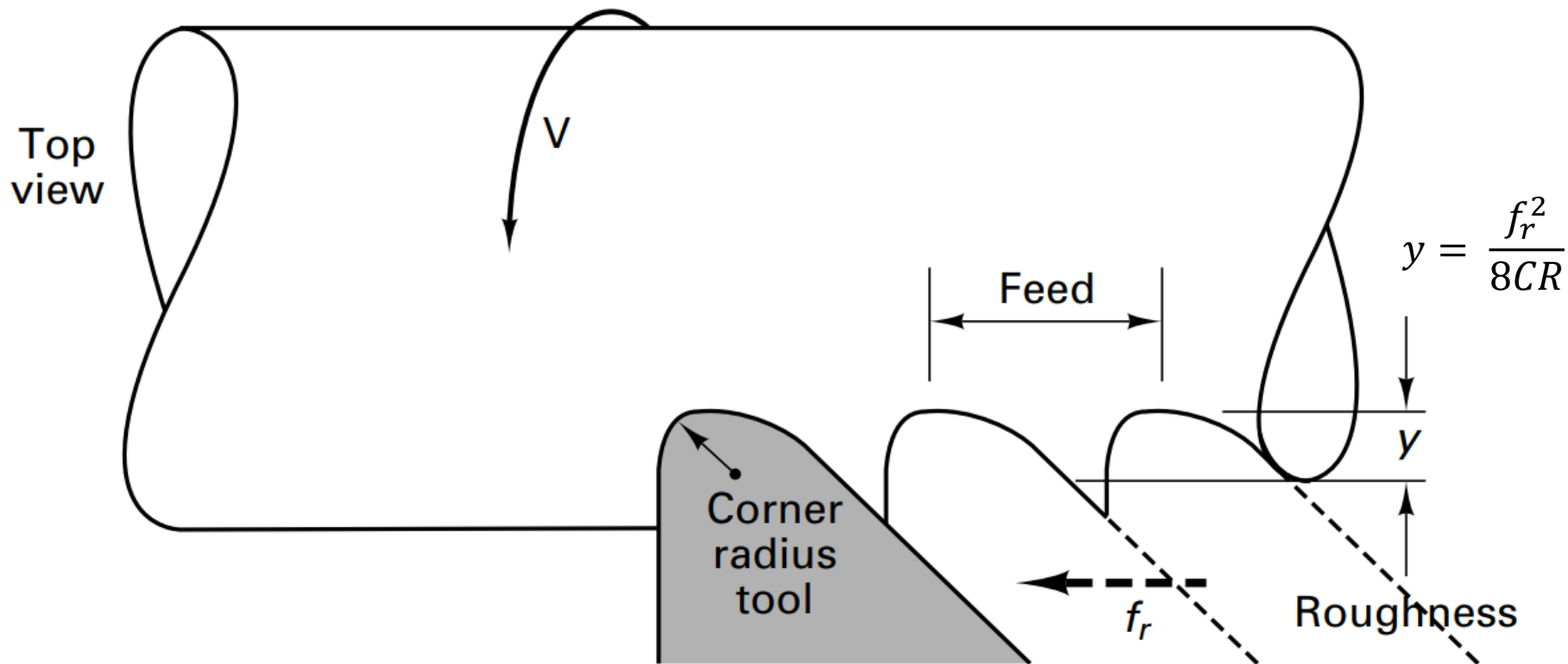


The diameter of a workpiece becomes larger, as do the thrust forces as the cutting tool wears on the flank during turning.



Regardless of whether the tool is dull or sharp, a built-up edge (BUE) causes the diameter of the workpiece to be smaller than desired.

Surface Roughness and Cutting Tool Radius

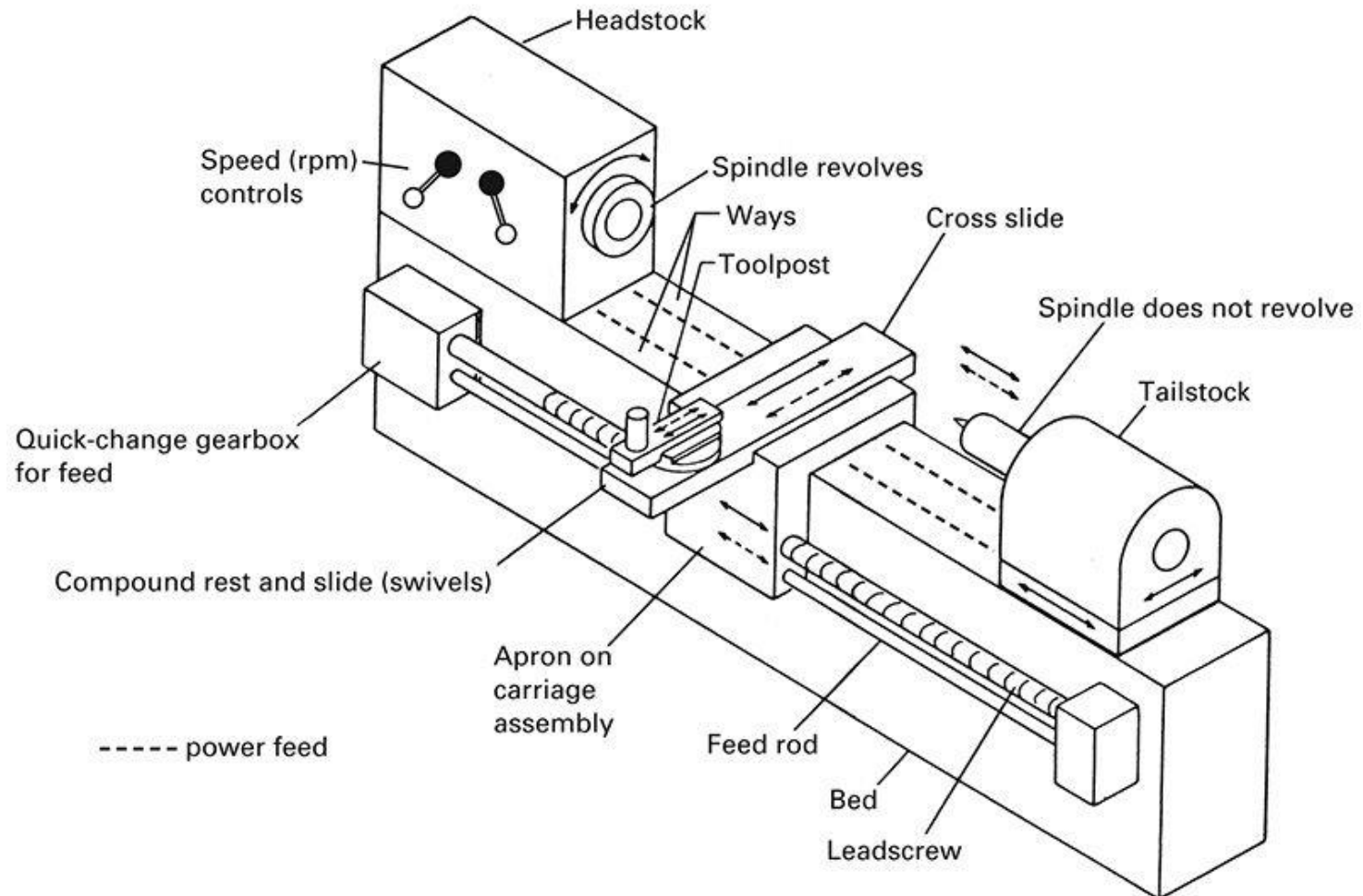


The feed and the corner radius (CR) of the cutting tool influences the surface roughness.

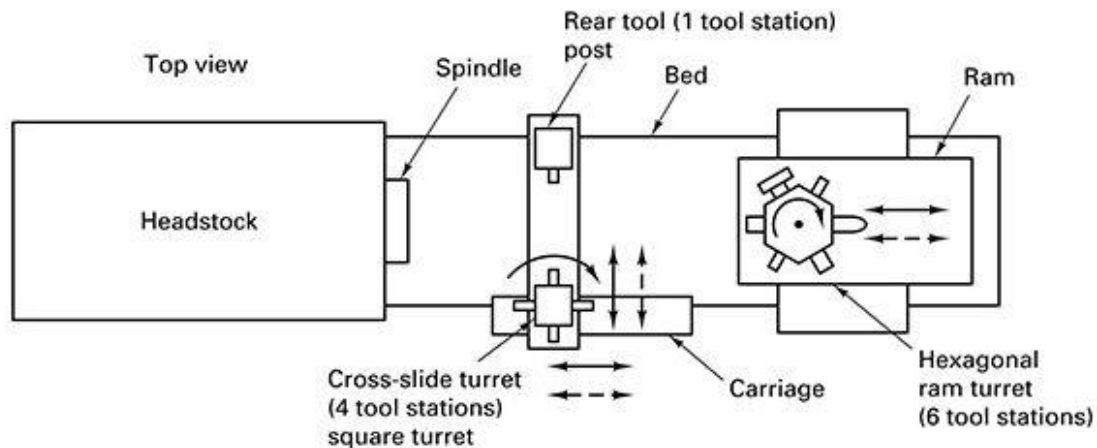
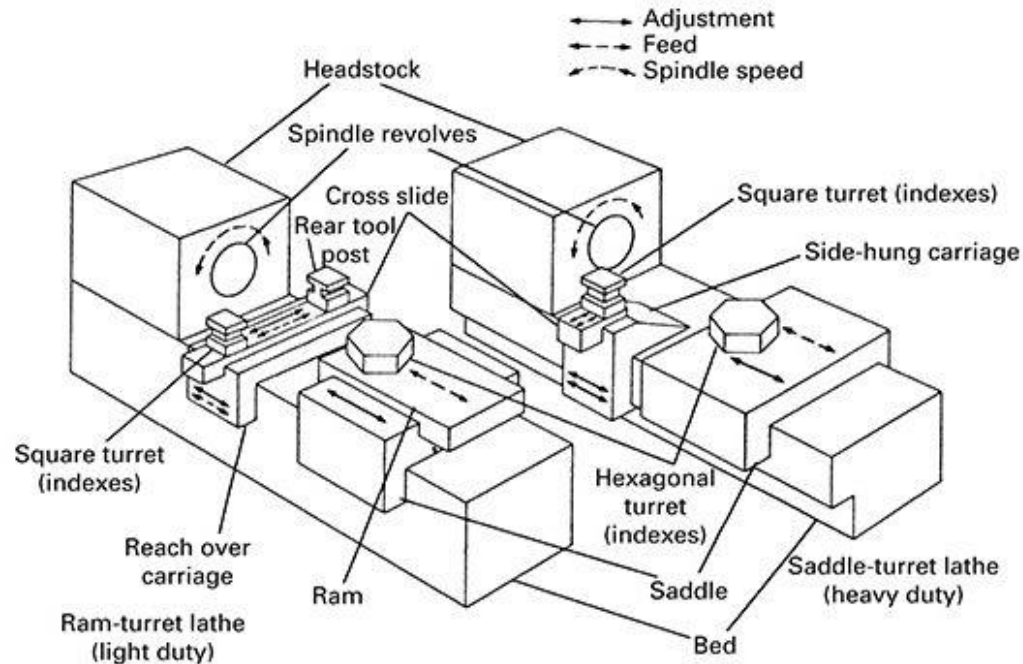
Basic Lathe Turning

[Watch Video Here](#)

Diagram of a Lathe

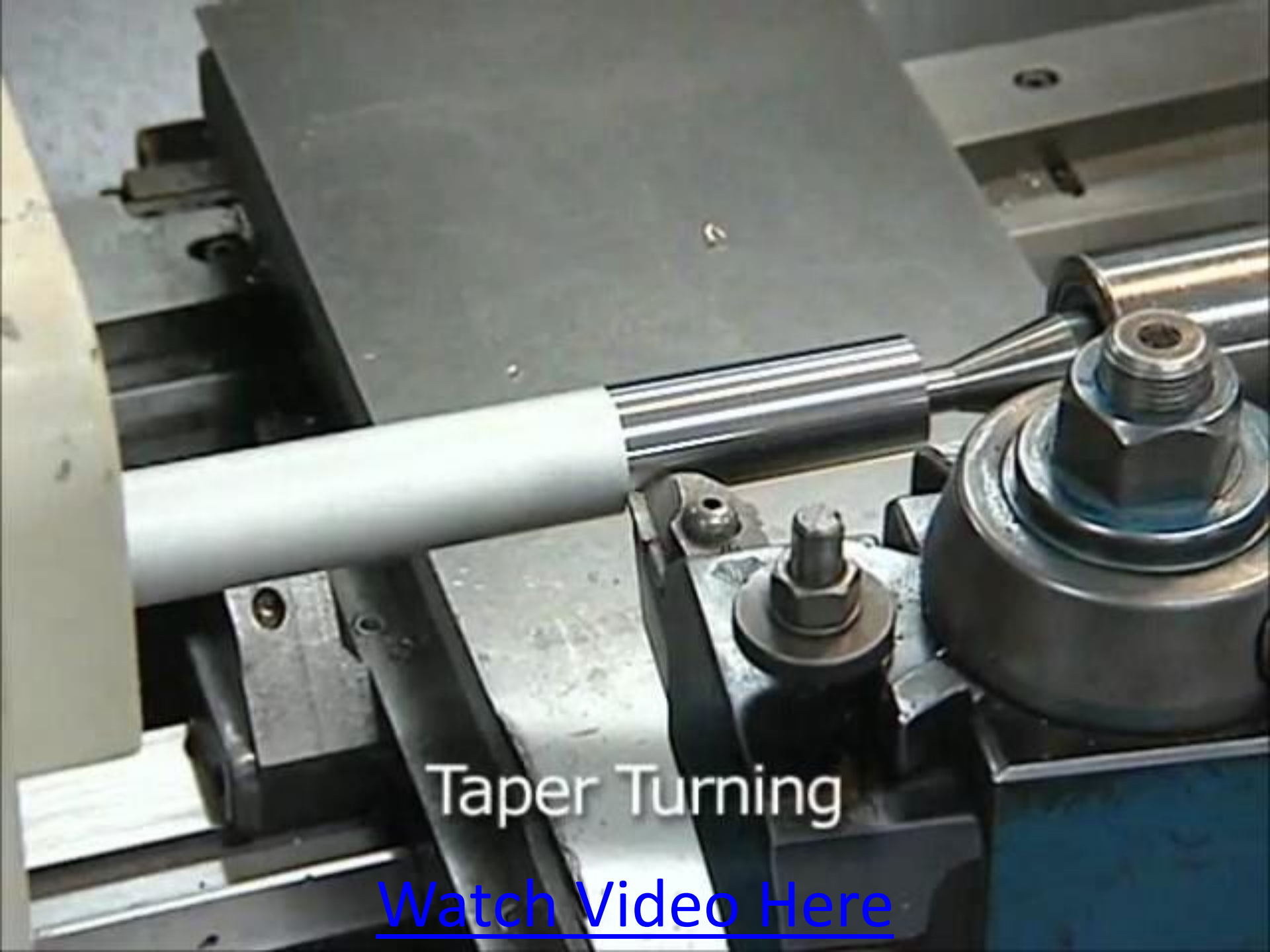


Turret Lathe



Vertical Turning Center

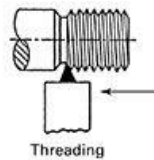
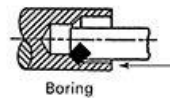
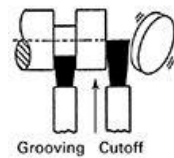
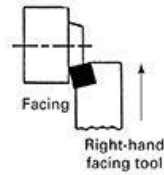
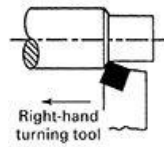





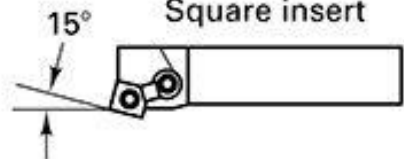


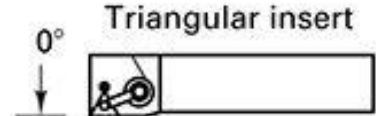
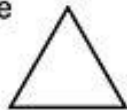

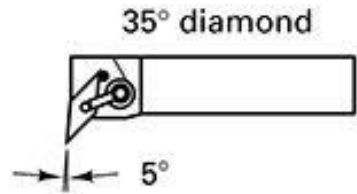

Taper Turning

[Watch Video Here](#)

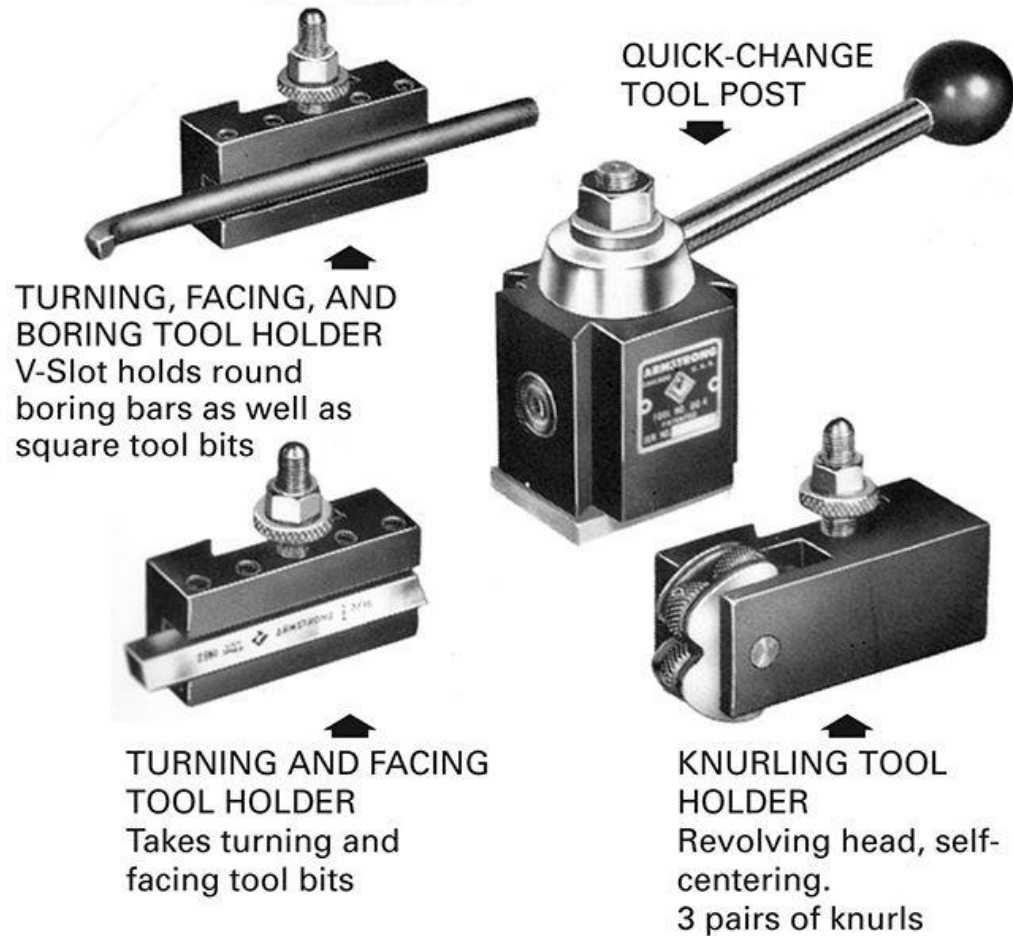
Tool Holders



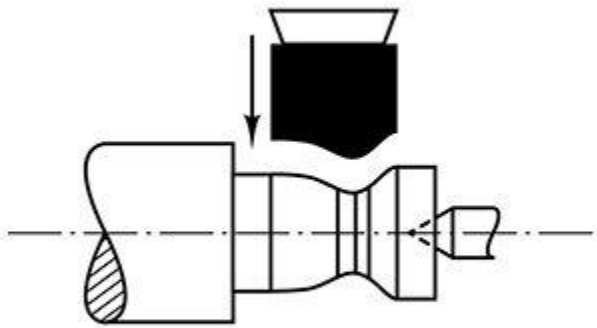
Cutting Insert Types

Insert shape	Available cutting edges	Typical insert holder
Round 	4–10 on a side 8–20 total	
80°/100° diamond 	4 on a side 8 total	
Square 	4 on a side 8 total	
Triangle 	3 on a side 6 total	
55° diamond 	2 on a side 4 total	
35° diamond 	2 on a side 4 total	

Quick-Change Tool Posts



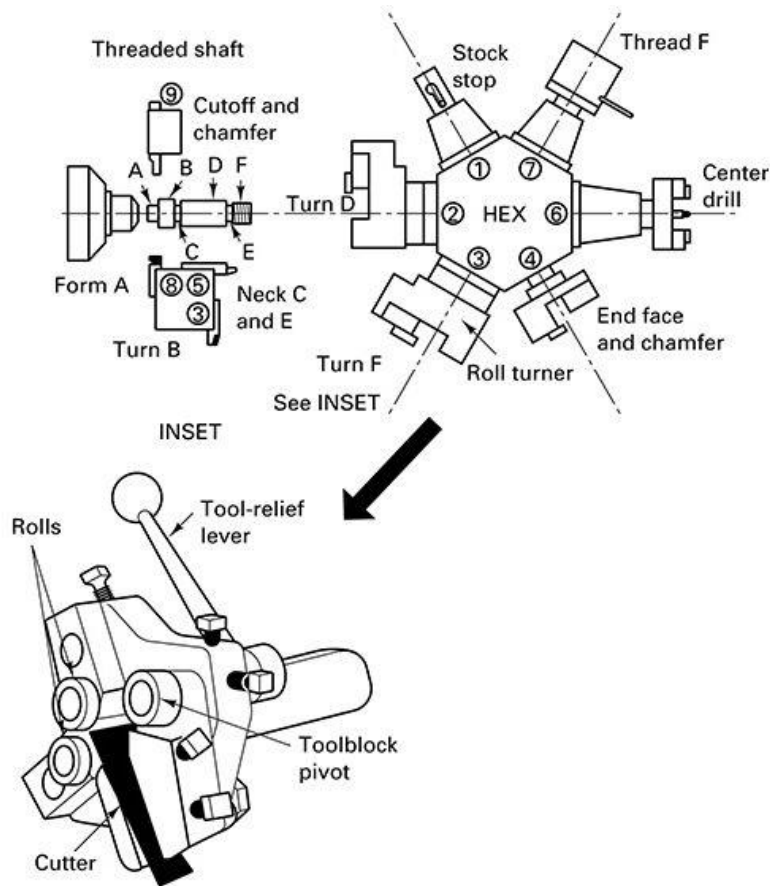
Form-cutting Tool



Form turning

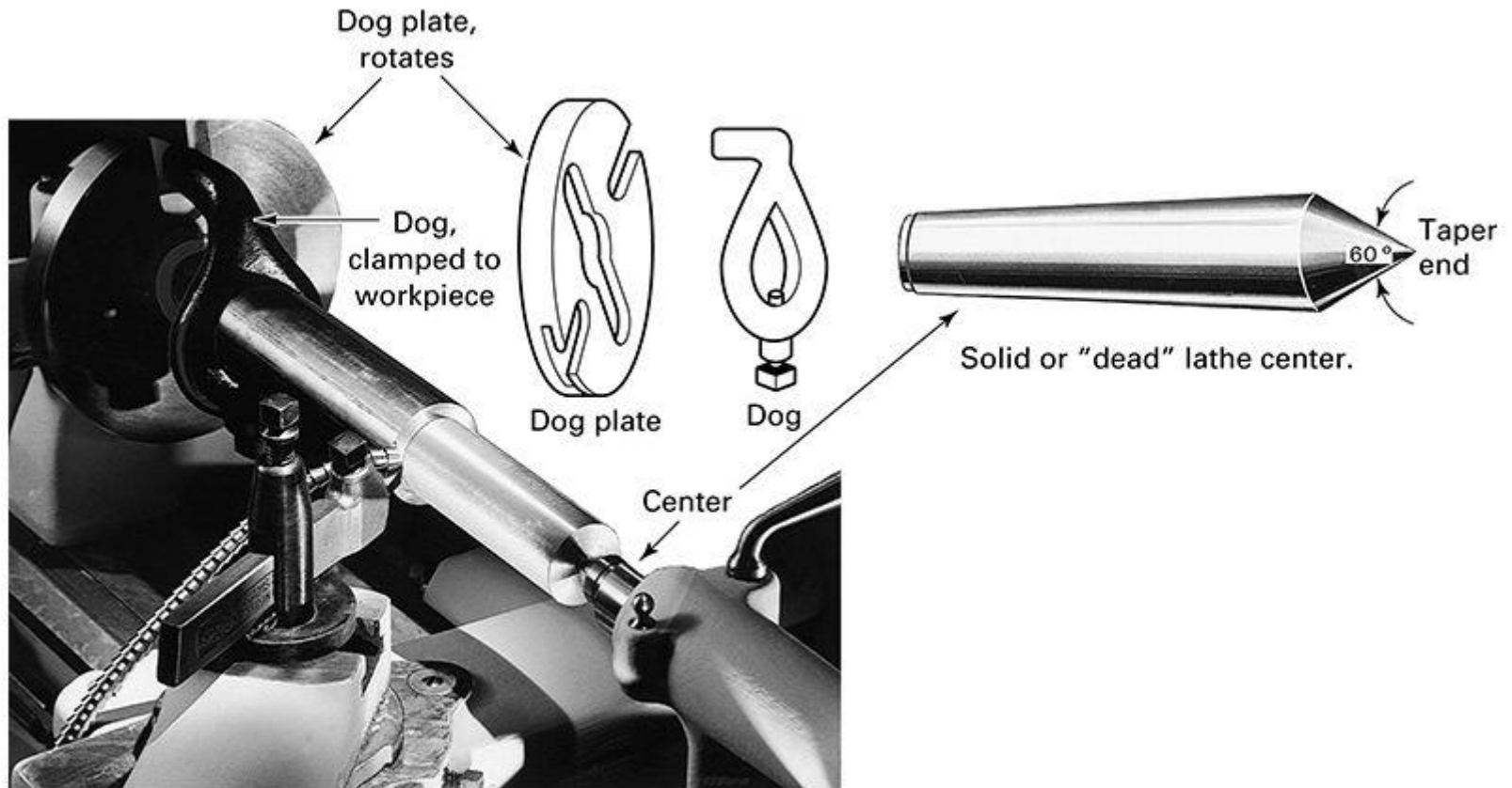


Turret Lathe Tooling

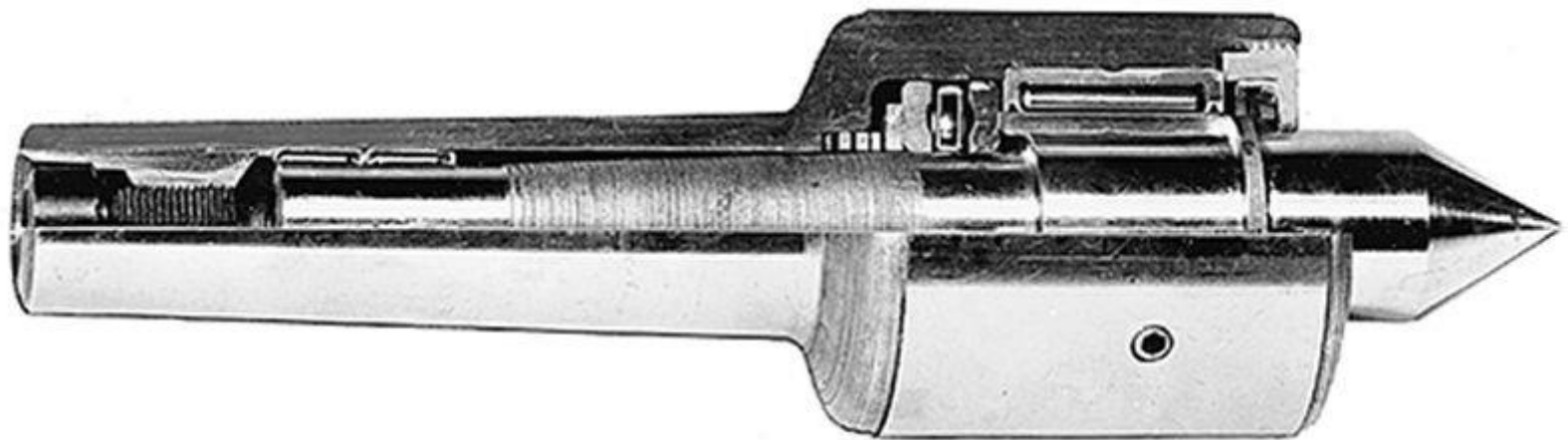


Roller turner has rolls to support the work against the cutting forces

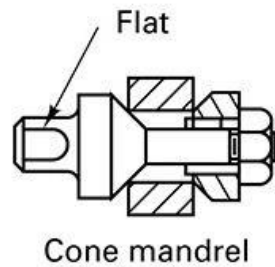
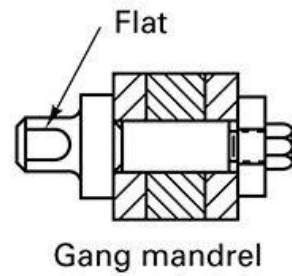
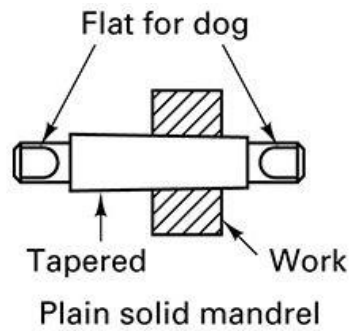
Faceplate and Dog



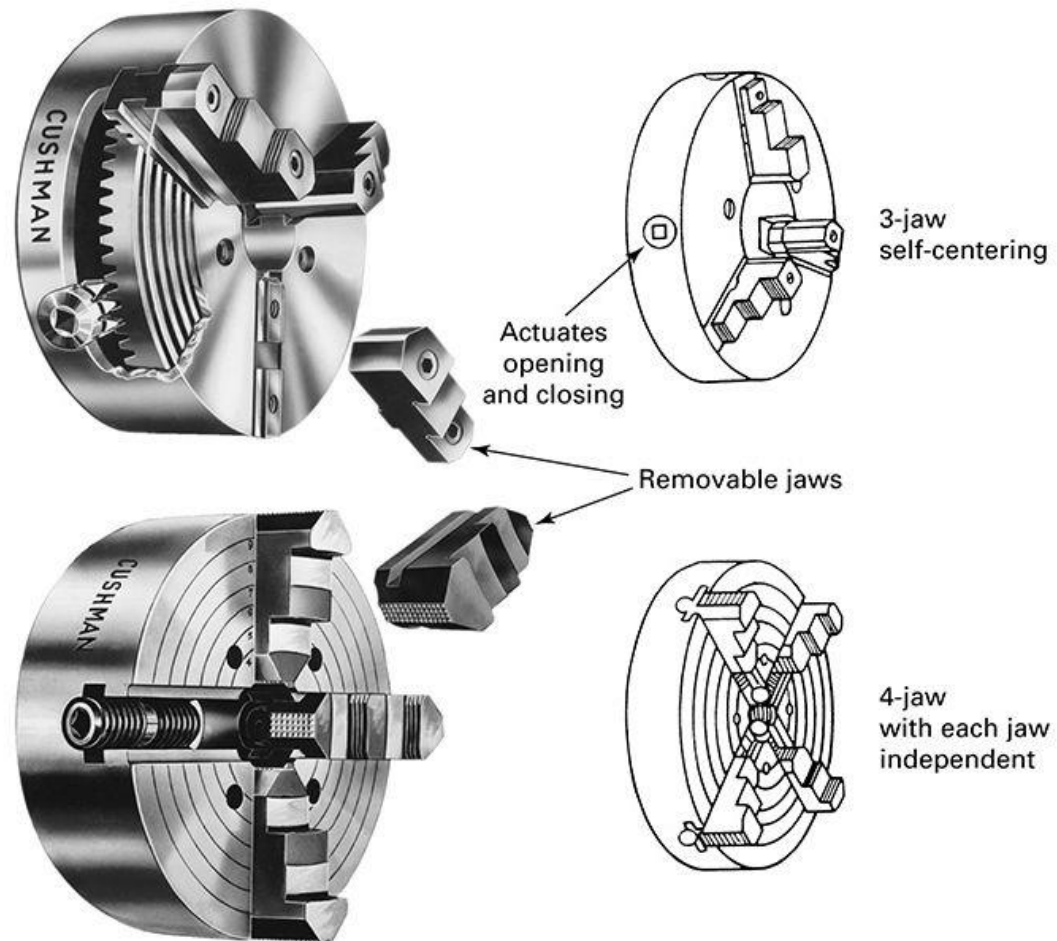
Live Center



Mandrels



Lathe Chuck



Collets



Round
collet



Square
collet



Hexagon
collet



Cutaway
view of
collet



Follow and Steady Rest

