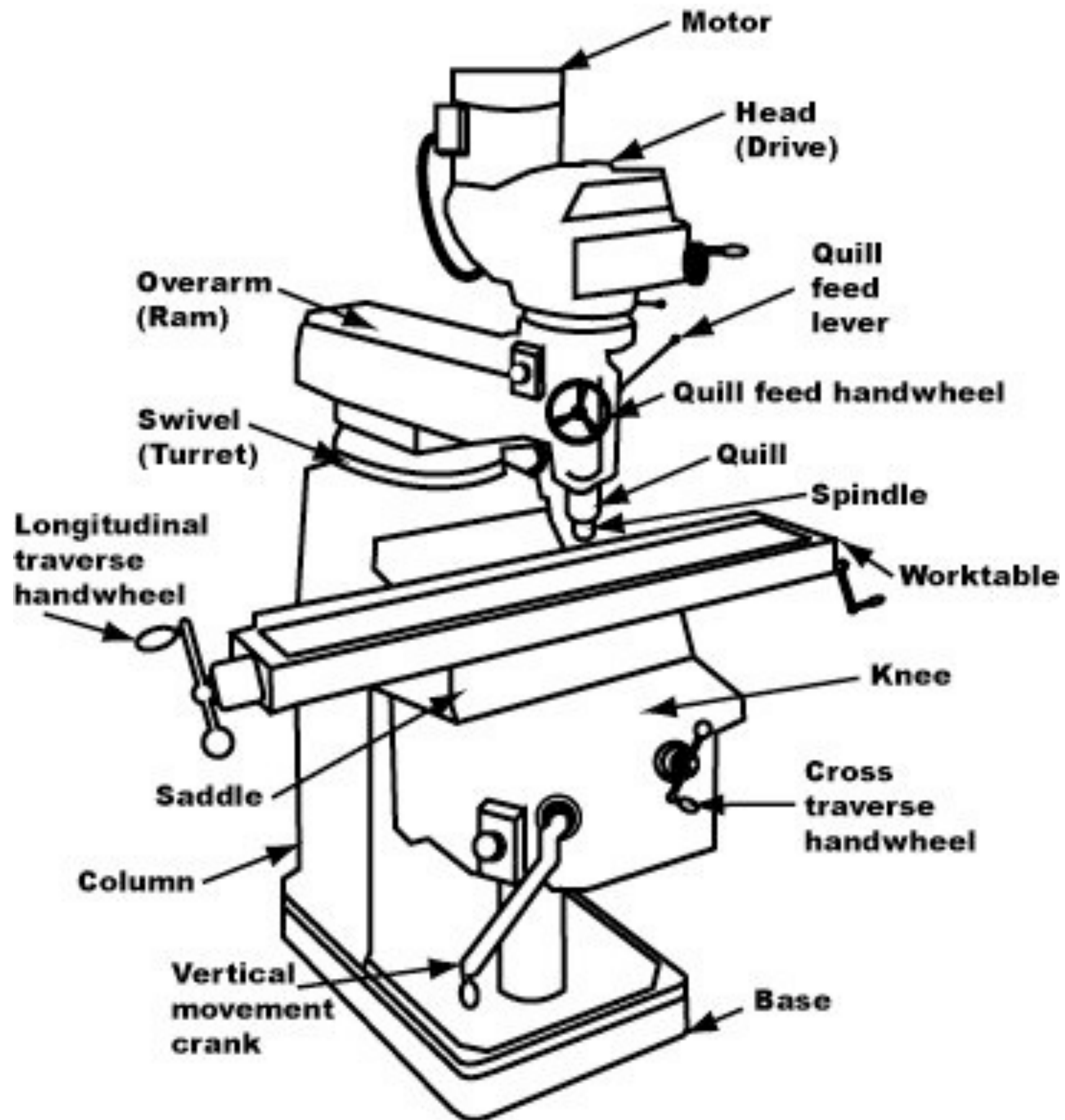




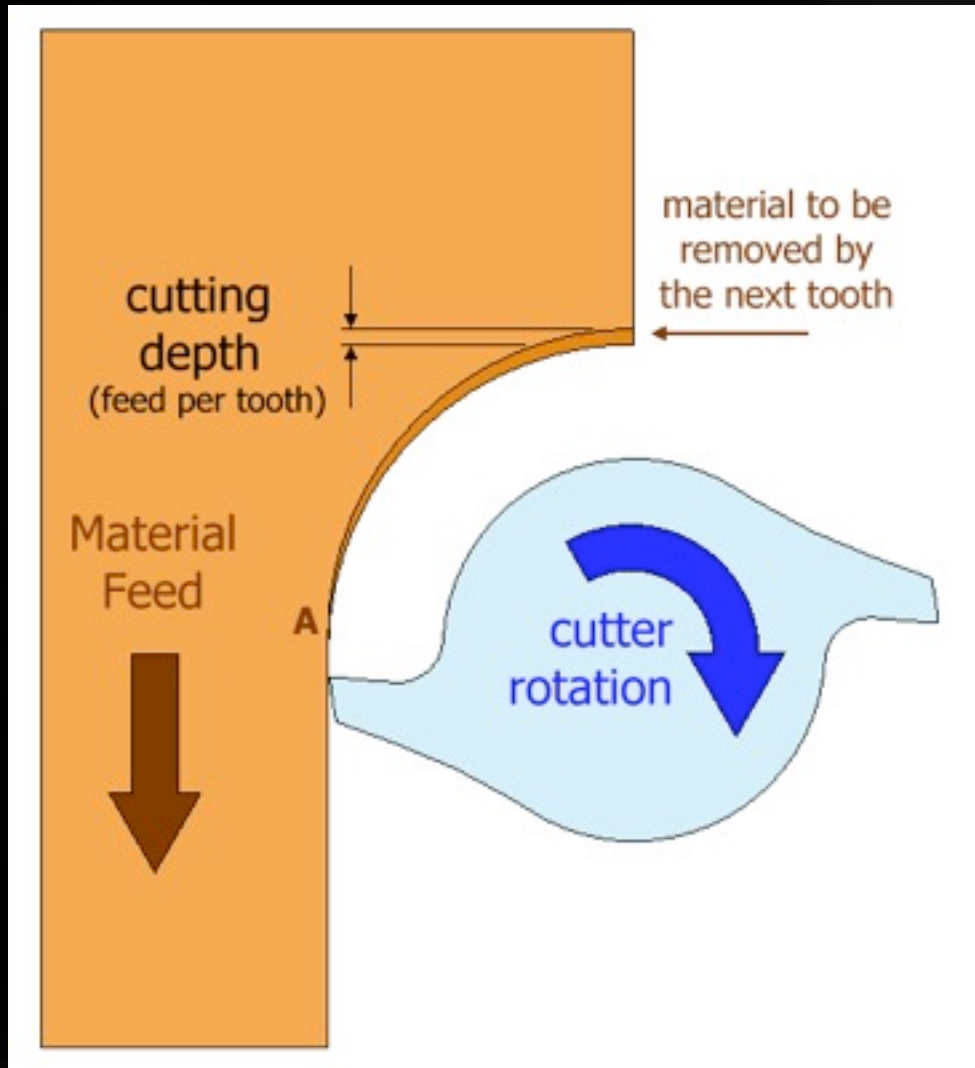
The Mill



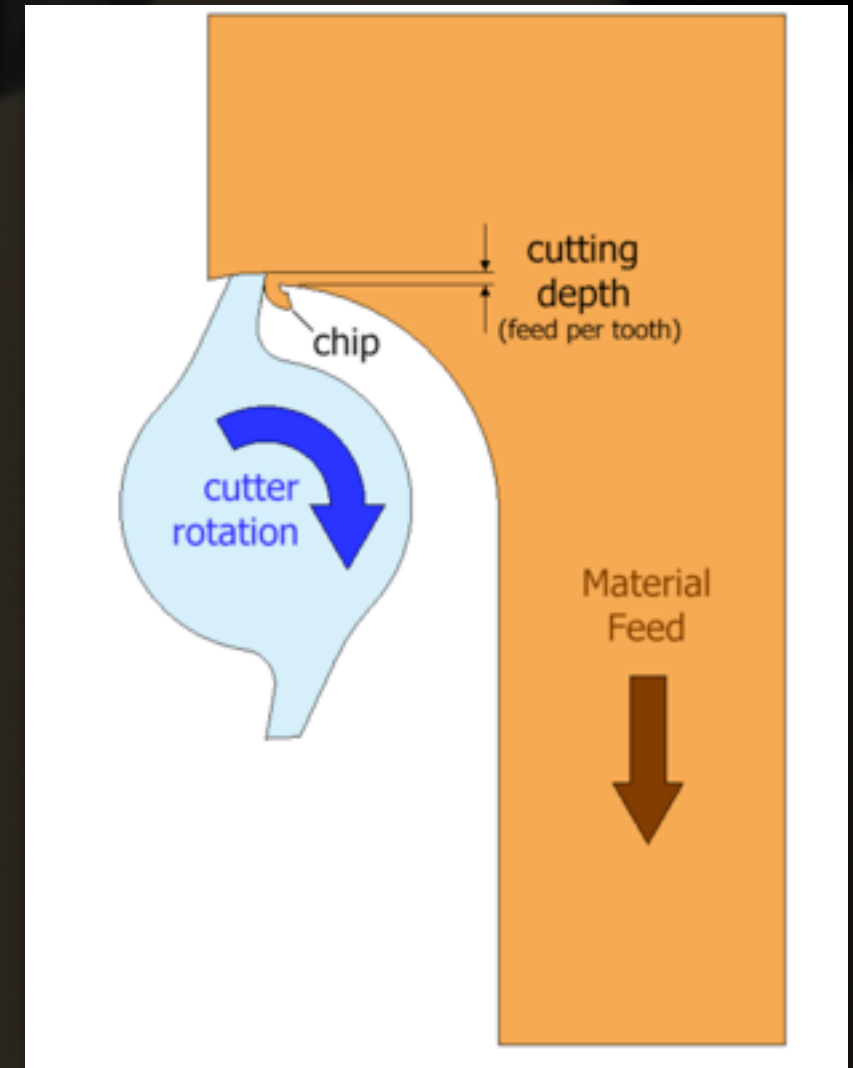


# Cutting Tools





CONVENTIONAL  
(CHIP)



CLIMB





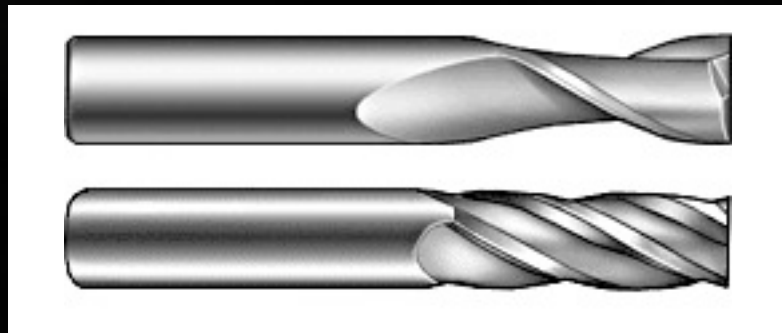
FLY CUTTER

FACE MILL

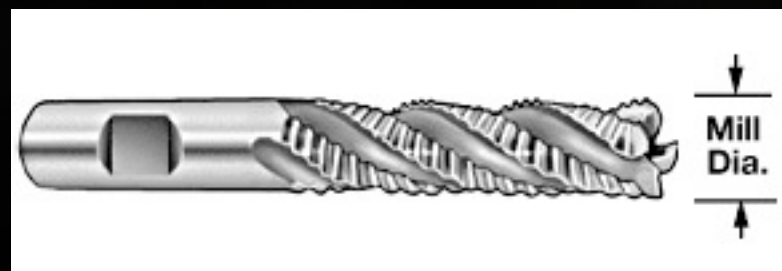




# END MILLS



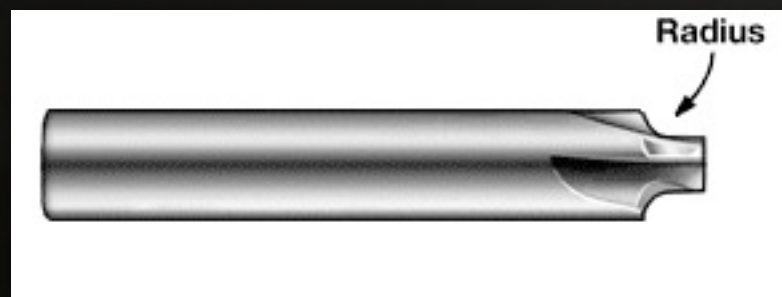
SQUARE-END



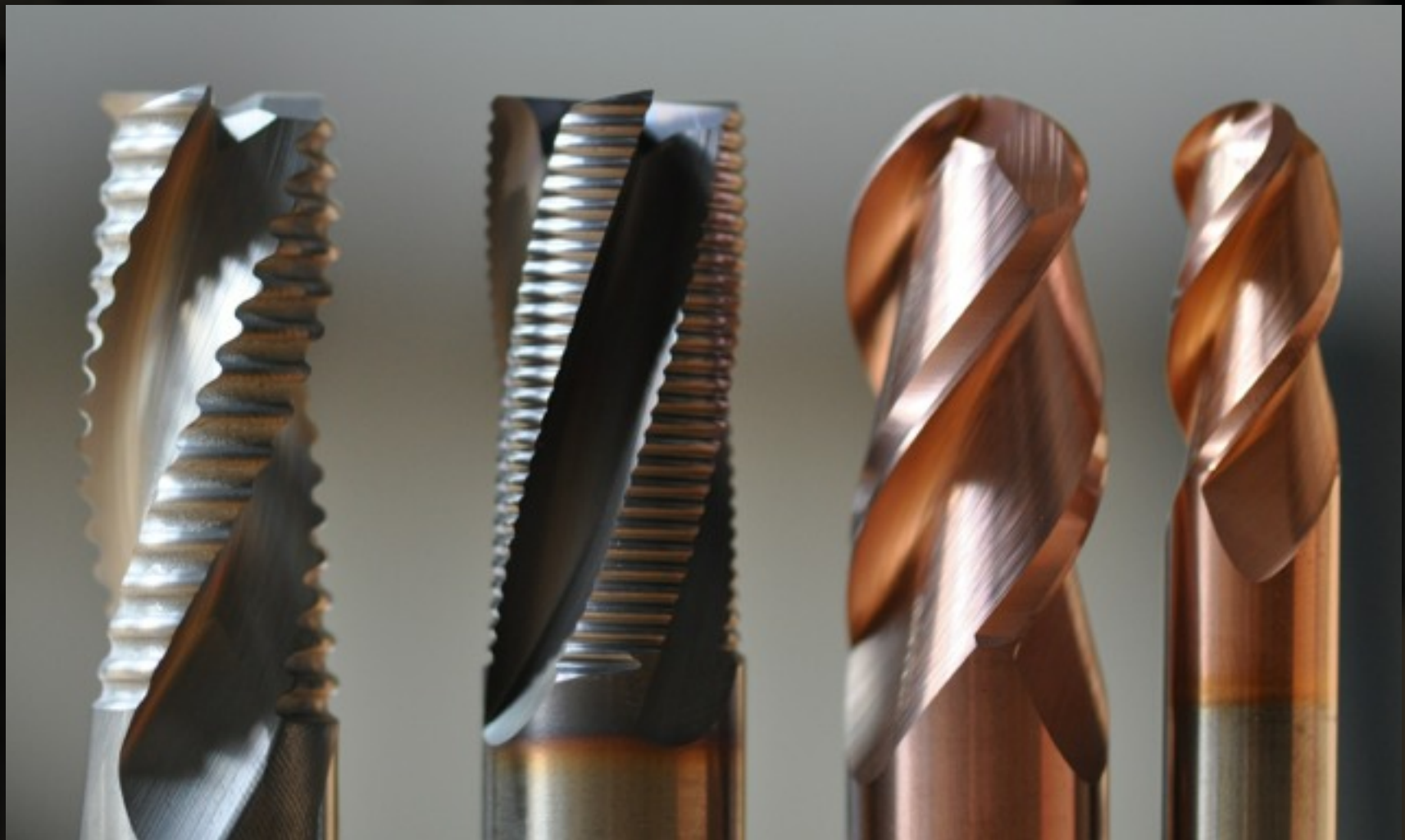
ROUGHING



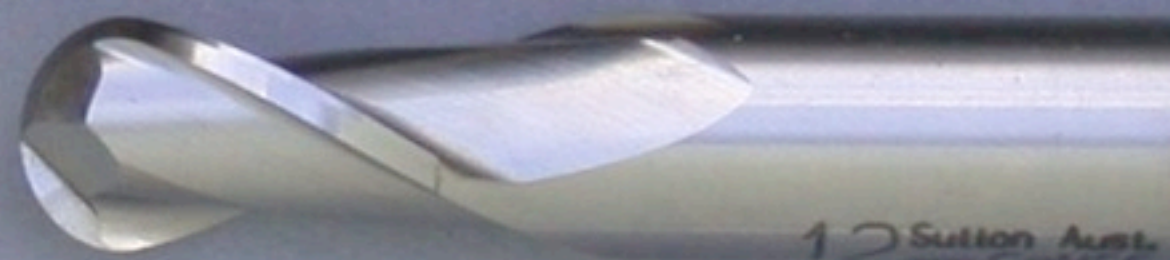
BALL-END



CORNER ROUNDING











DISCOVERY  
CHANNEL





# Feeds & Speeds

# CUTTING SPEED GUIDELINES

	HIGH-SPEED STEEL	CARBIDE
PLASTICS	500	800
ALUMINUM	300	600
BRASS	200	400
MILD STEEL	75	250
STAINLESS	50	100

SPEEDS IN SURFACE FEET PER MINUTE (SFPM)



# MILL/DRILL SPINDLE SPEED

$$\text{SPINDLE SPEED} = \frac{4 \times \text{CUTTING SPEED}}{\text{TOOL DIAMETER}}$$

GIVES SPINDLE SPEED IN RPM

FOR

CUTTING SPEED IN FEET PER MINUTE (FPM)

AND

TOOL DIAMETER IN INCHES

# FEED RATE

FEED RATE = CHIP LOAD X TEETH X SPINDLE SPEED

GIVES FEED RATE IN INCHES PER MINUTE

FOR

CHIP LOAD IN INCHES PER TOOTH

AND

SPINDLE SPEED IN RPM

TYPICAL CHIP LOADS:

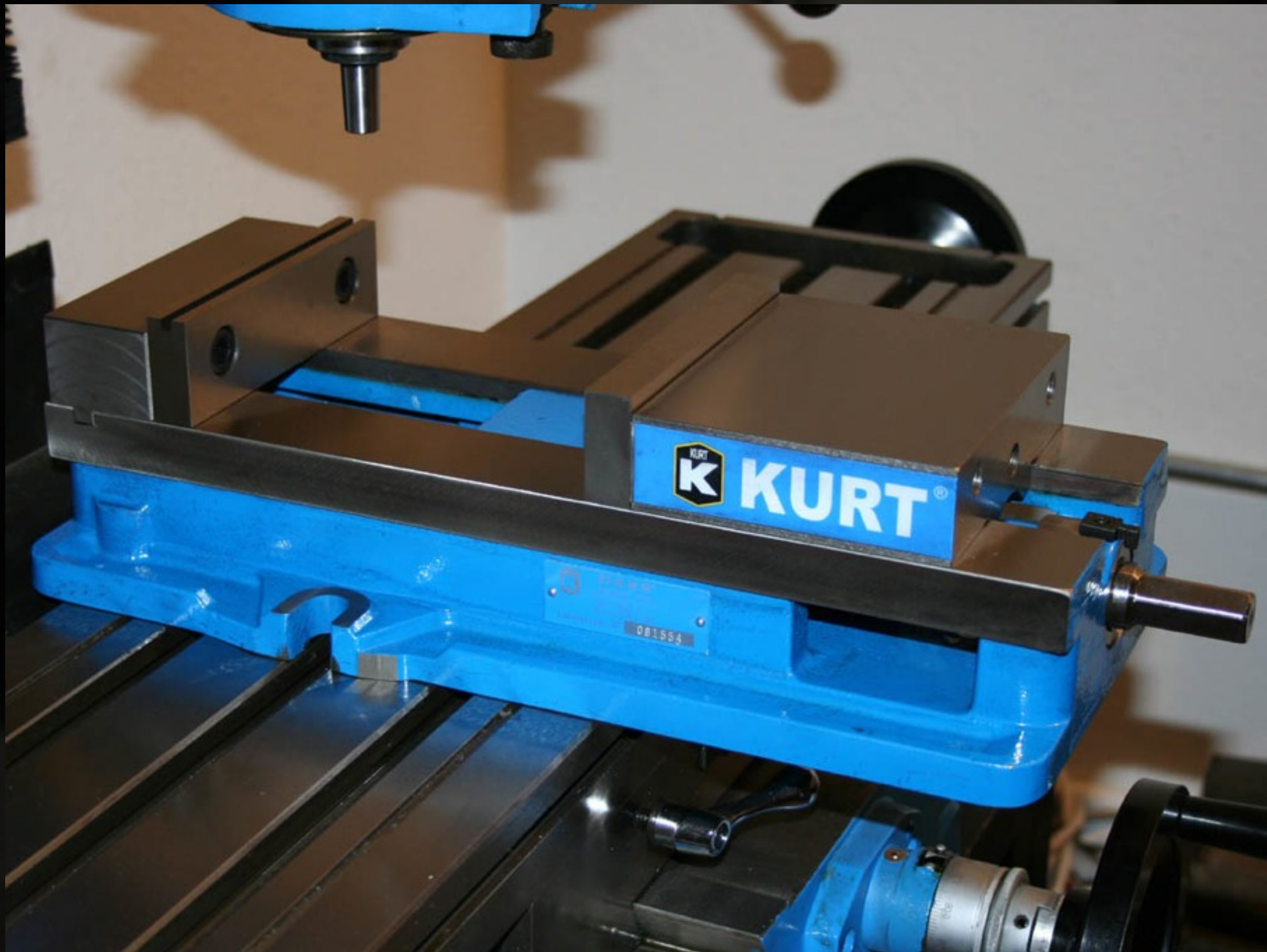
ROUGHING 0.005"

FINISHING 0.001-0.002"



A dark, high-contrast photograph of a CNC machine's spindle and drill bit. The drill bit is positioned vertically, pointing downwards. The background is dark and out of focus, showing parts of the machine's structure. The word "Workholding" is overlaid in white text on the right side of the image.

Workholding



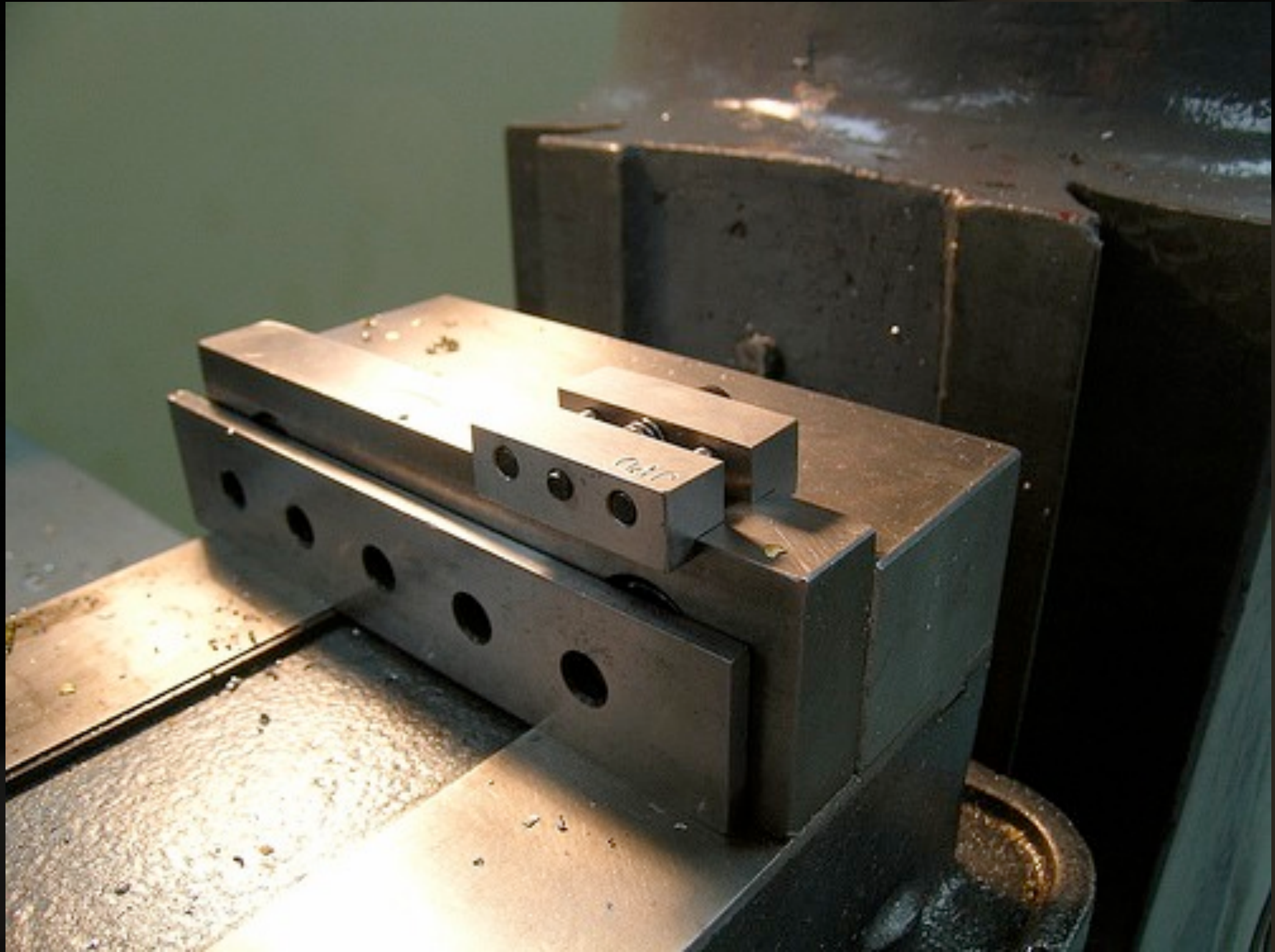










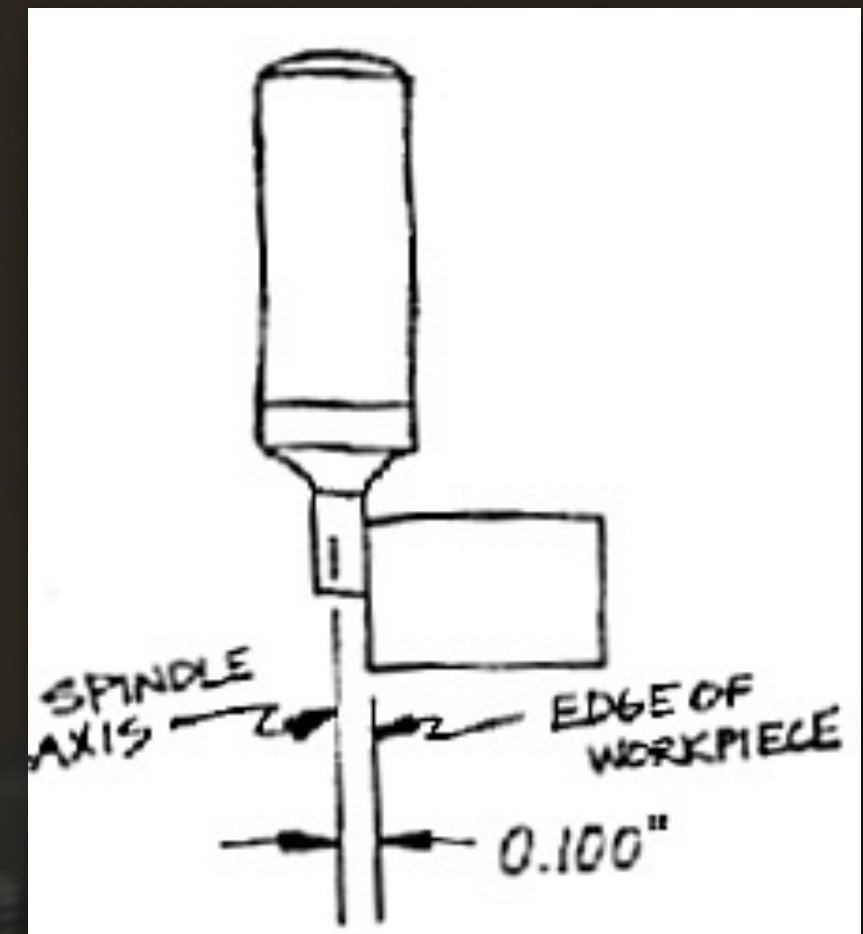
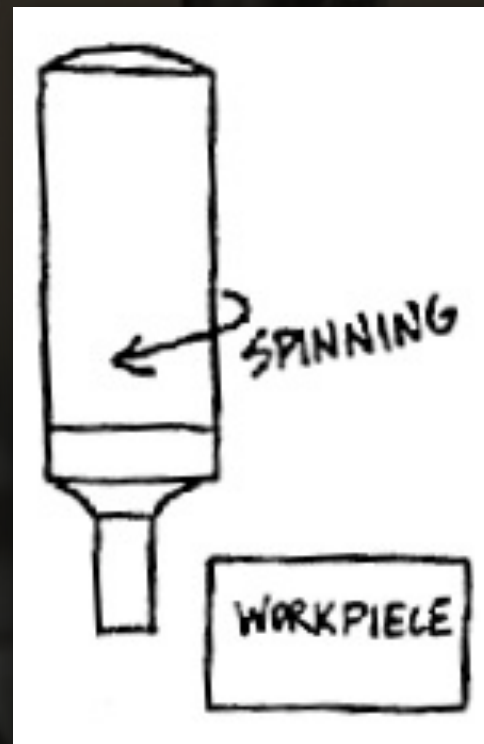
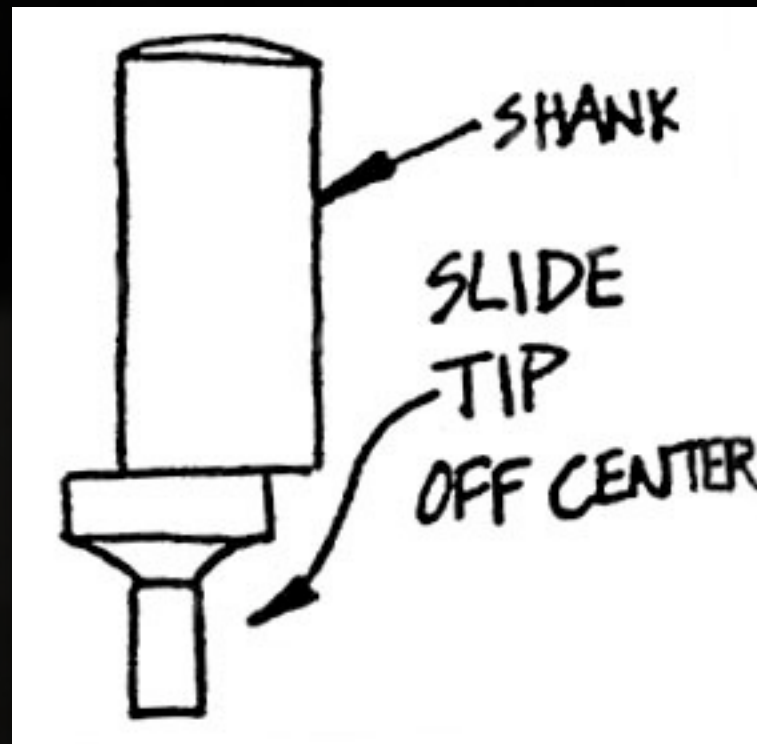
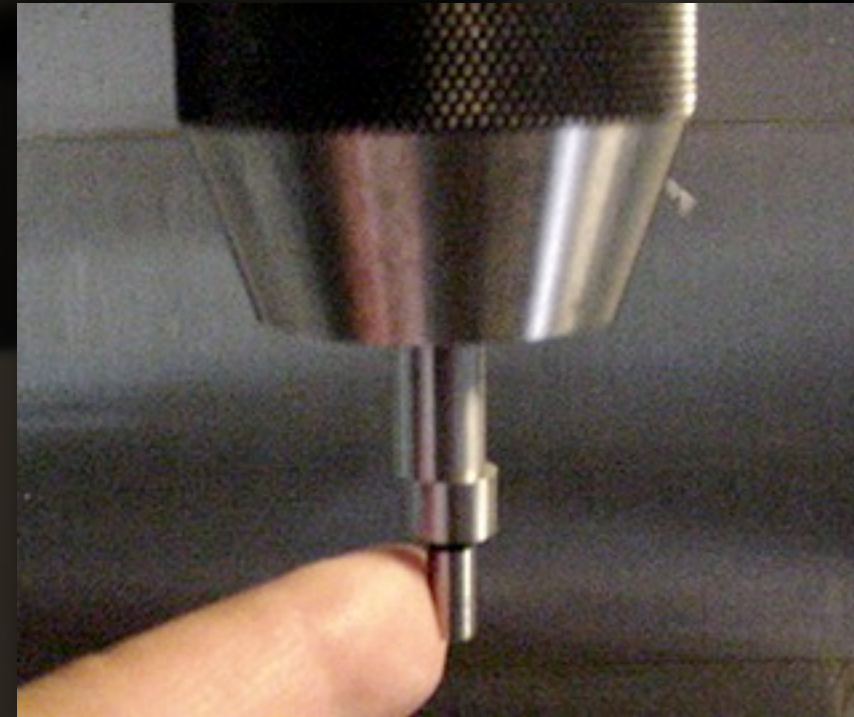
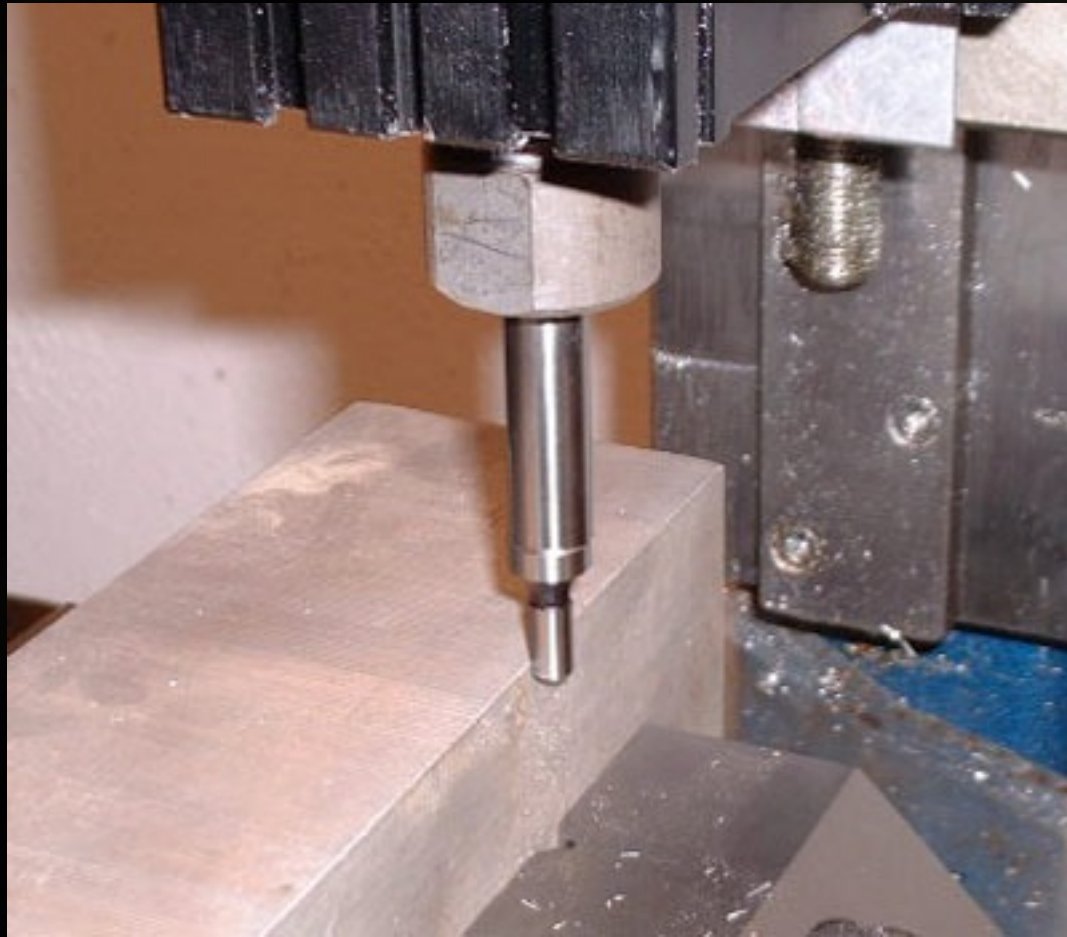




# Part Indication

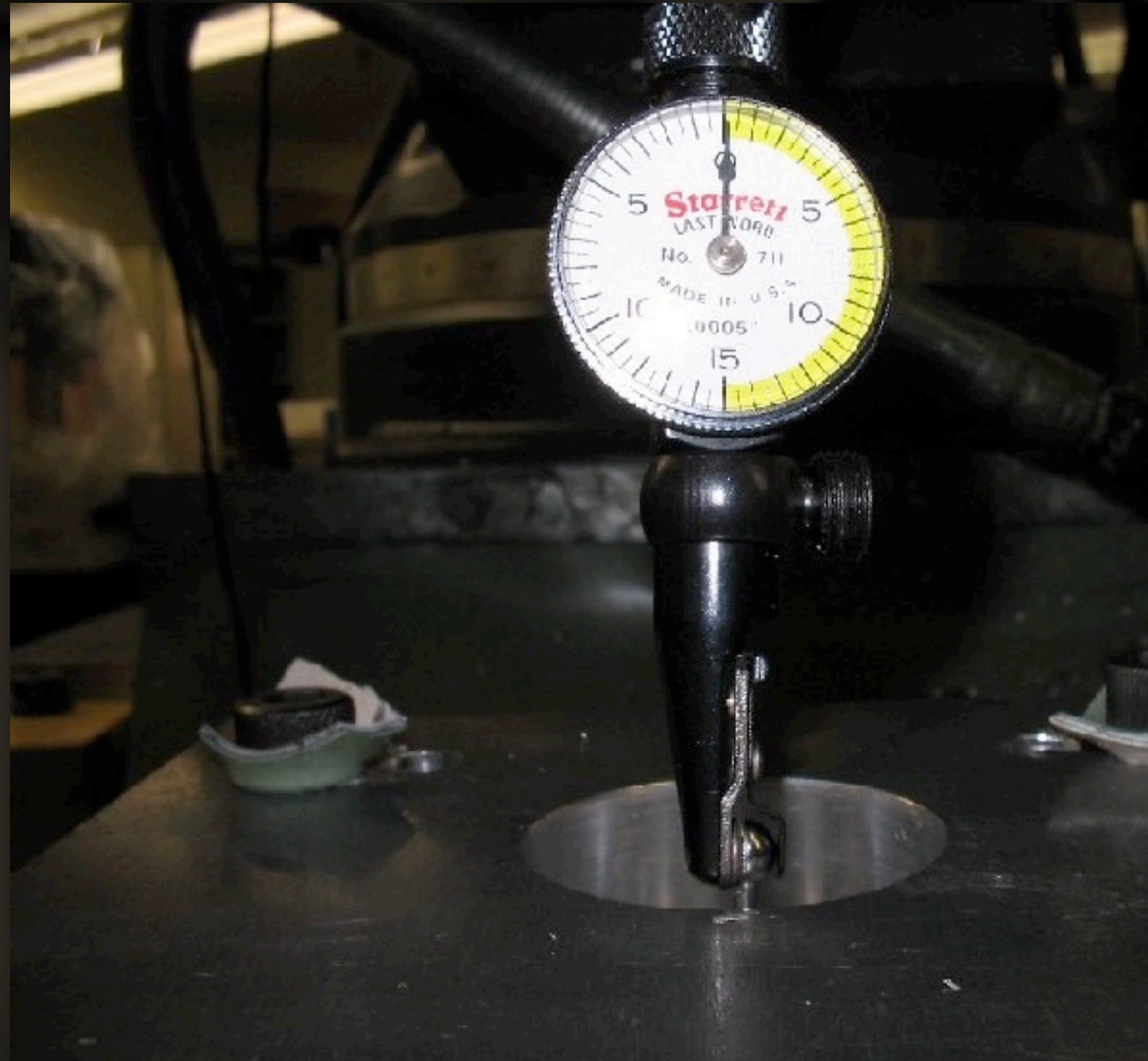


# EDGE FINDER





# DIAL INDICATOR







# Squaring Stock





