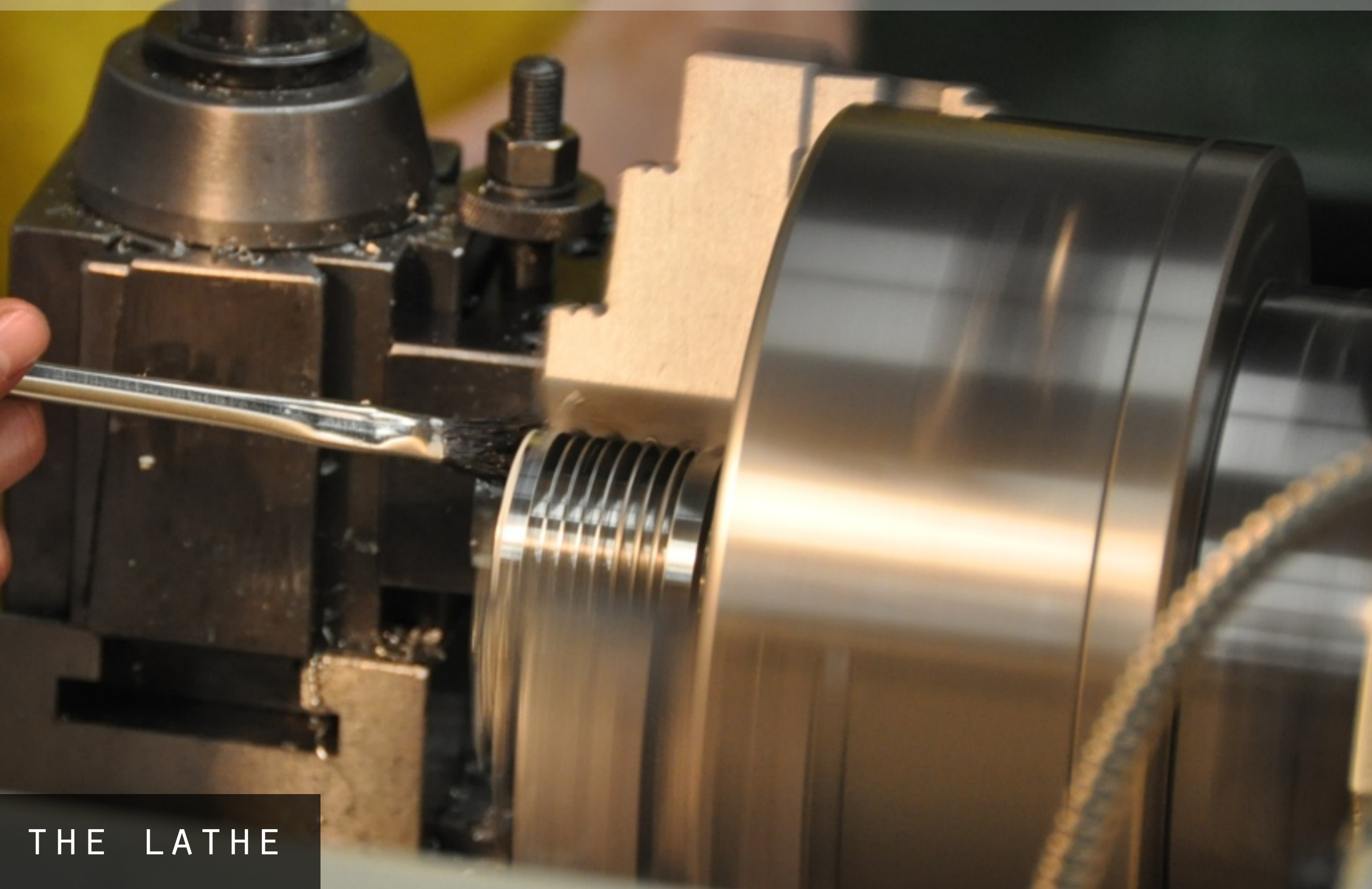
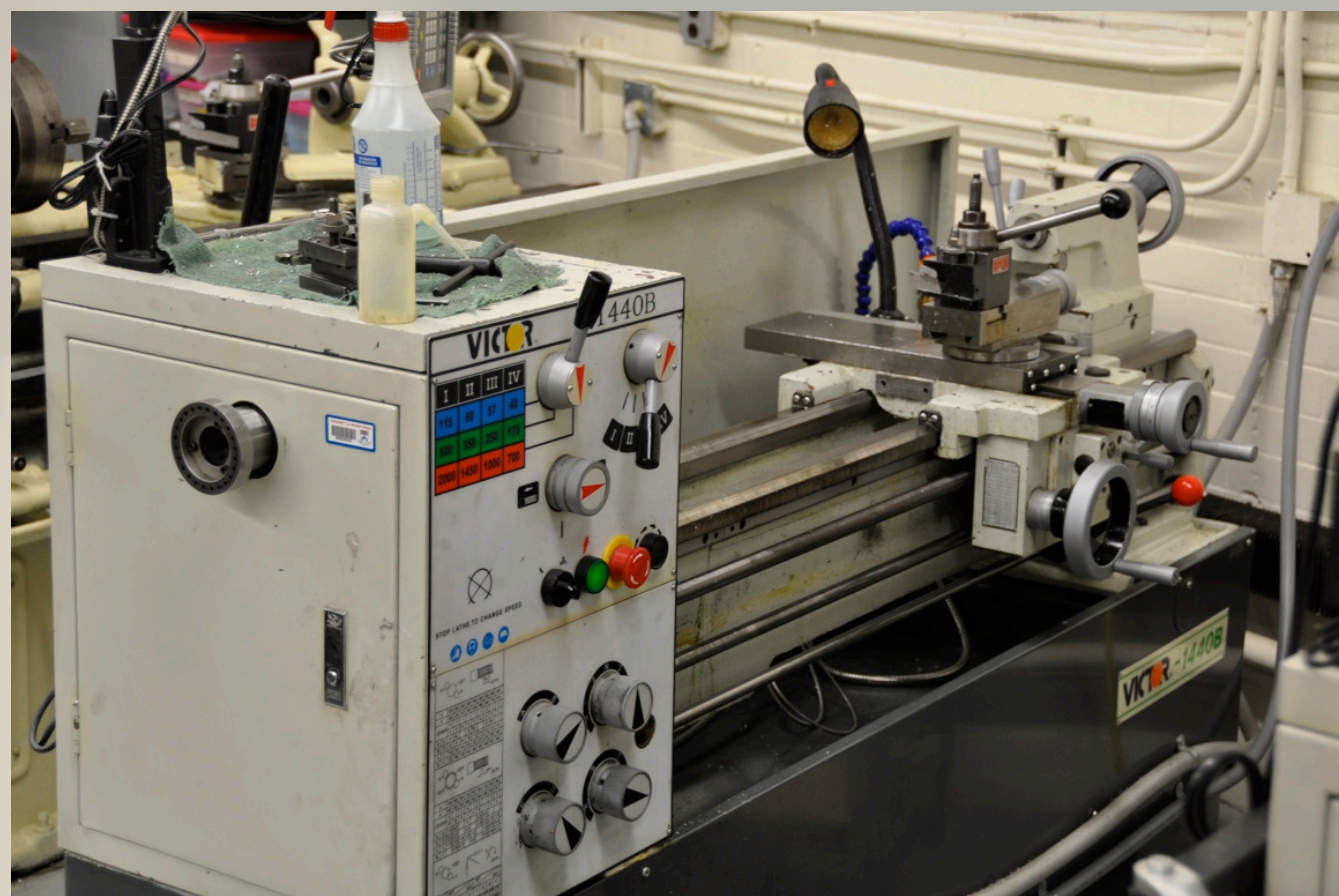


MEAM 150

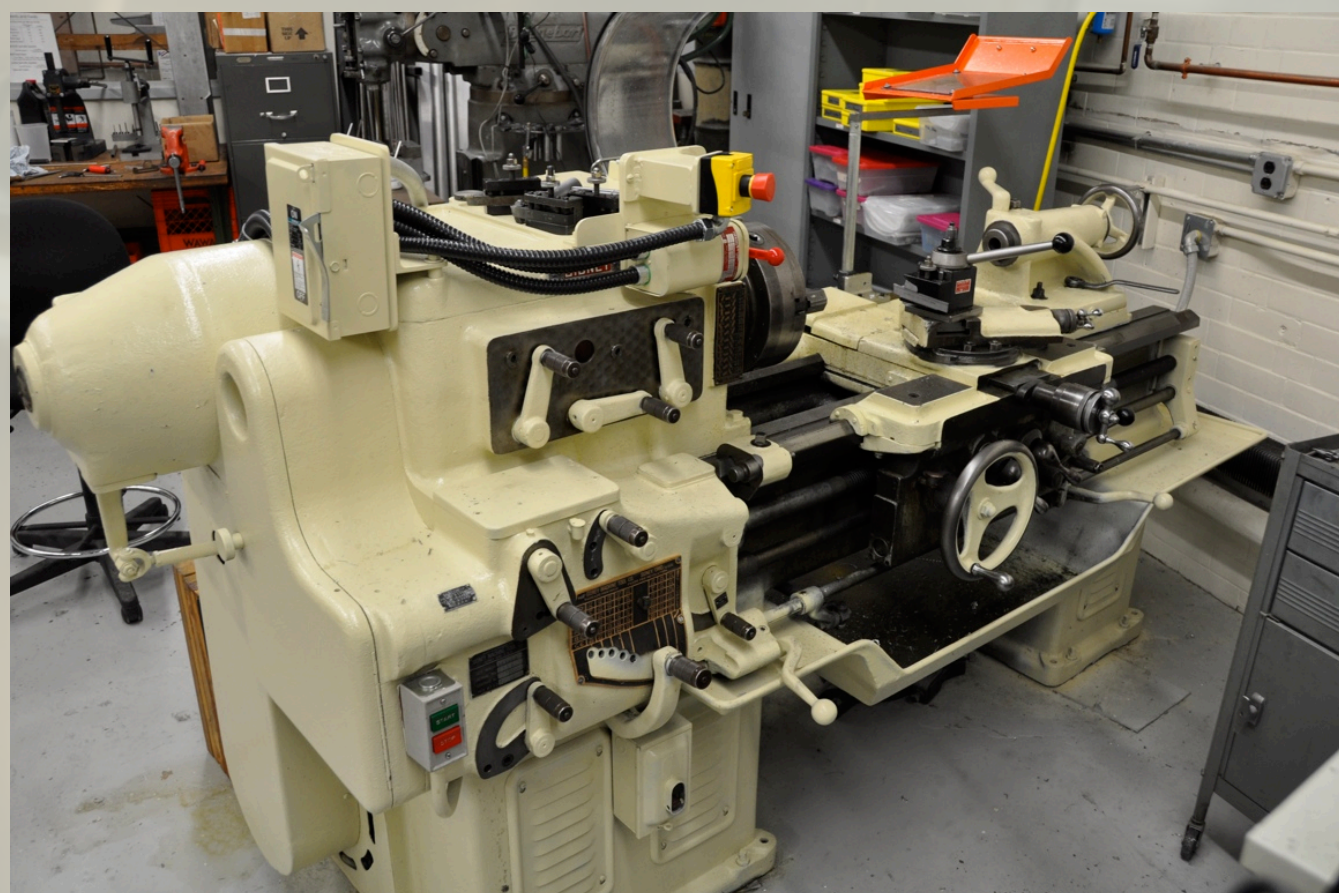
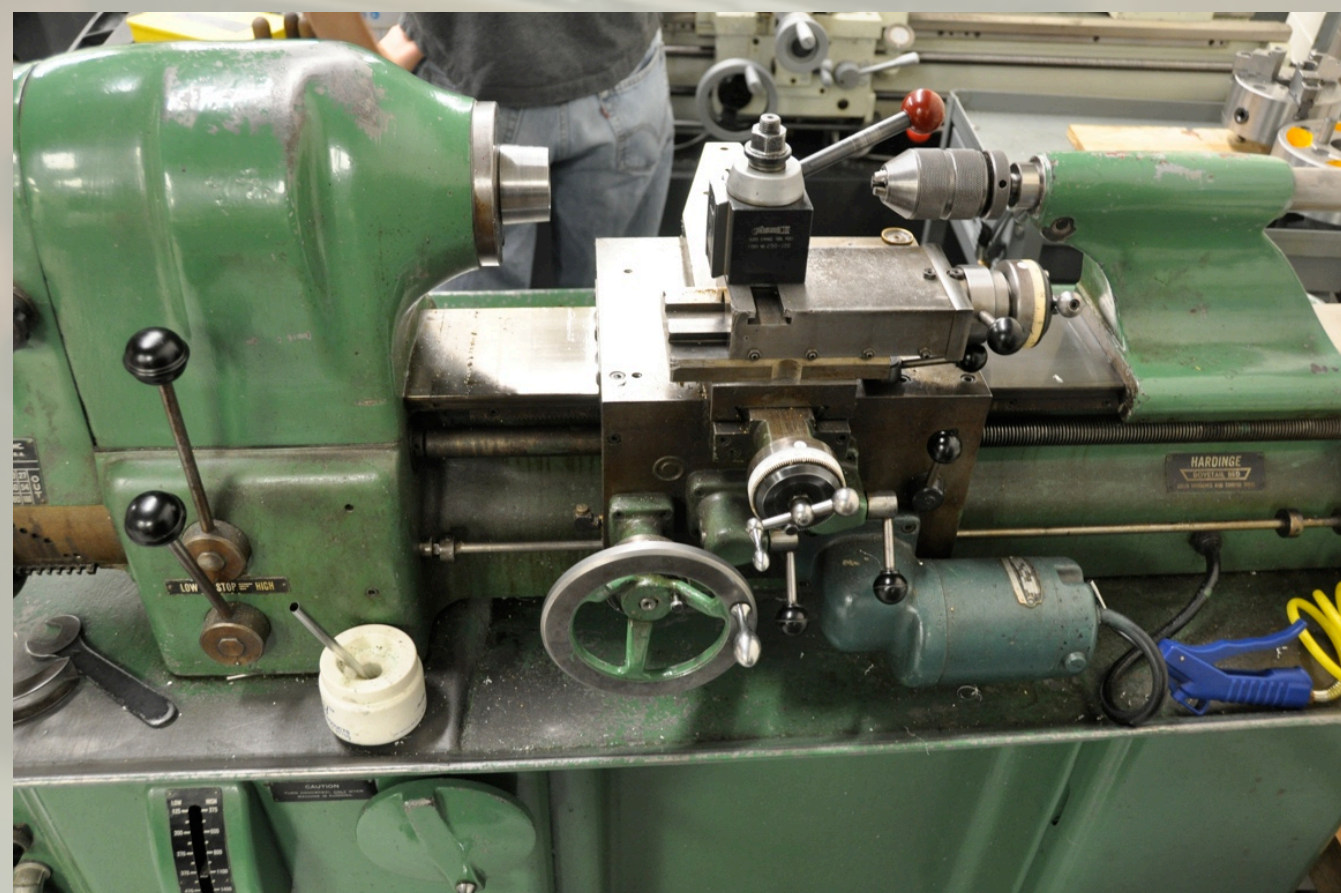
FUNDAMENTALS OF MECHANICAL PROTOTYPING



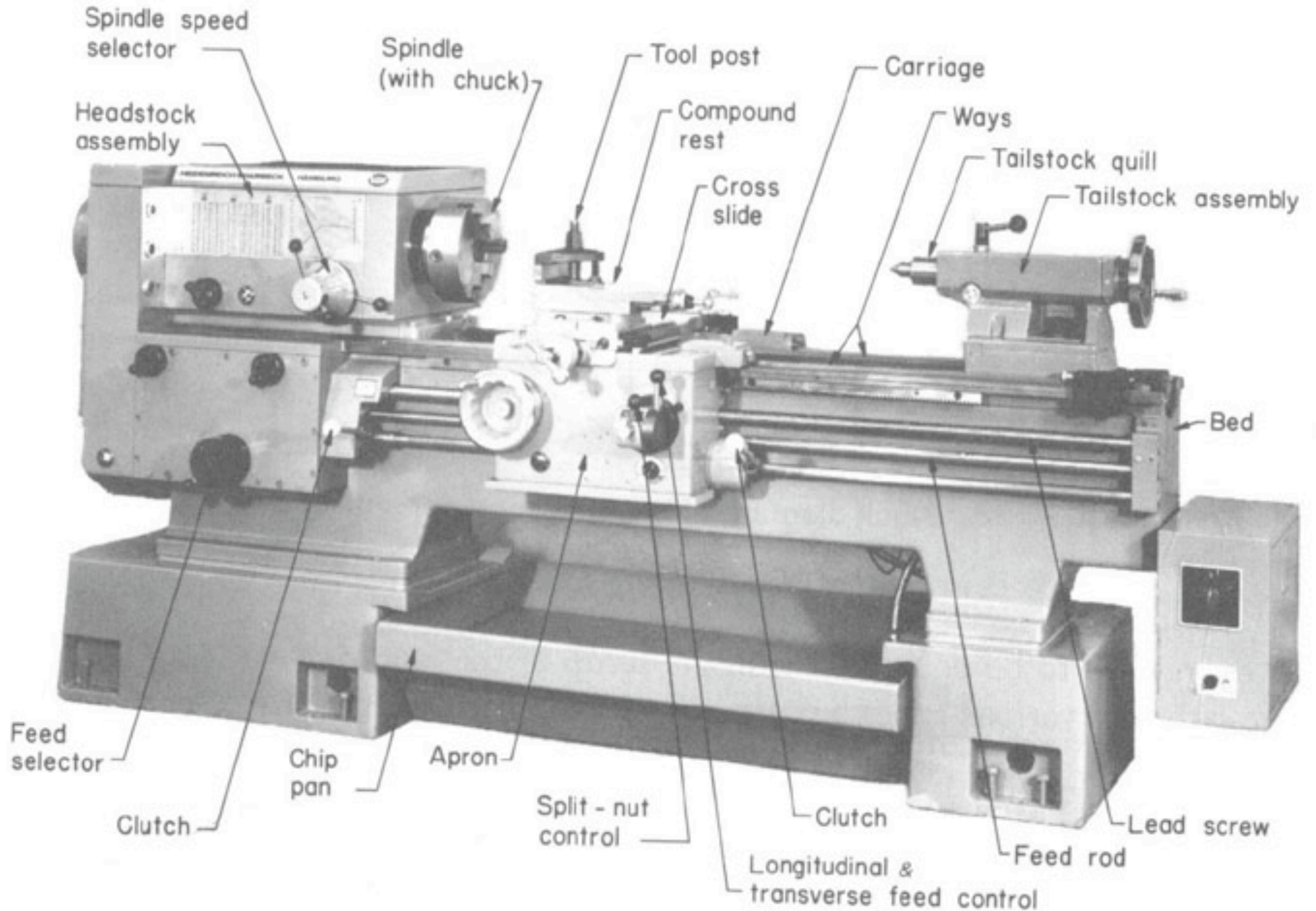
THE LATHE



OUR LATHES



SOME TERMINOLOGY



A close-up photograph of a metal cutting process. A cutting tool is shown removing a chip from a workpiece. The chip is being lifted and is marked with the number '16090'. The word 'WORKHOLDING' is overlaid in a semi-transparent box in the center of the image.

WORKHOLDING

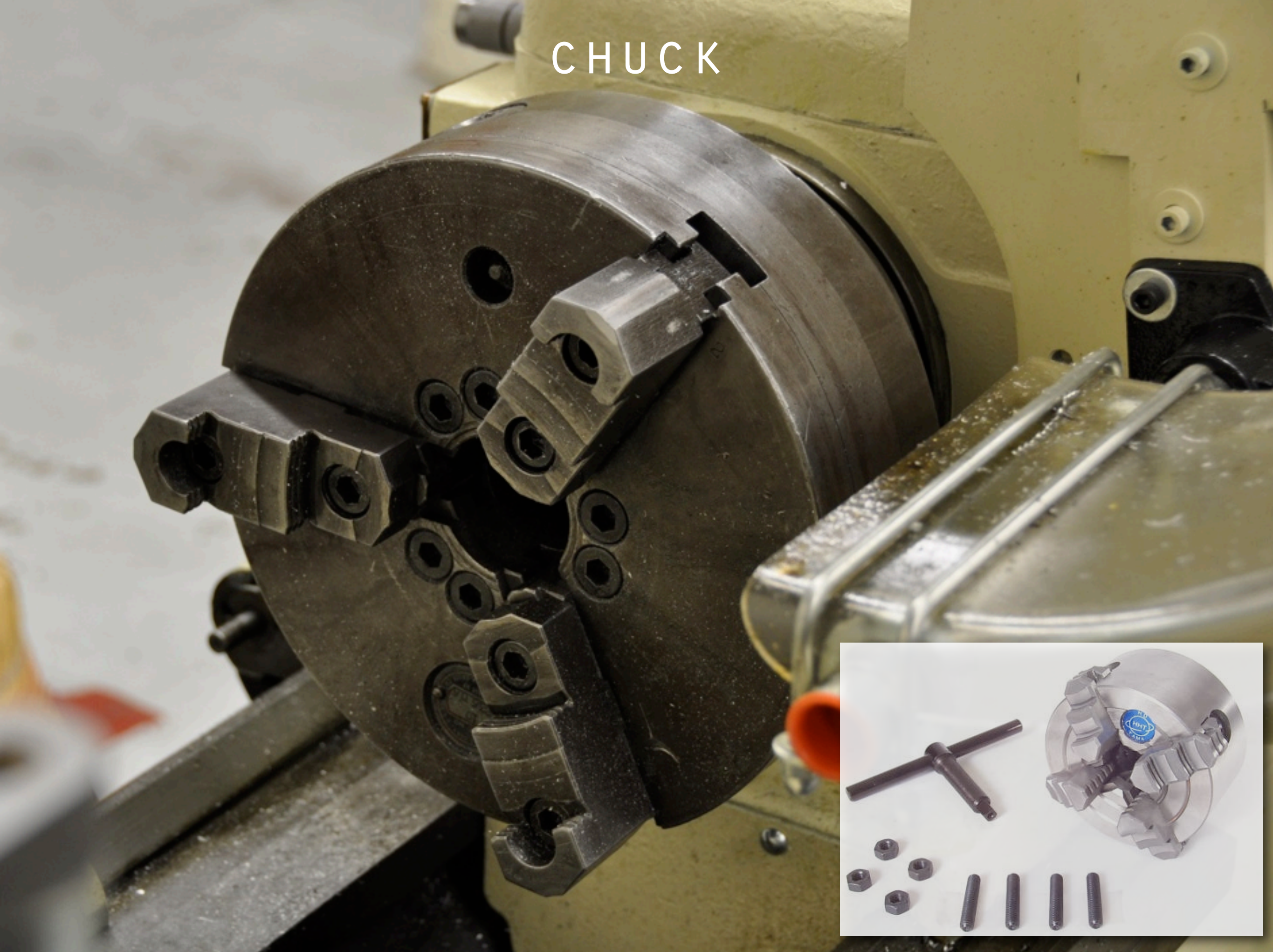
FILE

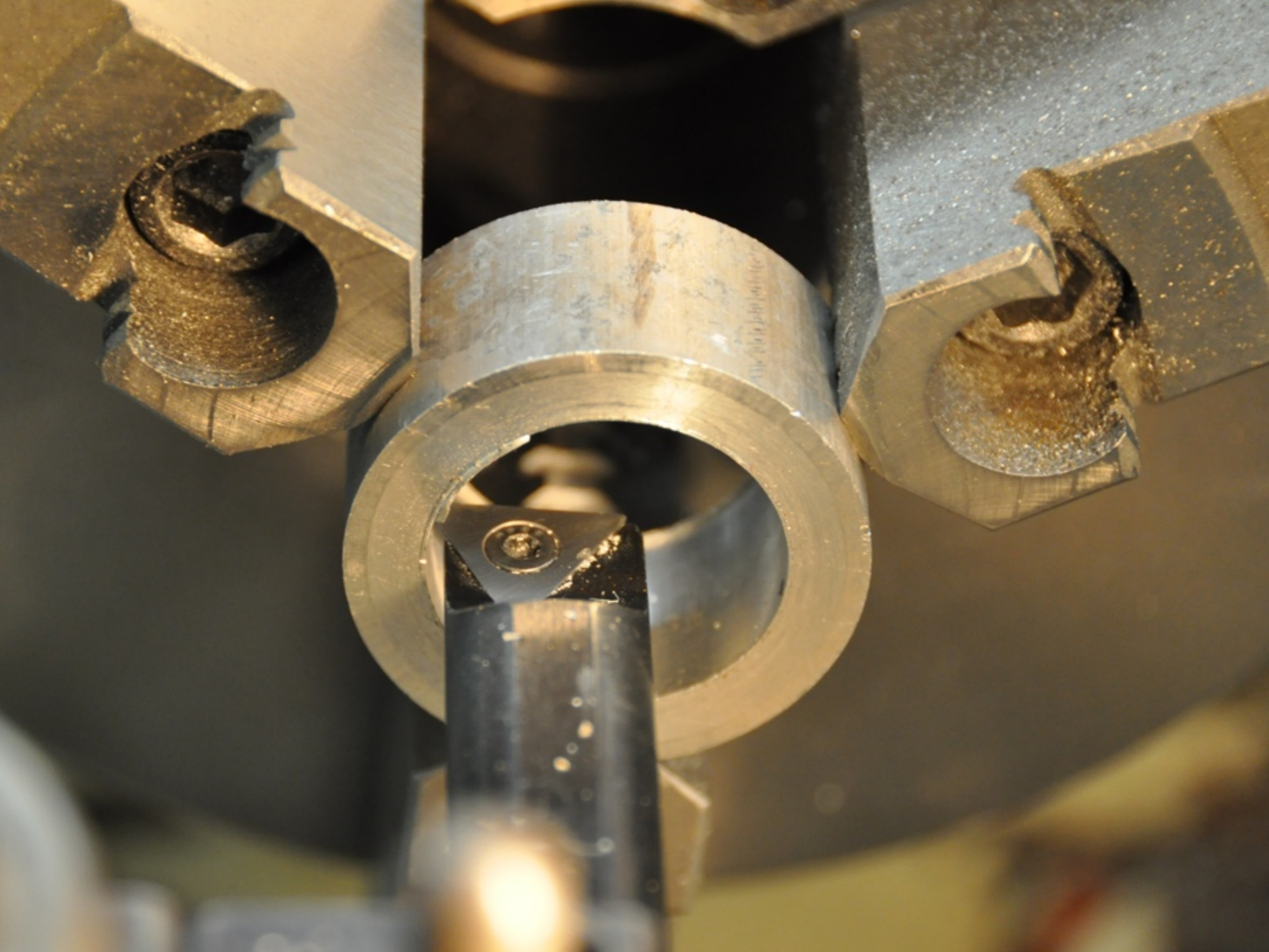
COLLET





CHUCK



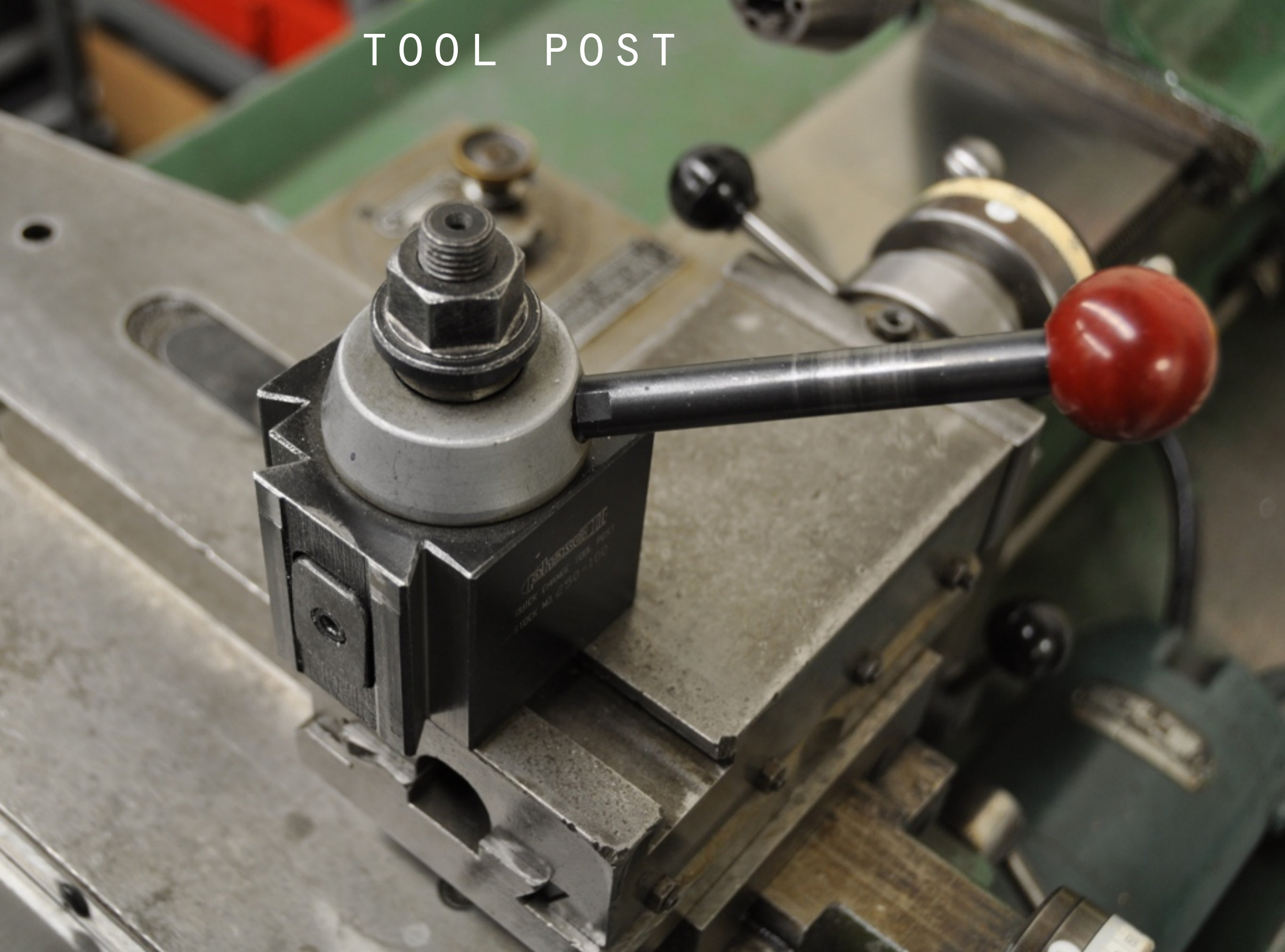


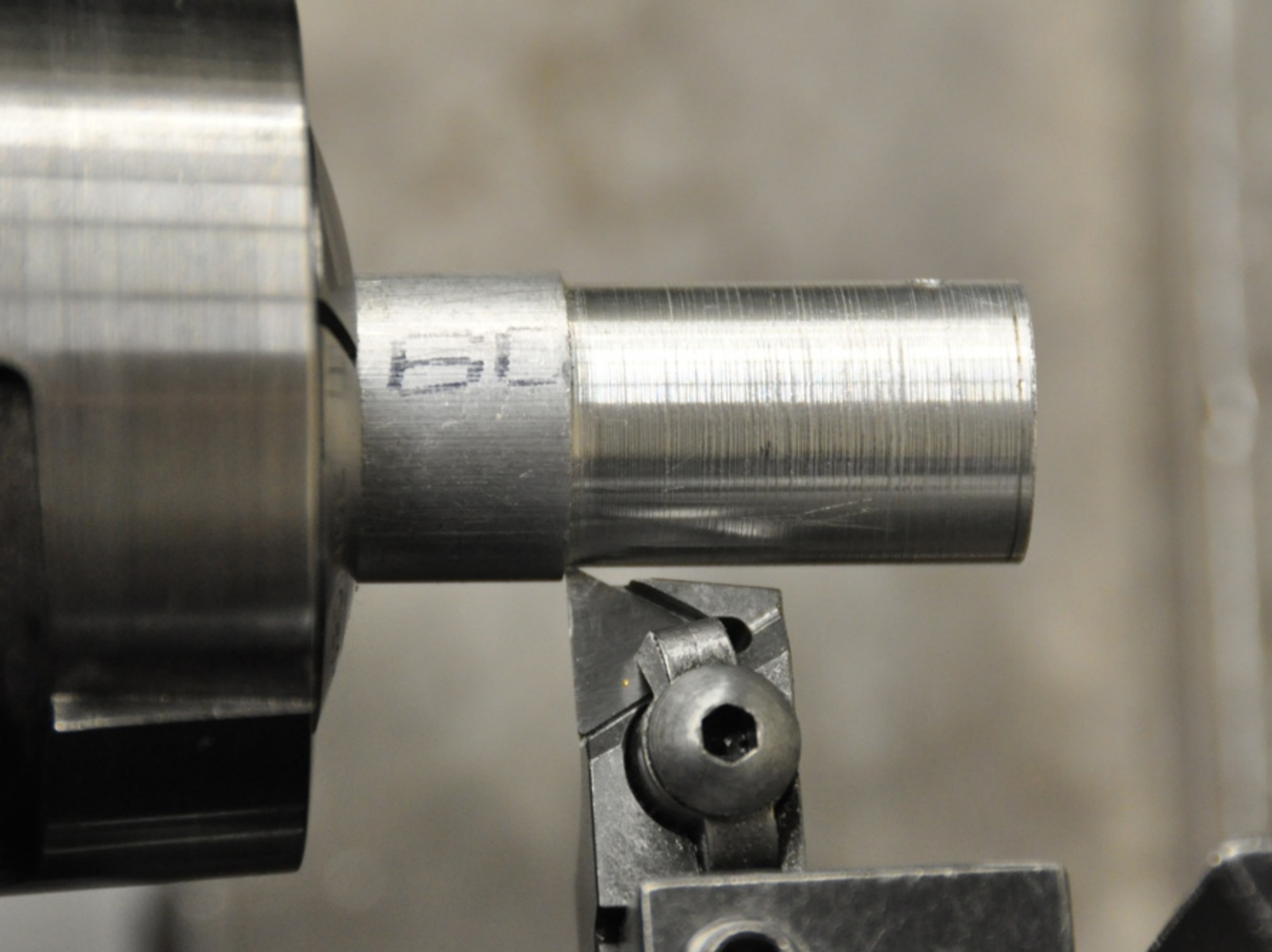
A close-up photograph of a mechanical tooling assembly. The assembly consists of a black metal base plate with several circular holes. A threaded rod is inserted through one of the holes, secured with a hex nut and a lock washer. The background is blurred, showing a green surface and other mechanical parts.

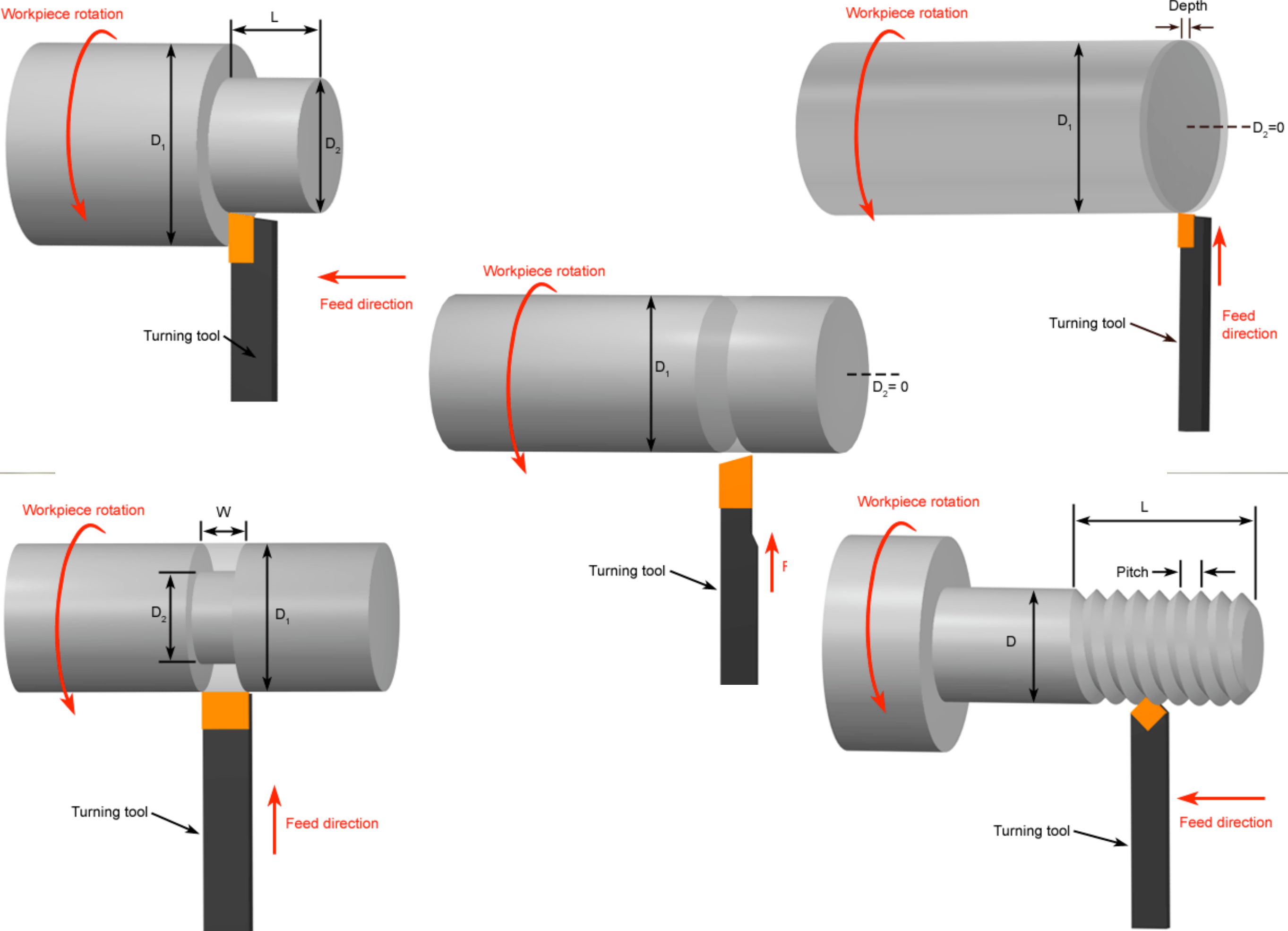
TOOLING

Phase III
250-101

TOOL POST

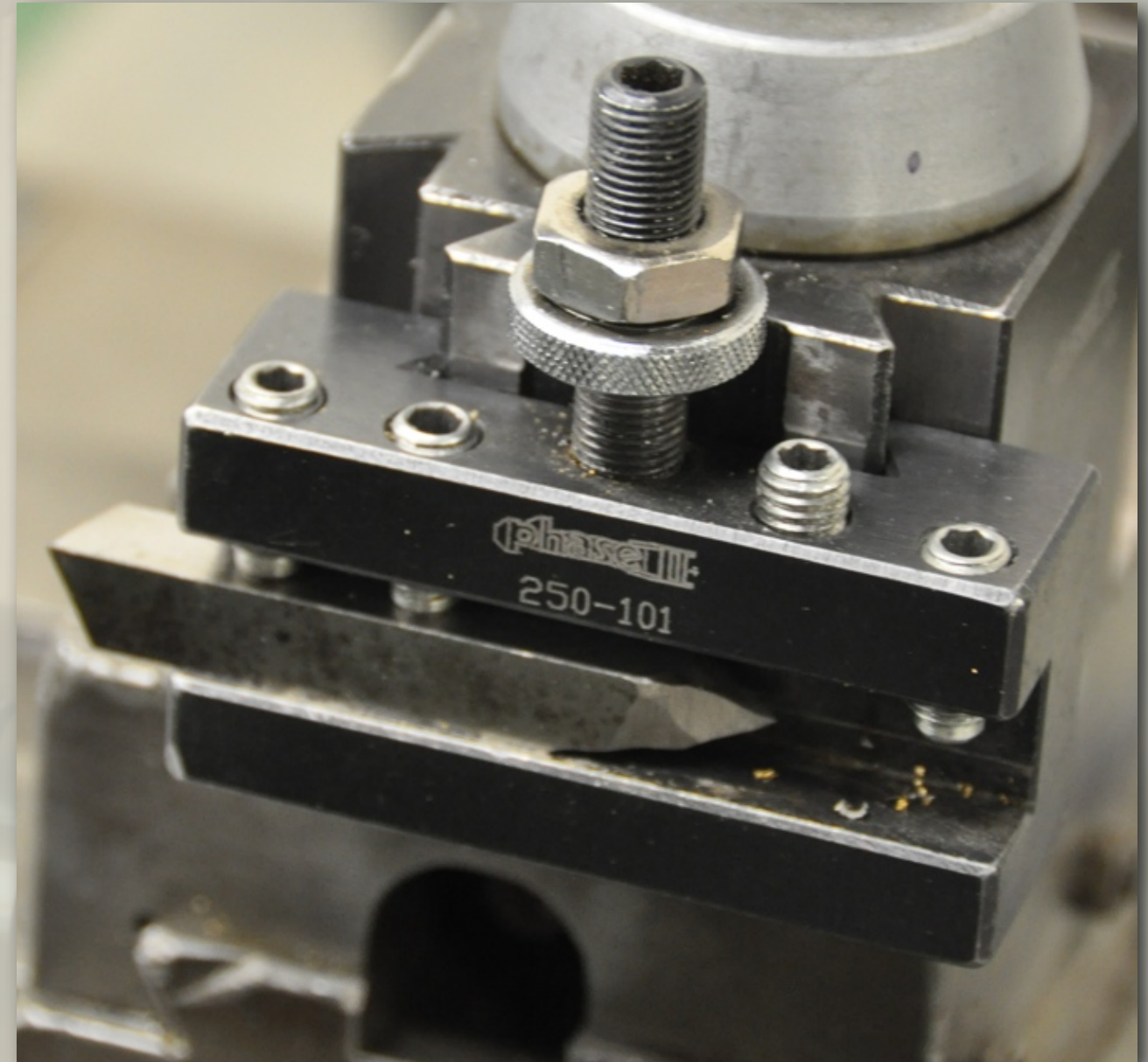






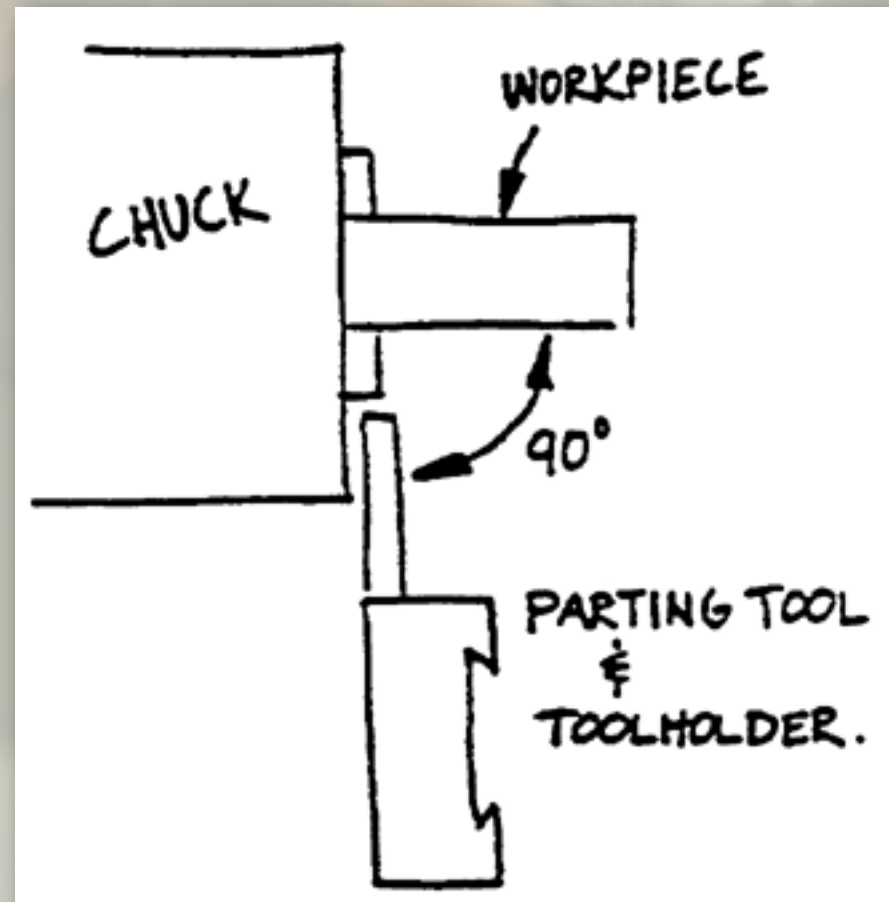
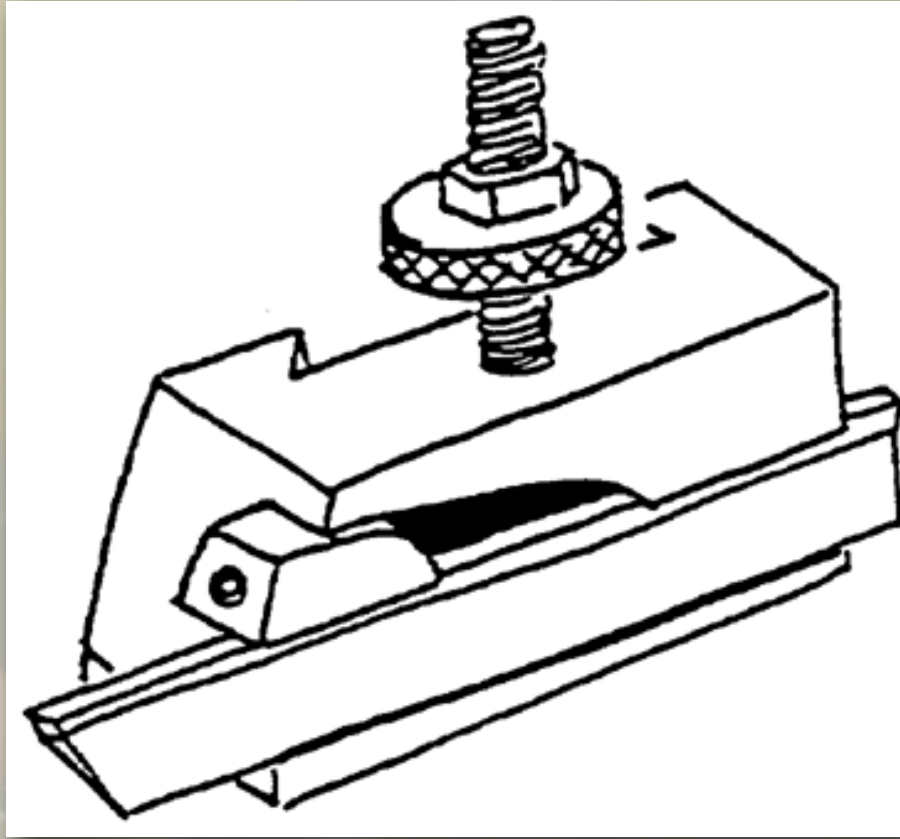
TURNING & FACING

CARBIDE INSERT

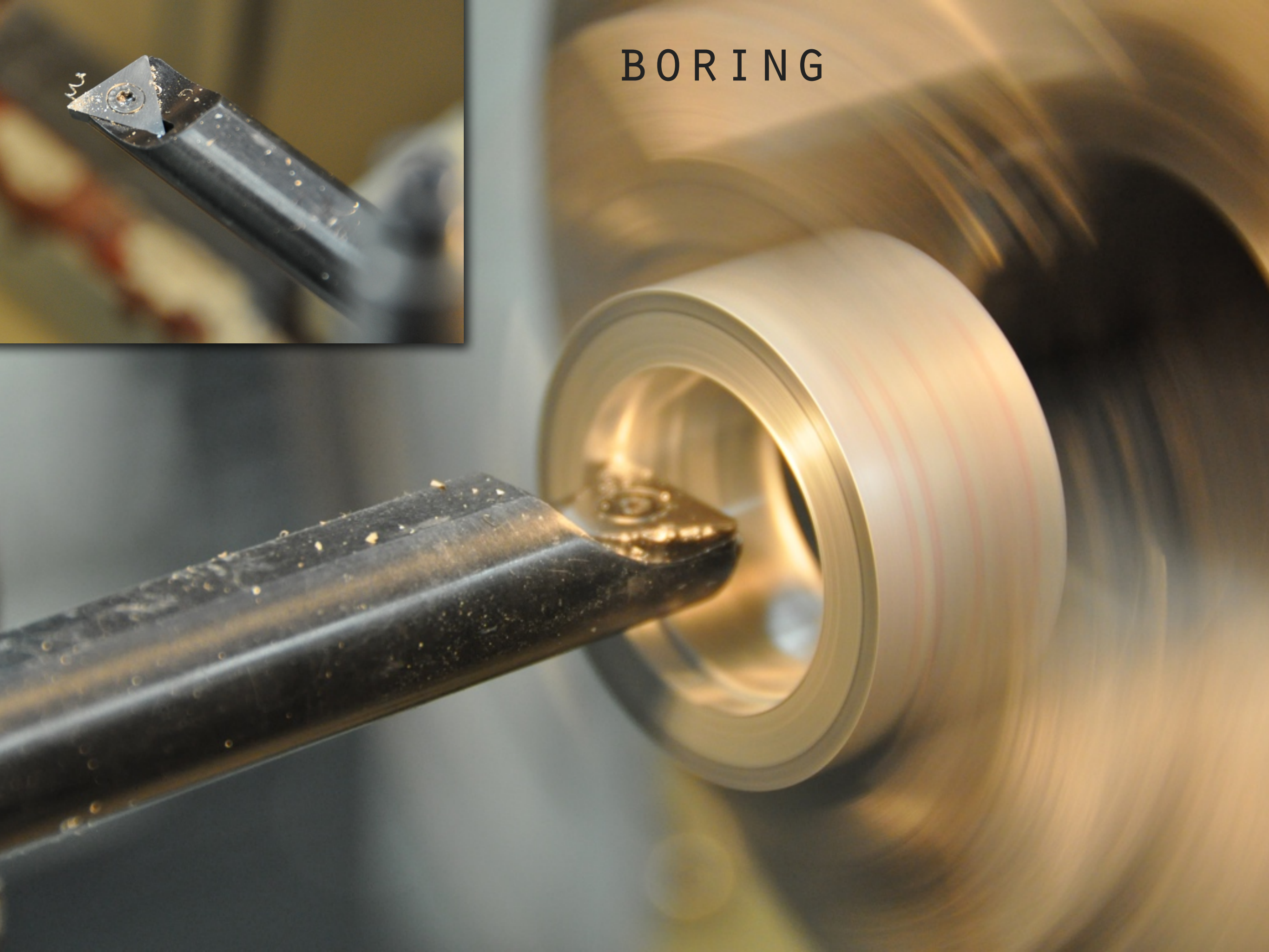


GROUND HSS

PARTING OFF



BORING



TAILSTOCK



DRILLING, TAPPING, ETC.



IMAGE: [HTTP://WWW.FRETS.COM/HOMESHOPTECH](http://www.frets.com/HomeshopTech)

A close-up photograph of a lathe's speed dial. The dial is circular with a white face and black markings. It features a series of numbers: 120, 110, 100, 90, 80, 70, and 60, arranged in a clockwise direction. The dial is mounted on a dark, metallic base. A semi-transparent rectangular box is overlaid on the center of the dial, containing the text "FEEDS & SPEEDS" in a bold, black, sans-serif font. The lighting is dramatic, highlighting the metallic textures and the white dial face.

FEEDS & SPEEDS



SPINDLE SPEED

SPINDLE SPEED =

$$\frac{4 \times \text{CUTTING SPEED}}{\text{PART DIAMETER}}$$

GIVES

SPINDLE SPEED IN RPM

FOR

*CUTTING SPEED IN FEET PER
MINUTE (FPM)*

AND

PART DIAMETER IN INCHES

FEED RATE

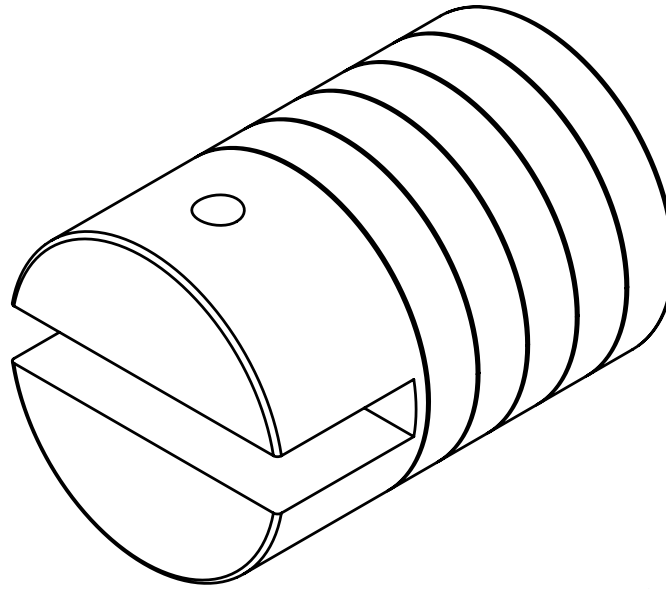
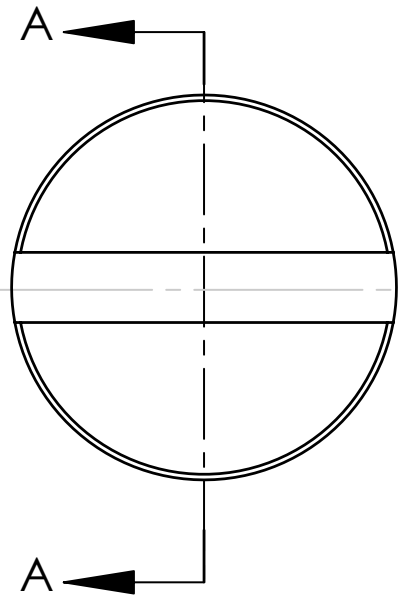
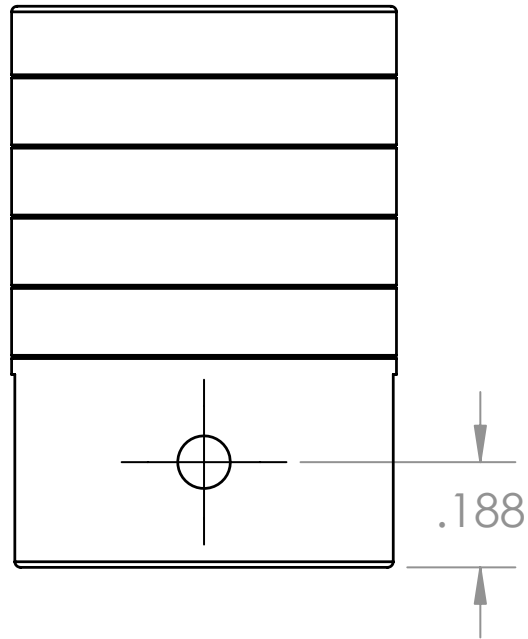
0.005" PER REVOLUTION FOR ROUGHING

0.001-0.002" PER REVOLUTION FOR FINISHING

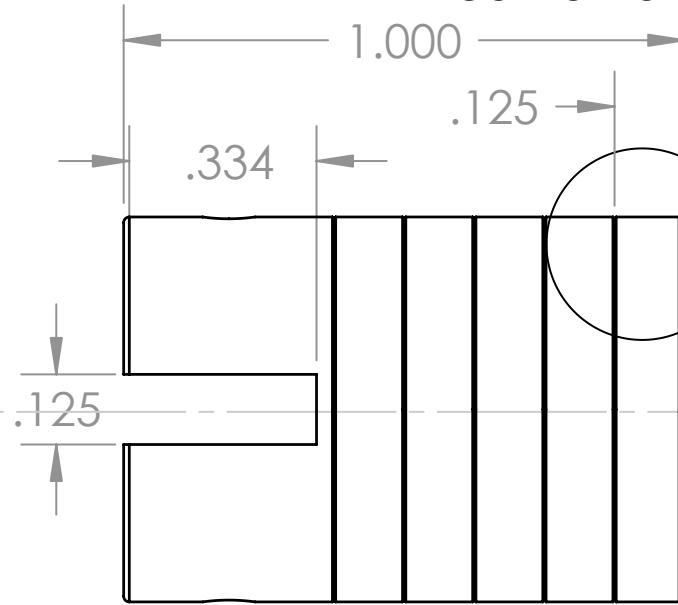




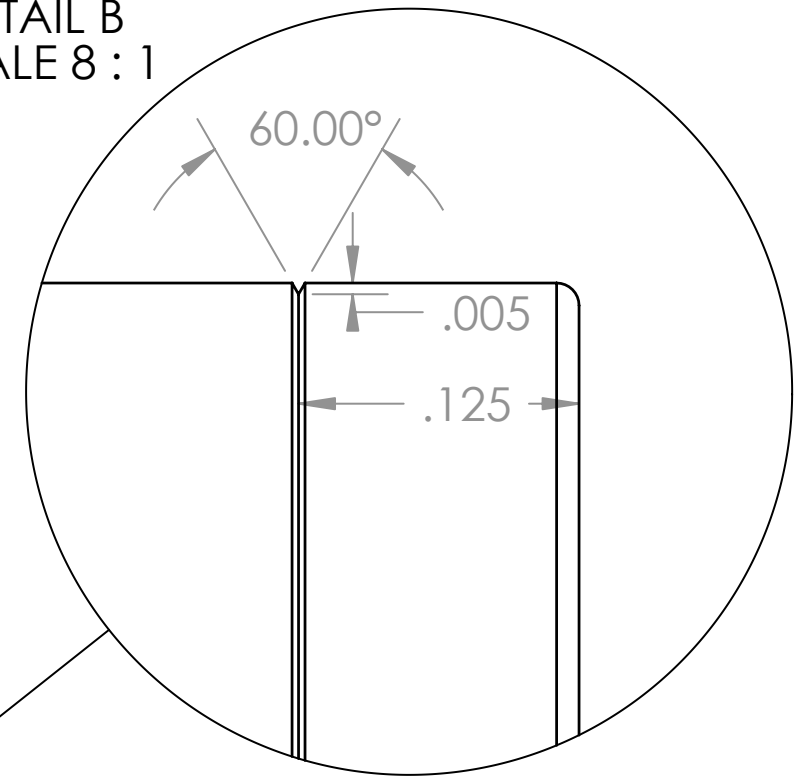
SEQUENCING



Note: .125 spacing from center to center. 5X



DETAIL B
SCALE 8 : 1



Note: Fit .686 dia to ID of cylinder barrel for slip fit

ϕ .0938 Slip Fit

ϕ .0935
Press Fit

SECTION A-A
SCALE 2 : 1

Approx (ϕ .686)

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
ANGULAR: MACH \pm 1 BEND \pm
TWO PLACE DECIMAL \pm .01
THREE PLACE DECIMAL \pm .005
FOUR PLACE DECIMAL \pm .0005
FRACTIONAL \pm 1/64

INTERPRET GEOMETRIC
TOLERANCING PER:

MATERIAL
AL 4041 T4

NAME

DATE

DRAWN

AT

2/24

REVISED

AT

2/27

ENG APPR.

MFG APPR.

Q.A.

COMMENTS:

TITLE:

Piston

SIZE

DWG. NO.

REV

PROPRIETARY AND CONFIDENTIAL

THE INFORMATION CONTAINED IN THIS
DRAWING IS THE SOLE PROPERTY OF

COLLET BLOCKS



IMAGE: [HTTP://WWW.FRETS.COM/HOMESHOPTECH](http://www.frets.com/HomeshopTech)