

Vincennes University
Precision Machining Technology
2015/2016 Required Tool List (revised 5-1-15)

REQUIRED for ADMITTANCE into Precision Machining Technology

1. Machinist Tool Box— (Kennedy 3611 *suggested or a lower priced alternate brand of similar size*)

Due to shop bench space, tool boxes must fit in an 18" x 30" footprint area. Roll Around boxes or oversize tool boxes are no longer permitted.

2. 0-1" Outside Micrometer (*with capability to read tenths of a thousandths of an inch*)
3. 1-2" Outside Micrometer (*with capability to read tenths of a thousandths of an inch*)
4. 2-3" Outside Micrometer (*with capability to read tenths of a thousandths of an inch*)
 - ("**Standards**" should be included with Outside Micrometers)
5. 6" Depth Micrometer
6. 8" Dial Calipers (*import quality is acceptable*)
7. 1" Travel Indicator (*import quality is acceptable*)
8. 1/2 Thousandth [.0005] Graduated Dial Test Indicator:
 - **Brown & Sharpe or Mitutoyo preferred No Interapid**
 - Test Indicator must include a **Universal Dovetail Attachment** and
 - also a **Rectangular Bar and Clamp** for attaching to a height gage.
9. Magnetic Base for 1" Travel Indicator (**Mighty Mag style preferred**)
10. On-Off Magnetic Base *with fine adjustment* for Dial Test Indicator
 - (**Noga DG 1033 Flexible Magnetic Base with Fine Adjustment recommended**)
11. 6" Hardened and Ground Precision Square
 - (**Starrett, Brown & Sharpe, or Mitutoyo**) **No Fowler**
12. Telescope Gages up to 6" (**Starrett or Mitutoyo ONLY!**)
13. Small Hole Gage Set 1/8" to 1/2"
14. Radius Gage Set
15. Center Gage
16. Screw Pitch Gage Set (*Similar to General # 251 or Starrett # STC=50035L*)
17. Transfer Screw Set to include; #10-32, #10-24, 1/4-20, 5/16-18, 3/8-16, 1/2-13
Heinmann USA recommended
18. Center Punch Set
19. Transfer Punch Set
20. Drive Pin Punch Set (*short*)
21. Edge Finder (**Starrett recommended**)
22. Drill Index Combination Set to include:
 - **Fractional Drills** (1/64" to 1/2") *and*
 - **Numerical Drills** (1 through 60) *and*
 - **Letter Drills** (A through Z)
23. Drill Point Gage for 118 degree Drill Bits
24. Combination Set to include a 12"(16R)Blade, Square Head, Protractor Head *and* Center Head
25. 6" Scale (**5R or 4R only**)
26. Carbide Tipped Scriber
27. (2) 2" Kant Twist Clamp
28. (2) 4-1/2" Kant Twist Clamp

29. 12" Adjustable Wrench
30. 6" Adjustable Wrench
31. 6" Straight Blade Screwdriver
32. 6" Pliers
33. 21 oz. Dead Blow Hammer
34. 16 oz. Ball Peen Hammer
35. Hex Key Set ("Allen Wrenches") as Individual Keys [Fractional: up to 7/16"]
36. Hex Key Set ("Allen Wrenches") as Individual Keys [Metric: 1.5-10mm]
37. K-3 Drill Chuck Key
38. Thickness Gage Set .0015-.025"
39. T-Handle Tap Wrenches; (2) different size ranges:
 - *Similar to General #164 (0 to 1/4") and*
 - *Similar to General #166 (#12 to 1/2")*
40. 4" Dividers
41. 10" Mill Bastard File, *with* Handle *and* File Card
42. 3/4" diameter x 82 degree *Single Flute* Counter-Sink
43. 3/8" diameter x 82 degree *Single Flute* Counter-Sink
44. India Reamer Stone (Norton FT – 126)
45. Bench Stone 1"x 2"x 6"
 - **Brown India** *with Course on one face & Fine on the other face*
46. (1) 3/8"x 3/8" *and* (1) 1/2"x 1/2" Lathe Tool Blanks (**HSS Only!**)
47. #3 Combination Center-Drill/Counter-Sink (**HSS**)
48. De-Burring Tool *with* Replaceable Tips (*Similar to Vargus Set B*)
49. Die Light(*Similar to Steelman "Bend -A-Light" or Streamlight "Stylus Reach" [14 inch]*)
50. Safety Glasses (**Clear Lenses Only!**)
51. 36 piece "economy" gage block set
52. Milling Machine Hold Down Clamps (5/8" "T" Slot)

NOTE: All *precision* tools including, but not limited to, micrometers, test indicators, precision squares and telescope gages, should be high quality such as **Starrett, Mitutoyo, or Brown & Sharpe**. Dial calipers, travel indicators, and other *non-precision* type tools can be 'import quality'

Precision Machining Technology

~ Optional Tool List ~

NOTE: These tools are helpful but not required.

1. Set of Precision Parallels
2. Machinist add on Chest Base (Similar to a Kennedy 5150 *or a lower priced alternate brand of similar size*)
3. Transfer Buttons: (1) set 9/32" & (1) set 13/32"