

Vincennes University
Precision Machining Technology
2023/2024 Required Tool List
(Rev. 4/2023)

1. Machinist Tool Box— (Kennedy 3611 *suggested or a lower priced alternate brand of similar size*)
2. 2 drawer add on chest base (Similar to a Kennedy 5150) *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 fitting the 18" x 30" footprint may be used if the wheels are taken off, and the box is set on the workbench.

3. 0-1" Outside Micrometer (*with capability to read tenths of a thousandths of an inch*)
4. 1-2" Outside Micrometer (*with capability to read tenths of a thousandths of an inch*)
5. 2-3" Outside Micrometer (*with capability to read tenths of a thousandths of an inch*)
 - ("Standards" should be included with Outside Micrometers)
 - **Mitutoyo or Starrett only**
6. 6" Depth Micrometer
Mitutoyo or Starrett only
7. 8" Dial Calipers (*import quality is acceptable*)
8. 1" Travel Indicator (*import quality is acceptable*)
9. 1/2 Thousandth [.0005] Graduated Dial Test Indicator:
Brown & Sharpe preferred No Interapid
 - Test Indicator must include a **Brown & Sharp Universal Dovetail Attachment** and
 - a **Rectangular Bar and Clamp** for attaching to a height gage.
10. Magnetic Base *for* 1" Travel Indicator (**Mighty Mag style preferred**)
11. On-Off Magnetic Base *with fine adjustment for* Dial Test Indicator
 - **(Noga DG 1033 Flexible Magnetic Base with Fine Adjustment only**
12. 6" Hardened and Ground Precision Square (**Starrett, Brown & Sharpe, or Mitutoyo only**)
13. Telescope Gages up to 6" (**Starrett S579H or Mitutoyo only**)
14. Small Hole Gage Set 1/8" to 1/2" (*import quality is acceptable*)
15. Radius Gage Set
16. Center Gage
17. Screw Pitch Gage Set (*Similar to General # 251*)
18. Transfer Screw Set to include; #10-32, #10-24, 1/4-20, 5/16-18, 3/8-16, 1/2-13
19. Center Punch Set
20. Transfer Punch Set
21. Drive Pin Punch Set (**long punches**)
22. Edge Finder (**Mitutoyo or Starrett recommended**)
23. 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)
24. Drill Point Gage for 118 degree Drill Bits

25. Combination Set to include a **12"** (16R) Blade, Square Head, Protractor Head *and* Center Head (Import quality acceptable)
26. **6"** Pocket Scale (**5R or 4R only**)
27. Carbide Tipped Scriber
28. (2) 2" Kant Twist Clamp
29. (2) 4-1/2" Kant Twist Clamp
30. 12" Adjustable Wrench
31. 6" Adjustable Wrench
32. 6" Straight Blade Screwdriver – **Heavy duty with a wide end**
33. 6" Pliers
34. 21 oz. Dead Blow Hammer
35. 16 oz. Ball Peen Hammer
36. Hex Key Set ("Allen Wrenches") *as* Individual Keys [Fractional: up to 7/16"]
37. Hex Key Set ("Allen Wrenches") *as* Individual Keys [Metric: 1.5-10mm]
38. **K-3 and K-4** Drill Chuck Keys
39. Thickness Gage Set .0015-.025"
40. 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")*
41. 4" Dividers
42. 10" Mill File, *with* Handle *and* File Card **Course tooth for rapid metal removal**
43. 3/4" diameter x 82 degree **Single Flute** Counter-Sink
44. 3/8" diameter x 82 degree **Single Flute** Counter-Sink
45. India Reamer Stone (Norton FT – 126)
46. Bench Stone 1"x 2"x 6"
 - **Brown India with Course *on one face* & Fine *on the other face***
47. 3/8"x 3/8" **High Speed Steel** Lathe Tool Blank
48. 3/8"x 3/8" **Cemented Carbide** Lathe Tool Blank (AR-6 Grade C5)
49. #4 Combination Center-Drill/Counter-Sink (HSS)
50. De-Burring Tool *with* Replaceable Tips (*Similar to Vargus Set B*)
51. Die Light - *Similar to Steelman "Bend -A-Light" or Streamlight "Stylus Reach" [14 inch]*
52. Safety Glasses (**Clear Lenses Only!**)
53. 36 piece "economy" gage block set
54. Milling Machine Hold Down Clamps (5/8" "T" Slot)
55. 1/4"x 3/4" length of cut x 1/4" shank diameter x 2 1/2" overall length, **carbide**, 4 flute, center cutting end mill
56. 1/2" x 1" length of cut x 1/2" shank diameter x 3" overall length, **carbide**, 4 flute, center cutting end mill
57. 3/4" x 1 1/2" length of cut x 3/4" shank diameter x 4" overall length, **carbide**, 4 flute, center cutting end mill
58. (2) 1/4 -20 UNC, 2 flute, H3 high speed steel spiral point tap – plug chamfer, RH 2-1/2" overall length tap
59. **Two Speed** rotary tool with an 1/8 collet (**Dremel 200-N/15 suggested**)
60. Set of Precision Parallels