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 Piercing and Thin-Turning

NSK Presto II (320,000 rpm)	https://www.treelineusa.com/power-carving/pneumatic-tools	\$500
NSK Evolution Ring type handpiece (VS 30-40,000 rpm)	http://cascadecarvers.com/	Call for price (about \$1200). Look around there may be less expensive ones
Portable Micro Motor.	https://www.treelineusa.com/ Search micromotor There are others available including the Mystia http://www.handpiecesolutions.com/rammystisapktset1.html	\$325-\$409
8" outside Digital Calipers part #1042510001	https://www.woodturnerscatalog.com/p/86/5120/iGaging-8%22-Digital-Caliper?term=calipers Craft Supplies	\$29.50
Coloring books	Michael's, Craft Warehouse, Joann's, etc.	Frequently on sale. Register for coupons
Kneadable eraser	Michael's, Craft Warehouse, Blick Art Supplies	~\$2.00
Negative rake sharpening.	http://aawvideosource.org/ "Continue to Library" -> Sharpening -> Techniques -> Sam Angelo's Negative Rake (My scraper is reground from a 1" Serious Tools scraper. Ground with a 60° included angle)	
170L Drill bit for NSK Presto (bits last a long time!)	http://shippsdental.com/index.php?id_product=492&controller=product&search_query=170l&results=2 #H23.31.010 #170 L http://www.ebaystores.com/DENTAL-EMPORIUM/i.html?nkw=699l 699L and 170L	\$10/5 pack About \$15/10
Sanding disk mandrels	https://www.amazon.com/dp/B00VUH43TG/ref=sr_ph?ie=UTF8& Check eBay also	\$7 (pack of 12)
Small cone sanders	http://cascadecarvers.com/products/sanding-supplies-rasps.html?cone#sanding-supplies-rasps	\$6.25/10
Bristle discs (red)	http://cascadecarvers.com/products/sanding-supplies-rasps.html?cone#sanding-supplies-rasps Also available Amazon and Ebay.	\$9.95
3M 10X, 1'5X sandpaper	Home depot, etc.	\$3.97/4

Solder Smoke extractor (you can order replacement filters)	http://www.cmlsupply.com/cml-supply-benchtop-solder-smoke-absorber/?gclid=Cj0KEQjw57W9BRDM9_a-2vWJ68EBEiQAwPNFK6qcD-pFC_Mpr_JmgRisHiUFUAhLeqitFnzAeKdAAatcaAm-V8P8HAQ	\$34
IWCS Turkey video "The Turn"	http://worldwoodday.org/2015/woodcraft-WoodTurning.html	
Sanding bands (small drum sanders)	https://www.widgetsupply.com/ Widget Supply	
Brass rod 3/16"	Local hardware store (for cleaning carbon from drill bits)	
Thread protectors	Local hardware store (for ends of calipers – protects wood from denting when measuring)	
Needle file set #69876	http://www.harborfreight.com/catalogsearch/result?q=files Harbor Freight	\$7
Sanding sticks	http://www.woodcraft.com/product/123283/standard-kit-sanding-sticks-24-piece.aspx I find these less useful than the HF metal files, but nice to have	\$32
Stainless steel Dental pick	Dentist or hygienists, Amazon	
Balsa wood for practice (1/16") Basswood	Michael's, Craft Warehouse, Woodcraft	
Gorilla grip gloves (for arthritic hands)	http://www.homedepot.com/p/Grease-Monkey-Large-Gorilla-Grip-Glove-25053-030/202709681	\$6
Graphite pencil (5B,6B, 7B)	Blick's Art Supply	
Miscellaneous:	Balloons (Fred Meyer 7in-17.7cm), Black Jesso, hand dental tools (ask you hygienist for discards), gold leaf kits, Gilder's paste, tracing paper, stencils, graphite transfer paper, 2-part wood bleach (paint store)	
Two- part wood bleach (Daly's or Zinsser)	Amazon, eBay, etc.	< \$20/2 pints
Krylon UV Archival Spray	https://www.amazon.com/Krylon-K01378000-Gallery-Archival-Varnish/dp/B003VWMM5A	\$12.99
Glue dots	Scrapbooking supplies (Michael's, Craft Warehouse, Hobby Lobby)	

Notes:

- When using dry wood, use dry, tight-grained wood. I rough turn to about 1" and weigh in grams. When it stops losing weight, it's probably dry enough (8-10%).

- When turning wet wood, plan to complete the vessel within a few hours. Once you start hollowing, the wood will start to move a lot.
- Pay attention to grain orientation. For something tall and slender, use spindle orientation,
- Thickness for thin piercing is ~2mm (3/32”).
- For finish turning, I find it best to turn the outside, let it “rest” overnight, re-turn the outside to get it back to round and then turn the inside.
- MEASURE FREQUENTLY!
- Don’t be afraid (or too proud) to use scrapers.
- Use negative rake scraper to remove “bumps” and tool marks.
- Cut to thickness in about ¾ -1-inch segments. You can’t go back and recut a thin area once you moved further into the piece.
- MEASURE FREQUENTLY!!!
- Sand to about 600 BEFORE piercing.
- USE PROPER SAFETY EQUIPMENT FOR PIERCING: HEARING PROTECTORS, RESPIRATOR.
- After you’ve drawn the design on the piece, look at it for a while before you continue. I often will look at something a couple of days and re-draw parts of it before I pierce.
- Move tool in a clockwise direction. Don’t force it – let the tools cut.
- To clean char, move in counter-clockwise direction.
- Keep the bit perpendicular to the piece.
- If you need to stop on a continuous cut, try to do so where it won’t be obvious.
- Clean carbon off the bit by running across brass rod.
- Support your work with fingertips when sanding or filing.
- Sanding drums remove a lot of wood very quickly – light touch!
- I find it works best to pierce in 20-minute intervals to give my hands a chance to rest.
- Save the oops’es. They may be design opportunities or use the broken pieces to practice your piercing.
- I use a grain-filled pillow under my wrist when piercing.
- Most important – HAVE FUN!





Golden Section Gauge

$AF = AH = 340\text{mm}$
 $BG = 210\text{mm}$
 $AB = AC = BE = CE = 130\text{mm}$
 $EG = 80\text{mm}$





