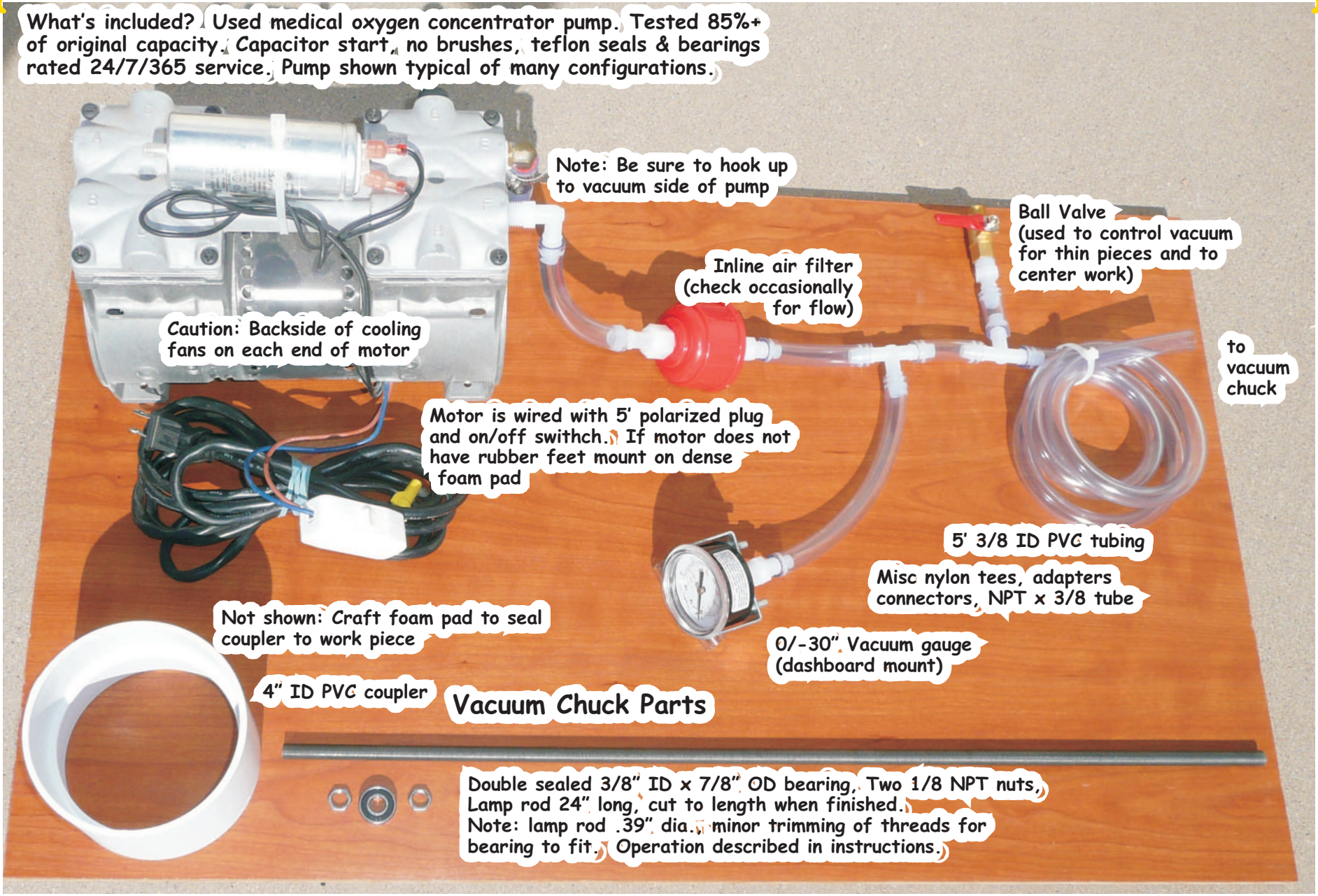
Complete Vacuum Pump/Chuck Kit $100



Note: Assembly and woodturning required. Instructions included.
User supply: 2 pieces plywood 12" x 9" (approx.) , 5 ½"x 1 ½" hardwood, epoxy, misc screws & clamps.

Quantities limited

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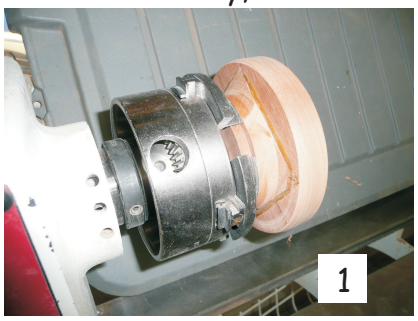
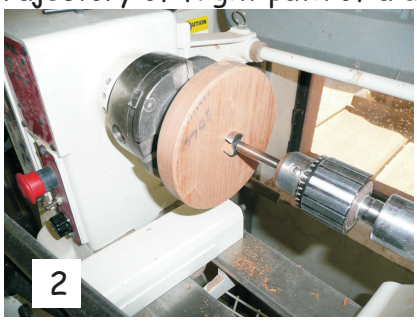
Vacuum Chuck Machining and Assembly

Important: Theory of operation. The vacuum is originated with the vacuum pump and travels through the tubing and is connected to the lamp rod, where it protrudes through the head stock. The lamp rod terminates at the double sealed bearing. The vacuum chamber is created within the PVC coupling and seals against the workpiece, aided by the closed cell gasket. There is no need to seal the headstock, this system eliminates the potential of additional vacuum leaks.

Work safely, there are exposed moving parts on the pump. When using vacuum chuck, wear safety gear and proceed cautiously, do not stand in the trajectory of flight path of a dislodged work piece.





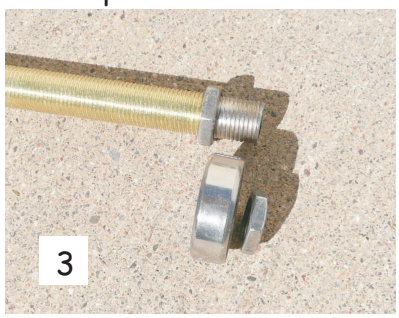
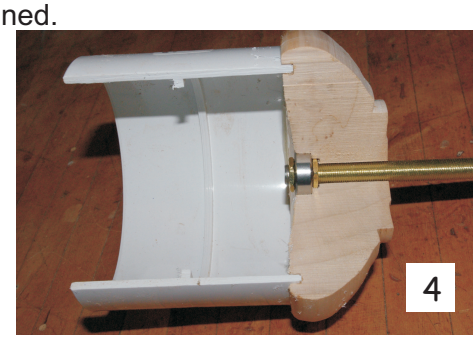
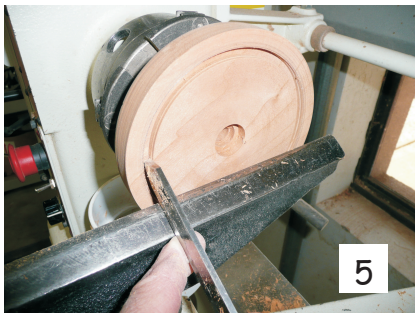
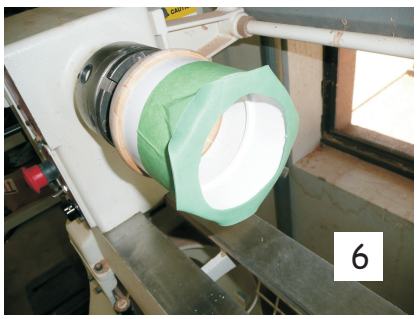


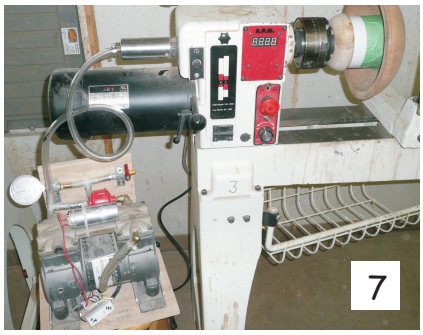
Photo 1 shows basic hardwood 5 ½" x 1 ½" chuck adapter (in this photo 2 pcs. 1" stock glued together). Tenon is turned with piece between centers and then clamped in scroll chuck. Alternative attachment methods; Beal threads, epoxy imbedded nut, dedicated lathe face plate. You can use your imagination here.
Photo 2, 7/8" dia. fostner bit boring the depth of bearing thickness, next 5/8 " fostner bit boring clearance for inside nut, followed by through boring a 7/16" hole for lamp rod.
Photo 3, chuck the 1/8 NPT lamp rod in pin chuck jaws and with lathe running at a reduced speed with a fine tooth bastard file, lightly file threads and reduce diameter so that bearing slides on snugly and second nut can be screwed on. Mix small quantity epoxy and spread on ID of bearing and nuts. Assemble and tighten nuts, let cure. No pin jaws?, with a waste block bore 25/64" hole, or lightly touch and revolve rod to grinding wheel. Properly done base of threads will be retained.

Photo 4, Pretend PVC coupler is not attached yet. Test fit bearing/rod assembly for clearance and attach chuck to lathe. Epoxy OD of bearing and ID of block. Remove rod from bore and clear off excess epoxy. Make sure no epoxy interferes with bearing seal, nut or bore of block. Let epoxy set with lathe running at a very slow speed, rod clamped, so that bearing and rod are centered in headstock.
Photo 5, mark OD of PVC on chuck. Using 3/16" parting tool, turn relief for coupler, checking often for fit. Bore approximately 3/8" deep. Make sure final cut is level and true. Mix epoxy fill bore, (chuck off lathe PVC facing up) insert and apply pressure so that PVC is deeply seated. Rotate so that epoxy spreads evenly. Let cure.









True up foam pad mating surface (use negative angle rake scraper on plastic, suggest skew chisel, laid flat on tool rest.
Photo 6, cut craft foam and attach to chuck, use one wrap of masking tape to secure corners.
Photo 7, with pump assy and hardware mounted, attach 3/8 tubing to lamp rod (no clamp needed). Bring work piece up to foam pad, with live center (hopefully there is a center mark). If not, approximately center and turn on pump remove live center, open globe valve and reduce vacuum to approx 5". Rotate lathe by hand and gently nudge to center piece. Close valve, turn on lathe, slowly bring up to speed. Finish turning, sanding your piece.

Note: 20" vacuum = 120# of holding power. Porous wood, voids, irregular surfaces, seriously reduces holding power. Mouse pads, other closed cell foam pads can also be used.

Questions:
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