

JOB SAFETY ANALYSIS

Safety Information for the University of California, Berkeley

DEPARTMENT OF MECHANICAL ENGINEERING OPERATING A VERTICAL MILLING MACHINE

TASK	HAZARDS	CONTROLS
1. Assess work area; is it clear of obstructions and slip/trip/fall hazards?	<ul style="list-style-type: none">• Slip, trip, or fall	<ul style="list-style-type: none">• Clear work area of any obstructions or slip/trip/fall hazards
2. Install vise or work piece.	<ul style="list-style-type: none">• Pinching hazard for hands/fingers• Foot injury from dropping of heavy objects	<ul style="list-style-type: none">• Avoid pinch points• Position body to maintain balance, maximize use of legs, and ask for assistance if necessary
3. Insert end mill into collet (or insert drill bit into drill chuck), then install it in the spindle of the milling machine.	<ul style="list-style-type: none">• Pinching hazards• Lacerations to hands/fingers from bit• Misalignment of drill bit in chuck• Cutter dislodged from collet	<ul style="list-style-type: none">• Keep hands free from pinch points• Handle tool bit with care; avoid sharp edges• Ensure all 3 chuck jaws are making contact with the bit• Ensure the cutter is tightly secured in the collet before turning on the spindle
4. Adjust the gear and speed of the spindle for your application	<ul style="list-style-type: none">• Pinching hazard for hands/fingers	<ul style="list-style-type: none">• Avoid pinch points
5. Turn on spindle	<ul style="list-style-type: none">• Cutter dislodged from collet• Lacerations to hands/fingers from rotating cutter• Operator entanglement	<ul style="list-style-type: none">• Ensure the cutter is tightly secured in the collet before turning on the spindle• Do not place your hands or fingers anywhere near the rotating cutter• Never wear loose clothing when operating, tie hair back, tuck in drawstrings, and remove jewelry.

<p>Other Information: Bridgeport Vertical Mill Manual, Sharp Vertical Mill Manual Contributors: ME Pro Shop, Scott G. McCormick; R&D Engineering Manager, Jacob Gallego; Principal Lab. Mech. Created: Jan. 2007 Updated: July 2020 JSA Library Number: (EH&S will insert number here, if applicable)</p> <p>For more information about this JSA, contact the <i>Office of Environment, Health and Safety</i> at UC Berkeley, 317 University Hall #1150, Berkeley, CA 94720-1150 (510) 642-3073 ● http://www.ehs.berkeley.edu</p>	6. Feed cutter into workpiece	<ul style="list-style-type: none"> • Lacerations to hands/fingers from rotating cutter • Eye injury from flying debris • Material dislodged from the vise • Lacerations to hands/fingers from chips • Burning hazards from chips • Lacerations to hands/fingers from the cut part • Excessive noise 	<ul style="list-style-type: none"> • Do not place your hands or fingers anywhere near the rotating cutter • Always wear safety glasses when operating equipment • Ensure the material is securely fastened in vise before making a cut • Never brush chips away with bare hands or fingers. Use a chip brush or pliers to remove chips. • Stand to the side of the cut or use a chip shield; hot chips can burn skin • Always deburr your parts before handling • Wear ear plugs/muffs if necessary
	7. Turn off machine and remove cutter	<ul style="list-style-type: none"> • Pinching hazards • Lacerations to hands/fingers from bit 	<ul style="list-style-type: none"> • Keep hands free from pinch points • Handle tool bit with care; avoid sharp edges
	8. Remove finished work piece and clean machine	<ul style="list-style-type: none"> • Lacerations to hands/fingers from chips • Lacerations to hands/fingers from the cut part • Eye injury from debris 	<ul style="list-style-type: none"> • Never brush chips away with bare hands or fingers. Use a chip brush or pliers to remove chips. • Always deburr your parts before handling • Do not use compressed air to clean table. Use a chip brush and wipe up excess oil.
	Required Training: Student Shop Safety Training Program (<i>Phase 3</i>)	Required Personal Protective Equipment (PPE) Safety glasses, ear plugs/muffs	