



# CORNELL MACHINE SHOP SAFETY

## VERTICAL MILLING MACHINE SAFETY AWARENESS GUIDE



### MINIMUM REQUIRED PPE

- Safety Glasses
- Closed-Toe Shoes

### HAZARDS & CONTROLS

- The large amount of rotational energy of the sharp cutting tools and spindle of the milling machine can produce a laceration, puncture or entanglement hazard. Keep all body parts away from the point of operation. Never wear loose clothing or jewelry while operating the milling machine. Keep all long hair tied up and back. Use spindle and workpiece guards.
- Fresh cuts on workpieces may contain sharp edges or burrs that can cut skin. Use caution when handling freshly cut materials.
- Flying object hazards can come from unsecured workpieces or cutting tools. Be sure to secure all parts and check before operating the milling machine.
- Loose chips can be sharp to the touch and when accumulated, can become a flying debris hazard. Never touch chips with bare hands. Use a brush or compressed air that is less than 30psi. Use spindle and workpiece guards to shield from flying chips.
- Milling operations produce significant amounts of heat from friction. This friction can cause skin burn hazards on the workpiece and cutting tools. Do not touch these hot parts unless you have given enough time for it to cool. Sparks generated from this friction can also become fire hazards. Do not leave combustibles/flammables around the milling machine.
- Crush hazards can arise from power driven or computer-controlled mills. Pay attention to where and when the worktable is moving. Be aware of the rotating handwheels.
- Pinch points and in-running nip points can be found between the cutting tool and workpiece as well as between the cutting tool and work holding devices. Avoid putting any body parts, loose clothing and hair in these points.

## LIMITATIONS

- The milling of unusual/unique materials (such as composites, plastics, titanium, magnesium, beryllium copper) may create fire or toxic fume hazards.
- The size and shape of the workpiece can create an issue in the ability to properly secure the workpiece to the machine's table. It must be assured that the workpiece is properly secured and has enough clearance with all machine components before operation.

## MACHINE GUARDING



- A guard or shield that encloses the cutter head or milling bed should be utilized to protect the operator from the cutting area, flying metal shavings, and lubricating or cooling

## SHOP SPECIFIC PRECAUTIONS

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