

UW Physics Student Machine Shop

Standard Operating Procedures

Woodworking Equipment

Wood Miter Saw

Purpose

The main purpose for Miter or “Chop Saws” and their entire family of compounding, (or beveling) sliding, or both, is to allow for accurate, repeating, and efficient cross-cuts at 90 degrees or other common angles. These saws are effective cross-cutting long workpieces like 2x4’s and 2x6’s to desired lengths. These saws minimize both set-up and run time while remaining relatively safe compared to other saws. Operators must still take great caution, especially near the rotating blade along the cutting area.

Limitations

- The Miter saw is limited to cutting wood only.
- Miter saws can only be used for cross cutting of work pieces. Never try to use any saw for cuts it was not designed for.
- The width of the work piece is generally limited to 10-12 inches.
- Different variations of Miter Saws have different limitations:
- Standard miter saws-This saw pivots from a single point with the blade always cutting square to the table. Typically, this saw is used to cut miters across the width of a board by swinging the saw table to the left or to the right. In this case, the face of the board lies flat on the saw table with the edge tight against the fence. Standard miter saws are sometimes called “chop saws”.
- Compound miter saw – This saw can cut miters like a standard miter saw, but the blade and motor assembly also can flop tilt over to one side, allowing you to cut a bevel with the face of the board lying flat on the table. You also can cut a miter and a bevel at the same time—a compound miter—which is used for joining crown molding as well as for framing roofs and cutting stairs.
- Sliding miter saw – This tool can cut miters, bevels and compound miters like a compound miter saw. Instead of a fixed pivot point, however, the blade and motor assembly can slide forward and back on a rail. A sliding saw can cut significantly wider stock than a fixed head saw.

- Dual compound-miter saw – This saw functions exactly like a compound miter saw, except the blade and motor assembly can tilt either to the left or to the right, allowing you to cut bevels and compound miters in either direction.

As always, whenever you have any questions regarding the safe operation of Student Shop equipment, find the Shop Instructor or another Instrument Maker and ask before you act.

Hazards

There are a number of particular hazards associated with the operation and use of tool, including but not limited to:

- Amputation/Mutilation: GLOVES SHOULD NEVER BE WORN while operating the Miter Saw. The blade is moving with enough speed and force to remove a small part of a hand and suck it into the inner moving parts. The glove however would likely mean the entire hand, and then arm, going with it.
- Loose long hair, clothing, jewelry, lanyards, etc. should also never be worn while operating this saw for the same reason. Protect your hair and face and protect your neck.
- The blade cuts in a climb-cut direction, which means that the blade is trying to pull the workpiece into the cut at all times. This has two direct hazards – you are being pulled into the blade/cut and the saw coming out violently toward you should you not have the cutting head in firm control by the handle.
- Projectiles/flying objects: The high speed blade can cause kick back and move the saw violently. In addition, work pieces, cutoffs, dust and chips can become projectiles.
- Sharp tooling: Blade poses risk for cuts, lacerations and puncture wounds during handling, replacement and setup
- Make sure that all safety features are in place and are in working condition.
- Dust: Minimization practices may include dust collection equipment and general housekeeping practices. Proper operation and maintenance of dust collection equipment is essential to effective dust minimization. Always sweep sawdust from the floor and nearby surfaces when work is done.
- Watch for sharp edges and burrs
- Keep the work area free of clutter, dust and debris.

Required Personal Protective Equipment (PPE)

- Safety Glasses and/or Face Shield. Eye protection should be worn at all times, including when handling or changing blade as well during saw operation.
- Closed-toe, sturdy footwear. Sturdy sneakers and other such footwear is the minimum level of allowable foot protection. Proper safety shoes or boots, with steel toes, electrical protections, etc. are preferred. Extremely lightweight sneakers and all sandals and flip-flops are not safe for miter saws or machine shops in general.
- Hearing protection is recommended in areas which exceed 85 decibels. Higher decibel levels can cause permanent hearing loss very quickly so hearing protection is always recommended in machine shop.
- If sufficient dust is created, a particle mask or respirator is advised.
- Hair ties, hats, etc. to safely contain long hair if needed
- Sturdy, well-covering and comfortable clothing WITH NO LOOSE SLEEVES, SCARVES, etc. that could get pinched and pulled through the miter saw.
- ABSOLUTELY NO GLOVES ARE TO BE WORN WHILE THE MITER SAW IS RUNNING.