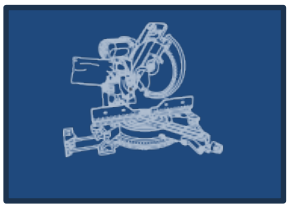
power tool institute, inc.

MITER SAWS

Power tools require operator respect in specific ways. They must be used carefully and kept in safe operating condition, whether they are in the hands of a professional tradesman, an amateur do-it-yourselfer, or a vocational student. *The demands of safety apply to all*. The material presented here is a compilation of carefully selected safe use precautions as they relate to specific electric power tool CAUTIONS, WARNINGS and DANGERS. The purpose is to highlight the safe use of specific tools that have a potential of causing injury if ignored. The warnings and instructions on the power tool and in its operator's manual provide the best source of safety information for the tool. Read and understand the contents and follow the advisements of operator's manuals on each specific power tool and all related accessories. This is considered essential to the safe operation of any power tool. Review PTI's *Safety is Specific* publication for general power tool safety.



Miter saws are used for crosscutting, mitering or beveling wood, nonferrous metals and plastics. These saws cut through the work piece at a set miter angle. Some also can cut at both miter and a beveled angle.

Good Personal Safety is a Must

Following good safety practices when using miter saws is a must. Make a habit of including safety in all your activities. In addition to the instructions in the General Safety section of *Safety is Specific*:

- Never alter a guard or use the tool with a guard missing. Be sure all guards are in place and working properly before each use. Do not defeat guards.

Choose the Right Tool and Blade

Choosing the correct tool and the proper accessory for your application can help to reduce the risk of serious injury. When used according to the manufacturer's instructions, the proper tool and accessory will make the job safer and faster.

- Check this carefully: Does your blade have the proper size and shape arbor hole? Never force a blade onto an arbor or alter the size of an arbor. Do not use a blade that does not fit the arbor, as vibration may result. If the blade doesn't fit the arbor, get one that does.
- Use sharp blades. Damaged or dull blades could throw teeth, posing a serious injury risk. A sharp blade will tend to cut its way out of a pinching condition.
- Make sure the arbor and blade are clean. Buildup on the surface of the arbor and blade will increase excessive friction.
- Miter saws are intended to cut wood or wood like products, they cannot be used with abrasive cut-off wheels for cutting ferrous material such as bars, rods, studs, etc.
- Make sure the speed marked on the blade is at least as high as the no load RPM marked on the tool.
- When installing or changing a blade, match the direction of the arrow on the blade with the direction of the arrow on the tool casting to be sure you install it properly.
- Be sure the blade screw is tight to prevent slipping or loosening during use.
- Never attempt to cut materials larger than the rated capacity listed in the saw operator's manual, as this may result in personal injury.

Know your Workpiece

Take time to review your work and make sure that all necessary precautions have been taken before making a cut.

- Support long workpieces at the same height as the saw table.
- Always place the workpiece securely on the table and against the fence when making cuts. Never make freehand cuts. Holding the workpiece by hand is unstable and may lead to loss of control.
- Never cut small workpieces that would require you to put fingers near the cutting blade.
- Use clamps to secure the workpiece to the table and avoid injuries.
- Never try to remove or clamp the workpiece to the saw while the blade is rotating.
- Do not cut stone, brick, concrete, or ferrous metals (iron, steel, stainless steel, or alloys of these metals) with a miter saw. Particles created by cutting these materials can jam the blade guard and possibly cause personal injury.
- Remove all metal objects from the workpiece before cutting, if present.

Before Cutting...

Before working with a miter saw, make sure the tool and its accessories are in proper working order. Failure to do so can increase your risk of injury and result in kickback, blade pinching, binding or stalling, and loss of control.

- Set the saw securely on a flat, level surface.
- Before installing a blade, always inspect it for damage. Visually check blade teeth for damage. Replace damaged blades immediately.
- Make sure the blade has adequate blade set. Blade set provides clearance between the sides of the blade and the workpiece, thus minimizing the probability of binding. Some saw blades have hollow ground sides instead of blade set to provide clearance.
- Make sure that all mounting flanges, related washers, fasteners, and other mounting hardware are in good condition and are properly positioned and secured on the arbor before each use. Always use mounting hardware supplied with the saw.
- Never alter a guard or use the tool with a guard missing. Be sure all guards are in place and working properly before each use. Do not defeat guards.
- If the lower guard appears loose or if it does not move to cover the blade when the head is up, take the saw to an authorized service center for repairs. Clean the lower guard often to help visibility and movement.
- Be sure angle mechanisms are tightened securely before making a cut.
- Ensure the workpiece is securely clamped, especially small dimensions and round objects.

While Cutting …

Concentrate on what you are doing and be aware of kickback (a sudden reaction to a pinched, bound or misaligned blade). Kickback can cause the tool to lift up and out of the workpiece toward the operator and is the result of tool misuse and/or incorrect operating procedures or conditions. Take these specific precautions to help prevent kickback when using any type of miter saw:

- When you start your saw, allow the blade to reach full speed before the workpiece is contacted.
- Do not force cutting. Always start the cut gently. Do not bump or bang a blade down on the work piece. Your saw will perform best at the rate for which it was designed. Excessive force only causes operator fatigue, increased wear and reduced control.
- If the blade stops rotating or if the motor sounds like it is straining, release the trigger switch immediately to reduce the risk of damage to the saw.
- Be alert to the possibility of the blade binding and kickback occurring.
- Never remove the saw from a cut while the blade is rotating. When making a partial cut, or if power is interrupted, release the trigger immediately. Don't remove the saw from the workpiece until the blade has come to a complete stop. A saw tooth could grab the work piece, causing loss of control.
- Release the switch immediately if the blade binds or the saw stalls.
- Never reach under the saw blade or perform "cross handed" operation, i.e. with your left hand supporting the workpiece on the right side of the blade (or vice versa).
- Switch the tool off after completing a cut, and keep your body away from the blade until it stops. The blade may coast for a time, posing a risk for serious cuts.
- While using slide miter saws, push the saw through the workpiece. Do not pull the saw through the workpiece. To make a cut, raise the saw head and pull it out over the workpiece without cutting, start the motor, press the saw head down and push the saw through the workpiece.
- Overheating a saw blade can cause it to warp and result in kickback. Buildup of sap on the blades, insufficient blade set, dullness, and unguided cuts, can all cause an overheated blade and kickback.

When Done...

To reduce the risk of injury, always unplug or remove the battery from the saw when moving from a workstation. Lock miter saws in the down position before transporting or when not in use. Unplug or remove the battery, clean and store the tool in a safe, dry place after use.

Always Remember...

Be alert at all times, especially during repetitive operations. Don’t be tempted into carelessness due to a false sense of security. Blades are extremely unforgiving.