

ABRASIVE CUT-OFF MACHINES AND DRY-CUT MACHINES

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.

Abrasive cut-off machines and dry-cut machines are used to cut metal. Some machines are capable of cutting masonry materials. Abrasive machines use abrasive wheels to grind through ferrous metals, while dry-cut machines use saw blades with special teeth to mill through ferrous and nonferrous metals.



Good Personal Safety is a Must

Following good safety practices when using abrasive cut-off machines and dry-cut machines is a must. Make a habit of including safety in all your activities.

- As appropriate, wear breathing protection, such as a dust mask or respirator, hearing protection, gloves and workshop apron capable of stopping small abrasive or workpiece fragments.
- Never alter a guard or use the machine with a guard missing. Be sure all guards are in place and working properly before each use. Do not defeat guards.

Choose the Right Machine and Blade or Wheel

Choosing the correct machine 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 machine and accessory will make the job safer and faster.

- The outside diameter and the thickness of your blade or wheel must be within the capacity rating of your machine. Incorrectly sized accessories cannot be adequately guarded or controlled.
- Do not attempt to install a toothed blade on an abrasive cut-off machine, or an abrasive wheel on a dry-cut machine. Each machine's guard is specifically designed for their recommended accessories. Just because an accessory can be attached to your power tool, it does not ensure safe operation.
- Make sure the speed marked on the blade or wheel is at least as high as the no load RPM on the machine's nameplate. Accessories running faster than their rated speed can break and fly apart.
- The arbor size of blades and wheels must properly fit the spindle and flanges of the machine. Blades or wheels with arbor holes that do not match the mounting hardware of the machine will run out of balance, vibrate excessively and may cause loss of control.
- Never force a blade or wheel onto an arbor, alter the size of an arbor, or use a blade or wheel that does not fit the arbor, as vibration may result. If the blade or wheel doesn't fit the arbor, get one that does.
- Use sharp blades and wheels. Damaged or dull blades could throw teeth, posing a serious injury risk. Damaged or dull wheels can create excessive friction, causing the wheel to warp or bind. A sharp blade or wheel will tend to cut its way out of a pinching condition.

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 machine table or base
- Never attempt to cut materials larger than the rated capacity, as this may result in personal injury.
- Always place the workpiece securely between the vise and 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 put fingers near the cutting blade or wheel.
- Never try to remove or clamp the workpiece while the blade or wheel is rotating.

Before Cutting...

Before working with an abrasive cut-off machine or dry-cut machine, make sure the machine and its accessories are in proper working order. Failure to do so can increase your risk of injury and result in blade or wheel pinching, binding or stalling, and loss of control.

- Set the machine securely on a flat, level surface.
- Before installing a blade or wheel, always check for damage. Check wheels for cracks and chips, and blade tooth for damage. Replace damaged abrasive wheels or blades immediately.
- Make sure the blade has adequate blade set and a negative rake angle. 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, clean, and are properly positioned and secured on the arbor before each use. Always use the mounting hardware supplied with the machine.
- 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 or wheel when the head is up, take the machine to an authorized service center for repairs.

While Cutting ...

- Do not use cutting fluids on the blade, wheel or workpiece.
- Allow the motor to reach full speed before contacting the workpiece.
- Never place your body or fingers in line with the blade or wheel while cutting.
- Use only the edge (not the sides) of an abrasive wheel for cutting. Do not allow an abrasive wheel to twist or bind.
- Do not force cutting. Always start the cut gently. “Jamming” the blade or wheel, applying excessive pressure, or making too deep a cut will overstress the wheel, increase the loading and likelihood of twisting or binding of the wheel in the cut. This can result in reduced control, kickback or wheel breakage.
- Make sure the blade or wheel contacts the center of the workpiece for the safest, most efficient cutting.
- If the blade or wheel binds or stops rotating, or the motor sounds like it is straining, release the trigger switch immediately to reduce the risk of kickback and damage to the machine.
- Never reach under the machine or workpiece. The blade is exposed under the workpiece and the guard cannot protect your body here.
- Never remove the machine from a cut while the wheel or blade is rotating. When making a partial cut, or if power is interrupted, release the switch immediately. Don't remove the machine from the workpiece until the wheel or blade has come to a complete stop.
- Never use liquid coolants to lubricate your blade or wheel. Liquid coolants can increase the risk of electric shock and may cause damage to the or abrasive disc.
- Turn off the machine after the cut is complete, and keep the blade or wheel away from your body until it has stopped. Be aware that blades and wheels may coast after the machine is turned off.

When Done Cutting...

- Unplug, clean and store the machine in a safe, dry place after use.
- Store blades and wheels with care. Do not drop them or subject them to excessive heat, cold or humidity.

Always Remember...

- Always be alert, especially during repetitive operations. Don't be tempted into carelessness due to a false sense of security. Blades and wheels are extremely unforgiving.
- When cutting metals, sparks or hot fragments could cause fires or burns. Never touch a work piece until it cools. Let the blade or wheel cool properly before changing.
- When starting the machine after an idle period, always let the machine run with the blade or wheel completely recessed into the guard for one full minute before making a cut. If the blade or abrasive wheel wobbles or vibrates, discard it and replace immediately.
- To reduce the risk of injury, always unplug or remove the battery from the machine when leaving a workstation. Lock machines in the down position before transporting or when not in use.

NOTICE

The contents are not meant to be, nor should they be considered, an absolute or complete presentation of the safety measures and procedures that relate to using the power tools covered. Obviously every possible application cannot be foreseen. This brochure's purpose is to highlight only some important safety and safety related information compiled from the experience of Institute members and other reliable safety oriented sources. Individual manufacturers' tool operator's manuals, shipped with tools and accessories, are recommended as a final source for proper procedures for specific tool usage.