

# Portable Machine Tool Safety Awareness

## Portable Machining Dos and Don'ts...

Portable machine tool use is becoming more widespread as more and more companies realize the cost savings these machines produce through reduced down-time. Expanded usage results in many operations being performed in-place on existing piping systems, which previously would have been performed on heavy, floor-mounted mills and lathes. In-place tools are finding increased use on off-shore rigs, power utilities, new construction, decommissioning projects and countless other industrial applications.

These powerful tools generate more than enough power to inflict serious bodily harm, including the possibility of death for an operator (or any one else in the immediate area) that operates the machine in an uninformed, neglectful, irresponsible or unsafe manner.

Operation of any hydraulic, electric, or pneumatically powered machinery can be extremely dangerous if the power source is not disconnected from the tool while mounting, making adjustments, changing or adjusting tool bits, or while installing, repositioning or removing the tool. When the power is still connected, operators could be injured while moving or working with a machine if SOMEONE ELSE bumps or actuates a control valve or switch. Always disconnect the power from all equipment for safety and to make the work place safe and secure.

Always observe applicable "Lock-Out/Tag-Out" procedures and always ensure that all machining operations comply with any EXISTING on-site safety procedures.

Virtually all, portable machine tools accept the torque of the machining operation through the mounting features. This has made machining operations safer as the cutting forces are reacted between the tool and the work piece and therefore do not require separate restraints. This makes it critical that the operator ensures that machine mounting is adequate to provide the stability required for the machining process. When a machine tool is mounted on a piping system, the system must support the tool before and after a cut has been made. Pipe must be restrained with chain-falls, come-alongs, etc. to prevent movement when a cut is completed. Pipe can move when a cut is completed and only one end of the piping system is supporting a tool. Operations that require severing a component out of a system must be restrained from movement from released cold stresses induced by the welding process, whip restraints, supports, etc. The ends of the pipe at the cut line may shift with forces great enough to damage machines and eject parts with enough velocity to cause considerable physical harm.

When pipes, flanges, fittings, valves and other components are machined in place, attention must be given to safe machine lifting and placement as well as awareness of the danger of severed sections falling on other personnel that may be located under the operation.

Machine cutting generates large amounts of extremely hot chips as they come off the tool bit. The chips remain a safety concern even after cooling due to their sharpness and accumulation in the immediate work area.

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- Are you aware of the dangers inherent with portable machining?
- What steps can you take to safeguard against tool use related accidents?

Review this information with your entire work team and include in your regular safety program.

## BEFORE you cut...

- If you are not comfortable with your training level, ask to be trained and/or safety checked for the machinery you intend to use. (Training is available from Tri Tool Inc.)
- Organize and prepare the complete work area to be "safe and secure."
- Secure the machinery and work piece. The mounting and the worktop must be able to accept the weight and applied loads.
- Be prepared to manage chips and heavy sections to be severed from the work piece.
- Check your equipment. It must be fully operational, with sharp bits, all required attachments, and properly maintained with all safety features intact.
- Are you satisfied and confident that you have DONE EVERYTHING possible to prepare and ensure you can perform a safe machining operation for your specific work situation?

# ***Safe Equipment Operation can not be “built-in” to a machine – that factor can only be supplied by a responsible operator!***

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Chips can cause severe cuts while being cleared from operating machines and long chips can “drag” over and around the machine, posing a serious safety concern. Never attempt to remove accumulated or moving chips from a machine with your fingers.

Chips on the floor of the work area can cut into, short or sever electric cords. Sharp chips can completely cut hoses or lines if stepped on, or if machinery is rolled over them. Always have brooms and waste containers handy and manage cutting debris in the work area.

Tool triggers or on-off valves that are safety features made to shut the tool down when released should NEVER be tied down with bands or zip-ties. “Dead-Man” controls should be used for portable machining whenever possible. Operators MUST know how to shut a machine down IMMEDIATELY and always operate the machine from a position where they can safely react to dangerous conditions.

Almost all portable machine tools have rotating elements that can extend beyond the mounting width of the machine (the operating envelope). Extreme care must be observed that there is proper clearance in the immediate area of the machine to permit the machine to operate without physical obstruction. The rotating elements of a machine represent a significant danger to the operator in that they can create “pinch-points” between rotating and non-rotating elements of the machine, as well as with objects like other pipes, machinery, bulkheads or walls in the immediate area.

Do not perform any machine adjustment, chip clearing, measurement,

or workpiece inspection which would place an object or the operator in the moving path of a machine. Eye safety devices MUST be worn at all times to protect the operator from sharp cutting debris. In addition, some portable machining operations generate sound levels that may require that hearing protection be worn also.

At no time should any safety device, guard, or protective feature of a machine be disconnected, removed, defeated, or overridden. To do so would intentionally place the operator or others at increased risk of accident. Extreme caution must be exercised while machinery is in operation.

NEVER operate any portable machinery with loose fitting clothing, ties, headsets, jewelry, identity badges, personal audio devices, or ANY other items which could become tangled in the machine as it operates.

Adequate common sense MUST be applied to portable machining as with any other situation where operation of the equipment while under the effects of alcohol, prescription drugs, talking, eating, smoking, using a cell phone, or any other activity could impair the judgement or ability of the operator to use the machinery in a safe manner.

No safety guide, including this one, could ever advise as to all of the potential hazards or dangers of portable machining. To promote safety, the operator MUST READ and FULLY UNDERSTAND the equipment’s Operator’s Manual BEFORE attempting to use any Tri Tool machinery. Call Tri Tool (Toll Free) 888 TRITool for assistance with any questions you have regarding safe machinery operation before you cut!



**EYE HAZARD - Always wear safety glasses while operating any equipment.**



**PINCH HAZARD - Moving and stationary parts can pinch or cause serious injury.**



**CRUSH HAZARD - During use, machinery and/or work can separate, lurch, or fall.**



**CHIP HAZARD - Chips can be hot and sharp. Be very careful when clearing tooling path.**



**TIE-DOWN HAZARD - Deliberate overriding of safety triggers can cause serious injury.**



**TRI TOOL INC.**

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Your personal safety is Tri Tool’s primary concern! Please call if there is any information we can provide to keep you, and your machinery, working safely.