



INTRODUCTION

Like other industries that work with metals, welding and cutting are seldom done in isolation. Other equipment and tools are normally used and kept nearby. The use of, or the closeness to, mechanical equipment can present hazards to the welder. A knowledge of the proper use of power tools, such as grinders, chippers, drills, and various hand tools, is important to welder safety. Know and understand the safe limits and proper use of cranes, positioners, and other material handling equipment, and use the appropriate guards and personal protective equipment. Recommendations concerning frequently encountered mechanical hazards in welding follow.

GRINDING WHEEL SAFETY

- Follow grinding wheel speed limitations according to manufacturer's instructions.
- Do not grind on the side of a wheel not designed for such service.
- When starting a new wheel, stand to the side until it reaches speed, and correct any abnormalities noted.
- Be sure guards are in place and properly used.

PERSONAL PROTECTIVE EQUIPMENT

- Wear proper eye and hand protection.
- Use face shields, safety glasses, and goggles as appropriate.
- Wear dry, hole-free insulating gloves when welding or cutting.
- Avoid wearing loose items such as rings, necklaces, bracelets, long hair, loose clothing, neckties, scarves, earrings, and beards.
- Watch out for sharp objects, pinch points, and moving objects.

HAND TOOL SAFETY

- Use tools safely.
- Use the right tool for the job. Be sure it is the right size.
- Use good quality tools, and use them for the job they were intended to perform. For example, it is often tempting to use a screwdriver for a chisel or a pair of pliers for a wrench—avoid such practices. The right tool will do the job faster and safer.
- Keep a firm grip on tools to prevent them from slipping away.
- Do not overload or force a tool beyond its capabilities.
- Never force a tool.
- Foresee results of unexpected occurrences such as tools getting away, binding, or coming loose from their handles.
- Check any tool that has become jammed or otherwise overstressed for damage before reuse.
- Anticipate the reactive force from tools.
- Anticipate what might happen to a component that is to be loosened or unbolted from its working position.
- When using tools that involve weights and spring tension, be certain that all pressures are applied and released in a safe manner.
- Follow lockout procedures for equipment and tools specifying such a procedure.
- Do not bypass interlocks on equipment. Bypassing defeats the safety device and creates a possibly serious hazard.
- Inspect tools before use.
- Never use a tool that is in poor or faulty condition.
- Keep all hand tools in good working condition.
- Store hand tools in a safe place. Many accidents are caused by tools falling off ladders, shelves, or scaffolds that are being moved. Each tool should have a designated place in the tool box or electrician's pouch.
- For additional information of the safe operation and guarding of mechanical equipment, refer to the manufacturers' safe operating procedures for the equipment being used.

INFORMATION SOURCES

American National Standards Institute (ANSI). *Safety in Welding, Cutting, and Allied Processes*, Z49.1, available from American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

_____. *Safety Requirements for The Lockout/Tagout of Energy Sources*, ANSI Z244.1, available from American National Standards Institute, 11 West 42 Street, New York, NY 10036.

_____. *Practice for Occupational and Educational Eye and Face Protection*, ANSI Z87.1, available from American National Standards Institute, 11 West 42nd Street, New York, NY 10036.

Occupational Safety and Health Administration (OSHA). *Code of Federal Regulations*, Title 29 Labor, Chapter XVII, Parts 1901.1 to 1910.1450, Order No. 869-019-00111-5, available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

National Institute for Occupational Safety and Health. *Safety and Health in Arc Welding and Gas Welding and Cutting*, NIOSH Publication No. 78-138. Cincinnati, Ohio: National Institute for Occupational Safety and Health.

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