









Welding Safety

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Hazard	Factors to Consider	Precaution Summary
<p>Electric shock can kill</p> 	<ul style="list-style-type: none"> Wetness Welder in or on workpiece Confined space Electrode holder and cable insulation 	<ul style="list-style-type: none"> Insulate welder from workpiece and ground using dry insulation. Rubber mat or dry wood. Wear dry, hole-free gloves. (Change as necessary to keep dry.) Do not touch electrically "hot" parts or electrode with bare skin or wet clothing. If wet area and welder cannot be insulated from workpiece with dry insulation, use a semiautomatic, constant-voltage welder or stick welder with voltage reducing device. Keep electrode holder and cable insulation in good condition. Do not use if insulation is damaged or missing.
<p>Fumes and gases can be dangerous</p> 	<ul style="list-style-type: none"> Confined area Positioning of welder's head Lack of general ventilation Electrode types, i.e., manganese, chromium, etc. See MSDS Base metal coatings, galvanize, paint 	<ul style="list-style-type: none"> Use ventilation or exhaust to keep air breathing zone clear, comfortable. Use helmet and positioning of head to minimize fume in breathing zone. Read warnings on electrode container and material safety data sheet (MSDS) for electrode. Provide additional ventilation/exhaust where special ventilation requirements exist. Use special care when welding in a confined area. Do not weld unless ventilation is adequate.
<p>Welding sparks can cause fire or explosion</p> 	<ul style="list-style-type: none"> Containers which have held combustibles Flammable materials 	<ul style="list-style-type: none"> Do not weld on containers which have held combustible materials (unless strict AWS F4.1 procedures are followed). Check before welding. Remove flammable materials from welding area or shield from sparks, heat. Keep a fire watch in area during and after welding. Keep a fire extinguisher in the welding area. Wear fire retardant clothing and hat. Use earplugs when welding overhead.
<p>Arc rays can burn eyes and skin</p> 	<ul style="list-style-type: none"> Process: gas-shielded arc most severe 	<ul style="list-style-type: none"> Select a filter lens which is comfortable for you while welding. Always use helmet when welding. Provide non-flammable shielding to protect others. Wear clothing which protects skin while welding.
<p>Confined space</p> 	<ul style="list-style-type: none"> Metal enclosure Wetness Restricted entry Heavier than air gas Welder inside or on workpiece 	<ul style="list-style-type: none"> Carefully evaluate adequacy of ventilation especially where electrode requires special ventilation or where gas may displace breathing air. If basic electric shock precautions cannot be followed to insulate welder from work and electrode, use semiautomatic, constant-voltage equipment with cold electrode or stick welder with voltage reducing device. Provide welder helper and method of welder retrieval from outside enclosure.
<p>General work area hazards</p> 	<ul style="list-style-type: none"> Cluttered area 	<ul style="list-style-type: none"> Keep cables, materials, tools neatly organized. <
	<ul style="list-style-type: none"> Indirect work (welding ground) connection 	<ul style="list-style-type: none"> Connect work cable as close as possible to area where welding is being performed. Do not allow alternate circuits through scaffold cables, hoist chains, or ground leads.
	<ul style="list-style-type: none"> Electrical equipment 	<ul style="list-style-type: none"> Use only double insulated or properly grounded equipment. Always disconnect power to equipment before servicing.
	<ul style="list-style-type: none"> Engine-driven equipment 	<ul style="list-style-type: none"> Only use in open, well ventilated areas. Keep enclosure complete and guards in place. See Lincoln service shop if guards are missing. Turn off engine before refueling. If using auxiliary power, OSHA may require GFI protection or assured grounding program (or isolated windings if less than 5KW).
	<ul style="list-style-type: none"> Gas cylinders 	<ul style="list-style-type: none"> Never touch cylinder with the electrode. Never lift a machine with cylinder attached. Keep cylinder upright and chained to support.