

**WAC 296-155-405 Arc welding and cutting. (1) Manual electrode holders.**

(a) You must only use manual electrode holders which are specifically designed for arc welding and cutting, and are of a capacity capable of safely handling the maximum rated current required by the electrodes.

(b) Any current-carrying parts passing through the portion of the holder which the arc welder or cutter grips in the hand, and the outer surfaces of the jaws of the holder, must be fully insulated against the maximum voltage encountered to ground.

**(2) Welding cables and connectors.**

(a) All arc welding and cutting cables must be of the completely insulated, flexible type, capable of handling the maximum current requirements of the work in progress, taking into account the duty cycle under which the arc welder or cutter is working.

(b) You must only use cable free from repair or splices for a minimum distance of 10 feet from the cable end to which the electrode holder is connected, except that cables with standard insulated connectors or with splices whose insulating quality is equal to that of the cable are permitted.

(c) When it becomes necessary to connect or splice lengths of cable one to another, you must use substantial insulated connectors of a capacity at least equivalent to that of the cable. If connections are effected by means of cable lugs, you must securely fasten them together to give good electrical contact, and the exposed metal parts of the lugs must be completely insulated.

(d) You must not use cables in need of repair. When a cable, other than the cable lead referred to in subdivision (b) of this subsection, becomes worn to the extent of exposing bare conductors, you must protect the portion thus exposed by means of rubber and friction tape or other equivalent insulation.

**(3) Ground returns and machine grounding.**

(a) A ground return cable must have a safe current carrying capacity equal to or exceeding the specified maximum output capacity of the arc welding or cutting unit which it services. When a single ground return cable services more than one unit, its safe current-carrying capacity must equal or exceed the total specified maximum output capacities of all the units which it services.

(b) You must not use pipelines containing gases or flammable liquids, or conduits containing electrical circuits, as a ground return. For welding on natural gas pipelines, the technical portions of regulations issued by the Department of Transportation, Office of Pipeline Safety, Minimum Federal Safety Standards for Gas Pipelines apply. (49 C.F.R. Part 192, Subpart C.)

(c) When a structure or pipeline is employed as a ground return circuit, you must determine that the required electrical contact exist at all joints. The generation of an arc, sparks, or heat at any point must cause rejection of the structures as a ground circuit.

(d) When a structure or pipeline is continuously employed as a ground return circuit, all joints must be bonded, and you must conduct periodic inspections to ensure that no condition of electrolysis or fire hazard exists by virtue of such use.

(e) You must ground the frames of all arc welding and cutting machines either through a third wire in the cable containing the circuit conductor or through a separate wire which is grounded at the source of the current. You must check grounding circuits, other than by means of the structure, to ensure that the circuit between the ground and

the grounded power conductor has resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.

(f) You must inspect all ground connections to ensure that they are mechanically strong and electrically adequate for the required current.

(4) **Operating instructions.** You must instruct employees in the safe means of arc welding and cutting as follows:

(a) When electrode holders are to be left unattended, you must remove the electrodes and place or protect the holders so that they cannot make electrical contact with employees or conducting objects.

(b) You must not dip hot electrode holders in water; to do so may expose the arc welder or cutter to electric shock.

(c) When the arc welder or cutter has occasion to leave work or to stop work for any appreciable length of time, or when the arc welding or cutting machine is to be moved, you must open the power supply switch to the equipment.

(d) Employees must report any faulty or defective equipment to the supervisor.

(e) See WAC 296-155-452 for additional requirements.

(5) **Shielding.** Whenever practical, you must shield all arc welding and cutting operations by noncombustible or flameproof screens which will protect employees and other persons working in the vicinity from the direct rays of the arc.

(6) **Employee protection.** Where welding or cutting operations are being performed in areas where it is possible for molten slag to contact other employees, you must protect those employees from being burned by providing overhead protection, barricading the impact area, or other effective means.

[Statutory Authority: RCW 49.17.010, 49.17.040, 49.17.050, 49.17.060. WSR 16-09-085, § 296-155-405, filed 4/19/16, effective 5/20/16. Statutory Authority: Chapter 49.17 RCW. WSR 94-15-096 (Order 94-07), § 296-155-405, filed 7/20/94, effective 9/20/94; WSR 88-23-054 (Order 88-25), § 296-155-405, filed 11/14/88. Statutory Authority: RCW 49.17.040 and 49.17.050. WSR 86-03-074 (Order 86-14), § 296-155-405, filed 1/21/86; Order 74-26, § 296-155-405, filed 5/7/74, effective 6/6/74.]