



Selecting Gloves for Welding and Cutting

INTRODUCTION

Welding gloves can protect you from electric shock, flames, hot parts, sharp or flying metal, and arc rays. Proper gloves are the first line of defense against the hand hazards of welding and cutting. ANSI Standard Z49.1 (see Information Sources) requires that all welders and cutters wear protective gloves while working. Different processes may use different gloves. Here are some guidelines for selecting proper gloves for welding and cutting.

NATURE OF THE HAZARD

- Mechanical hazards that cause cuts, scrapes, tears, and punctures.
- Thermal hazards such as heat, flames, hot parts, arc rays, fire, molten metal, spatter, slag, and sparks.
- Electrical hazards due to gloves that are wet, torn, damaged, or have insulation failure.

GLOVE REQUIREMENTS

Gloves should be:

- Dry and moisture resistant.
- In good condition, no holes or tears.
- Flame resistant.
- Electrically and thermally insulated to suit the process.

- Flexible--allow easy movement and full range of motion.
- Comfortable--proper fit and size.
- Made with materials, seams, and edges that do not affect the health or safety of the user.
- Durable, tough, and long lasting.
- Cut, scrape, tear, and puncture resistant.

GLOVE MATERIALS

Many materials are available. Each has properties affecting its performance and use. Here is a list of typical materials and their useful characteristics:

- Cowhide—tough, durable, flame and heat resistant, with good electrical resistance when dry.
- Calfskin—better dexterity than cowhide but not as tough.
- Pigskin—flexible, oil resistant, quick drying.
- Rubber—moisture proof, electrical insulation.
- Treated Cotton—absorbent, lightweight, flexible.
- Aluminized—heat resistant, reflects heat radiation.
- Goatskin—light weight, comfortable, superior dexterity, durable.
- Deerskin—good touch sensitivity.

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GLOVE DESIGN RECOMMENDATIONS

There are many different styles of gloves. Some protect only the fingers and palms. Others protect the entire hand. Still others protect the wrist and forearm as well. Some gloves have combinations of material, such as cowhide palms and pigskin backs. One pair of gloves may not be suitable for all processes. For example, gloves that are proper for low current Gas Tungsten Arc Welding (GTAW) (thin and flexible) would not be proper for high-current Air Carbon Arc Cutting (CAC-A) (insulated, tough, and durable).

Always use gloves as recommended by the manufacturer. Follow the provided instructions. Improper use may lead to injury if the gloves do not provide the needed protection. Check with your Safety Supervisor or Supplier. Be sure you have the right gloves for the job.

SUMMARY: HOW TO PICK THE RIGHT GLOVES FOR THE JOB

- Know the job.
- Know the process.
- Review the equipment.
- Determine the specific hazards.
- Match the gloves to the needs and hazards of the work.
- For help, ask your supervisor or supplier.

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 (phone: 800-443-9353, website: www.aws.org).

Occupational Safety and Health Administration (OSHA). *Code of Federal Regulations*, Title 29 Labor, Part 1910, available from U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 (phone: 800-321-6742, website: www.osha.gov).

National Fire Protection Association (NFPA). *Standard for Fire Prevention during Welding, Cutting, and Other Hot Work*, 51B, available from National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02269-9101 (phone: 800-344-3555, website: www.nfpa.org).

NOTE: All the following European Standards are available from the British Standards Institution (BSI), 389 Chiswick High Road, London, England W4 4AL (phone: +44 (0)20 8996 9001, fax: +44 (0)20 8996 7001, website: www.bsi-global.com).

EN 388: 2003. *Protective Gloves against Mechanical Risks*.

EN 407: 2004. *Protective Gloves against Thermal Risks*.

EN 420:2003. *Protective Gloves—General Requirements and Test Methods*.

EN 12477: 2001. *Protective Gloves for Welders*.

EN 60903: 2003. *Live Working - Gloves of Insulating Material*.

EN 702: 1994. *Protective Clothing—Protection against Heat and Flame*.

EN 1149-2: 1997. *Protective Clothing—Electrostatic Properties*.

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