

Welding PPE Requirements Guide

Comprehensive Personal Protective Equipment Standards for All Welding Processes

This guide provides detailed requirements for personal protective equipment (PPE) selection, use, and maintenance in welding operations. Requirements are based on OSHA 29 CFR 1910 Subpart I, ANSI Z49.1, and industry best practices.

1. Head and Face Protection

Item	Standard	Requirements	Process-Specific Notes
Welding Helmet	ANSI Z87.1	Filter lens shade 4-14 based on process and amperage Protects full face from spatter and radiation Durable shell material Comfortable headgear	MIG/Face: Shade 10-13 TIG: Shade 8-14 Stick: Shade 10-14 Oxy-fuel: Shade 4-8
Safety Glasses	ANSI Z87.1 Z87+	Impact-rated with side shields Worn under welding helmet Clear or tinted	MANDATORY under helmet Shade 2-3 for added UV protection Replace if scratched
Face Shield	ANSI Z87.1	Full-face coverage Shade 2-3 for grinding Used with safety glasses	Grinding operations Wire brushing Additional protection

2. Hand and Arm Protection

Glove Type	Material	Best For	Key Features
MIG Welding Gloves	Cowhide/pigskin	MIG, flux-core welding	Medium weight Good dexterity Flame resistant Reinforced palm
TIG Welding Gloves	Goat/deerskin	TIG welding precision work	Soft, flexible Excellent feel Thin for dexterity Kevlar stitching
Stick Welding Gloves	Heavy cowhide/elk	Stick welding heavy fabrication	Heavy duty Elbow length available High heat resistance Thick insulation

Gauntlet Gloves	Leather with long cuffs	Overhead welding pipe work	Extended forearm protection No gaps with sleeves Extra heat shielding
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3. Body Protection

- Welding jackets: Flame-resistant leather or cotton, full-sleeve coverage, no synthetic materials
- Leather sleeves: For additional arm protection, especially with short-sleeve shirts
- Leather aprons: Front protection for bench/vertical welding, split-leg design for mobility
- Leather chaps: Leg protection when standing, especially for overhead spatter
- Welding capes: Shoulder and upper chest protection for overhead welding
- NO polyester, nylon, or synthetic blends: These melt and adhere to skin causing severe burns
- Dark colors preferred: Reduce arc reflection

4. Foot Protection

ANSI Z41 rated safety-toe boots required. Leather construction prevents sparks from penetrating. High-top design prevents spatter from entering boot. Pants must cover boot tops completely. Metatarsal guards recommended for heavy fabrication. No canvas, mesh, or synthetic materials.

5. Respiratory Protection Requirements

Condition	Minimum Protection	Filter Type
General welding - adequate ventilation	None required (but recommended)	N/A
Stainless steel welding	Half-face respirator	P100 particulate filters
Galvanized/zinc-coated metal	Half-face respirator	P100 particulate filters
Confined spaces	Supplied-air respirator	External air source required
Paint/coating fumes present	Full-face respirator or PAPR	Combination P100 + organic vapor
Prolonged welding (>4 hrs/day)	Half-face respirator recommended	P100 particulate filters
Hexavalent chromium exposure	PAPR or supplied-air	P100 minimum, per exposure assessment

6. Hearing Protection

Required when noise levels exceed 85 dBA for 8-hour exposure. Welding shops typically 85-95 dBA. Earplugs: NRR 25-33 dB, disposable or reusable. Earmuffs: NRR 20-30 dB, comfortable for extended wear. Can be combined for higher protection. Must be worn correctly to be effective.

7. PPE Inspection and Replacement Schedule

PPE Item	Inspect	Replace When
Welding helmet lens	Before each use	Any cracks, deep scratches, or discoloration
Auto-dark lens	Before each use	Response time slow, sensors damaged, or battery weak
Safety glasses	Before each use	Scratched, cracked, or loose-fitting
Gloves	Before each use	Holes, tears, thin spots, or stiff from heat damage
Jacket/sleeves	Before each use	Burns through, holes, or frayed edges
Boots	Weekly	Soles worn thin, upper leather cracked or burned through
Respirator filters	Each use	Per manufacturer schedule or breathing resistance increases
Earplugs	Each use (disposable)	Any use (single-use), deformed, or dirty (reusable)

Complete PPE Checklist - All Welding Operations

- Welding helmet: Correct shade, undamaged lens
- Safety glasses: ANSI Z87.1, worn under helmet

- Gloves: Process-appropriate type, no damage
- Long-sleeve shirt: Flame-resistant, collar covers neck
- Welding jacket/cape: Full coverage for process
- Pants: Flame-resistant, cover boot tops, no cuffs
- Leather boots: Safety-toe, high-top, laces tucked
- Respirator: Appropriate for materials and ventilation
- Hearing protection: If noise exceeds 85 dBA
- No synthetic clothing anywhere on body
- No exposed skin - check wrists, neck, ankles
- Pockets buttoned, no loose items that catch sparks