

Unit 25 Glossary

Arc welder – a machine that produces current for welding.

Arc – the discharge of electricity through an air space.

Welder – a person who welds.

Electrodes – metal welding rods coated with flux and used with an electric welder.

Shielded metal arc welding – welding with electrical power as a source of heat and rods covered with flux which form a gaseous shield around the molten metal until it solidifies.

Arc welding – see shielded metal arc welding.

Stick welding – see shielded metal arc welding.

Slag – the product formed when burning steel combined with oxygen.

Duty cycle – the proportion of time a motor may run without overheating.

Ampere or amp – a measure of the rate of flow of current in a conductor.

Conductor – any material that will permit electrons to move through it.

Volt or voltage – a measure of electrical pressure.

Watt or wattage – a measure of energy available or work that can be done using one ampere at one volt.

Transformer – a device that converts high voltage from high-power lines to 230 volts for home and farm installations; device used to step current up or down.

Alternating current or 60-cycle current – current that reverses its direction 60 times per second.

Generator – a device that produces direct current.

Direct current – current that flows in one direction continuously.

Polarity – refers to the direction of flow of electricity in the welding circuit.

Straight (negative) polarity – DC current flowing in one direction, the opposite of reverse polarity.

Reverse (positive) polarity – DC current flowing in the opposite direction from straight polarity; to reverse the direction of current.

Electrode holder – a spring-loaded device with insulated handles used to grip welding electrodes.

Ground clamp – connector used to attach a cable, wire or object to a ground source.

Chipping hammer – a hammer with a sharp edge and/or point used to remove slag from a welding bead.

National Electrical Manufacturers Association – the group that developed the system of color coding electrodes.

End marking – color on the end of an electrode.

Spot marking – color on the surface of the wire of an electrode.

Group marking – the marking on a package of welding electrodes that indicates the type of electrodes within the package.

American Welding Society – an organization that supports education in welding processes and that developed a system of numerical classification of electrodes.

Tensile strength – amount of tension or pull a weld can withstand.

Carbon arc torch – a device that holds two carbon sticks and produces a flame from the energy of an electric welder.

Electrode

Tensile in Ksi

Welding Position:

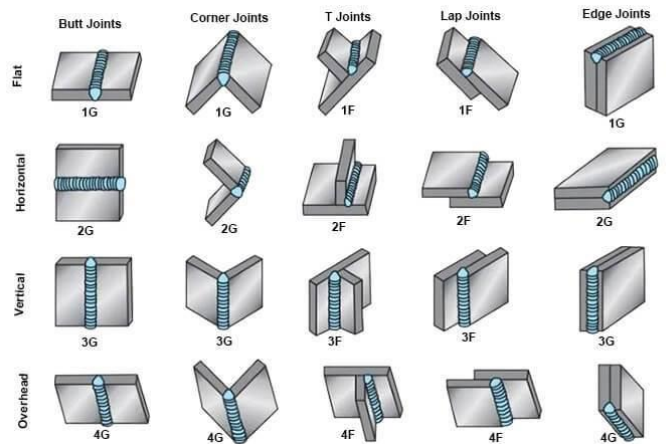
1 = All Position, 2 = Flat & Horizontal, 4 = Usable For vertical Down Only

Type of Current and Coating

E70XX

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graph LR; E[Electrode] --- E70XX[E70XX]; T[Tensile in Ksi] --- E70XX; W[Welding Position:] --- E70XX; C[Type of Current and Coating] --- E70XX;
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AWS A5.1 Carbon Steel Electrodes for SMAW		
Electrode	E 6 0 1 0	
Min. Tensile (in ksi)	60	
Position	1	
Type of Coating and Current	0	
Key to Type of SMAW Coating and Current		
Digit	Type of Coating	Current
0	High Cellulose Sodium	DC+
1	High Cellulose Potassium	AC, DC±
2	High Titania Sodium	AC, DC-
3	High Titania Potassium	AC, DC±
4	Iron Power, Titania	AC, DC±
5	Low Hydrogen Sodium	DC+
6	Low Hydrogen Potassium	AC, DC+
7	High Iron Oxide, Iron Powder	AC, DC±
8	Low Hydrogen Potassium, Iron Powder	AC, DC±



Current Type	DCEN	DCEP	AC (Balanced)
Electrode Polarity	Negative	Positive	
Electron and Ion Flow			
Penetration Characteristics			
Oxide Cleaning Action	No	Yes	Yes-Once Every Half Cycle
Heat Balance In The Arc (Approx.)	70% At Work End 30% At Electrode End	30% At Work End 70% At Electrode End	50% At Work End 50% At Electrode End
Penetration	Deep; Narrow	Shallow; Wide	Medium
Electrode Capacity	Excellent 1/8" (3.2mm) 400 A	Poor 1/4" (6.4mm) 120 A	Good 1/8" (3.2mm) 225 A

