

COATED ARC WELDING ELECTRODES - TYPES & STYLES

A. W. S. CLASSIFICATION

- E6010 Direct Current, Reverse polarity, All Positions.**
All purpose. Moderately smooth finish. Good penetration. This is the electrode used for most carbon steel pipe welding.
- E6011 Alternating Current, All Positions.**
All purpose. Moderately smooth finish. Good penetration.
- E6012 Direct Current, Straight Polarity, All Positions.**
High bead. Smooth. Fast. "Cold rod".
- E6013 Alternating Current, All Positions.**
High bead. Smooth. Fast. "Cold rod".
- E6015 Direct Current, Reverse polarity, All Positions.**
"Low hydrogen" electrode.
- E6016 Direct Current or Alternating Current, All Positions**
"Low hydrogen" electrode.
- E6018 Direct Current, All Positions.**
"Low hydrogen" iron powder electrodes
- E6020 Direct Current, Straight Polarity, Flat Position Only.**
Flat bead. Smooth. Fast. Deep penetration. Can be used w/ A.C. also. "Hot rod".
- E6024 Direct Current, Straight Polarity or Alternating and Current, and Flat Position Only. Flat bead. Smooth. Fast. Deep penetration.**
- E6027 "Iron powder electrodes".**

NOTE: This information also applies to E70, E80, E90, and E100 Series.

The last two numbers (**in bold type**) designate the types or styles and the first two numbers the minimum specified tensile strength in 1,000 psi of the weld deposit as welded.

PHYSICAL PROPERTIES OF E60 & E70 SERIES ELECTRODES

TYPICAL VALUES

AWS ASTM Electrode	Tensile Strength	Yield Strength	Elongation	Red. in Area Min. %
E6010	62,000–70,000	52,000–58,000	22 to 28%	35
E6011	62,000–73,000	52,000–61,000		
E6012	68,000–78,000	55,000–65,000	17 to 22%	25

MINIMUM VALUES

AWS ASTM Electrode	Tensile Strength	Yield Strength	Elongation
E7010	70,000	57,000	22
E7011	70,000	57,000	22
E7015	70,000	57,000	22
E7016	70,000	57,000	22
E7020	70,000	52,000	25

WELDING AND BRAZING TEMPERATURES

Carbon Steel Welding	2700–2790°F
Stainless Steel Welding	2490–2730°F
Cast Iron Welding	1920–2500°F
Copper Welding and Brazing	1980°F
Brazing Copper-Silicon with Phosphor-Bronze	1850–1900°F
Brazing Naval Bronze with Manganese Bronze	1600–1700°F
Silver Solder	1175–1600°F
Low Temperature Brazing	1175–1530°F
Soft Solder	200–730°F
Wrought Iron	2700–2750°F