ALCAVIL

Copper Electrodes & Alloys for Resistance Welding

TECHNICAL DATA SHEET
TDS-10W3-R02 | 2024-11

RWMA Class 11 - Elkonite 10W3 Copper-Tungsten

CuW 75/25

RWMA CLASS 11

Ref: AWS J1.3/J1.3M:2020 - Specification for Materials Used in Resistance Welding Electrodes and Related Equipment

ELKONITE 10W3 PROPERTIES

Property	Value	Unit
Electrical Conductivity	**46**	**% IACS**
Hardness	**98**	**HRB**
Density	14.70	g/cm3

NOMINAL COMPOSITION

Copper (Cu)	Tungsten (W)
25%	75%

TYPICAL PHYSICAL PROPERTIES

Property	Typical Value	Unit
Electrical Conductivity	46	% IACS
Hardness	98	HRB
Density	14.70	g/cm3
Melting Point (Cu matrix)	1083	C
Ultimate Strength	90,000	PSI
Cross Breaking Strength	150,000	PSI

RECOMMENDED APPLICATIONS

- Facings and inserts for flash and butt welding dies
- Projection welding electrodes
- Seam welding electrodes
- Facings for electro-forming and electro-forging dies
- EDM electrodes for higher wear resistance
- Standard nut projection welding

KEY FEATURES

- MOST COMMON grade for projection
- Optimal hardness/conductivity balance
- Higher hardness than 5W3 (Class 10)
- Excellent wear resistance
- Widely used in the industry

EQUIVALENT DESIGNATIONS

RWMA Class 11 | Elkonite 10W3 | CuW 75/25 | 25% Cu / 75% W | W75Cu25

APPLICATION NOTE: Elkonite 10W3 (RWMA Class 11) is the most common grade in the CuW family. Used for facings and inserts for flash and butt welding dies, projection electrodes, seam welding electrodes, facings for electro-forming and electro-forging dies. Commonly used for EDM electrodes due to its higher wear resistance. Class 12 (30W3) is used where a slightly harder material is required for the same applications.

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