ALCAVIL

Copper Electrodes & Alloys for Resistance Welding

TECHNICAL DATA SHEET
TDS-5W3-R01 | 2024-11

RWMA Class 10 - Elkonite 5W3 Copper-Tungsten

CuW 70/30

RWMA CLASS 10

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

ELKONITE 5W3 PROPERTIES

Property	Value	Unit
Electrical Conductivity	**48**	**% IACS**
Hardness	**90**	**HRB**
Density	14.18	g/cm3

NOMINAL COMPOSITION

Copper (Cu)	Tungsten (W)
30%	70%

TYPICAL PHYSICAL PROPERTIES

Property	Typical Value	Unit
Electrical Conductivity	48	% IACS
Hardness	90	HRB
Density	14.18	g/cm3
Melting Point (Cu matrix)	1083	C
Ultimate Strength	85,000	PSI
Cross Breaking Strength	140,000	PSI

RECOMMENDED APPLICATIONS

- Light to medium pressure projection dies
- Facings and inserts for flash and butt welding dies
- Projection welding electrodes
- Seam welding electrodes
- Bearing facings for electro-forming and electro-forging
- EDM electrodes for higher wear resistance

KEY FEATURES

- Highest conductivity of RWMA Elkonites
- Excellent resistance to sticking
- Optimal conductivity/hardness balance
- Frequently used for EDM electrodes
- Good wear resistance

EQUIVALENT DESIGNATIONS

RWMA Class 10 | Elkonite 5W3 | CuW 70/30 | 30% Cu / 70% W | W70Cu30

APPLICATION NOTE: Elkonite 5W3 (RWMA Class 10) is used for facings and inserts for flash and butt welding dies, projection electrodes, seam welding, bearing facings for electro-forming and electro-forging. Frequently used for EDM electrodes due to its higher wear resistance. Its composition of 30% copper and 70% tungsten offers the best conductivity (48% IACS) of RWMA-classified Elkonite grades.

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