ALCAVIL

Copper Electrodes & Alloys for Resistance Welding

TECHNICAL DATA SHEET

TDS-C18200-R01 | 2024-11

RWMA Class 2 - Copper Chromium (CuCr)

UNS C18200

RWMA CLASS 2

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

MINIMUM AWS J1.3 PROPERTIES - CLASS 2

Property	Minimum	Unit
Electrical Conductivity	**75**	**% IACS**
Hardness	**75**	**HRB**

CHEMICAL COMPOSITION

Cu	Cr
Balance	0.6 - 1.2%

TYPICAL PHYSICAL PROPERTIES

Property	Typical Value	Unit
Electrical Conductivity (typical)	80 - 85	% IACS
Hardness (typical, aged)	75 - 82	HRB
Thermal Conductivity	324	W/m-K
Density	8.89	g/cm3
Softening Temperature	475 - 500	C
Tensile Strength	310 - 480	MPa
Melting Point	1075	C

RECOMMENDED APPLICATIONS

- Low carbon steel welding
- Galvanized steels (general use)
- High-volume automotive lines
- Robotic spot welding
- Shanks and adapters
- Seam welding wheels

KEY FEATURES

- Most widely used alloy (80% of applications)
- Optimal conductivity/hardness balance
- Excellent cost-benefit ratio
- High resistance to thermal softening
- Universal availability of shapes and sizes

EQUIVALENT DESIGNATIONS

RWMA Class 2 | UNS C18200 | CuCr | Chromium Copper | CDA 182 | Tuffaloy C2 | CMW 3

APPLICATION NOTE: Class 2 C18200 is the "workhorse" of the resistance welding industry. Its balance of conductivity (75% IACS min) and hardness (75 HRB min) makes it suitable for most spot welding applications on low and medium carbon steels. For high-strength steels (AHSS/UHSS), consider C18150 (CuCrZr) which offers better property retention at high temperatures.

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