

RWMA Class 2 - Copper Chromium Zirconium (CuCrZr)

UNS C18150

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	Zr
Balance	0.5 - 1.5%	0.08 - 0.20%

TYPICAL PHYSICAL PROPERTIES

Property	Typical Value	Unit
Electrical Conductivity (typical)	80 - 85	% IACS
Hardness (typical, aged)	75 - 85	HRB
Thermal Conductivity	330	W/m-K
Density	8.89	g/cm3
Softening Temperature	525 - 550	C
Tensile Strength	350 - 520	MPa
Melting Point	1070	C

RECOMMENDED APPLICATIONS

- AHSS (Advanced High-Strength Steel) welding
- UHSS (Ultra High-Strength Steel)
- Press Hardened Steel (PHS / Boron Steel)
- Al-Si coated steels
- 24/7 robotic lines, high cycle rate
- MFDC (Mid-Frequency DC) welding
- Premium seam welding discs

KEY FEATURES

- +50C softening temperature vs C18200
- Superior hot hardness retention
- Ideal for high current/pressure parameters
- Less mushrooming under high cycling
- Better performance with MFDC welding
- Premium standard for Tier 1 automotive

EQUIVALENT DESIGNATIONS

RWMA Class 2	UNS C18150	CuCrZr	Copper Chromium Zirconium	CDA 181.5
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**APPLICATION NOTE:** C18150 (CuCrZr) is the premium choice within Class 2 for demanding applications. The addition of Zirconium raises the softening temperature by ~50C compared to C18200, resulting in longer electrode life when welding high-strength steels (AHSS/UHSS) and in MFDC processes that generate higher temperature peaks. It is the de facto standard in automotive lines for Body-in-White of modern vehicles with advanced steels.

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