

UNS Copper Codes and Description - RWMA Classification

Reference Standard: AWS J1.3/J1.3M:2020-AMD1 - Specification for Materials Used in Resistance Welding Electrodes and Related Equipment

CODE	RWMA CLASS	UNS	DESCRIPTION	ROCKWELL HARDNESS	CONDUCTIVITY % IACS	ANNEAL TEMP °C	ANNEAL TEMP °F
11-02	I	C15000	Copper Zirconium	60-75 HRB	80 min.	350	662
11-03	II	C18150	Copper Chromium Zirconium	70-83 HRB	75 min.	500	932
11-04	II	C18200	Copper Chromium	70-83 HRB	75 min.	500	932
11-05	III	C17500	Copper Cobalt Beryllium	90-98 HRB	45 min.	550	1022
11-06	III	C17510	Copper Nickel Beryllium	90-98 HRB	45 min.	550	1022
11-07	III	C18000	Copper Chromium Nickel Silicon	88-96 HRB	45 min.	500	932
11-08	IV	C17200	Copper Beryllium	38-45 HRC	20 min.	375	707

RWMA CLASS LEGEND

CLASS	CONDUCTIVITY	HARDNESS	TYPICAL APPLICATION
Class I	≥80% IACS	Low-Medium	Galvanized steels, coated materials, high conductivity requirements
Class II	≥75% IACS	Medium	Low carbon steels, general purpose, best hardness/conductivity balance
Class III	≥45% IACS	High	Stainless steels, high strength materials, forging applications
Class IV	≥20% IACS	Very High	Projection welding, dies, maximum hardness requirements

NOTES:

- RWMA numbers correspond to the digits following "C" in the UNS (Unified Numbering System) from the Copper Development Association.
- Conductivity values shown are minimums per AWS J1.3:2020-AMD1.
- C11000 (Electrolytic Copper) is not part of the RWMA classification system. It is used as reference material with 99.9% IACS.
- Annealing temperatures are approximate and depend on exposure time.