

DESCRIPTION & APPLICATIONS OF COPPER ALLOYS

Alloy Grade	Tough Pitch Copper	CuZr	CuCr	CuCrZr	CuNi2Si	Ag Bearing Cu	Oxygen Free Copper	Cu HCP
Specification	C11000	C15000	C18200	C18150	CW111C	C11600	C10200/C10100	CW021A
Composition	Cu 99.9% Min., Oxygen <450 PPM	Zr:0.1-0.2% Others: 0.1% Max. Balance:Cu	Cr:0.6-1.2%, Others:0.7% Max. Balance:Cu	Cr:0.5-1.5%, Zr:0.03-0.30%, Others:0.3% Max. Balance:Cu	Ni:1.6-2.5%, Si:0.4-0.8%, Fe:0.2% Max., Mn:0.1% Max., Pb:0.02% Max., Others:<0.30% Balance:Cu	Ag:0.08-0.12% Remainder Cu Oxygen <300 PPM	C10200: Cu:99.95% Min. Oxy. <10 PPM C10100: Cu:99.99% Min. Oxy. <05 PPM	Phosphours 20-70 PPM Remainder Cu:99.95% Min.
Hardness HRB	60-120 HV	>48	>65	>65	72-100	60-105 HV	60-120 HV	50-120 HV
Tensile Strength N/mm2	220-390	>240	>360	>360	590-750	221-379	220-390	200-360
Electrical Conductivity % (IACS)	>97%	>90%	>78%	>78%	>26%	>97%	>97%	>97%
Elongation in %	>11%	>10%	>10%	>10%	>5%	>10%	>10%	>10%
Consumer / Automotive Application	Christmas Ornaments	Pencil-type & Light Soldering Guns: Tips, Rod	Pencil-type & Light Soldering Guns: Tips, Rod Extensions	Pencil-type & Light Soldering Guns: Tips, Rod Extensions	<u>Automotive Application:</u> Valve guides / seats bushes,	<u>Automotive Application:</u> Radiators, Gaskets	<u>Automotive Application:</u> Automotive Rectifiers	<u>Automotive Application:</u> Radiators, Gaskets
Electrical Application	Switches, Terminals, Trolley Wire, Contacts, Radio Parts, Magnet Wire, Busbars, Terminal Connectors, Conductors, Electrical Stranded Conductors, Wire	Circuit Breaker Switches, Resistance Welding Electrodes, Switches, Commutators, Stud Bases for Power Transmitters & Rectifiers, Rotor for Traction Motor, Generator	Electrical Conductors Requiring Greater Strength than Copper, Electron Tube, Grid Side Rods, Wire, High Temperature, Contacts, Switch Gears, Electric Motor and Generator Components, Electrical Connectors, Connectors, Cable, Semi Conductor Bases, Parts for Electronic Devices, Switch Contacts, Arcing and Bridging Parts, Thermal Conductors Requiring Greater Strength than Copper, Circuit Breaker Parts	Resistance Welding Electrodes	Current-carrying electrical components such as slip rings, Squirrel cages, Springs, Rotary switch contacts, Contact blades, Short-circuit rings, heavy duty switchgear	Busbars, Contacts, Radio Parts, Switches, Terminals, Fuse Clips, Commutator Bars and Segments, Generator Coils, Windings, Conductivity Wire, Turbo & Hydro generator	Transistor Component Bases, High Resistance-Ratio Cryogenic Shunts, Bus Conductors, Wave Guides, Hollow Conductors, Anodes for Vacuum Tubes, Coaxial Tube, Klystrons, Microwave Tubes, Bus Bars, Lead-in Wire, Vacuum Seals, Conductors, Glass-to-Metal Seals	Wave Guide Tubing, Commutators, Applications Requiring High Conductivity, Tubular Bus, Electrical Conductors, Clad Products, Busbars, Terminals, Thermostatic Control Tubing, Generators & Motors
Industrial Application	Pressure Vessels, Chemical Process Equipment, Chlorine Cells, Chimney Cap Screens, Heat Exchangers, Printing Rolls, Anodes, Rotating Bands, Kettles, Pans, Vats, Road Bed Expansion Plates	Welding Wheels, Connectors, Solderless Wrapped, Resistance Welding Tips	Wear Plates on Heavy Equipment, Heat Sinks, Current Carrying Shafts and Arms, Plastic Mold Components, Spot Welding Tips, Flash Welding Electrodes, Molds, Flash Welding Electrodes, Electrode Holder Jaws, Resistance Welding Machine Electrodes, Seam Welding Wheels	Welding Electrodes, Welding Wheels, Tips and Rod Extensions	<u>Offshore & Marine:</u> Borehole tools, shear pins, Hydraulic valve bodies, Pump components and ball valve, Mechanical seals, Components requiring high cryogenic properties, Spark resistance and low magetic permeability	Printed Circuit Foil, Clad Metals, Printing Rolls, Chemical Process Equipment	<u>C1020 Application:</u> Billet Mold Tube, Coaxial Tube, Extrusion Cans for powder Metallurgy, Vacuum Seals, Tubing, LP Gas Services, Tubing, Medical Gas-Oxygen	Application Requiring Good Brazing, Applications Requiring Good Weldability, Pressure Vessels, Billet Mold Tube, Extrusion Cans for Powder Metallurgy
Forms Available	Billets, Rods, Bars, Profiles, Wheels Tubes	Billets, Rods, Bars, Profiles, Wheels, Casting	Billets, Rods, Bars, Profiles, Wheels, Casting	Billets, Rods, Bars, Profiles, Wheels, Casting	Billets, Rods, Bars, Profiles	Billets, Rods, Bars, Strips, Profiles Tubes	Billets, Rods, Bars, Strips, Profiles Tubes	Billets, Rods, Bars, Strips, Profiles Tubes

RODS	Diameter : Min.7.9 mm to Max.100.00 mm	Short Circuit Rings	Diameter (Max.) 800 mm
FLATS	Width : Min.19.00 mm to Max.125.00 mm Thickness : Min. 4 mm to Max. 60 mm		Height / Thickness (Max.) 100 mm
PROFILES	As per customer requirement. Max. Circumscribing circle of Dia 150 mm	Seam Welding Wheels	Diameter (Max.) 400 mm
			Height / Thickness (Max.) 50 mm