



WESTERN STATES METALS

PRODUCT SPECIFICATION

C11000 Copper Electrolytic Tough Pitch

Hard drawn bus bar with high thermal and electrical conductivity. It is not suitable for case hardening. This material can be bent, soldered, drilled, riveted, and formed to almost any configuration. ETP Copper is available in round bar, squares, flat rectangular, and profile shapes.

Typical Uses

Electrical

Bus bars, Switch Gear, Stab Terminals, Conductors, Magnet Wire, Stranded Conductors, Electrical Terminals, Switches, Radio Parts, Contacts, Trolley Wire, Welding Fixtures, Ground Straps, Commutators.

Architecture

Downspouts, Flashing, Roofing, Gutters, Building Fronts, Skylight Frames, Kitchen Countertops

Automotive

Gaskets, Radiators

Builders Hardware

Ball Floats, Butts, Rivets, Nails, Cotter Pins, Soldering Copper, Tacks, Nuts & Bolts

Industrial

Heat Exchangers, Pans, Vats, Road Bed Expansion Plates, Rotating Bands, Kettles, Chimney Cap Screens, Chlorine Cells, Pressure Vessels, Anodes, Chemical Process Equipment, Pipe Welding Dies, Back-up Welding Shoes, Printing Rolls, Plating Racks, Hooks

Chemical Composition

Min/Max (Cu).....	99.90 min
Nominal (O)04

Cu value includes Ag. High conductivity in annealed condition with a minimum conductivity of 100% IACS.

Physical Properties

Melting Point - Liquidus.....	1981 F
Melting Point - Solidus.....	1949 F
Density	0.322lb/cu in@68 F
Specific Gravity	8.91
Electrical Resistivity.....	10.3 ohms (cir mil/ft)@ 68 F
Electrical Conductivity	101% IACS @68 F
Thermal Conductivity.....	226.0 Btu / sq ft / ft / hr / °F @68 F

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Thermal Capacity.....	092 Btu / lb / °F @ 68 F
Modulus of Elasticity.....	17,000,000 psi
Modulus of Rigidity.....	6,400,000 psi
Machinability Rating.....	20

Mechanical Requirements (ASTM B-187)

Temper Designation Standard	Form	Size	Tensile Strength ksi		Elongation in 4 x Dia. Or thickness	
			Min.	Max		
H04	Hard	Rod				
		up to 3/8" incl.	45	60	12	
		over 3/8" - 1" incl.	40	55	12	
		over 1" - 2" incl.	35	50	15	
		over 2" to 3"	30	48	15	
		over 3"	37.5	50	15	
		Bar				
		up to 3/8" incl. thickness and up to 4" incl. in width.	37.5	50	10	
		All other sizes	33	50	15	
		Angles & Shapes				
All sizes	33	50	15			

Specification Equivalent

ASTM B-49, B-152, B-171, B-187, B-188, B-283