

Tellurium Copper

CTe0.5 (C14500)

Material Designation *

UNS	C14500
EN	CuTeP (CW 118 C)
JIS	/
GB	TTe0.5

Chemical Composition

Cu	Balance	%
Te	0.4-0.7	%
P	0.004-0.012	%
Other	≤0.1	%



Characteristics

Tellurium copper alloy material has good free cutting performance and excellent electrical and thermal conductivity. And it has good anti-corrosion and anti-electric ablative properties. It has good cold and hot working performance, and can be forged, casted, extruded and drawn, punched and moulded. Tellurium copper is a widely used high conductivity free cutting alloy.

Typical Applications

It is mainly used in connector terminals, charging piles, nozzles of plasma cutting machines and power modules of communication base stations for new energy vehicles.

Physical Properties

Density ^①	8.94	g/cm ³
Electrical conductivity ^①	≥85	%IACS
Thermal conductivity ^①	355	W/(m·K)
Coefficient of thermal expansion ^②	17.1	10 ⁻⁶ /K
Modulus of elasticity	117	GPa

Note①: Temperature for testing is 20°C.

Note②: Temperature range for testing is 20-300°C.

Fabrication Properties

Cold workability	Good
Hot workability	Good
Brazing	Good
Resistance welding	Not recommended
Hot forging compared with C37700	65%
Machinability compared with C36000	85%

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Mechanical Properties

Diameter	Temper	Tensile Strength	Yield Strength	Elongation
mm		MPa min.	MPa min.	% min.
1.5 <math>\leq \Phi < 6.5</math>	H02	260	205	8
	H04	330	275	4
6.5 <math>\leq \Phi < 67</math>	H02	260	205	12
6.5 <math>\leq \Phi < 32</math>	H04	305	260	8
32 <math>\leq \Phi < 76</math>	H04	275	240	8

Tolerance and Delivery Form

Diameter	Tolerance ^③	Standard coil weights	Coil ID
mm	mm	kg	mm
1.0 <math>< \Phi \leq 1.6</math>	0.03	18-30	260-300
1.6 <math>< \Phi \leq 2.5</math>	0.03	25-40	320-350
2.5 <math>< \Phi \leq 4.0</math>	0.04	30-45	370-400
2.8 <math>< \Phi \leq 6.5</math>	0.04	100-250	400-650
4.0 <math>< \Phi \leq 6.5</math>	0.05	45-60	370-400
6.5 <math>< \Phi \leq 10.0</math>	0.05	200-400	1000-1200
8.0 <math>< \Phi \leq 12.0</math>	0.06	200-400	1200-1400

Note③: The tolerances listed in the table are specified as all plus or all minus. When tolerances are specified as plus and minus (\pm), half the values given.

*Composition ASTM B301-2013
Conductivity ASTM B301-2013
Mechanical Properties ASTM B301-2013
Fabrication Properties CDA
Other Physical Properties CDA

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