

## Tellurium Copper

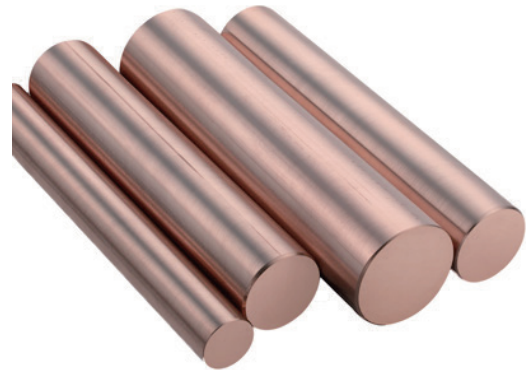
# CTe0.5 (C14500)

### Material Designation \*

UNS	C14500
EN	CuTeP (CW118 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 <sup>①</sup>	8.94	g/cm <sup>3</sup>
Melting point	1080	°C
Electrical conductivity <sup>①</sup>	≥85	%IACS
Thermal conductivity <sup>①</sup>	355	W/(m·K)
Coefficient of thermal expansion <sup>②</sup>	17.1	10 <sup>-6</sup> /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 ≤ Φ < 6.5	H02	260	205	8
	H04	330	275	4
6.5 ≤ Φ < 67	H02	260	205	12
6.5 ≤ Φ < 32	H04	305	260	8
32 ≤ Φ < 76	H04	275	240	8

## Tolerance and Delivery Form

Diameter	Tolerance <sup>③</sup>	Straight Bar			Coil wire	
		Ovality	Length	Straightness	ID	Weight
mm	mm	mm max.	mm max.	mm/m max.	mm	kg
1.5 ≤ Φ < 6	0.05	0.02	3000	0.5	800	500
6 ≤ Φ < 10	0.06	0.03	3000	0.5	1200	800
10 ≤ Φ < 18	0.08	0.04	3000	0.5	1500	1000
18 ≤ Φ < 30	0.10	0.05	3000	0.5	--	--
30 ≤ Φ < 50	0.16	0.08	3000	0.5	--	--
50 ≤ Φ < 60	0.20	0.10	3000	0.5	--	--
60 ≤ Φ < 76	0.40	0.20	3000	2.0	--	--

Note<sup>③</sup>: The tolerances listed in the table are specified as all plus or all minus. When tolerances are specified as plus and minus (±), half the values given.

\*Composition  
Conductivity  
Mechanical Properties  
Fabrication Properties  
Other Physical Properties

ASTM B301-2013  
ASTM B301-2013  
ASTM B301-2013  
CDA  
CDA

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