

## Tellurium Copper

# bedra 14500

### 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.

### Physical Properties

Density <sup>1</sup>	8.94	g/cm <sup>3</sup>
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

### 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.

### 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

Straight Bar				
Diameter	Tolerance*	Ovality	Length	Straightness
mm	mm	mm max.	mm max.	mm/m max.
1.5 ≤ Φ < 6	0.05	0.02	3000	0.5
6 ≤ Φ < 10	0.06	0.03	3000	0.5
10 ≤ Φ < 18	0.08	0.04	3000	0.5
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

\* The tolerance 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           ASTM B301-2013  
 Conductivity            ASTM B301-2013  
 Mechanical Properties   ASTM B301-2013  
 Fabrication Properties   CDA  
 Other Physical Properties CDA

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