

# bedra 46500

## Material Designation \*

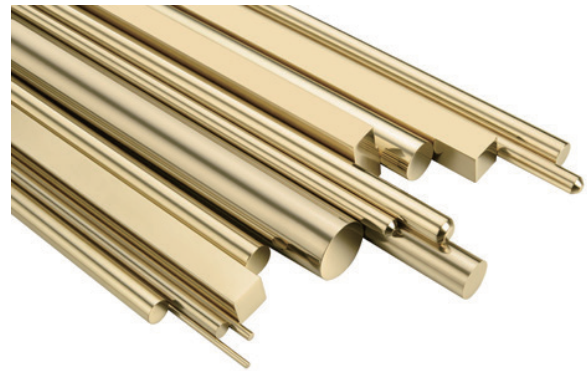
UNS	C46500
EN	CuZn38Sn1 As (CW 717 R)
JIS	/
GB	/

## Chemical Composition

Cu	59.0-62.0	%
Pb	≤0.2	%
Sn	0.5-1.0	%
As	0.02-0.10	%
Fe	≤0.1	%
Zn	Balance	%

## Characteristics

The alloy belongs to the copper-tin-zinc ternary alloy. It has good hot workability, corrosion resistance and wear resistance, excellent cutting performance and mechanical properties, and is widely used in sanitary ware, valves, etc.



## Typical Applications

It is mainly used in sanitary ware, refrigeration valve body, plumbing valve body and other industries.

## Physical Properties

Density <sup>①</sup>	8.41	g/cm <sup>3</sup>
Electrical conductivity <sup>①</sup>	26	%IACS
Thermal conductivity <sup>①</sup>	116	W/(m·K)
Coefficient of thermal expansion <sup>②</sup>	20.4	10 <sup>-6</sup> /K
Modulus of elasticity	103.4	GPa

Note<sup>①</sup>: Temperature for testing is 20°C.

Note<sup>②</sup>: Temperature range for testing is 20-300°C.

## Fabrication Properties

Cold workability	Fair
Hot workability	Excellent
Brazing	Excellent
Resistance welding	Good
Hot forging compared with C37700	90%
Machinability compared with C36000	30%

## Mechanical Properties

Diameter	Temper	Tensile Strength	Yield Strength	Elongation	Hardness
mm		MPa min.	MPa min.	% min.	HRB
Φ ≤ 6	O60	400	185	45	56
6 < Φ ≤ 25	O60	395	170	47	56
25 < Φ ≤ 50	O60	385	170	47	55
Φ ≥ 50	O60	375	150	-	-

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## Mechanical Properties

Diameter	Temper	Tensile Strength	Yield Strength	Elongation	Hardness
mm		MPa min.	MPa min.	% min.	HV min.
$\Phi \leq 6$	H02	435	205	40	60
$6 < \Phi \leq 25$	H02	435	205	40	60
$25 < \Phi \leq 50$	H02	425	195	43	60
$50 < \Phi \leq 75$	H02	395	180	-	-
$\Phi \geq 75$	H02	395	165	-	-
$\Phi \leq 6$	H04	550	395	20	85
$6 < \Phi \leq 25$	H04	515	365	20	82
$25 < \Phi \leq 50$	H04	460	275	35	75

## Tolerance and Delivery Form

### Straight Bar

Diameter	Tolerance <sup>③</sup>	Ovality	Length		Straightness
mm	mm	mm	mm max.	ft max.	mm/m max.
$2 \leq \Phi < 3$	0.03	0.0075	2500	8.2	1.0
$3 \leq \Phi < 6$	0.04	0.01	2500	8.2	0.5
$6 \leq \Phi < 10$	0.06	0.015	4000	13.1	0.5
$10 \leq \Phi < 18$	0.08	0.02	4000	13.1	0.5
$18 \leq \Phi < 25$	0.12	0.03	4000	13.1	0.5
$25 \leq \Phi < 40$	0.20	0.05	4000	13.1	0.5
$40 \leq \Phi < 60$	0.30	0.075	4000	13.1	0.5
$60 \leq \Phi < 80$	0.60	0.15	3000	9.8	3.0
$80 \leq \Phi < 100$	1.60	0.40	2000	6.6	5.0
$100 \leq \Phi \leq 120$	2.00	0.50	1500	4.9	6.0

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 ( $\pm$ ), half the values given.

\*Composition SAE J463  
 Conductivity SAE J463  
 Mechanical Properties SAE J463  
 Fabrication Properties CDA  
 Other Physical Properties CDA

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