

Tin Brass

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

Note^①: Temperature for testing is 20°C.

Note^②: 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 ^③	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^③: 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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