Bismuth Brass

bedra 49260

Material Designation*

UNS	C49260
EN	/
JIS	/
GB	HBi60-1-0.05

Chemical Composition

Cu	58.0-63.0	%
Pb	⩽ 0.009	%
Bi	0.50-1.8	%
P	0.05-0.15	%
Fe	⩽ 0.5	%
Sn	⩽ 0.5	%
Si	⩽ 0.1	%
Cd	⩽ 0.001	%
Zn	⩽ Balance	%

Characteristics

Through replacing lead element by bismuth, it is not only ensuring the cutting performance of material but also enviromental-friendly. It has excellent mechanical and electrical properties and it is one of the ideal substitute material for leaded brass.

Typical Applications

The alloy is widely used in TWS earphones, as well as used in CMOS lens products, electronics, hardware, machinery, connectors, valve core and food machinery industries.

Physical Properties

Density①	8.33	g/cm^3
Electrical conductivity①	21.7	%IACS
Thermal conductivity①	79	W/(m · K)
Coefficient of thermal expansion ②	17.5	10^{-6} / K
Modulus of elasticity	108.9	GPa

Note①: Temperature for testing is 20°C.
Note②: Temperature range for testing is 20-300°C.

Fabrication Properties

Cold workability	Fair
Hot workability	Fair
Brazing	Good
Hot forging compared with C37700	70%
Machinability compared with C36000	90%

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Mechanical Properties

Diameter	Temper	Tensile Strength	Yield Strength	Elongation
mm		MPa min.	MPa min.	% min.
3≤Φ<12	H02	395	170	7
12≤Φ<25	H02	380	170	10
25≤Φ<50	H02	345	140	15
50≤Φ≤80	H02	310	105	20

Tolerance and Delivery Form

			Straight Bar		
Diameter	Tolerance③	Ovality	Length		Straightness
mm	mm	mm	mm max.	ft max.	mm/m max.
3≤Φ<6	0.02	0.01	4000	13.1	0.5
6≤Φ<10	0.03	0.015	4000	13.1	0.5
10≤Φ<18	0.04	0.02	4000	13.1	0.5
18≤Φ<30	0.06	0.03	4000	13.1	0.5
30≤Φ<50	0.10	0.05	4000	13.1	0.5
50≤Φ<60	0.15	0.075	4000	13.1	0.5
60≤Φ<80	0.30	0.15	3000	10.0	2.0

Note③: 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	ASTM B974-2016a, Pb, for reference only.
Conductivity	ASTM B974-2016a
Mechanical Properties	ASTM B974-2016a
Fabrication Properties	CDA
Other Physical Properties	CDA