Manganese Brass

bedra 66800

Material Designation*

UNS	C66800
EN	/
JIS	/
GB	HMn61-3-1

Chemical Composition

Cu	60-63	%
Mn	2.0-3.5	%
Si	0.5-1.5	%
Pb	≤0.5	%
Sn	≤0.3	%
Fe	≤0.35	%
Ni	≤0.25	%
Al	≤0.25	%
Zn	Balance	%

Characteristics

The alloy is a copper-zinc-manganese series copper-based multi-element (α+β) two-phase alloy. The addition of silicon and manganese improves the strength and wear resistance of the alloy, and the addition of lead enhances its wear resistance and machinability.

It is a copper alloy with high strength and high wear resistance.

Typical Applications

It is applied for hydraulic components such as sliding shoes, sliding blocks, return disc stops and regulating valves seat.

Physical Properties

Density①	8.2	g/cm^3
Electrical conductivity①	13	%IACS
Thermal conductivity①	63	W/(m·K)
Coefficient of thermal expansion②	20.4	10^{-6} / K
Modulus of elasticity	110	GPa

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

Fabrication Properties

Cold workability	Poor
Hot workability	Excellent
Brazing	Good
Resistance welding	Not recommended
Hot workability compared with C37700	100%
Machinability compared with C36000	80%

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Mechanical Properties

Diameter	Temper	Tensile Strength	Yield Strength	Elongation	Hardness
mm		MPa min.	MPa min.	% min.	HV min.
6≤Φ<15	HR50	485	345	15	120
15≤Φ<50	HR50	440	320	15	110
50≤Φ<120	M30	380	172	20	95

Tolerance and Delivery Form

			Straight Bar	
Diameter	Tolerance ③	Ovality	Length	Straightness
mm	mm	mm	mm max.	mm/m max.
6≤Φ<10	0.06	0.03	4000	0.3
10≤Φ<18	0.07	0.03	4000	0.3
18≤Φ<30	0.08	0.04	4000	0.5
30≤Φ<50	0.16	0.08	4000	0.5
50≤Φ<60	0.80	0.40	4000	1.0
60≤Φ<80	1.60	0.80	3000	1.0
80≤Φ<120	2.00	1.00	2500	5.0

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	CDA
Conductivity	For reference only
Mechanical Properties	For reference only
Fabrication Properties	For reference only
Other Physical Properties	For reference only