Manganese Brass

bedra 67400

Material Designation*

UNS	C67400
EN	CuZn37Mn3Al2PbSi (CW 713 R)
JIS	/
GB	HMn57-2-1.7-0.5

Chemical Composition

Cu	57-60	%
Mn	2.0-3.5	%
Si	0.5-1.5	%
Al	0.5-2.0	%
Pb	≤0.5	%
Fe	≤0.35	%
Sn	≤0.3	%
Ni	≤0.25	%
Zn	Balance	%

Characteristics

It is a Cu-Zn-Mn-Al-Si-Pb series copper-based multi-element alloy. The addition of silicon and manganese improves the strength and wear resistance of the alloy, the addition of aluminum increases the yield strength of the alloy, and the addition of lead enhances its wear resistance and machinability. The product uses β phase as the matrix and Mn-Si compound as the matrix. It is a high-strength wear-resistant copper alloy with wear-resistant phase.

Typical Applications

It is widely used in valve guides, floating bearings, thrust bearings, synchronizer gear rings for the automotive industry, as well as sliding shoes, oil distribution pans, ball hinges, cylinder blocks, bushings for the hydraulic industry.

Physical Properties

Density①	8.08	g/cm^3
Electrical conductivity①	23	%IACS
Thermal conductivity①	100	W/(m·K)
Coefficient of thermal expansion ②	19.1	10^{-6} / K
Modulus of elasticity	110.3	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	Good
Hot workability compared with C37700	100%
Machinability compared with C36000	30%

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Mechanical Properties

Diameter	Temper	Tensile Strength	Yield Strength	Elongation	Hardness
mm		MPa min.	MPa min.	% min.	HB min.
Φ≤25	HR50	537	275	8	84
25＜Φ≤50	HR50	517	275	10	80
50＜Φ≤75	HR50	482	248	10	78

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	SAE J463
Conductivity	CDA
Mechanical Properties	SAE J463
Fabrication Properties	CDA
Other Physical Properties	CDA