

# C67400

# MANGANESE BRONZE

## DESCRIPTION

Manganese bronze contains small additions of manganese, iron, and aluminium, plus lead for lubricity, anti-seizing, and bonding. Like the aluminium bronzes, they combine high strength with excellent corrosion resistance. Manganese bronze bearings can operate at high speeds under heavy loads, but require high shaft hardness and nonabrasive operating conditions.

## CHEMICAL COMPOSITION

Elements	Min (%)	Max (%)
Cu	57.00	60.00
Pb	0.30	1.20
si	-	1.00
Mn	1.50	2.50
Sn	-	0.50
Fe	-	0.50
Al	1.50	2.30
Total Others	-	0.50
Zn	Remainder	

## MECHANICAL PROPERTIES (AS PER TEMPER Ho2)

Range (MM)	From	To	UTS Min (Mpa)	PS Min (Mpa)	Elo Min (%)	Hardness Min (HRB)	Hardness Max (HRB)
Round	8	75	630	370	8	170	210
Hex (A/F)	8	70	630	370	8	170	210
Square	8	60	630	370	8	170	210
Rectangle (Thickness)	8	50	630	370	8	170	210

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# SILICON BRASS

## PHYSICAL PROPERTIES

Melting Point - Liquidus°F	1625
Melting Point - Solidus°F	1590
Density lb/cu in. at 68°F	0.292
Specific Gravity	8.08
Electrical Conductivity % IACS at 68°F	23
Thermal Conductivity Btu/ sq ft/ ft hr/ °F at 68°F	58
Coefficient of Thermal Expansion 68-57210 <sup>-6</sup> per °F (68 – 572°F)	11
Specific Heat Capacity Btu/ lb /°F at 68°F	0.09
Modulus of Elasticity in Tension ksi	16000
Modulus of Rigidity ksi	6000

## FABRICATION PROPERTIES

Technique	Suitability
Soldering	Fair
Brazing	Good
Oxyacetylene Welding	Not Recommended
Gas Shielded Arc Welding	Fair
Coated Metal Arc Welding	Not Recommended
Spot Weld	Good
Seam Weld	Good
Butt Weld	Good
Capacity for Being Cold Worked	Poor
Capacity for Being Hot Formed	Excellent
Forgeability Rating	100
Machinability Rating	30

## TYPICAL USES

- > Oil and gas Industries
- > Aerospace
- > Fastener
- > Marine