

DESCRIPTION

Naval Brass is a 60:40 copper zinc alloy to which about 1% of tin has been added to improve the corrosion resistance, particularly to dezincification. The alloy is a two phase alpha-beta brass, hence has reasonably high strength with lower ductility, this alloy is suitable for Hot forging, pressing and machining.

CHEMICAL COMPOSITION

Elements	Min (%)	Max (%)
Cu	59.00	62.00
Pb	0.40	1.00
Sn	0.50	1.00
Fe	-	0.10
Total Others	-	0.40
Zn	Remainder	

MECHANICAL PROPERTIES ACCORDING TO ASTM B21 (AS PER TEMPER H02)

Range (Inch)	From	To	UTS Min (ksi)	PS Min (ksi)	Elongation Min (%)	Hardness Min (HRB)	Hardness Max (HRB)
Round (Dia)	0.059	0.500	60.00	27.00	18.00	-	-
	0.500	1.000	60.00	27.00	18.00	65.00	85.00
	1.000	2.000	58.00	26.00	20.00	60.00	85.00
	2.000	2.953	54.00	25.00	20.00	60.00	85.00
Hex (A/F)	0.118	0.500	60.00	27.00	18.00	-	-
	0.500	1.000	60.00	27.00	18.00	65.00	85.00
	1.000	2.000	58.00	26.00	20.00	60.00	85.00
	2.000	2.756	54.00	25.00	20.00	60.00	85.00
Square (A/F)	0.118	0.500	60.00	27.00	18.00	-	-
	0.500	1.000	60.00	27.00	18.00	65.00	85.00
	1.000	2.000	58.00	26.00	20.00	60.00	85.00
	2.000	2.362	54.00	25.00	20.00	60.00	85.00
Rectangle (Thickness)	0.118	0.500	60.00	27.00	18.00	-	-
	0.500	1.000	60.00	27.00	18.00	65.00	85.00
	1.000	1.968	58.00	26.00	20.00	60.00	85.00



MECHANICAL PROPERTIES ACCORDING TO ASTM B21 (AS PER TEMPER H02)

Range (Inch)	From	To	UTS Min (MPa)	PS Min (MPa)	Elongation Min (%)	Hardness Min (HRB)	Hardness Max (HRB)
Round (Dia)	1.5	12.00	415.00	185.00	18.00	-	-
	12.00	25.00	415.00	185.00	18.00	65.00	85.00
	25.00	50.00	400.00	180.00	20.00	60.00	85.00
	50.00	75.00	370.00	170.00	20.00	60.00	85.00
Hex (A/F)	3.00	12.00	415.00	185.00	18.00	-	-
	12.00	25.00	415.00	185.00	18.00	65.00	85.00
	25.00	50.00	400.00	180.00	20.00	60.00	85.00
	50.00	70.00	370.00	170.00	20.00	60.00	85.00
Square (A/F)	3.00	12.00	415.00	185.00	18.00	-	-
	12.00	25.00	415.00	185.00	18.00	65.00	85.00
	25.00	50.00	400.00	180.00	20.00	60.00	85.00
	50.00	60.00	370.00	170.00	20.00	60.00	85.00
Rectangle (Thickness)	3.00	12.00	415.00	185.00	18.00	-	-
	12.00	25.00	415.00	185.00	18.00	65.00	85.00
	25.00	50.00	400.00	180.00	20.00	60.00	85.00

PHYSICAL PROPERTIES

Melting Point - Liquidus°F	1650
Melting Point - Solidus°F	1630
Densitylb/cu in. at 68°F	0.305
Specific Gravity	8.44
Electrical Conductivity% IACS at 68°F	26
Thermal ConductivityBtu/ sq ft/ ft hr/ °F at 68°F	67
Coefficient of Thermal Expansion 68-57210° per °F (68 – 572°F)	11.8
Specific Heat CapacityBtu/ lb /°F at 68°F	0.09
Modulus of Elasticity in Tensionksi	15000
Modulus of Rigidityksi	5600

FABRICATION PROPERTIES

Technique	Suitability
Soldering	Excellent
Brazing	Excellent
Oxyacetylene Welding	Not Recommended
Gas Shielded Arc Welding	Not Recommended
Coated Metal Arc Welding	Not Recommended
Spot Weld	Not Recommended
Seam Weld	Not Recommended
Butt Weld	Fair
Capacity for Being Cold Worked	Poor
Capacity for Being Hot Formed	Good
Forgeability Rating	90
Machinability Rating	50





C48200

NAVAL BRASS

TYPICAL USES

- > Fasteners
- > Industrial
- > Marine



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