C4641

NAVAL BRASS

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 than the single phase 70:30 or alpha brass. It is used for structural applications and for forgings, especially where contact with sea water is likely to induce corrosion. The mechanical properties are almost indistinguishable from those of 60:40 brass C4641, although the tin addition tends to give slightly higher strength. CW619R can be readily hot worked, and can also be cold worked, but not as easily as the single phase alpha brasses.

CHEMICAL COMPOSITION

Elements	Min (%)	Max (%)
Cu	59.00	62.00
Pb	-	0.50
Sn	0.50	1.00
Fe	-	0.20
Zn	Remainder	

MECHANICAL PROPERTIES (AS PER TEMPER BD)

Range (mm)	From	To	UTS Min (MPa)	PS Min	Elongation Min (%)	Hardness Min (HRB)	Hardness Max (HRB)
Round (Dia)	1.5	75.00	375.00	-	10.00	-	-
Hex (A/F)	3.00	70.00	375.00	-	10.00	-	-
Square (A/F)	3.00	60.00	375.00	-	10.00	-	-
Rectangle (Thickness)	3.00	50.00	375.00	-	10.00	-	-

RAJHANS METALS PRIVATE LIMITED

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PHYSICAL PROPERTIES

Melting Point - Liquidus°F	1650
Melting Point - Solidus°F	1630
Densitylb/cu in. at 68°F	0.304
Specific Gravity	8.41
Electrical Conductivity% IACS at 68°F	26
Thermal ConductivityBtu/ sq ft/ ft hr/ °F at 68°F	67
Coefficient of Thermal Expansion 68-57210-^{6} 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	Good
Gas Shielded Arc Welding	Fair
Coated Metal Arc Welding	Not Recommended
Spot Weld	Good
Seam Weld	Fair
Butt Weld	Good
Capacity for Being Cold Worked	Fair
Capacity for Being Hot Formed	Excellent
Forgeability Rating	90
Machinability Rating	30

TYPICAL USES

- Fasteners
- Industrial
- Marine

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