

DESCRIPTION

C33500 are the standard materials for machining (machining index 100 %). These alloys are also particularly suitable for hot stamping when the forged parts are subsequently machined extensively. It is recommended for applications where cold working with little reduction such as knurling is used. The ductility of this material makes it particularly suitable for the manufacture of wires, rods and sections.

CHEMICAL COMPOSITION

Elements	Min (%)	Max (%)
Cu	62.00	65.00
Pb	0.25	0.70
Fe	-	0.15
Total Others	-	0.4
Zn	Remainder	

MECHANICAL PROPERTIES ACCORDING TO ASTM B453 (AS PER TEMPER H02)

Range (Inch)	From	To	UTS Min (Ksi)	UTS Max (Ksi)	PS Min (Ksi)	Elongation Min (%)	Hardness Min (HRB)	Hardness Max (HRB)
Round (Dia)	0.059	0.500	57.00	80.00	25.00	7.00	60.00	80.00
	0.500	1.000	55.00	70.00	25.00	10.00	50.00	75.00
	1.000	2.953	50.00	62.00	20.00	15.00	40.00	70.00
Hex (A/F)	0.118	0.500	57.00	80.00	25.00	7.00	60.00	80.00
	0.500	1.000	55.00	70.00	25.00	10.00	50.00	75.00
	1.000	2.756	50.00	62.00	20.00	15.00	40.00	70.00
Square (A/F)	0.118	0.500	57.00	80.00	25.00	7.00	60.00	80.00
	0.500	1.000	55.00	70.00	25.00	10.00	50.00	75.00
	1.000	2.362	50.00	62.00	20.00	15.00	40.00	70.00



MECHANICAL PROPERTIES ACCORDING TO ASTM B453 (AS PER TEMPER H02)

Range (Inch)	From	To	UTS Min (MPa)	UTS Max (MPa)	PS Min (MPa)	Elongation Min (%)	Hardness Min (HRB)	Hardness Max (HRB)
Round (Dia)	1.5	12.00	395.00	555.00	170.00	7.00	60.00	80.00
	12.00	25.00	380.00	485.00	170.00	10.00	50.00	75.00
	25.00	75.00	345.00	425.00	140.00	15.00	40.00	70.00
Hex (A/F)	3.00	12.00	395.00	555.00	170.00	7.00	60.00	80.00
	12.00	25.00	380.00	485.00	170.00	10.00	50.00	75.00
	25.00	70.00	345.00	425.00	140.00	15.00	40.00	70.00
Square (A/F)	3.00	12.00	395.00	555.00	170.00	7.00	60.00	80.00
	12.00	25.00	380.00	485.00	170.00	10.00	50.00	75.00
	25.00	60.00	345.00	425.00	140.00	15.00	40.00	70.00

PHYSICAL PROPERTIES

Melting Point - Liquidus°F	1700
Melting Point - Solidus°F	1650
Density/lb/cu in. at 68°F	0.306
Specific Gravity	8.47
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)	11.3
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	Good
Oxyacetylene Welding	Fair
Gas Shielded Arc Welding	Fair
Coated Metal Arc Welding	Not Recommended
Spot Weld	Fair
Seam Weld	Not Recommended
Butt Weld	Fair
Capacity for Being Cold Worked	Good
Capacity for Being Hot Formed	Poor
Machinability Rating	60

TYPICAL USES

- > Automotive
- > Builders Hardware
- > Consumer
- > Electrical
- > Fasteners
- > Industrial
- > Ordnance
- > Plumbing

