

# C3601

## FREE MACHINING BRASS

### DESCRIPTION

C3601 Free machining brass, produced from a combination of copper and zinc, has the highest machinability of all copper alloys, and is the standard against which all the others are compared to. C3601 Brass, known for its strength and resistance to corrosion with properties closely resembling that of steel, is one of the most popular copper alloys used today. C3601 Brass can be precision machined easily. Although ductile in its softened state, C3601 Brass is a strong material to work with and maintains its strength even under some of the most demanding conditions. C3601 Brass forms a thin protective "patina", which, unlike steel and iron, will not rust when exposed to the atmosphere. As a high-density material, C3601 Brass is ideal for heavy industrial parts. C3601 Brass is also valued for its high polished finish. C3601 Brass is available in rounds, flats, squares, hexagons, tube, plate, and sheet.

### CHEMICAL COMPOSITION

Elements	Min (%)	Max (%)
Cu	59.00	63.00
Pb	1.80	3.70
Fe	-	0.30
Sn+Fe	-	0.50
Zn	Remainder	

### MECHANICAL PROPERTIES (AS PER TEMPER BD)

Range (mm)	From	To	UTS Min (N/mm <sup>2</sup> )	PS Min	Elongation Min (%)	Hardness Min	Hardness Max
Round (Dia)	6.00	50.00	345.00	-	-	-	-
Hex (A/F)	6.00	50.00	345.00	-	-	-	-
Square (A/F)	6.00	50.00	345.00	-	-	-	-
Rectangle (Thickness)	6.00	50.00	345.00	-	-	-	-

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### PHYSICAL PROPERTIES

Melting Point - Liquidus°F	1650
Melting Point - Solidus°F	1630
Densitylb/cu in. at 68°F	0.307
Specific Gravity	8.5
Electrical Conductivity% IACS at 68°F	26
Thermal ConductivityBtu/ sq ft/ ft hr/ °F at 68°F	67
Coefficient of Thermal Expansion 68-57210 <sup>-6</sup> per °F (68 – 572°F)	11.4
Specific Heat CapacityBtu/ lb /°F at 68°F	0.09
Modulus of Elasticity in Tensionksi	14000
Modulus of Rigidityksi	5300

### FABRICATION PROPERTIES

Technique	Suitability
Soldering	Excellent
Brazing	Good
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	Fair
Capacity for Being Hot Formed	Fair
Machinability Rating	100

### TYPICAL USES

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