

C27453

LEAD FREE BRASS

DESCRIPTION

C27453 is a lead-free yellow brass alloy (UNS designation) designed to provide good strength, machinability, and corrosion resistance while eliminating lead for compliance with modern environmental and health standards. It is widely used in plumbing, fittings, and components where lead-free materials are required.

CHEMICAL COMPOSITION

Elements	Min (%)	Max (%)
Cu	61.50	63.50
Pb	0.00	0.25
Sn	0.00	0.15
Fe	0.00	0.15
Zn	Remainder	
As	0.02	0.15

MECHANICAL PROPERTIES ACCORDING TO ASTM B283 C27453 (AS PER TEMPER M10)

Range (Inch)		From	To	UTS Min (Ksi)	PS Min (Ksi)	Elongation Min (%)	Hardness Min (HRB)	Hardness Max (HRB)
Round (Dia)		0.25	3.00	49.00	29.00	30.00	-	-
Hex (A/F)		0.25	2.50	49.00	29.00	30.00	-	-
Square (A/F)		0.25	2.35	49.00	29.00	30.00	-	-
Rectangle	Thickness	0.25	2.00	49.00	29.00	30.00		
	Width	0.50	3.00					

Range (mm)		From	To	UTS Min (Mpa)	PS Min (Mpa)	Elongation Min (%)	Hardness Min (HRB)	Hardness Max (HRB)
Round (Dia)		6.5	75	340	200	30	-	-
Hex (A/F)		6.5	65	340	200	30	-	-
Square (A/F)		6.5	60	340	200	30	-	-
Rectangle	Thickness	6	50	340	200	30		
	Width	12	75					



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PHYSICAL PROPERTIES

Density	~0.31 lb/cu in (8.42 g/cm ³)
Melting Range	1650–1680 °F (899–916 °C)
Electrical Conductivity	~28% IACS (International Annealed Copper Standard)
Thermal Conductivity	~68 Btu/sq. ft/ft hr/°F (good heat transfer ability)
Coefficient of Thermal Expansion	11 × 10 ⁻⁶ per °F (68–212 °F)
Modulus of Elasticity (E)	~15,000 ksi (approximate)
Specific Heat Capacity	~0.09 Btu/lb/°F

FABRICATION PROPERTIES

Soldering	Excellent
Brazing	Excellent
Welding	Excellent
Capacity for Being Cold Worked	Excellent
Capacity for Being Hot Worked	Excellent
Forgeability Rating	90
Machinability Rating	40

TYPICAL USES

Plumbing fittings
Valves and faucets
Pipe connectors and adapters
Bearings and bushings
Electrical connectors
Fasteners and threaded parts