

Typical Uses

ELECTRICAL: High-conductivity springs, electrical contacts, resistance welding electrodes, electrical fittings, clamps, connectors, terminals, electronic lead frames and other components

MECHANICAL: Diaphragms, washers, friction plates

Common Fabrication Processes

Blanking, coining, drawing, etching, forming, bending, and stamping

Composition-Percent

	Nominal	Min	Max
Copper (inc Silver)	-	99.75	-
Silver	-	.027	.10
		(8)*	(30)*
Phosphorus	.06	.040	.080
Magnesium	.11	.08	.13

*Troy ounce per avoirdupois ton = 0.0034%

Physical Properties	English Units	CG.S. Units
Melting Point (Liquidus)	1,980°F	1,082°C
Melting Point (Solidus)	1,960°F	1,071°C
Density	.322 lb./cu. in. a 68°F	8.91 gm./cu. cm. a 20°C
Specific Gravity	8.91	8.91
Coefficient of Thermal Expansion	.0000098 per °F from 68°F to 212°F	.0000177 per °C from 20°C to 100°C
Thermal Conductivity	200 Btu./sq. ft./hr./°F @ 68°F	83 cal/sq. cm/cm/seC/°C @ 20°C
Electrical Resistivity (Annealed)	10.0 Ohms (circ. mil./ft.) @ 68°F	1.83 Microhm-cm @ 20°C
Electrical Conductivity* (Annealed)	94% IACS @ 68°F	.545 Megohm-cm @ 20°C
Thermal Capacity (Specific Heat)	.092 Btu./lb./°F @ 68°F	.092 cal/gm./°C @ 20°C
Modulus of Elasticity (Tension)	17,000,000 psi	12,000 Kg/sq. mm
Modulus of Rigidity	6,400,000 psi	4,500 Kg/sq. mm
Magnetic Permeability	Less than 1.002 gauss/oersted	

*Volume basis after precipitation heat treatment

Fabrication Properties

Capacity for being Cold Worked _____ Excellent
 Capacity for being Hot Formed _____ Excellent
 Hot Forgeability Rating (Forging Brass =100) _____ -
 Hot Working Temperature _____ 1,400-1,600°F or 750-875°C
 Annealing Temperature _____ 750-1,000°F or 400-540°C
 Machinability Rating (Free Cutting Brass =100) _____ 20

Suitability for being joined by:

Soldering _____ Excellent
 Brazing _____ Excellent

For other methods of joining, consult our Technical Services Group.

Mechanical Properties

Form	Size Section	Temper (Nominal Yield Strength 1000 psi)	Nominal Tensile Strength psi	Nominal Yield Strength		Elongation in 2" - %	Nominal Rockwell Hardness		Fatigue Strength	
				.5% Ext. psi	.2% Offset psi		15-T	30-T	psi	Million Cycles
FLAT PRODUCTS	.015 in.	Soft	40,000	18,000	17,800	32	63	-	15,000	100
	35	45,000	35,000	34,800	25	74	50	-	-	-
	45	50,000	42,000	42,000	18	78	54	-	-	-
	50	50,000	46,000	45,800	10	80	57	-	-	-
	55	60,000	52,000	52,000	10	82	68	-	-	-
	60	60,000	57,000	57,000	6	84	72	21,500	100	100
	65	70,000	62,000	62,000	8	86	75	-	-	-
	70	70,000	67,000	67,000	3	87	78	21,500	100	100
	75	80,000	75,000	75,000	2	88	-	-	-	-

The values listed above represent reasonable approximations suitable for general engineering use. Due to commercial variations in composition and to manufacturing limitations, they should not be used for specification purposes. See applicable A.S.T.M. specification references.

owned by: