COPPER ALLOY No. C70600 *(COPPER NICKEL, 10%)*

Composition — percent

	Nominal	Minimum	Maximum
Copper (incl. Silver)	88.6	Remainder	
Lead	....	....	.05*
Iron	1.4	1.0	1.8
Zinc	....	....	1.0*
Nickel	10	9.0	11.0
Manganese	....	....	1.0

*When the product is for subsequent welding applications and so specified by the purchaser, Zn shall be .50% max., Pb .025% max., P .02% max., Sulfur .02% max. and Carbon .05% max.

Nearest Applicable A S T M Specifications

Flat Products	B122, B151, B171, B402, B432
Pipe	B466, B467, B608
Rod	B121, B151
Shapes	
Tube	B111, B359, B395, B466, B467, B543, B552
Wire	

Physical Properties

	English Units	C. G. S. Units
Melting Point (Liquidus)	2100 F	1150 C
Melting Point (Solidus)	2010 F	1100 C
Density	.323 lb /cu in @ 68 F	8.94 gm /cu cm @ 20 C.
Specific Gravity	8.94	8.94
Coefficient of Thermal Expansion	per °F from 68 F to 212 F	per °C from 20 C to 100 C
Coefficient of Thermal Expansion	per °F from 68 F to 392 F	per °C from 20 C to 200 C
Coefficient of Thermal Expansion	.0000095 per °F from 68 F to 572 F	.0000171 per °C from 20 C to 300 C
Thermal Conductivity	26 Btu /sq ft /ft /hr /°F @ 68 F	.11 cal /sq cm /cm /sec /°C @ 20 C
Electrical Resistivity (Annealed)	115 Ohms (circ mil /ft) @ 68 F	19.1 Microhm-cm @ 20 C
Electrical Conductivity* (Annealed)	9.0 % IACS @ 68 F	.0522 Megmho-cm @ 20 C
Thermal Capacity (Specific Heat)	.09 Btu /lb °F @ 68 F	.09 cal /gm /°C @ 20 C
Modulus of Elasticity (Tension)	18,000 ksi	12,700 Kg /sq mm
Modulus of Rigidity	6,800 ksi	4,800 Kg /sq mm

* Volume Basis

Typical Uses

INDUSTRIAL: condensers, condenser plates, distiller tubes, evaporator and heat exchanger tubes, ferrules, salt water piping

Common Fabrication Processes

Forming and bending, welding

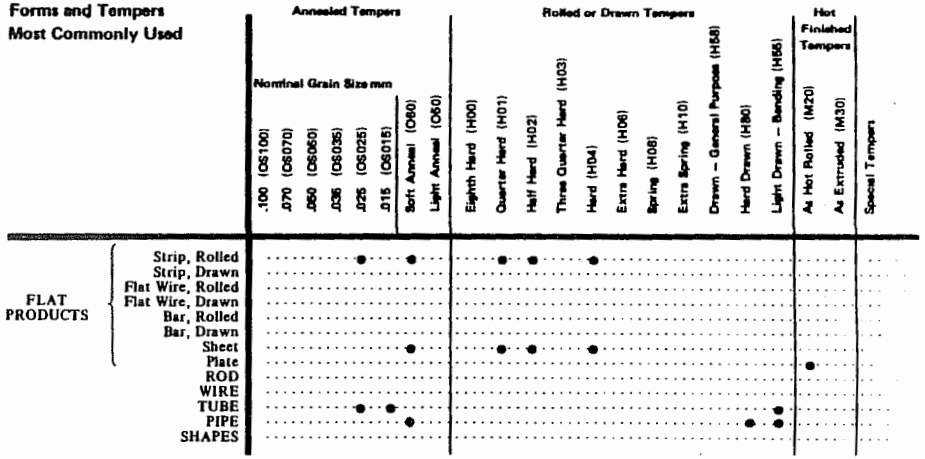
Fabrication Properties

Capacity for Being Cold Worked	Good
Capacity for Being Hot Formed	Good
Hot Forgeability Rating (Forging Brass = 100)	
Hot Working Temperature	1550-1750 F or 850-950 C
Annealing Temperature	1100-1500 F or 600-825 C
Machinability Rating (Free Cutting Brass = 100)	20

Suitability for being joined by:

Soldering	Excellent
Brazing	Excellent
Oxyacetylene Welding	Fair
Gas Shielded Arc Welding	Excellent
Coated Metal Arc Welding	Good
Resistance Welding — Spot	Good
Resistance Welding — Seam	Good
Resistance Welding — Butt	Excellent

Forms and Tempers Most Commonly Used



DRAWN–GENERAL PURPOSE (H58) temper is used for general purpose tube only, usually where there is no real requirement for high strength or hardness on the one hand or for bending qualities on the other.

HARD DRAWN (H80) temper is used only where there is need for a tube as hard or as strong as is commercially feasible for the size in question.

LIGHT DRAWN–BENDING (H55) temper is used only where a tube of some stiffness, but yet capable of readily being bent (or otherwise moderately cold worked) is needed.

Mechanical Properties

Form	Size Section in.	Temper	Tensile Strength ksi	Yield Strength (.5% Ext. under Load) ksi	Yield Strength (.2% Offset) ksi	Elongation in 2 in. %	Rockwell Hardness F	Rockwell Hardness B	Rockwell Hardness 30T	Shear Strength ksi	Fatigue Strength ksi	Fatigue Strength Million Cycles
TUBE	1.0 in. OD X .065 in.	.025 mm	44.0	16.0	....	42	65	15	26	...	...	
		Light Drawn	60.0	57.0	....	10	100	72	70	...	...	

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.