COPPER ALLOY Nos. C26800 *(YELLOW BRASS, 66%)* and C27000 *(YELLOW BRASS, 65%)*

Composition — percent

	ALLOY NO. C26800 (SHEET)			ALLOY NO. C27000 (ROD & WIRE)		
	Nominal	Minimum	Maximum	Nominal	Minimum	Maximum
Copper	66	64.0	68.5	65	63.0	68.5
Lead	....	....	.15	....	....	.10
Iron	....	....	.05	....	....	.07
Zinc	34	Remainder		35	Remainder	

Nearest Applicable A S T M Specifications

Bolts	B468
Flat Products	B36, B134
Nuts	F467
Pipe	
Rod	
Screws	F468
Shapes	
Studs	F468
Tube	B135, B587
Wire	B134

* Refer to specific ASTM Specification for alloys covered

Physical Properties

	English Units	C. G. S. Units
Melting Point (Liquidus)	1710 F	930 C
Melting Point (Solidus)	1660 F	905 C
Density	.306 lb /cu in @ 68 F	8.47 gm /cu cm @ 20 C.
Specific Gravity	8.47	8.47
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	.0000113 per °F from 68 F to 572 F	.0000203 per °C from 20 C to 300 C
Thermal Conductivity	67 Btu /sq ft /ft /hr /°F @ 68 F	.28 cal /sq cm /cm /sec /° C @ 20 C
Electrical Resistivity (Annealed)	38.4 Ohms (circ mil /ft) @ 68 F	6.39 Microhm-cm @ 20 C
Electrical Conductivity* (Annealed)	27 % IACS @ 68 F	.157 Megmho-cm @ 20 C
Thermal Capacity (Specific Heat)	.09 Btu /lb °F @ 68 F	.09 cal /gm /° C @ 20 C
Modulus of Elasticity (Tension)	15,000,000 ksi	10,500 Kg /sq mm
Modulus of Rigidity	5,600,000 ksi	3,900 Kg /sq mm

Typical Uses

ARCHITECTURAL: grillwork
AUTOMOTIVE: radiator cores and tanks
ELECTRICAL: flashlight shells, lamp fixtures, reflectors, screw shells, socket shells
HARDWARE: bead chain, chain, eyelets, fasteners, grommets, finish hardware articles (hinges, kick plates, locks, push plates, etc.), stencils
PLUMBING: plumbing accessories, sink strainers
WIRE: pins, rivets, screws, springs

Common Fabrication Processes

Blanking, drawing, etching, forming and bending, heading and upsetting, piercing and punching, roll threading and knurling, shearing, spinning, squeezing and swaging, stamping

Fabrication Properties

Capacity for Being Cold Worked ..... Excellent
Capacity for Being Hot Formed ..... Poor
Hot Forgeability Rating (Forging Brass = 100) : .....
Hot Working Temperature ..... F or C
Annealing Temperature ..... 800-1300 F or 425-700 C
Machinability Rating (Free Cutting Brass = 100) 30

Suitability for being joined by:
Soldering ..... Excellent
Brazing ..... Excellent
Oxyacetylene Welding ..... Good
Gas Shielded Arc Welding ..... Fair
Coated Metal Arc Welding ..... Not Recommended
Resistance Welding: Spot ..... Good; Seam ..... Not Recommended; Butt ..... Good

Forms and Tempers Most Commonly Used

	Annealed Tempers: Nominal Grain Size mm .100 (OS100)	.070 (OS070)	.050 (OS050)	.035 (OS035)	.025 (OS025)	.015 (OS015)	Soft Anneal (O60)	Light Anneal (O50)	Rolled or Drawn Tempers: Eighth Hard (H00)	Quarter Hard (H01)	Half Hard (H02)	Three Quarter Hard (H03)	Hard (H04)	Extra Hard (H06)	Spring (H08)	Extra Spring (H10)	Drawn – General Purpose (H58)	Hard Drawn (H80)	Light Drawn – Bending (H55)	Hot Finished Tempers: As Hot Rolled (M20)	As Extruded (M30)	Special Tempers
FLAT PRODUCTS: Strip, Rolled			●	●	●	●			●	●	●		●	●	●							
Strip, Drawn																						
Flat Wire, Rolled			●								●		●		●							
Flat Wire, Drawn			●								●		●									
Bar, Rolled																						
Bar, Drawn																						
Sheet			●			●					●		●									
Plate			●										●									
ROD			●						●													
WIRE	●	●	●	●	●	●			●	●	●		●	●	●							
TUBE																						
PIPE																						
SHAPES																						

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 i used only where a tube of some stiffness, bu yet capable of readily being bent (or othe wise 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	B	30T	Shear Strength ksi	Fatigue Strength ksi	Fatigue Strength Million Cycles
FLAT PRODUCTS	.040 in.	.070 mm	46.0	14.0	....	65	58	–	15	32.0	12.0	100
		.050 mm	47.0	15.0	....	62	64	–	26	....	....	....
		.035 mm	49.0	17.0	....	57	68	–	31	34.0	....	....
		.025 mm	51.0	19.0	....	55	72	–	36	....	....	....
		.015 mm	53.0	22.0	....	54	78	–	43	....	....	....
		Eighth Hard	50.0	35.0	....	50	–	50	50	....	....	....
		Quarter Hard	54.0	40.0	....	43	–	55	54	36.0	....	....
		Half Hard	61.0	50.0	....	23	–	70	65	40.0	....	....
		Hard	74.0	60.0	....	8	–	80	70	43.0	14.0	100
		Extra Hard	85.0	62.0	....	5	–	87	74	45.0	....	....
		Spring	91.0	62.0	....	3	–	90	76	47.0	20.0	100
ROD	1.0 in.	.050 mm	48.0	16.0	....	65	65	–	–	34.0	....	....
		Eighth Hard (6%)	55.0	40.0	....	48	–	55	–	36.0	....	....
WIRE	.080 in.	.035 mm	50.0	....	....	60	–	–	–	34.0	....	....
		Eighth Hard	58.0	....	....	35	–	–	–	38.0	....	....
		Quarter Hard	70.0	....	....	20	–	–	–	42.0	22.0*	300
		Half Hard	88.0	....	....	15	–	–	–	....	....	....
		Hard	110.0	....	....	8	–	–	–	55.0	....	....
		Extra Hard	120.0	....	....	4	–	–	–	60.0	....	....
		Spring	128.0	....	....	3	–	–	–	60.0	....	....

* Rotating beam tests on rod

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.