C31400

✓ STANDARD-STOCKED PRODUCT

Wrought

Product Description:	Leaded Commercial Bronze
Tempers:	H02 Half-Hard, H04 Hard
Solids:	⅜" to 2" O.D.
Hex:	⅜" to 2" O.D.
Rectangles:	Consult Mill
Standard Lengths:	144"

Typical Uses

Builders Hardware	door knobs
Electrical	electrical plug type connectors, connectors for wire and cable
Fasteners	nuts, screws
Industrial	pickling crates, pickling fixtures, pickling racks, screw machine parts

Similar or Equivalent Specification

CDA	ASTM	Asarcon	SAE	AMS	Federal	Military	Other
C31400	B140 B140M					MIL-V-18436	

Chemical Composition

Cu%	Pb%	Zn%	Fe%	Ni%
87.50- 90.50	1.30- 2.50	Rem.	0.10	0.70

Chemical Composition according to ASTM B140/B140M-12(2017)

Note: Cu + Sum of Named Elements, 99.6% min. Single values represent maximums.

Machinability

Copper Alloy UNS No.	Machinability Rating	Density (lb/cu in at 68 °F)
C31400	80	0.319

CONCAST METAL PRODUCTS CO.

14315 State Route 113 • Wakeman, OH 44889 • Phone 800.626.7071 • Fax 724.538.3956

Mechanical Properties

Mechanical Properties according to ASTM B140/B140M-12(2017)
C31400
H02 Half-Hard

SIZE RANGE: ½" DIAMETER AND UNDER

Tensile Strength, min		Yield Strength, at .5% Extension Under Load, min		Elongation, in 2 in. or 50 mm min	Rockwell "B" Hardness	Remarks
ksi	MPa	ksi	MPa	%	typical HRB	
50	345	30	205	7	61	

SIZE RANGE: OVER ½" DIAMETER TO 1" INCLUSIVE

Tensile Strength, min		Yield Strength, at .5% Extension Under Load, min		Elongation, in 2 in. or 50 mm min	Rockwell "B" Hardness	Remarks
ksi	MPa	ksi	MPa	%	typical HRB	
45	310	27	185	10	61	

SIZE RANGE: OVER 1" DIAMETER

Tensile Strength, min		Yield Strength, at .5% Extension Under Load, min		Elongation, in 2 in. or 50 mm min	Rockwell "B" Hardness	Remarks
ksi	MPa	ksi	MPa	%	typical HRB	
40	275	25	170	12	58	

C31400
H04 Hard

SIZE RANGE: 2" DIAMETER AND UNDER

Tensile Strength, min		Yield Strength, at .5% Extension Under Load, min		Elongation, in 2 in. or 50 mm min	Rockwell "B" Hardness	Remarks
ksi	MPa	ksi	MPa	%	typical HRB	
53	365	40	275	6	65	

Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1900 ˚F	1038 ˚C
Melting Point – Solidus	1850 ˚F	1010 ˚C
Density	0.319 lb/in^3 at 68 ˚F	8.83 gm/cm^3 at 20 ˚C
Specific Gravity	8.83	8.83
Electrical Conductivity	42% IACS at 68 ˚F	0.246 MegaSiemens/cm at 20 ˚C
Thermal Conductivity	104 Btu/sq ft/ft hr/˚F at 68 ˚F	180 W/m at 20 ˚C
Coefficient of Thermal Expansion	10.2 · 10^{-6} per ˚F (68-572 ˚F)	17.6 ·10^{-6} per ˚C (20-300 ˚C)
Specific Heat Capacity	0.09 Btu/lb/˚F at 68 ˚F	377.1 J/kg at 20 ˚C
Modulas of Elasticity in Tension	17000 ksi	117210 MPa
Modulus of Rigidity	6400 ksi	44130 MPa

Physical Properties provided by CDA

Fabrication Properties

Joining 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	Good
Capacity for Being Hot Formed	Poor

Fabrication Properties provided by CDA

Thermal Properties

Treatment	Temp./Time - US	Temp./Time - SI
Stress Temperature		
Solution Minimum		
Solution Maximum		
Solution Time		
Solution Medium		
Precipitation Value		
Precipitation Time		
Precipitation Medium		
Annealing Minimum	800	427
Annealing Maximum	1200	649
Annealing Time		
Hot Treatment Minimum		
Hot Treatment Maximum		

Thermal Properties provided by CDA

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