

# C67600

Extruded and Drawn

**Product Description:** Manganese Bronze

**Temper:** H02 Half Hard, H04 Hard

**Solids:** 3/4" to 2" O.D.

**Hex:** Consult Mill

**Rectangles:** Consult Mill

**Standard Lengths:** 144"

## Typical Uses

**Industrial** gate valve stems, valve balls, welding rod

## Similar or Equivalent Specification

CDA	ASTM	SAE	AMS	Federal	Military	Other
C67600	B138 B138M			QQ-B-728		

## Chemical Composition

Cu% <sup>1</sup>	Pb%	Sn%	Zn%	Fe%	Mn%
57.00- 60.00	0.50- 1.00	0.50- 1.50	Rem.	0.40- 1.30	0.05- 0.50

Chemical Composition according to ASTM B138/B138M-11(2017)

<sup>1</sup>Cu value includes Ag.

Note: Cu + Sum of Named Elements, 99.5% min. Single values represent maximums.

## Machinability

Copper Alloy UNS No.	Machinability Rating	Density (lb/in <sup>3</sup> at 68 °F)
C67600	60	0.302

## Mechanical Properties

Mechanical Properties according to ASTM B138/B138M-11(2017)

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H02 Half Hard

### SIZE RANGE: UP TO 1" INCLUSIVE

Tensile Strength, min		Yield Strength, at 0.5% Extension Under Load, min		Elongation, in 4x Diameter or Thickness of Specimen, min	Rockwell "B" Hardness	Remarks
ksi	MPa	ksi	MPa	%	typical HRB	
72	496	36	248	13	90	

### SIZE RANGE: OVER 1" TO 2½" INCLUSIVE

Tensile Strength, min		Yield Strength, at 0.5% Extension Under Load, min		Elongation, in 4x Diameter or Thickness of Specimen, min	Rockwell "B" Hardness	Remarks
ksi	MPa	ksi	MPa	%	typical HRB	
70	483	35	241	15	90	

### SIZE RANGE: OVER 2½"

Tensile Strength, min		Yield Strength, at 0.5% Extension Under Load, min		Elongation, in 4x Diameter or Thickness of Specimen, min	Rockwell "B" Hardness	Remarks
ksi	MPa	ksi	MPa	%	typical HRB	
65	448	32	221	17	90	

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H04 Hard

### SIZE RANGE: UP TO 1" INCLUSIVE

Tensile Strength, min		Yield Strength, at 0.5% Extension Under Load, min		Elongation, in 4x Diameter or Thickness of Specimen, min	Rockwell "B" Hardness	Remarks
ksi	MPa	ksi	MPa	%	typical HRB	
80	552	56	386	8		

**SIZE RANGE: OVER 1" TO 2½" INCLUSIVE**

Tensile Strength, min		Yield Strength, at 0.5% Extension Under Load, min		Elongation, in 4x Diameter or Thickness of Specimen, min	Rockwell "B" Hardness	Remarks
ksi	MPa	ksi	MPa	%	typical HRB	
76	524	52	359	10		

**SIZE RANGE: OVER 2½"**

Tensile Strength, min		Yield Strength, at 0.5% Extension Under Load, min		Elongation, in 4x Diameter or Thickness of Specimen, min	Rockwell "B" Hardness	Remarks
ksi	MPa	ksi	MPa	%	typical HRB	
68	469	45	310	16		

## Physical Properties

	US Customary	Metric
Melting Point - Liquidus	1630 °F	888 °C
Melting Point - Solidus	1590 °F	866 °C
Density	0.302 lb/in <sup>3</sup> at 68 °F	8.36 gm/cm <sup>3</sup> at 20 °C
Electrical Conductivity	24% IACS at 68 °F	0.14 MegaSiemens/cm at 20 °C
Thermal Conductivity	61 Btu/sq ft/ft hr/°F at 68 °F	105.65 W/m at 20 °C
Coefficient of Thermal Expansion 68-572	11.8 · 10 <sup>-6</sup> per °F (68-572 °F)	20.4 · 10 <sup>-6</sup> per °C (20-300 °C)
Modulus of Elasticity in Tension	15000 ksi	103422 MPa
Modulus of Rigidity	5600 ksi	38611 MPa

Physical Properties provided by CDA

## Fabrication Properties

Technique	Suitability
Soldering	Excellent
Brazing	Excellent
Oxyacetylene Welding	Good
Gas Shielded Arc Welding	Fair
Spot Weld	Good
Capacity for Being Cold Worked	Poor
Capacity for Being Hot Formed	Excellent
Forgeability Rating	80
Machinability Rating	30

Fabrication Properties provided by CDA