

C65620 Silicon Bronze Rods (AMS 4616) Hollow Rods

C65620 Silicon Bronze Rods (AMS 4616) is an engineering alloy resistant to corrosion as copper itself, but much stronger, and with good fatigue endurance. The alloy is appreciated for its brazing ability, strength, corrosion resistance and electrical properties and serves as one of the most weldable copper alloys. The alloy can be joined by using resistance welding, soldering or brazing. The alloy is joined by gas shield arc welding, spot welding and also by oxyacetylene welding.



Typical Uses :

- **Electrical:** Conduit, Pole Line Hardware, Motor, Rotor Bars
- **Fasteners:** Bolts, Cable Clamps, Cap Screws, Machine Screws, Nuts, Rivets, U Bolts, Fasteners, Screws
- **Industrial:** Oil Refinery Plumbing Tube, Heat Exchanger Tube, Welding Rod, Hydraulic Pressure Lines
- **Marine:** Hardware

Equivalent Specifications:

Specifications	Designation
ISO	CuSi1
European	CuSi1
Czech Republic	CuSi1

Chemical Composition:

	Cu	Fe	Pb	Mn	Si	Zn
Min/Max	Rem	0.8	0.05	0.7	0.80 - 2.0	1.5
Nominals	98.5	-	-	-	1.5	-

Specifications:

End Product	Specification
Bar	ASME SB98, ASTM B98

Bolts	ASTM F468
Nuts	ASTM F467
Pipe	ASTM B315
Plate	ASTM B96
Plate, Clad	ASTM B432
Rod	ASME SB98, ASTM B98
Screws	ASTM F468
Shapes	ASME SB98, ASTM B98
Sheet	ASTM B96
Strip	ASTM B96
Studs	ASTM F468
Tube	ASTM B315
Wire	ASTM B99, B105

Fabrication:

Joining Technique	Suitability
Brazing	Excellent
Butt Weld	Excellent
Capacity for Being Cold Worked	Excellent
Capacity for Being Hot Formed	Excellent
Coated Metal Arc Welding	Fair
Gas Shielded Arc Welding	Excellent
Machinability Rating	30
Oxyacetylene Welding	Good

Seam Weld	Good
Soldering	Excellent
Spot Weld	Excellent

Physical Properties:

Product Property	US Customary	Metric
Coefficient of Thermal Expansion	9.9 $\times 10^{-6}$ per oF (68-212 F)	17.8 $\times 10^{-6}$ per oC (20-100 C)
Density	0.316 lb/in ³ at 68 F	8.75 gm/cm ³ @ 20 C
Electrical Conductivity	12 %IACS @ 68 F	0.07 MegaSiemens/cm @ 20 C
Electrical Resistivity	86.4 ohms-cmil/ft @ 68 F	14.36 microhm-cm @ 20 C
Melting Point - Liquidus	1940 F	1060 C
Melting Point - Solidus	1890 F	1032 C
Modulus of Elasticity in Tension	17000 ksi	117000 MPa
Modulus of Rigidity	6400 ksi	44130 MPa
Specific Gravity	8.75	8.75
Specific Heat Capacity	0.09 Btu/lb/oF at 68 F	377.1 J/kg \times oK at 293 K
Thermal Conductivity	33.0 Btu \times ft/(hr \times ft ² \times oF)at 68F	57.1 W/m \times oK at 20 C

Sizes Available

ROUND RODS/BARS	8mm To 70 mm
HEX	10mm To 60mm
SQUARE	10mm To 60mm
FLAT	10mm Min Thickness and max Width 120mm

BILLETS	Up to 200 mm
INGOTS	As per Specification

Regd. Office & Plant

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