

C69400

Extruded and drawn

| | |
|---------------------|-------------------|
| Product description | Silicon red brass |
| Tempers | H04 hard |
| Solids | 3/8" to 2" O.D. |
| Hex | 3/8" to 2" O.D. |
| Standard lengths | 144" |

Typical uses

Industrial
Valve stems

Similar or equivalent specification

| CDA | ASTM | SAE | AMS | Federal | Military | Other |
|--------|---------------|-----|-----|---------|----------|-------|
| C69400 | B371 B371M | | | | | |

Chemical composition

| Cu (%) ¹ | Pb (%) | Zn (%) | Fe (%) | Si (%) |
|---------------------|--------|--------|--------|-----------|
| 80.00-83.00 | 0.30 | Remain | 0.20 | 3.50-4.50 |

Chemical composition according to ASTM B371/B371M-19

¹Cu 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 ³ at 68 ° F) |
|----------------------|----------------------|--|
| C69400 | 30 | 0.296 |

C69400 continued

Mechanical properties

Mechanical properties according to ASTM B371/B371M-19
C69400
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 BHN | |
| 80 | 550 | 40 | 250 | 15 | 95 | |

Size range over 1" to 2" 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 BHN | |
| 75 | 515 | 35 | 241 | 15 | 95 | |

Size range over 2"

| 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 BHN | |
| 65 | 450 | 35 | 241 | 15 | 95 | |

Physical properties

| | US customary | Metric |
|---|--|--|
| Melting point – liquidus | 1685 °F | 918 °C |
| Melting point – solidus | 1510 °F | 821 °C |
| Density | 0.296 lb/in ³ at 68 °F | 8.19 gm/cm ³ at 20 °C |
| Specific gravity | 8.19 | 8.19 |
| Electrical conductivity | 6.2% IACS at 68 °F | 0.04 MegaSiemens/cm at 20 °C |
| Thermal conductivity | 15 Btu/sq ft/ft hr/°F at 68 °F | 25.98 W/m at 20 °C |
| Coefficient of thermal expansion 68-572 | 11.2 · 10 ⁻⁶ per °F (68-572 °F) | 19.3 · 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 |
| Modulus of elasticity in tension | 16000 ksi | 110310 MPa |

Physical properties provided by CDA

C69400 continued

Fabrication properties

| Technique | Suitability |
|--------------------------------|-------------|
| Soldering | Excellent |
| Brazing | Excellent |
| Oxyacetylene welding | Good |
| Spot weld | Good |
| Seam weld | Good |
| Butt 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

Thermal properties

| Treatment | Minimum* | Maximum* |
|---------------|----------|----------|
| Annealing | 800 | 1200 |
| Hot treatment | 1200 | 1600 |

Thermal properties provided by CDA

**Temperature is measured in Fahrenheit.*

Common fabrication processes

Forging, screw machining

Common fabrication processes provided by CDA