



Red brass is very durable, lower cost metal used for a variety of applications, most prominently in commercial water pipe. The alloy is specifically used for its excellent resistance to dezincification, season cracking and pitting. The alloy has good corrosion resistance for potable water applications. Applications range from heat exchanger and condenser tubes to couplings, fittings, and nipples. The color of Red Brass has increased its popularity in architectural applications and outdoors. Ameritube has experience supplying, manufacturing, and testing this alloy according to ASME SB-111/ASTM B111 where the tube is supplied annealed with a tensile and yield strength enabling rolling and bending and other applications for piping and fittings the tensile strength and yield strength are much higher, 70 ksi and 57.3 ksi respectively, under ASTM B43.

CHEMICAL COMPOSITION

| Cu | Fe | Pb | Other Named Elements |
|-------------|-----|-----|----------------------|
| 84.0 – 86.0 | .05 | .05 | - |

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APPLICABLE SPECIFICATIONS

| | | | | | | | | | |
|----------|---------------------|-------|-----------------------------|--------------------|----------------------------------|-------------------|---|-----------------|--------------------------------|
| Bar | ASTM B36 | Pipe | ASME SB43 ASTM B698, B43 | Strip | ASTM B888, B36 SAE J463, J461 | Tube, Finned | ASME SB359, ASTM B359 | Tube, Welded | ASME SB543, ASTM B587, B543 |
| Fittings | ASME B16.29, B16.22 | Plate | ASTM B36 | Tube | ASTM B569, B698 | Tube, U-Bend | ASME SB395, ASTM B395 | Wire | ASTM B134 |
| Nipples | ASTM B687 | Sheet | ASTM B36 SAE J461, J463 | Tube, Condenser | ASME SB111, ASTM B111 | Tube, Seamless | AMS 4553, ASME SB135, ASTM B135 FEDERAL WW-T-791 MILITARY MIL-T-20168, SAE J461, J463 | | |

FABRICATION PROPERTIES

| Soldering | Brazing | Oxyacetylene Welding | Gas Shielded Arc Welding | Coated Metal Arc Welding | Spot Weld | Seam Weld | Butt Weld | Capacity for being Cold Worked | Capacity for being Hot Formed | Machinability Rating |
|-----------|-----------|-------------------------|-----------------------------|-----------------------------|-----------|--------------------|-----------|--------------------------------------|-------------------------------------|-------------------------|
| Excellent | Excellent | Good | Good | Not Recommended | Fair | Not Recommended | Good | Excellent | Good | 30 |

PHYSICAL PROPERTIES

| Melting Point - Liquidus | Melting Point - Solidus | Density | Specific Gravity | Electrical Resistivity | Electrical Conductivity | Thermal Conductivity | Coefficient of Thermal Expansion | Specific Heat Capacity | Modulus of Elasticity in Tension | Modulus of Rigidity |
|--------------------------|-------------------------|-------------------------------------|------------------|----------------------------|--------------------------------|--|--|-----------------------------|----------------------------------|---------------------|
| 1880 F | 1810 F | 0.316 lb/in ³ at 68 F | 8.75 | 28.0 ohms-cmil/ft @ 68F | 37 %IACS @ 68 F | 92.0 Btu · ft/(hr · ft ² · °F) at 68F | 10.4 · 10 ⁻⁶ per °F (68-572 F) | 0.09 Btu/lb · °F at 68 F | 17000 ksi | 6400 ksi |
| 1027 C | 988 C | 8.75 gm/cm ³ @ 20 C | 8.75 | 4.65 microhm-cm @ 20C | 0.216 MegaSiemens/cm @ 20 C | 159.2 W/m · °K @ 20 C | 18.7 · 10 ⁻⁶ per °C (20-300C) | 377.1 J/kg · °K at 293 K | 117000 MPa | 44130 MPa |

MAXIMUM PRESSURE WORK

P = Maximum work pressure (psi)
S = Minimum tensile strength of material for a specific temper (it is the value of the tensile strength in psi in Mechanical properties table)
D = Exterior diameter of tube
T = Wall thickness of tube
$$P = \frac{2TS}{5D}$$

NON DESTRUCTIVE TESTS

Eddy Current Testing
Hydrostatic Testing
Air Underwater Testing
Ultrasonic Testing
(PMI) Positive Material Identification

DESTRUCTIVE TESTS

Microstructure Test
Tensile Test
Flattening Test
Expansion Test
Optical Spectrometry Test