Offered in solid bars, plates, and discs.

C17500/C17510 offer a combination of high electrical and thermal conductivity with good strength compared to most copper based alloys.

C17500 alloy is the mirror image of alloy C17510 in terms of its properties and characteristics. The alloys differ in that C17500 specifies a cobalt alloying addition (2.40-2.70 %) and alloy 17510 specifies a nickel alloying addition (1.40-2.20 %), but their performance are the same.

Sizes Available From NBM

SOLID BAR .......... 1/4” - 6” diameter
RECTANGLES ......... 3/8” x 1/2” - 1” x 3” thickness x width
SQUARES ............. 3/8” - 3” square
PLATES ............... 2” - 5” thickness
DISCS & RINGS ...... forged to size
HONED TUBES ........ up to 4” OD

Chemical Composition for C17500

<table>
<thead>
<tr>
<th></th>
<th>Cu (%)</th>
<th>Al</th>
<th>Be</th>
<th>Co</th>
<th>Fe</th>
<th>Si</th>
</tr>
</thead>
<tbody>
<tr>
<td>min/max</td>
<td>Rem</td>
<td>.20</td>
<td>.40-70</td>
<td>2.4-2.7</td>
<td>.10</td>
<td>.20</td>
</tr>
<tr>
<td>nominal</td>
<td>96.9</td>
<td>-</td>
<td>.55</td>
<td>2.6</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

(1) Cu value includes Ag.
Note: Cu + Sum of Named Elements, 99.5% min.

Chemical Composition for C17510

<table>
<thead>
<tr>
<th></th>
<th>Cu (%)</th>
<th>Al</th>
<th>Be</th>
<th>Co</th>
<th>Fe</th>
<th>Ni</th>
<th>Si</th>
</tr>
</thead>
<tbody>
<tr>
<td>min/max</td>
<td>Rem</td>
<td>.20</td>
<td>.20-60</td>
<td>30</td>
<td>.10</td>
<td>1.4-2.2</td>
<td>.20</td>
</tr>
<tr>
<td>nominal</td>
<td>97.8</td>
<td>-</td>
<td>.40</td>
<td>-</td>
<td>-</td>
<td>1.8</td>
<td>-</td>
</tr>
</tbody>
</table>

(1) Cu value includes Ag.
Note: Cu + Sum of Named Elements, 99.5% min.

Typical Uses for C17500 and C17510

**Electrical**
Fuse Clips, Conductors, Relay Parts, Switch Parts, Connectors, Instrument Parts

**Fasteners**
Fasteners

**Industrial**

**Other**
Stressed Parts
Honored Tubes - Automotive Applications

**Spec Equivalents**
ASTM B-441, B-534
SAE J461, J463

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NATIONAL BRONZE & METALS, INC.
PO BOX 800818
HOUSTON, TX 77280
713-869-9600
1-800-251-0771 TOLL FREE
sales@nbmmetals.com
www.nbmmetals.com
rev. 3/14/11
## Room Temp Tensile & Hardness Data

<table>
<thead>
<tr>
<th>ALLOY</th>
<th>TEMPER</th>
<th>SECTION SIZE (INCHES)</th>
<th>TENSILE (KSI) MIN</th>
<th>YIELD (KSI) MIN</th>
<th>ELONGATION IN HD MIN</th>
<th>ROCKWELL HARDNESS (B)</th>
<th>ELECTRICAL COND. IACS %</th>
</tr>
</thead>
<tbody>
<tr>
<td>C17500</td>
<td>A TB00</td>
<td>All Sizes</td>
<td>35 - 55</td>
<td>10 - 30</td>
<td>20 - 35%</td>
<td>20 - 50</td>
<td>20 - 30%</td>
</tr>
<tr>
<td>C17510</td>
<td>AT TF00</td>
<td>All Sizes</td>
<td>100 - 150</td>
<td>80 - 100</td>
<td>10 - 25%</td>
<td>92 - 100</td>
<td>45 - 60%</td>
</tr>
<tr>
<td></td>
<td>HT TH04</td>
<td>Up to 3°</td>
<td>110 - 140</td>
<td>95 - 125</td>
<td>5 - 25%</td>
<td>95 - 102</td>
<td>45 - 60%</td>
</tr>
</tbody>
</table>

## Physical Properties

- **Melting Point - Liquidus**: 1955 F
- **Melting Point - Solidus**: 1885 F
- **Density**: 0.311 lb/in³ at 68 F
- **Specific Gravity**: 8.62
- **Electrical Resistivity**: 22.8 ohms-cm/ft @ 68 F
- **Electrical Conductivity**: 45 %IACS @ 68 F
- **Thermal Conductivity**: 120.0 Btu·ft/(hr·ft²·°F) at 68 F
- **Coefficient of Thermal Expansion**: 9.8 ·10⁻⁶ per °F (68-572 F)
- **Specific Heat Capacity**: 0.1 Btu/lb/°F at 68 F
- **Modulus of Elasticity in Tension**: 19000 ksi
- **Modulus of Rigidity**: 7500 ksi
- **Machinability Rating**: 40