



# C464 NAVAL BRASS

ASTM B171 / ASME SB-171 ASTM B21  
QQ-B-637 QQ-B-639

| UNS No. | Copper + Silver | Tin      | Lead     | Iron     | Zinc      |
|---------|-----------------|----------|----------|----------|-----------|
| C46400  | 59.0-62.0       | 0.50-1.0 | 0.20 max | 0.10 max | remainder |

C46400 Naval Brass is copper, alloyed with zinc and tin to provide improved strength, corrosion resistance and machinability. As the name implies, naval brass has extensive marine application and can be found where strength and corrosion resistance are valued. Typical industrial applications for 464 brass include tubesheets, baffles, valve stems, fasteners and mold plates. C46400 Naval brass is also widely used for indoor and outdoor decorative applications including screens, elevators, signs, frames and decorative fascia. Naval brass is considered a Lead Free product because the maximum lead content is 1/5<sup>th</sup> of 1%.

|                                   |                          |
|-----------------------------------|--------------------------|
| Density @ 68° F                   | 0.304 lb/in <sup>3</sup> |
| Melting Range                     | 1630-1650° F             |
| Hot Formability                   | Excellent                |
| Cold Formability                  | Fair                     |
| Machinability rating (C360 = 100) | 30                       |
| Brazing                           | Excellent                |
| Soldering                         | Excellent                |
| Gas-shielded arc welding          | Fair                     |
| Oxy-acetylene welding             | Good                     |
| Carbon-arc welding                | Not recommended          |
| Coated metal-arc welding          | Not recommended          |
| Resistant welding: spot and seam  | Good                     |
| Resistance Welding: butt          | Good                     |

ASTM B171/ASME SB-171 Properties for M20 & O25 tempers

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| Thickness, in.        | Tensile, min ksi (MPa) | Yield, 0.5% Offset, min (MPa) | Elongation in 2", min, % | Thickness x Width (W), in. | Temper    | Tensile, min ksi | Yield, 0.5%, min ksi | Elongation in 2", min % |
|-----------------------|------------------------|-------------------------------|--------------------------|----------------------------|-----------|------------------|----------------------|-------------------------|
| 3 and under           | 50 (345)               | 20 (140)                      | 35                       | <=.1875, all W             | Soft      | 52               | 20                   | 30                      |
| over 3 to 5           | 50 (345)               | 18 (125)                      | 35                       | >.1875 to <=.375x<=30 W    | Soft      | 52               | 20                   | 30                      |
| Thickness Tolerances* |                        |                               |                          | <=.375 x >30 W             | Soft      | 50               | 20                   | 35                      |
|                       | <=36 in.               | >36 to 60 in.                 | >60 to 96 in.            | >.375, all W               | Soft      | 50               | 20                   | 35                      |
| >.25 to .50           | .025                   | .027                          | .029                     |                            |           |                  |                      |                         |
| >.50 to .75           | .028                   | .030                          | .032                     | <=.1875, all W             | Half Hard | 60               | 35                   | 20                      |
| >.75 to 1.0           | .033                   | .035                          | .037                     | >.1875 to <=.375x<=30 W    | Half Hard | 60               | 35                   | 20                      |
| >1.0 to 1.5           | .038                   | .040                          | .042                     | <=.375 x <=30 W            | Half Hard | 57               | 28                   | 30                      |
| >1.5 to 1.75          | .043                   | .045                          | .047                     | >.375, all W               | Half Hard | 54               | 25                   | 30                      |
| >1.75 to 2.00         | .050                   | .055                          | .062                     |                            |           |                  |                      |                         |
| >2.00 to 5.00         | .058                   | .062                          | .065                     |                            |           |                  |                      |                         |