MARMETAL

# C70600 / C70620 90-10 COPPER-NICKEL

## ASTM B171/ASME SB-171 ASTM B111/ASME SB-111
## MIL-C15726F MIL-T-16420K MIL-T-15005

| UNS No. | Copper & Silver | Nickel + Cobalt | Manganese | Lead | Iron | Zinc | Other Elem. |
|---|---|---|---|---|---|---|---|
| C70600 | remainder | 9.0-11.0 | 1.0 max | 0.05[a] max | 1.0-1.8 | 1.0[a] | |
| C70620 | 86.2 min | 9.0-11.0 | 1.0 max | 0.02 | 1.0-1.8 | 0.50 | 0.05 C .02 S/P |

[a]For subsequent welding application max levels are: Zinc 0.50, Lead 0.02, Phosphorus 0.02, Sulfur 0.02, Carbon 0.05

90/10 Cupro-Nickel is a copper-nickel alloy that is resistant to stress corrosion and is often used when an application will involve high-velocity seawater. Typical CuNi application for use in the chemical and marine industries include tubes and tubesheets for condensers, evaporators and heat exchangers; tubes for carrying seawater; valve bodies; pipe and tube fittings and flanges.

| | |
|---|---|
| Density @ *68° F* | 0.323 lb/in$^3$ |
| Melting Range | 2010-2095° F |
| Hot Formability | Good |
| Cold Formability | Excellent |
| Machinability rating (C360 = 100) | 20 |
| Brazing | Good |
| Soldering | Excellent |
| Gas-shielded arc welding | Excellent |
| Oxy-acetylene welding | Not recommended |
| Carbon-arc welding | Not recommended |
| Coated metal-arc welding | Good |
| Resistant welding: spot and seam | Good |
| Resistance welding: butt | Good |

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

| Thickness, in. | Tensile, min ksi (MPa) | Yield, 0.2% Offset, min (MPa) | Elongation in 2", min, % |
|---|---|---|---|
| 2.5 and under | 40 (275) | 15 (105) | 30 |
| over 2.5 to 5 | 40 (275) | 15 (105) | 30 |
| **Thickness Tolerances*** | | | |
| | <=36 in. | >36 to 60 in. | >60 to 96 in in. |
| >.25 to .50 | .031 | .033 | .036 |
| >.50 to .75 | .035 | .037 | .040 |
| >.75 to 1.0 | .041 | .043 | .046 |
| >1.0 to 1.5 | .047 | .050 | .052 |
| >1.5 to 1.75 | .053 | .056 | .058 |
| >1.75 to 2.00 | .062 | .068 | .077 |
| >2.00 to 5.00 | .072 | .077 | .081 |

MIL-C-15726F

| Thickness x Width (W) in. | Temper | Tensile, min ksi | Yield 0.5% min ksi | Elongation in 2", min, % |
|---|---|---|---|---|
| <=3/16, all W | 060 | 38 | 15 | 25 |
| >3/16, all W | M20 Soft | 38 | 15 | 30 |
| <=3/16 x <=24W | H01 | 55 | 30 | 10 |
| <=3/16 x >24 W | H01 | 47 | 25 | 10 |
| <=1/2 x >24 W | M20 Hard | 47 | 25 | 15 |
| >1/2 to 3, all W | M20 Hard | 40 | 17 | 20 |
| >3 to 5, all W | M20 Hard | 38 | 15 | 20 |
| All OD Sizes | 060 | 38 | 15 | 30 |
| <=3/8 OD | H04 | 60 | 38 | 10 |
| >3/8 to 1 OD | H04 | 50 | 30 | 15 |
| >1 to 3OD | H04 | 40 | 15 | 30 |

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*Thickness tolerances for MIL-C-15726F are based on lot weight.
Consult FED-STD-146 3a(7) for min/max weight

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