

## Copper Nickel

### ◆ INTRODUCTION

Aufhauser Copper Nickel is known for its strength, workability, formability, and weldability. The addition of nickel strengthens the weld metal and improves the corrosion resistance, particularly against salt water. The inclusion of controlled quantities of iron also gives the alloy an extraordinary resistance to general corrosion and stress corrosion cracking, as well as to erosion. It also protects against impingement due to turbulent water containing air bubbles and silt flowing at high velocities. The weld metal has good hot/cold ductility. Welding is done in all positions. When welding with the GTAW and GMAW processes, no preheat is required. C7152 is the welding grade referenced in ASTM and military specifications.

### ◆ APPLICATIONS

- Filler metal used for MIG, TIG, oxyacetylene and submerged arc welding of wrought or cast copper-nickel 70/30, 80/20 and 90/10 to themselves or to each other.
- Joining copper-nickel alloys to nickel-copper Alloy 400, R-405, K-500 or high nickel Alloy 200.

### ◆ CHEMICAL COMPOSITION

<u>Copper</u>	<u>Manganese</u>	<u>Iron</u>	<u>Silicon</u>	<u>Nickel</u>	<u>Phosphorus</u>	<u>Titanium</u>	<u>Others</u>
Remainder	1.0	0.40-0.75	0.25	29.0-32.0	0.02	0.20-0.50	0.50

Note: Copper contains Silver; Nickel contains Cobalt. All values are maximum percentage.

### ◆ PHYSICAL and MECHANICAL PROPERTIES

Tensile Strength	50,000 psi, min.
Elongation, in 2 in.	15%
Brinell Hardness	60-80
Liquidus	2260°F (1238°C)
Solidus	2120°F (1160°C)



### ◆ SPECIFICATIONS MEET or EXCEED

- AWS A5.7 Class ERCuNi
- ASME SFA5.7, Class ERCuNi
- QQ-R-571C
- MIL-E-21562 Type MIL-RN67, MIL EN67
- MIL-R-19631B Type MIL-RCuNi
- MIL-1-23413 (MIL-67)

### ◆ STANDARD SIZES AND DIAMETERS

<u>Diameters</u>	<u>Round Wire</u>	<u>Rod</u>
1/32", 1/16", 3/32",	Not specified	18"
1/8", 5/32", 3/16",		36"
1/4", 5/16", 3/8"		

Copper and its alloys require a relatively high heat input with shortened welding time. Higher preheat temperatures and faster welding rates than for steel are necessary. 20151201

C715: Copper Nickel

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