C70600 Copper Nickel (90/10) – Technical Specification

C70600, commonly known as **CuNi 90/10**, is a **copper-nickel alloy** composed of approximately 90% copper and 10% nickel. It offers **excellent corrosion resistance**—especially in seawater—along with good strength, weldability, and moderate thermal conductivity. It is widely used in marine, offshore, and desalination systems.

Composition of C70600

	Cu[1]	Fe	Pb	Mn	Ni[2]	Zn
Min./Max.	Rem.	1.0 – 1.8	0.05	1	9.0 – 11.0	1
Nominal	88.6	1.4	–	–	10	–

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

1. Heat Treatment

Copper Alloy No. C70600 is a solid solution alloy and is not hardenable by heat treatment. It may be strengthened by cold work. To anneal the alloy, heat to 1100 - 1500°F (600 - 825°C), cool at any rate.

2. Machinability

Copper Alloy No. C70600 has a machinability rating of 20 on a scale where the rating of free cutting brass is 100.

3. Workability

Copper Alloy No. C70600 has good capacity for both hot and cold work. Components such as bends, reducers and flanges are readily manufactured. To hot work, heat uniformly to 1550 - 1750°F (850 - 950°C)

4. Corrosion Resistance

Copper Alloy No. C70600 is virtually free from failure in seawater by general corrosion, pitting, crevice attack or stress - cracking. It is galvanically compatible with other copper alloys in components such as pumps and valves. The alloy has good antifouling characteristics. It is important that systems using this material be designed to avoid high velocity seawater (above 5 meters/second).

5. Specification Equivalents

Product	Specification
Bar	ASTM B122, B151

	MILITARY MIL–C–15726
Pipe, Seamless	ASME SB466
	ASTM B466
Pipe, Welded	ASME SB467
	ASTM B467, B608
Plate	ASTM B122
	MILITARY MIL–C–15726
Plate, Clad	ASTM B432
Plate, Condenser Tube	ASME SB171
	ASTM B171
	SAE J461, J463
Rod	ASTM B151
	MILITARY MIL–C–15726
Rod, Welding	AWS A5.15
Sheet	ASTM B122
	MILITARY MIL–C–15726
	SAE J461, J463
Strip	ASTM B122
	MILITARY MIL–C–15726
Tube, Condenser	ASME SB111
	ASTM B111, B552
	MILITARY MIL–T–15005

	SAE J461, J463
Tube, Finned	ASME SB359
	ASTM B359
	MILITARY MIL–T–22214
Tube, Seamless	ASME SB466
	ASTM B466, B469
	MILITARY MIL–T–16420
Tube, U–Bend	ASME SB395
	ASTM B395
Tube, Welded	ASME SB543
	ASTM B543
	MILITARY MIL–T–16420
Wire	MILITARY MIL–C–15726

Fabrication Properties of C70600

Fabrication Properties	Performance
Joining Technique	Suitability
Soldering	Excellent
Brazing	Excellent

Oxyacetylene Welding	Fair
Gas Shielded Arc Welding	Excellent
Coated Metal Arc Welding	Good
Spot Weld	Good
Seam Weld	Good
Butt Weld	Excellent
Capacity for Being Cold Worked	Good
Capacity for Being Hot Formed	Good
Machinability Rating	20