



C71500 CuNi 70/30 Seamless Tubing

Dominion Energy Nuclear Plant

Documented process control, customer surveillance readiness, and validated testing for critical heat-exchanger tubing.



PROJECT SNAPSHOT



Market

Power Generation / Nuclear



Alloy

C71500 Copper Nickel 70/30



Product Form

Seamless heat exchanger tubing



Application

Feedwater heater and condenser service



Key Requirements

Process documentation, surveillance readiness, hydrostatic and air-underwater testing, flattening, expansion, tensile, and micrographic analysis



Ameritube Role

Receiving inspection, pilgering, drawing, annealing, final inspection, testing, and bundling.

C71500 CuNi 70/30

COPPER NICKEL ALLOY



Excellent resistance to corrosion in seawater and condensing environments



High thermal conductivity and strong mechanical performance



Proven performance in condenser and feedwater heater applications



THE CHALLENGE

The customer required a controlled manufacturing process that documented work instructions, operating parameters, dimensional and testing data, and facilitated customer surveillance at the Ameritube facility in accordance with purchase order requirements.



AMERITUBE SOLUTION

- Work-order control and routing
- Heat/batch traceability throughout the process
- Pilgering, drawing, and annealing with controlled parameters
- In-process and final inspections to dimensional and visual criteria
- Documented SOP-based testing: hydrostatic, air-underwater, flattening, expansion, tensile, and micrographic analysis



PROJECT OUTCOME

- **Clear workflow visibility** from raw material to finished product documentation
- **Verified quality checkpoints** at critical stages with recorded results and traceability
- **Application-ready documentation** package supporting customer surveillance and project compliance



TRACEABLE WORKFLOW

Controlled processes with complete records and material traceability.



VERIFIED TESTING

SOP-based testing and inspections with documented results.



TECHNICAL SUPPORT

Experienced engineering and quality support for critical applications.



Manufacturing, Testing & Quality Control

How Ameritube managed traceability, process control, and inspection for a critical CuNi 70/30 tubing program.



1 TECHNICAL REQUIREMENTS

	Alloy	C71500 CuNi 70/30
	Product Form	Seamless heat exchanger tubing
	Application	Feedwater heater and condenser service
	Applicable Specifications	Condenser tube: ASME SB111 / ASTM B111 Seamless tube: ASME SB466 / ASTM B466 Tube U-Bend: ASME SB395 / ASTM B395 Finned tube: ASME SB359 / ASTM B359
	Fabrication Characteristics	Excellent soldering and brazing, excellent spot/seam/butt weld behavior, good cold work and hot form capacity
	Key Performance Notes	High corrosion resistance in seawater environments, durable condenser-tube performance, suitable for feedwater heater service.

2 PROCESS WORKFLOW

-  1 Receiving Inspection
-  2 Batch / Heat Allocation
-  3 Pilgering
-  4 Cutting
-  5 Drawing
-  6 Final Annealing
-  7 Final Inspection
-  8 Hydrostatic Testing
-  9 Air Underwater Testing
-  10 Flattening / Expansion / Tensile / Micrographic Analysis
-  11 Boxing & Bundling

3 QUALITY ASSURANCE & DOCUMENTATION

-  Work-order control and routing ensure full traceability from raw material to finished product.
-  Recorded operating parameters for all critical processes, including temperature, time, pressure, and material data.
-  In-process monitoring, inspections, and calibrated equipment ensure conformance to specifications.
-  Customer surveillance readiness with open access to production, inspection, and test records.
-  Documented SOP-based testing and inspections with complete traceability and certification packages.

4 TESTING MATRIX

NON-DESTRUCTIVE TESTS

- Eddy Current Testing
- Hydrostatic Testing
- Air Underwater Testing
- Ultrasonic Testing
- Positive Material Identification

DESTRUCTIVE / VERIFICATION TESTS

- Flattening Test
- Expansion Test
- Tensile Test
- Microstructure / Grain Size
- Optical / Spectrometry Review

5 WHY C71500?

-  Copper-nickel alloy formulated for corrosion resistance in seawater service.
-  Used in piping, condensers, evaporators, air ejectors, and boiler feedwater heaters.
-  Forms protective corrosion films and performs reliably in high-velocity water environments.