



Seawater Applications

Copper - Nickel Tubes



Standard Denomination:
71640, C71640, CN108, Cu Ni 30 Fe2Mn2

Cu-Ni alloys are widely used for marine applications due to their excellent resistance to seawater corrosion, high inherent resistance to biofouling and good fabricability.

They have provided reliable service for several decades while offering effective solutions to today's technological challenges.

This alloy has a very good abrasion resistance and a very good flow velocity.

A Group Company



Experience



Environment



Water and gas system



Added value



Export

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Seawater Applications Cu - Ni Tubes

Advantages of Copper-Nickel

- Easy installation • Corrosion resistance • No galvanic corrosion with other copper based materials
 - Biofouling resistance • Strength, ductility and damage resistance • High scrap value
- Maintenance time is much better for copper-nickel vs. other materials • Flow velocity (21.3 ft/sec.)

CHEMICAL COMPOSITION

Alloy	Cu (%)	Ni (%)	Pb (%)	Fe (%)	Zn (%)	Mn (%)	P (%)	C (%)	S (%)
C 71640	Remainder	29.0 to 32.0	0.02 Max.	1.7 to 2.3	0.50 Max.	1.5 to 2.5 Max.	0.02 Max.	0.05 Max.	0.02 Max.

MECHANICAL PROPERTIES

Alloy	Temper	Tensile Strength	Yield Strength	Expansion %	Grain size (mm)	Flattening
C 71640	061	63 Min.	25 Min.	30 Min.	0.010 - 0.045	Req.

PHYSICAL PROPERTIES

PROPERTIES	UNITS	C 71640
MELTING POINT (LIQUIDUS)	°F (°C)	2260 (1240)
MELTING POINT (SOLIDUS)	°F (°C)	2140 (1170)
DENSITY (TO 20°C)	LB/CU, IN	0.323
COEFFICIENT OF THERMAL EXPANSION	PER °F FROM 68 TO 572	9.0 x 10 ⁻⁶
THERMAL CONDUCTIVITY	BTU/SQ.FT/FT/HR/°F TO 68 °F	17
ELECTRICAL RESISTIVITY (ANNEALED)	OHMS (CIRC.MIL/FT) TO 68 °F	225
ELECTRICAL CONDUCTIVITY (ANNEALED)	% IACS TO 68 °F	4.6
THERMAL CAPACITY (SPECIFIC HEAT)	BTU/LB/°F TO 68 °F	0.09
MODULUS OF ELASTICITY (TENSION)	KSI	22000
MODULUS OF RIGIDITY	KSI	8300
ANNEALED TEMPERATURE	°F (°C)	1200-1500 (650-825)

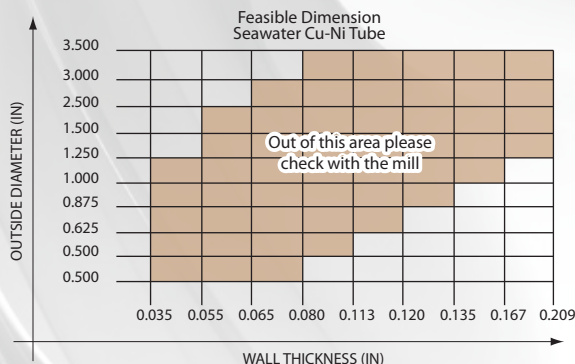
SUITABILITY FOR BEING JOINED BY

Alloy	Soldering	Brazing	Oxyacetylene Welding	Carbon Arc Welding	Gas Shielded Arc Welding	Coated Metal Arc Welding	Resistance Welding		
							Spot	Seam	Butt
C 71640	Excellent	Excellent	Good	Not recommended	Excellent	Excellent	Excellent	Excellent	Excellent

DECIMAL EQUIVALENTS IN INCHES FOR VARIOUS GAUGES

Gage No	1	2	3	4	5	6	7	8	9	10	11	12	13
BWG	0.300	0.284	0.259	0.238	0.220	0.203	0.180	0.165	0.148	0.134	0.120	0.109	0.095
AWG	0.2893	0.2576	0.2294	0.2043	0.1819	0.162	0.1443	0.1285	0.1144	0.1019	0.0907	0.0808	0.0720

Gage No	14	15	16	17	18	19	20	21	22	23	24
BWG	0.083	0.072	0.065	0.058	0.049	0.042	0.035	0.032	0.028	0.025	0.022
AWG	0.0641	0.0571	0.0508	0.0453	0.0403	0.0359	0.0320	0.0285	0.0253	0.0226	0.0201



NON DESTRUCTIVE TESTS AVAILABLE
Eddy Current Test
Hydrostatic Test
Pneumatic Test

APPLICABLE STANDARDS
ASTM B-111
ASME SB-111
ASTM B-466
ASTM SB-466
BRITISH STANDARD 2871 P-3
DIN 1785
JIS 12451
MIL-T-16420K (1)
JIS H 33000

MAXIMUM WORK PRESSURE
p = Maximum work pressure (psi)
S = Minimum tensile strength of material for an specific temper (It is the the value of the tensile strength in PSI in mechanical properties table)

D = Exterior diameter of tube
T = Wall thickness of tube
P = $(2t \times S) / 5D$

Note: The rupture pressure is 5 times the value of work pressure.

WEIGHT PER FEET
W = Weight per Feet (lb/ft)
D = Outside Diameter (in)
P = Wall Thickness (in)
W = $(D-P) \times P \times 12.18$

SALES BRANCHES AND OFFICES: We export to North, Central and South America, the Caribbean, Europe and Asia.

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