



EMH-Nickel Tubes in CuNi10Fe1Mn

CuNi10Fe1Mn is particularly characterised by its very high resistance level in seawater. This alloy is mainly used for sea cold water pipes, seawater desalination plants, evaporation plants, brake pipes, intercoolers and oil coolers as well as honeycomb coolers in automotive and aviation engineering.

Chemical Composition *

Cu	balance
Ni	10 %
Fe	1.5 %
Mn	0.75 %

* Standard values in % by weight

Material Description

EN	CuNi10Fe1Mn, CW352H
UNS	C70600
DIN*	CuNi10Fe1Mn, 2.0872
BS*	CN102
NF*	CuNi10Fe1Mn

* former national standards

Physical Properties *

Electrical conductivity

MS/m	5
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Thermal conductivity

W/(m*K)	50.2
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Thermal expansion coefficient

(0 – 300 °C) 10 ⁻⁶ /K	17
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Density

g/cm ³	8.9
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Modulus of elasticity

GPa	135
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* Standard values at room temperature
1 GPa = 1 kN/mm²
1 MS/m = 1 m/Ω · mm

Processing Properties

Forming

Machinability (CuZn39Pb3 = 100%)	20 %
Cold forming	excellent
Hot forming	fair

Joining

Resistance welding	excellent
Inert gas shielded arc welding	excellent
Hard soldering	excellent
Soft soldering	excellent

Surface Treatment

Polishing

mechanical	fair
electrolytical	fair

Electroplating

fair

Heat Treatment

Melting point	1,100 – 1,145 °C
Hot forming	850 – 950 °C
Soft annealing	700 – 825 °C
Thermal stress-relieving	275 – 400 °C

Corrosion Resistance

The copper-nickel alloys are among the most corrosion-resistant copper materials. They are resistant to moisture, non-oxidising acids, alkaline and salt solutions and organic acids, as well as dry gases such as oxygen, chlorine, hydrogen chloride, hydrogen fluoride, sulphur dioxide and carbon dioxide. They do not run the risk of stress crack corrosion, the tendency towards selective corrosion is extremely low and pitting corrosion is rarely observed.

Mechanical Properties (attainable values, depending on the dimension and form)

Standard values	from (soft)	to (hard)
R _m [MPa]	290	600
R _{p0.2} [MPa]	90	590
A ₅ [%]	30	8
HB	75	150

