



EMH-Nickel Tubes in CuNi30Mn1Fe

CuNi30Mn1Fe 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	31 %
Fe	1 %
Mn	0.7 %

Material Description	
EN	CuNi30Mn1Fe, CW354H
UNS	C71500
DIN*	CuNi30Mn1Fe, 2.0882
BS*	CN107
NF*	CuNi30Mn1Fe

* former national standards

Physical Properties *	
Electrical conductivity	
MS/m	2.6
% IACS	4
Thermal conductivity	
W/(m*K)	29
Thermal expansion coefficient	
(0 – 300 °C) 10 ⁻⁶ /K	15.5
Density	
g/cm ³	8.93
Modulus of elasticity	
GPa	152

* 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	fair
Hot forming	poor
Joining	
Resistance welding	excellent
Inert gas shielded arc welding	excellent
Hard soldering	fair
Soft soldering	fair
Surface Treatment	
Polishing	
mechanical	fair
electrolytical	fair
Electroplating	fair

Heat Treatment	
Melting point	1,175 – 1,240 °C
Hot forming	850 – 1,199 °C
Soft annealing	650 – 850 °C
Thermal stress-relieving	280 – 500 °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]	370	480
R _{p 0.2} [MPa]	120	300
A ₅ [%]	35	12
HB	85	130

