Emil Müller GmbH
Metallwerk – Hespert
Tubes in Copper
and Copper-Alloys

EMH-Nickel Silver Tubes in CuNi12Zn24

CuNi12Zn24 is silver-coloured and provides a good resistance to tarnishing. It is a single-phase alloy and therefore has excellent cold working properties. A high level of strength can be achieved. One characteristic of nickel silver is that it is temperature-resistant. This is important as far as welding and soldering are concerned. This alloy is used in the music industry, the optical industry among others.

Chemical Composition *

Cu	65.5 %
Ni	12 %
Zn	balance

* Standard values in % by weight

Material Description

EN	CuNi12Zn24, CW403J
UNS	C75700
DIN*	CuNi12Zn24, 2.0730
BS*	NS104
NF*	CuNi12Zn24

* former national standards

Physical Properties *

Electrical conductivity	
MS/m	4.4
% IACS	7
Thermal conductivity	
W/(m*K)	42
Thermal expansion coefficient	
(0 – 300 °C) 10^{-6}/K	18
Density	
g/cm³	8.67
Modulus of elasticity	
GPa	125

* Standard values at room temparature
1 GPa = 1 kN/mm²
1 MS/m =1 m/Ω • mm

Processing Properties

Forming

Machinability (CuZn39Pb3 = 100%)	25 %
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	excellent
electrolytical	excellent
Electroplating	excellent

Heat Treatment

Melting point	1,020 – 1,065 °C
Hot forming	820 – 950 °C
Soft annealing	600 – 750 °C, 1-3 h
Thermal stress-relieving	300 – 400 °C, 1-3 h

Corrosion Resistance

Nickel silver generally has a good resistance to corrosion as far as atmospheric influences, organic substances (perspiration, environmental influences) as well as alkaline and neutral saline solutions are concerned.

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

Standard values		from (soft)	to (hard)
R_m	[MPa]	400	910
$R_{p\,0,2}$	[MPa]	180	740
A_5	[%]	45	2
HB		90	160

Emil Müller GmbH Metallwerk – Hespert • An der Autobahn 1 • 51580 Reichshof-Hespert • Germany
Phone +49 - 2265 - 993 - 0 • Fax +49-2265-99 33 99 • info@mueller-hespert.de • www.mueller-hespert.de