

# C70620

## CuNi10Fe1Mn

### Alloy Designation

EN	CuNi10Fe1Mn
DIN CEN/TS 13388	CW352H
UNS	C70620

### Chemical Composition (Balance)

Weight percentage

Cu	Rest	%
Ni	9 ... 11	%
Fe	1 ... 2	%
Mn	0.5 ... 1	%

### Characteristics

For many decades, copper-nickel alloy **CuNi10Fe1Mn** has extensively been used as a piping material for seawater systems in shipbuilding, offshore, and desalination industries. Attractive characteristics of this alloy combine excellent resistance to uniform corrosion, remarkable resistance to localised corrosion in chlorinated seawater, and higher erosion resistance than other copper alloys and steel. Furthermore, **CuNi10Fe1Mn** is resistant to biofouling providing various economic benefit.

### Main Applications

Cladding for corrosion protection of steel structures, Sheathing on offshore structures, Piping systems, pipes, fittings, flanges, desalination plant, offshore wind structures, shipbuilding.

### Mechanical Properties (EN 1652)

Temper	Tensile Strength	Yield Strength Minimum	Elongation Minimum	Hardness	Bending 90°	
	Rm	Rp0.2	A <sub>50mm</sub>	HV *	gw rel. Bending Radius R/T	bw
	MPa	MPa	%	HV	Strip Thickness ≤ 0.50mm	
R300	≥ 300	100 *	20	≥ 70	0	0
R320	≥ 320	180 *	12	≥ 100	0	0
R420	420 .. 510	370 *	3	≥ 120	0	0.5
R520	520 .. 610	480 *	2	≥ 150	1	2
R620	≥ 620	590 *	-	≥ 170	-	-

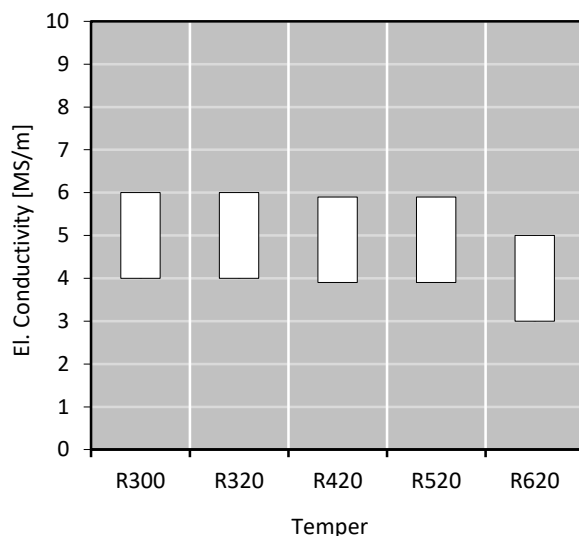
\* only for information

### Physical Properties

Typical values in annealed temper at 20 °C

Density		8.89	g/cm <sup>3</sup>
Thermal expansion coefficient	20 .. 300 °C	19.0	10 <sup>-6</sup> /K
Specific heat capacity		0.38	J/(g·K)
Thermal conductivity		50.2	W/(m·K)
Electrical conductivity	MS/m	5	MS/m
Electrical conductivity	IACS	9	%
Thermal coefficient of electrical resistance	(0 .. 100 °C)	7	10 <sup>-3</sup> /K
Modulus of elasticity	GPa	130	GPa

### Electrical Conductivity



#### Fabrication Properties \*

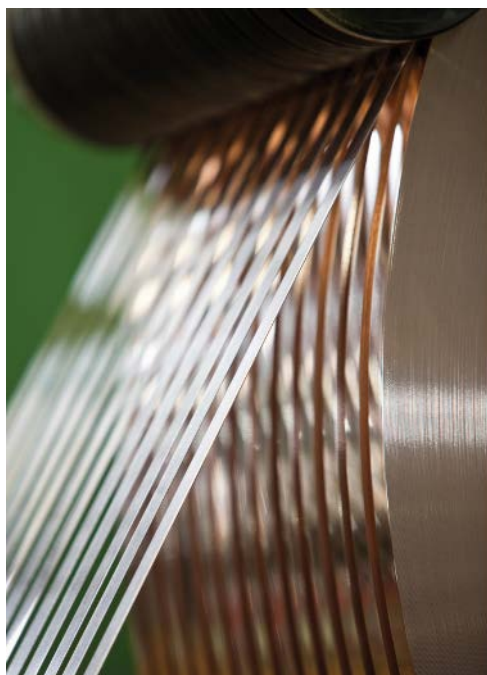
Cold Forming Properties	Excellent
Machinability (Rating 20)	Good
Electroplating Properties	Good
Hot Tinning Properties	-
Soft Soldering, Brazing	Excellent
Resistance Welding	Excellent
Gas Shielded Arc Welding	Good
Laser Welding	Excellent

\* For more details call our technical service

#### Corrosion Resistance \*

CuNi10Fe1Mn belongs to the most corrosion resistant copper alloys. It is resistant to humidity, non oxidizing acids (without oxygen in solution), organic acids, dry gases like oxygen, chlorine, hydrogen chloride, hydrogen sulphide, sulphur dioxide, hydrogen fluoride and carbon dioxide. The resistance of this alloy has its cause in the formation of a stable coating layer.

Practically resistant against stress corrosion cracking.



#### Bend Fatigue (at room temperature)

The fatigue strength gives an indication about the resistance to variations in applied tension. It is measured under symmetrical alternating load. The maximum bending load for  $10^7$  load cycles without crack is measured. Dependent on the temper class it is approximately 1/3 of the tensile strength  $R_m$ .

#### Available delivery forms \*

Strips in coils
Traverse-wound coils with drum weights up to 1.5 t
TECSTRIP®_multicoil up to 2.5 t
Hot-Dip-Tinned strips in thickness range 0.10 up to 1.20 mm

\* For more details call our sales service

Due to continued improvements within our production process, the details stated in our brochure can not be guaranteed. We reserve the right to update or amend our products, without prior notification. We suggest that you obtain confirmation of our product details / specifications prior to committing to specific alloys.