

Copper-nickel casting alloy **GN 30** alloy 2420

GN 30 has very good corrosion resistance to all types of water, such as drinking water, river water, brackish water, mine water, seawater as well as brine solutions and acidic and ammoniacal condensates. There is no sensitivity to stress corrosion cracking. Fouling with organisms from marine and brackish water is very low. The surface of the components thus remains smooth and free from fouling. GN 30 can be used at higher flow velocities than GN 10.

ZOLLERN brand	GN 30
EN designation	CuNi30Fe1Mn1NbSi-C
EN material no:	CC383H

EN 1982, ASTM B369

// National designations

DIN	G-CuNi30
DIN	2.0835
USA	C96400
F	≈ U – N30M1Fe

≈ (substantial coherence)

// Composition (mass fraction in %) EN 1982

Cu	Fe	Mn	Nb	Ni
Rest	0.5 – 1.5	0.6 – 1.2	0.5 – 1.0	29.0 – 31.0
Si*	Al, B	Bi	C	Cd
0.3 – 0.7	max. 0.01	max. 0.01	max. 0.03	max. 0.02
Mg, P	Pb	S, Se	Te	Zn
max. 0.01	max. 0.01	max. 0.01	max. 0.01	max. 0.50

* ASTM Si max. 0.5%

// Strength properties at room temperature

	(minimum values)				
	[1] EN 1982 [2] ASTM B369	R_m N/mm ²	$R_{p0.2}$ N/mm ²	A_5 %	HB
[1] Sand casting		440	230	18	115
[1] Mask mould casting		440	230	18	115
[2] Sand casting		415	220	20	-

// Physical properties (reference values)

Density at 20°C	8.9 kg/dm ³
Melting temperature/range	1170 – 1240°C
Thermal conductivity at 20°C	0.29 W/cm °C
Electrical conductivity at 20°C	2 – 4 MS/m 3 – 7 % IACS
Electrical resistance at 20°C	0.25 - 0.50 Ω mm ² /m
Coefficient of linear expansion in the range from 20 °C to 200 °C	15 x 10 ⁻⁶ °C ⁻¹
Shrinkage	approx. 1.5 % – 2 %
Young's modulus	145 KN/mm ²
Permeability	< 1.2

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Areas of application

GN 30 is used when a high degree of corrosion resistance is required.

For example for

- Valve parts, valves, oil and water cooler boxes in power plants, diesel engines, refineries, seawater desalination plants, chemical and petrochemical industry
- Other applications in shipbuilding, oil rigs, oil production and processing

Machinability

GN 30 is relatively difficult to machine due to its high toughness. Long, tough chips are formed. The machinability index is approx. 20 where CuZn39Pb3 = 100.

Relaxation annealing	350 – 500°C
Soft soldering	very well suited
Brazing	well suited
Welding	well suited, possible filler material S-CuNi30Fe or S-NiCu30MnTi. For manual electrode welding e.g. EI-CuNi30Mn
Galvanisability	good

