

PNA 211

Cu-ETP / C11000

Release 06_10_E



EIP Metals

Norddeutsche Affinerie AG

PNA 211 is an electrolytically refined, oxygen-free copper. Due to its conductivity, this material is suitable for all sectors of electrical engineering and electronics.

It should be noted that when heated in a hydrogenous atmosphere, it becomes brittle, otherwise known as „hydrogen disease“.

Chemical composition (wt.%)

Cu	min 99.90
O	max 0.04

Physical properties

Density	g/cm ³	8.94
Coefficient of thermal expansion	10 ⁻⁶ /K	17.7
Electrical conductivity	MS/m	58
	%IACS	100
Thermal conductivity	W/(mK)	390
Modulus of elasticity	kN/mm ²	127

Material designation

Prymetall	PNA 211
EN	Cu-ETP CW004A
UNS*	C 11000

*Unified Numbering System

Mechanical properties

		R 220 H 040	R 240 H 065	R 290 H 090	R 360 H 110
Tensile strength <i>R_m</i>	N/mm ²	220 – 260	240 – 300	290 – 360	> 360
Yield strength <i>R_{p0.2}</i>	N/mm ²	< 140	> 180	> 250	> 320
Elongation <i>A₅₀</i>	%	> 33	> 8	> 4	> 2
Hardness <i>HV</i>	-	40 – 65	65 – 95	90 – 110	> 110

Bendability

		R 220	R 240	R 290	R 360
$r = x \cdot t$ ($t \leq 0.5\text{mm}$)	90° GW**	0	0	0	1
	90° BW	0	0	0.5	2

** GW: bending edge ⊥ rolling direction, BW: bending edge || rolling direction

The above mentioned data is a general technical product information only and is not a legal warranty. Binding specifications are subject to a later conclusion of a contract. This leaflet is not subject to revision.

Fabrication properties

Cold formability	excellent
Hot formability	excellent
Soldering	excellent
Brazing	good
Oxyacetylene welding	poor
Gas shielded arc welding	fair
Resistance welding	poor

Typical uses

Main Material in Electrical Industry
Automotive
Transformer Coils, Wire,
Coolers, Contacts, Pressure Vessels,
Heat Exchanger,

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