PNA 248

CuZn36 / C27000

Release 03_2009_E

Aurubis

PNA 248 is solid solution strengthened copper alloy (brass) with 36% zinc. As the zinc content increases in the alloy, the strength improves, but is accompanied by losses in conductivity and ductility.

Moreover, it should be noted that as the zinc content rises, the inclination to stress corrosion cracking increases in the event of exposure to an ammoniacal atmosphere. This type of corrosion can, however, be combated in many cases by the removal of thermal stress.

As the zinc content rises, the user may under certain circumstances have an economic advantage due to the different metal values.

Chemical Composition (wt. %)	
Cu	63.5 – 65.5
Fe	Maximum 0.05
Pb	Maximum 0.05
Zn	Remainder

Physical Properties		
Density	g/cm³	8.4
Coefficient of Thermal Expansion	10^{-6}/K	20.3
Electrical Conductivity	MS/m	15.8
	%IACS	27
Thermal Conductivity	W/(mK)	116
Modulus of Elasticity	kN/mm²	110

Material Designation	
Aurubis	PNA 248
EN	CW507L
UNS*	C27000
ISO	CuZn36
BS	CZ108

* Unified Numbering System

Mechanical Properties

		R 300 H 055	R 350 H 095	R 410 H 120	R 480 H 150	R 550 H 170	G 010	G 020	G 030	G 050
Tensile Strength *Rm*	N/mm²	300 – 370	350 – 440	410 – 490	480 – 560	> 550	410	360	340	330
Yield Strength *Rp0.2*	N/mm²	< 180	> 170	> 300	> 430	> 500	210	150	130	110
Elongation *A50*	%	38	19	8	3	-	30	40	40	40
Hardness *Hv*	-	55 – 95	95 – 125	120 – 155	150 – 180	>170	< 120	< 95	< 90	< 80
Grain size *DK*	µm	-	-	-	-		< 15	15-30	20-40	35-70

Aurubis UK Ltd • Rabone Park • Rabone Lane • Smethwick • West Midlands • B66 2NN • United Kingdom

Tel. +44 (0)121 555 1199 • Fax. +44 (0)121 555 1188 • info-uk@aurubis.com • www.aurubis.co.uk

Bendability

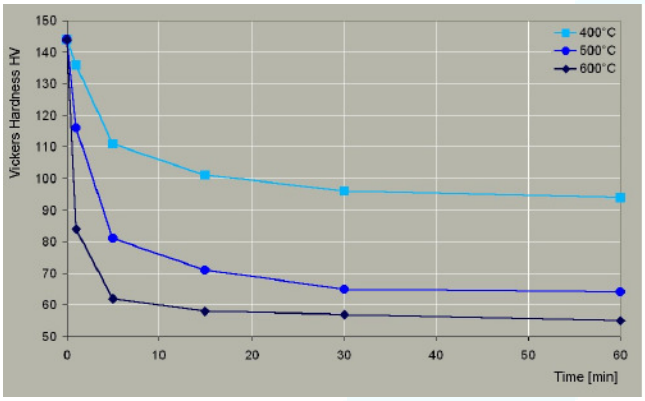
r = x·t (t ≤ 0.5mm)	R 300	R 350	R 410	R 480	R 550
90° GW**	0	0	0	0.5	1
90° BW	0	0	0	1	2
180° GW	0	0	0	1	5
180° BW	0	0	0	2	6

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

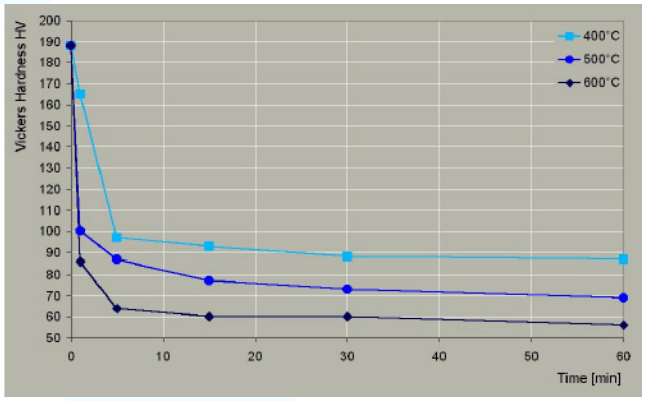
Softening Stability

Vickers hardness after heat treatment (typical values)

(Temper R 410)



(Temper R 550)



Fabrication Properties

Cold Formability	Excellent
Hot Formability	Poor
Soldering	Excellent
Brazing	Excellent
Oxyacetylene Welding	Good
Gas Shield Arc Welding	Fair
Resistance Welding	Good

Typical Applications

Automotive, Architecture

Components of electrical engineering

Ordnance, Bending

Deep Drawing, Stamping Components

Cases, Springs

Chains, Locks

Hinges

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