

PNA 282

CuSn6 / C51900

Release 03_2009_E



PNA 282 is a solid solution strengthened copper alloy (bronze) with 6% tin. Its higher tin content imparts high strength and springiness to the metal. Its adequate conductivity makes it particularly interesting for springy conductive components.

It is wear-resistant, has very good corrosion resistance and can be readily soldered. Due to high strength and springiness and good workability, CuSn6 is used for all types of springs as well as for flexible metal hoses. In addition, it is applied in the paper, pulp, textile and chemical industries, as well as in shipbuilding, mechanical engineering and process equipment manufacture.

Chemical Composition (wt. %)

Cu	Remainder
Sn	5.5 – 7.0
P	0.03 – 0.17
Zn	Maximum 0.1

Physical Properties

Density	g/cm ³	8.8
Coefficient of Thermal Expansion	10 ⁻⁶ /K	18.5
Electrical Conductivity	MS/m	9
	%IACS	16
Thermal Conductivity	W/(mK)	75
Modulus of Elasticity	kN/mm ²	118

Material Designation

Aurubis	PNA 282
EN	CW452K
UNS*	C51900
ISO	CuSn6
BS	PB103

* Unified Numbering System

Mechanical Properties

		R 350	R 420	R 500	R 560	R 640	R 720
		H 080	H 125	H 160	H 180	H 200	H 220
Tensile Strength <i>R_m</i>	N/mm ²	350 – 420	420 – 520	500 – 590	560 – 650	640 – 730	> 720
Yield Strength <i>R_{p0.2}</i>	N/mm ²	< 300	> 260	> 450	> 500	> 600	> 690
Elongation <i>A₅₀</i>	%	> 45	> 17	> 8	> 5	> 3	-
Hardness <i>H_v</i>	-	80 – 110	125 – 165	160 – 190	180 – 210	200 – 230	> 220

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Bendability

	R 350	R 420	R 500	R 560	R 640	R 720	
r = x·t (t ≤ 0.5mm)	90° GW**	0	0	0	0.5	1	-
	90° BW	0	0	0	1	3.5	-
	180° GW	0	0	1	2	3	-
	180° BW	0	0	2	3	4	-

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

Fabrication Properties

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

Typical Applications

Automotive, Components of Electrical Engineering, Connectors, Springs, Contact springs

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