

Data Sheet

GENERAL DESCRIPTION
– SUBJECT TO CHANGES OR DEVIATIONS

Deoxidized High Phosphorous Copper – Luvata Special Products Alloy K2

Alloy description

Luvata Special Products K2 DHP copper grade is a general purpose copper alloy for number of applications where medium high electrical and thermal conductivity are required. K2 grade contains 0,015-0,04% phosphorous which is alloyed to bind free oxygen in the alloy and increase the mechanical properties.

Typical applications:

- Copper anodes
- Plating process
- Tubes for welding contact tips (MIG/MAG)
- Industrial tubes

Products / shapes:

Tubes, round rods, solid profiles, wires and strips, rectangular bars and solid profiles.

Corresponding norms for different products are as follows:

- EN 12449 – Copper and copper alloys. Seamless copper tubes for general purposes.

Chemical composition and corresponding standards:

Luvata Pori Oy alloy	Composition / alloying elements	EN – CEN/TS 13388:2008	ASTM / USA
K2	P-content 0,015 – 0,04 % (150 – 400 ppm)	Cu-DHP / CW024A	CDA C12200 / Cu-DHP

Physical properties:

Density kg/dm ³	Coefficient of linear expansion 1/K	Specific heat J/(kg x K)	Melting temperature °C
8,9	0,0000168	385	1083

Mechanical properties – typical values:

	Soft temper	Half-hard temper	Hard temper
Hardness HV	35 – 65 HV	70 – 95 HV	85 – 115 HV
Tensile strength	200 – 220 N/mm ²	250 – 350 N/mm ²	260 – 400 N/mm ²
0,2% yield strength	35 – 65 N/mm ²	180 – 280 N/mm ²	220 – 380 N/mm ²
Elongation	min. 40 %	min. 12 %	min. 5 %

Electrical and thermal properties – typical values:

Electrical conductivity	vol	% IACS *	appr 80
	mass	%IACS	appr 79
	MS/m		appr 46
Electrical resistivity	vol	Ω mm ² /m	appr 0,022
	mass	Ω g/m ²	appr 0,19
Thermal conductivity (20 °C)	W / Km		325

* % IACS = International Annealed Copper Standard. The % IACS values are calculated as percentages of the standard value for annealed high conductivity copper as laid down by the International Electrotechnical Commission.

Joining and machining:

Machinability rating (free cutting brass = 100)	Soldering	Brazing	TIG	MIG	EBW
20	Excellent	Excellent	Good	Good	Good

