Data Sheet

GENERAL DESCRIPTION
– SUBJECT TO CHANGES OR DEVIATIONS

Deoxidized Low Phosphorous Copper – Luvata Alloy DLP

Alloy description

Luvata DLP copper grade is a general purpose copper alloy for number of applications where medium high electrical and thermal conductivity are required. DLP grade contains 0,005-0,013% phosphorous which is alloyed to bind free oxygen in the alloy.

Typical applications:

- Cooling elements
- Aluminium smelter anode hanger bars

Products / shapes:

Cast/hot rolled and machined components

Chemical composition and corresponding standards:

Luvata Pori Oy alloy	Composition / alloying elements	EN – CEN/TS 13388:2008	ASTM / USA
DLP	P-content 0,005 – 0,013 % (50 – 130 ppm)	Cu-DLP / CW023A	CDA C12000 / Cu-DLP

Physical properties:

Density kg/dm^3	Coefficient of linear expansion 1/K	Specific heat J/(kg x K)	Melting temperature °C
8,9	0,0000175	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 92
	mass	%IACS	appr 91,5
	MS/m		appr 53
Electrical resistivity	vol	Ω mm^2/m	appr 0,019
	mass	Ω g/m^2	appr 0,17
Thermal conductivity (20 °C)	W / Km		365

* % 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

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