



## Kova®

### The high-strength, beryllium-free alloy

Kova is a 'beryllium-free' alloy made of copper, nickel, silicon and chromium (CuNiSiCr). Kova is the perfect replacement for harmful beryllium copper alloys.

Kova is a very high-strength, beryllium-free precipitation hardening alloy with medium-high electrical and thermal conductivity.

#### Advantages

- No harmful ingredients
- Easy disposal
- Easy to machine and form
- High strength with moderate thermal and electrical conductivity
- Extended use due to hardness

#### Applications

- Adaptors
- Shanks
- Projection welding electrodes

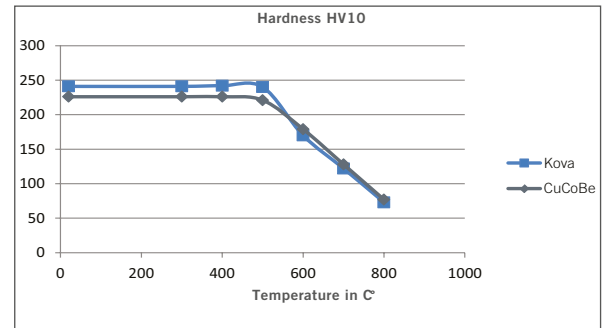


#### About Luvata

Luvata is a world leader in metal solutions manufacturing and related engineering services to industries such as renewable energy, automotive, healthcare, and power generation and distribution. The company's continued success is attributed to its longevity, technological excellence and strategy of building partnerships beyond metals. Employing approximately 1,400 staff in 6 countries, Luvata works in partnership with customers such as ABB, CERN, Siemens and Toyota. Luvata is a group company of Mitsubishi Materials Corporation.

## Specification

Alloy	Kova® NK203 is a RWMA class III alloy		
Chemical composition	Ni 1.8 - 3.0%; Si 0.4% - 0.8%; Cr 0.1 - 0.8% Fe 0.15% max; Cu balance		
Physical, electrical and thermal properties	Density	8.8kg/dm <sup>3</sup>	
	Coefficient of linear expansion	0.000175 1/K	
	Specific heat	380 J/(kg x K)	
	Melting temperature	1020-1040°C	
	Electric conductivity	22-24 MS/m	
	Electrical conductivity (% IACS)	38-42%	
	Electrical resistivity (mass)	0.37-0.41 g/m <sup>3</sup>	
	Thermal conductivity (20°C)	220 W/Km	
Documentation	Acceptance test certificate N-CEN/TS 13388:2008		

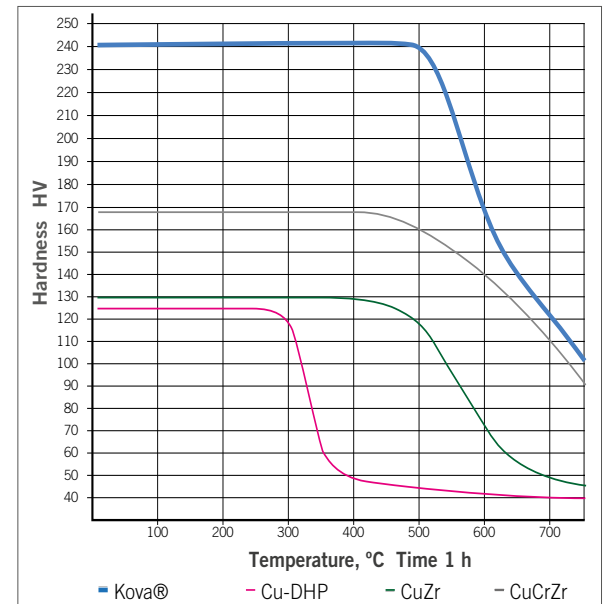
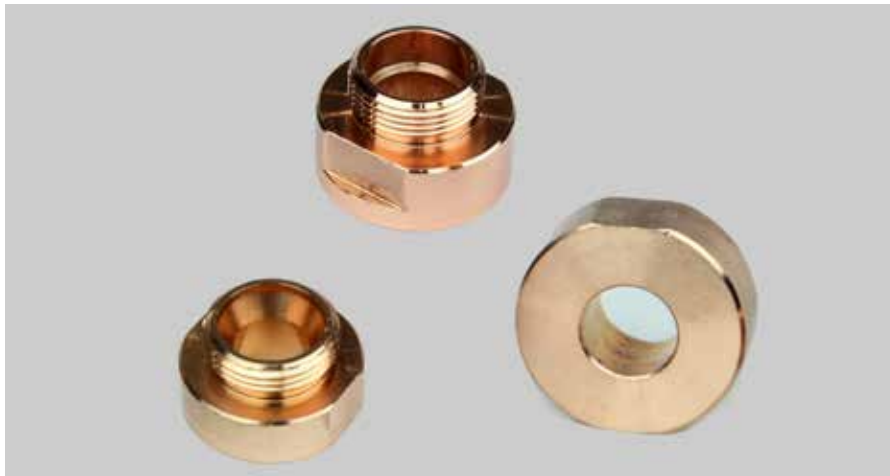


Kova hardness comparison

## Mechanical Specifications

Form of supply	Tensile strength [N/mm <sup>2</sup> ]	0.2% offset yield strength [N/mm <sup>2</sup> ]	Elongation AS [%]	Hardness HV
Adaptors	650-800	600-750	9-15	220-250

Errors and omissions excepted. Values given are industry standards.



**Kova softening behavior - resistance against softening**  
Room temperature hardness is presented in the figure above as a function of annealing temperature. Material at hard or aged temper.

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