



FABRICATED PRODUCTS

TUNGSTEN-COPPER COMPOSITE MATERIALS

Tungsten-copper composite materials are produced by copper infiltration of porous pre-sintered tungsten. They are available with different copper contents.

A thermal conductivity over 200 W/m*K is producible.

RANGE OF APPLICATION

Switching contacts for high-voltage and medium-voltage, components for passive thermal management (heat sinks), electrodes for erosive processing.

TYPICAL PROPERTIES:

Material	WCu	70/30	75/25	80/20	85/15	90/10
Tungsten content	%	70 ±3	75 ±3	80 ±3	85 ±3	90 ±3
Copper content	%	30 ±3	25±3	20 ±3	15 ±3	10 ±3
Density	g/cm ³	14,30 ± 0,40	14,95 ± 0,40	14,95 ± 0,40	16,44 ± 0,50	17,30 ± 0,50
Hardness	HB2,5/62,5	160-220	160-220	180-240	190-260	220-290
Median coefficient of linear thermal expansion (20 - 100 °C)	10 ⁻⁶ /K	8,8	8,5	8,3	7,2	6,1
(20 - 300 °C)	10 ⁻⁶ /K	9,2	9,0	8,7	7,6	6,4
(20 - 450 °C)	10 ⁻⁶ /K	9,5	9,2	9,0	8,0	6,7
Young' s modulus (Nominal value)	GPa	220	240	280	290	340
Ultimate tensile strength Typical value	MPa	350 500	400 520	440 540	460 560	480 580
Electrical conductivity	%IACS MS/m	≥ 30 ≥ 18	≥ 27 ≥ 16	≥ 25 ≥ 14,5	≥ 25 ≥ 14,5	≥ 25 ≥ 14,5
Specific electrical resistance	Ω*mm ² /m	≤ 0,040	≤ 0,047	≤ 0,050	≤ 0,050	≤ 0,052
Thermal conductivity	W/mK	150-240	145-230	140-220	135-210	130-200

DELIVERY FORM:

The products may be delivered as semi-finished products for further machining by the customer or according to customer drawing as finished product.



ELMET TECHNOLOGIES

1560 Lisbon Street • Lewiston, Maine 04240

P +1.207.333.6100

sales@elmettech.com

www.elmettechnologies.com

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