

Molybdenum

Technical Datasheet

Short Name		Chemical	Mo
Code	Mo	Composition	99.95 %
Material-No.(old)	-	(Reference values in %)	

Material Properties	High melting point, high endurance strength under elevated temperatures (under vacuum or protective gas up to 2.000 K - 1.727 °C), good thermal strength, low thermal expansion.
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Applications	<ul style="list-style-type: none"> - Resistance welding electrodes/discs for copper and brass - Parts in electronic tubes - Construction material in semi-conductors - Heating wire in protective gas furnaces - Radiation sheets in high temperature furnace constructions - Sinter boat
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Mechanical Properties (Reference values)	Hardness	HV	200-220
	Tensile strength c. 85 %	N/mm ²	590-690
	Yield strength	N/mm ²	540-640
	Elongation L = 5 D	%	15-20
	Modulus of elasticity 20 °C (293 K)	kN/mm ²	330

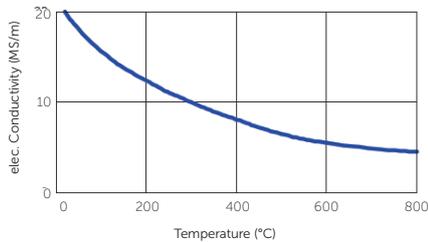
Physical Properties	Electrical conductivity 20 °C (293 K)	MS/m	c. 20 (c. 35 % I.A.C.S.)
	Electrical resistance 20 °C (293 K)	$\frac{\Omega \cdot \text{mm}^2}{\text{m}}$	c. 0.05
	Coefficient of electrical resistance	$\frac{1}{\text{K}}$	c. 0.0046
	Coefficient of thermal expansion 0-320 °C (273-593 K)	$\frac{1}{\text{K}}$	5.3-5.7•10 ⁻⁶
	Specific heat	$\frac{\text{J}}{\text{g} \cdot \text{K}}$	0,27
	Thermal conductivity 20 °C (293 K)	$\frac{\text{W}}{\text{m} \cdot \text{K}}$	c. 130
	Density	g/cm ³	10.2

Products	Wires, rods, strips, sheets, machined parts. Tensile strength properties depend on cross-section and design.
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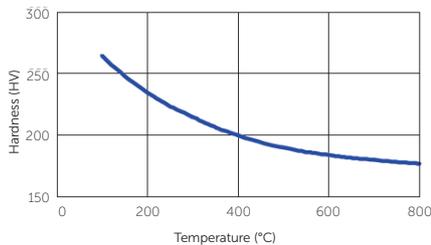
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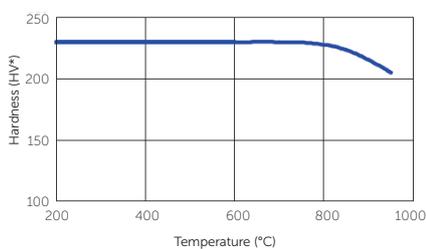
Electrical Conductivity of Molybdenum depending of temperature



Hardness at elevated temperatures of Molybdenum



Softening points of Molybdenum



*) Vickers hardness at R.T. after 5 hours at temperature between 50 and 80 °C annealed

Machining (Reference value)

Machinability of Molybdenum is relatively difficult.

In case of necessary machining the following instructions are suitable:

Turning	Tungsten Carbide K20	HSS 1.3207
Cutting speed (m/min)	70–120	30–40
Rake angle	ca. 20 °	ca. 20 °
Feed and depth of cut	0.05–0.40	0.05–0.30
Chip breaker	0.5–5.0	0.3–5.0
Milling	Tungsten Carbide ISO K10 oder K05	HSS 1.3207
Cutting speed (m/min)	80–120	20–25
Rake angle	10 °	10 °
Feed (mm/min)	0.05–0.10	0.03–0.10
Wire- and sink erosion	Possible, adjustment and electrode material according machine manufacturer recommendation.	

All statements as to the properties or utilization of the materials and products mentioned in this datasheet are only for the purpose of description. Guarantees in respect of the existence of certain properties or utilization at the material mentioned are only valid if agreed upon in writing.