

Product: TZM

Manufacturing: Powder metallurgy (mixing, pressing, sintering), hammering/rolling/drawing, HT and machining.
Material properties are measured at room temperature on separate test samples.

1. Chemical Composition

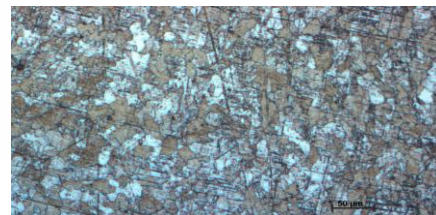
Element	Range (Min. – Max.)	Typical value
Molybdenum	99.3 – 99.5 %	99.4 %
Titanium	0.4 – 0.55 %	0.5 %
Zircon	0.06 – 0.12 %	0.09 %
Carbon	0.01 – 0.04 %	0.02 %

2. Physical and Mechanical Properties

Property	Range (Min. – Max.)	Typical value
Density [g/cm ³]	10.10 – 10.22 (depending on diameter)	10,2
Hardness [HV10]	220 – 450 (depending on diameter)	350
Tensile strength [MPa]	850 – 1200 (depending on diameter)	950
Fracture elongation [%]	10 – 20 (depending on diameter)	15
Electrical conductivity at 300 K [S/m]	17.9 x 10 ⁶	17.9 x 10 ⁶
Electrical resistance at 300 K [μΩ m]	0.056	0.056
Thermal conductivity at 300 K [W/mK]	138	138
Coeff. of thermal expansion at 300 K [1/K]	5.1 x 10 ⁻⁶	5.1 x 10 ⁻⁶

3. Metallography

The microstructure consists of a fine-grained matrix (MoTiZr) with uniform grain distribution. In the attached photo, it can be clearly seen that the molybdenum matrix is free of inclusions, highlighting the high quality of the material.



4. Applications

Electrode material for resistance welding; Electrode material for die-sinking EDM; Heating elements and sintering boats for the furnace construction industry; glass forming tools such as drawing nozzles and rollers for glass fibers; forging tools such as dies and punches; Rods, sheets and components for a wide range of applications.

5. Standards and Certificates

ASTM F289, ASTM, ASTM B387/B387M-23, and ASTM F364.

On customer request, we are happy to supply factory certificates according to EN 10204, optionally as test certificate 2.2 or 3.1.

6. Delivery program

Rods, rods, wires, sheets, electrodes, plates, strips and finished parts according to customer drawings