

BASE PLATES for power electronics

Strong metals for micro-, power- and opto-electronics. Plansee delivers tungsten and molybdenum semiconductor base plates used as carrier and contact plates for silicon wafers in thyristors (GTOs), transistors and silicon-controlled rectifier diodes.

With their high purity as well as their high electrical and thermal conductivity, our materials reliably dissipate heat away from the active device. An ideal coefficient of thermal expansion similar to this of the semiconductor material avoids critical mechanical stresses causing premature device failure and ensures a particularly long lifetime of the modules.

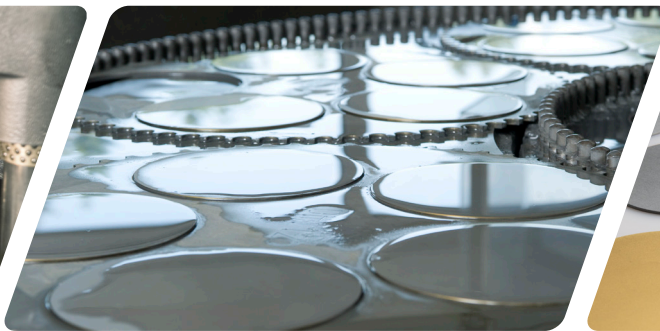
Additional benefits:

- Full service: from prototyping to mass production
- Flexibility: customised design and dimensions
- High quality: complete in-house production
- Advanced coatings for your application: PVD or galvanic process
- Packaging: customised packaging in clean room is taken for granted

	Molybdenum	Tungsten
Purity	99.97 %	99.99 %
Linear coefficient of thermal expansion (at 20°C)	$5.2 \cdot 10^{-6} \text{ [m/(m·K)]}$	$4.2 \cdot 10^{-6} \text{ [m/(m·K)]}$
Electrical conductivity (at 20°C)	$17.9 \cdot 10^6 \text{ [1/(Ω·m)]}$	$18.0 \cdot 10^6 \text{ [1/(Ω·m)]}$
Specific electrical resistivity (at 20°C)	$0.056 \text{ [(Ω·mm²)/m]}$	$0.050 \text{ [(Ω·mm²)/m]}$
Thermal conductivity (at 20°C)	140 W/(m·K)	164 W/(m·K)



Stamping of semiconductor base plates



In-house lapping process

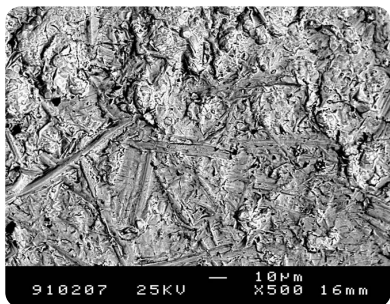


Different types of Mo discs and caps

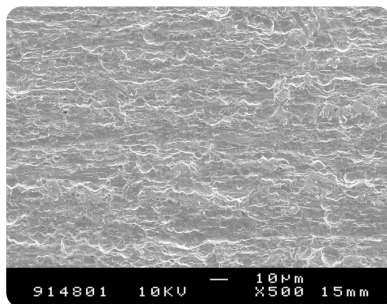
Advanced coatings

Plansee offers semiconductor base plates coated with ruthenium, nickel, chromium, silver, gold and/or other combinations. Advanced coatings protect against oxidation and improve the electrical contact. Due to their good adhesion they build a firm compound with the semiconductor.

We apply our coatings by means of physical vapour deposition. This process ensures a higher purity and more homogeneous layers than the conventional electroplating process.



Electroplated ruthenium



Excellent homogeneity: PVD coated ruthenium

Various geometries and sizes according to your requirements:

Molybdenum discs

Thickness: 0.1 mm - 7.0 mm
Diameter: 2.5 mm - 150.0 mm

Tungsten discs

Thickness: 0.4 mm - 7.0 mm
Diameter : 2.5 mm - 150.0 mm

Molybdenum squares and rectangles

Thickness: 0.1 mm - 5.0 mm
Length: 1.0 mm - 70.0 mm
Width: 0.2 mm - 10.0 mm

Tungsten squares and rectangles

Thickness: 0.4 mm - 5.0 mm
Length: 1.0 mm - 70.0 mm
Width: 0.2 mm - 10.0 mm

Contact us!

Our team will be happy to find the ideal design and coating solution for your application.

www.plansee.com

Plansee SE

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We reserve the right to make technical changes for improvement of the product.