Tungsten carbide - guaranteed binder-free.

Tungsten carbide (WC) is used for the production of DLC coatings (Diamond Like Carbon). These are particularly hard and long-lasting and protect engine parts and other automotive industry components that are exposed to high stresses against wear. By reducing the coefficient of friction, DLC coatings extend the service lives of gearwheels, press dies and many other components.

To manufacture our sputtering targets, we use only binder-free tungsten carbide. The material contains no substances such as nickel or cobalt. During the coating process, the target material becomes finely dispersed and its inhalation may be harmful to health. However, with our binder-free tungsten carbide targets, you know you are safe.
In combination with carbon, our tungsten carbide forms a WC/a-C:H layer. This is applied using the **reactive magnetron sputtering process**. A chromium coating is usually applied below this in order to improve the adherence of the DLC layer.

For tungsten carbide coatings, we supply round, rectangular and bonded targets on molybdenum or copper backplates. Our bonded targets are more stable and less liable to breakage and therefore easier to handle. We generally use indium as our solder material. However, we are also able to call on other materials depending on the specific application.

<table>
<thead>
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<th>The most important details at a glance</th>
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<tr>
<td>Purity [%]</td>
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<td>Guaranteed density [g/cm³]</td>
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<td>Grain size [µm]</td>
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<tr>
<td>Thermal conductivity [W/(m·K)]</td>
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<td>Coefficient of thermal expansion [1/K]</td>
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**High density. Smooth layers.**

As a ceramic material, tungsten carbide has to be compacted at high temperatures of between 1 900 and 2 200 °C. That is why we use hot pressing techniques to produce our targets and achieve at least 99 % of the theoretical density. As a result, no particles of powder are released from the target during sputtering and the coating adheres perfectly.
Our optimum microstructure. Your perfect coating.

Because our raw material consists of tungsten carbide powder with a minimum grain size, the microstructure of our targets is very fine and homogeneous. The advantage: The target material is eroded uniformly during the coating process and ensures that you benefit from smoother coatings. Thanks to a further optimization of the microstructure, we are also able to produce arc cathodes made of tungsten carbide.

Optimized resistance to thermal shocks. Long service life.

During the coating process, the target is exposed to high temperatures. Once sputtering has been completed, the material cools down again quickly. This may cause fissures or fractures in the target. Thanks to our special production process, our targets offer outstanding resistance to thermal shocks and can withstand countless heating/cooling cycles without difficulty.
Guaranteed purity.

The purer the coating material, the better the quality of the hard material layer. From the very outset, we use only the finest powder which we mix in our own equipment to ensure outstanding material purity. We monitor every step - from the powder through to the finished product - and make sure that only targets with the specific guaranteed density, purity and a homogeneous microstructure are shipped from our factories.

Flawless quality from a single supplier.

As a leading manufacturer of sputtering targets, we perform every stage of the production process ourselves. From the mixing and compacting of the metal powder through to the forming, machining and bonding of our targets: including the development of new materials to optimize your coating processes and films. And naturally we also verify the quality of our targets using state-of-the-art measuring methods.
You want the perfect coating? We create it.

There’s one thing we know perfectly well: In the PVD coating process, everything must fit together perfectly. Only through the perfect combination of high-quality sputtering targets and arc cathodes, coupled with carefully chosen process parameters, is it possible to create a coating that precisely meets your requirements. And this cooperation with our customers and numerous development institutes results in a constant flow of new coating materials.

Are you looking for the perfect coating? Take advantage of our long-standing experience and our extensive database of chemical compositions and production processes. Our team develops our sputtering targets and arc cathodes continually and improves their material and coating properties.

Particular when applying ceramic coatings, the optimal setting of the arc-coatingsystem can be difficult. That's why we test different process parameters on industry-related systems to support our customers at the best.

We have something else for you.

We would also be delighted to supply the corresponding fixing materials such as graphite foils, screws, washers and bolts.

Take a look at our targets and cathodes made from titanium-aluminum, aluminum-chromium, chromium, titanium, zirconium, titanium-silicon and titanium diboride.