Aluminium-Chromium sputtering targets.

Our aluminum-chromium (AlCr) targets and cathodes further enhance the toughness and resistance to oxidation of the nitride coatings of drills, milling machines, indexable cutting inserts and other tools.

The high thermal stability and resistance to oxidation of aluminum-chromium coatings means that higher feed speeds, cutting performance and metal removal rates can be achieved without difficulty. A coating of just one thousandth of a millimetre of our materials reliably protects your tools against wear even at high temperatures and therefore extends their service life. Our materials are applied using the reactive magnetron sputtering process or arc evaporation.
Whatever the geometry - tubular, spherical or rectangular: We can supply tailor-made targets that are perfect for your application.

The most important details at a glance

<table>
<thead>
<tr>
<th></th>
<th>70 / 30</th>
<th>50 / 50</th>
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<tbody>
<tr>
<td>Aluminum/chromium content [at%]</td>
<td>70 / 30</td>
<td>50 / 50</td>
</tr>
<tr>
<td>Purity [%]</td>
<td>99.7</td>
<td>99.7</td>
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<tr>
<td>Guaranteed density [g/cm³]</td>
<td>3.68</td>
<td>4.50</td>
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<tr>
<td>Standard / fine grain size [µm]</td>
<td>100 / 50</td>
<td>100 / 50</td>
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Rely on our quality.

Oerlikon Balzers also relies on Plansee's targets and cathodes. This leading manufacturer of tool and component coatings is particularly impressed by the above-average performance of our aluminum-chromium-nitride coatings and the wide range of applications they permit.

Our standard coatings from TiN or TiAlN (shown as "basic coatings" in the chart) cover a very wide range of applications while offering good average performance. Coatings from AlCrN offer our customers greater performance while still having an equally broad field of application. To optimize the coating even further for particular applications, the performance can be significantly enhanced by introducing specific elements into the TiAl or AlCr targets ("alloyed coatings").

Our AlCr targets also excel due to their:

- High ductility
- High thermal conductivity
- Homogeneous microstructure
- Unbeatable level of material purity
High ductility. Long service life.

During the coating process, our sputtering targets and arc cathodes have to withstand a lot. The material at the edge of the target can be exposed to forces of up to one tonne during coating. Whereas brittle materials would break under the strain, the presence of aluminum makes our material particularly ductile. To guarantee the high ductility of our AlCr targets, we take special care while mixing the chromium-aluminum powder and then compact it using a forming process. As a result, the microstructure of our materials is significantly more homogeneous and fine-grained than in materials produced using a melting process. The benefit to you of targets produced using powder metallurgical processes: They are particularly resistant to breakage and long-lasting.

Cool metals. Smooth layers.

During the coating process, our targets and anodes are exposed to high temperatures. However, our material doesn't feel the heat. Thanks to their aluminum content and high material density, our cathodes and targets offer particularly high thermal conductivity and can easily transfer the heat to a copper plate located behind them. If heat is allowed to build up, the target material is removed unevenly and droplets form on the surface of the tool coating. But because our targets keep their cool, a smoother coating is guaranteed.
Our optimum microstructure. Your perfect coating.

Coarse or fine metal powder? Forging, HIP or other axial forming methods? We vary and combine our different production processes to make sure that the coating you finally use is particularly smooth and fine. And in everything we do, we have one aim in mind: ensuring an optimum microstructure for our targets and cathodes. During coating, this means that significantly fewer droplets form on your product. The result: outstandingly smooth coating layers.

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 the following material properties: Grain size and microstructure

- Ductility
- Material hardness
- Resistance to oxidation
- Coefficient of friction
- Temperature resistance

We introduce further elements to perfect our aluminum chromium mix to meet your exact requirements. Just contact us!
We have something else for you.

Why not also test our aluminum-based targets and cathodes with integrated heat sinks? These are popular due to their even higher thermal conductivity and the stability they provide at the edge of the target. In these products, our aluminum heat sinks are directly connected to the target material.

You can also take a look at our targets and cathodes made from titanium-aluminum, chromium, titanium, zirconium, titanium-silicon, tungsten carbide and titanium diboride.