

# METAL SINGLE CRYSTALS



**Application:** Metal single crystals are required among others, for basic research (surface physics, catalytic chemistry, investigation of material properties), for monochromators (X-ray, neutrons) and electrons (W-needles, LaB6, CeB6).

**Properties:** The quality of our crystals is characterized by an especially high mosaicity. Production of metallic single crystals is carried out in most modern equipment with highest quality requirements. For crystal growth using the Bridgman-, Czochralski- and zone melting techniques only highest purity starting materials are used.

**Mosaicity of the elements:** the mosaicity describes the deviation of the perfect structure of the crystal. It is the angle specification which describes the deviation of a reflective X-ray jet and the ideal reflex angle. A small angle stands for a perfect crystal structure.

During application of the surface, particular emphasis will be put on orientation accuracy of the crystallographic direction. **Orientation accuracy:** up to  $<0,05^\circ$ .

The especially careful surface conditioning (polishing) allows, after low heat and sputter cycles, the direct investigation of up to several 1000 nm spread nuclear terraces. **Polishing:** roughness  $< 1\text{nm}$  (also with soft elements like Au or Pb).

**Geometric:** Several geometries are available. See our website for all geometries we offer. When requesting a quote, please specify geometric shape. In case the desired geometrics are no available on our website, please send us a drawing for a quote.

13 26.982 <b>Al</b> Aluminium 6N	51 121.76 <b>Sb</b> Antimony 6N2	83 208.98 <b>Bi</b> Bismuth 5N	48 112.41 <b>Cd</b> Cadmium 5N	24 51.996 <b>Cr</b> Chromium 5N	27 58.933 <b>Co</b> Cobalt 4N	29 63.546 <b>Cu</b> Copper 5N	66 162.5 <b>Dy</b> Dysprosium 3N5	64 157.25 <b>Gd</b> Gadolinium 4N	32 72.640 <b>Ge</b> Germanium 6N
<b>Purity</b>									
79 196.97 <b>Au</b> Gold 5N	72 178.49 <b>Hf</b> Hafnium 4N ex Zr	67 164.93 <b>Ho</b> Holmium 3N5	49 114.82 <b>In</b> Indium 6N	77 192.22 <b>Ir</b> Iridium 4N	26 55.845 <b>Fe</b> Iron 4N	82 207.20 <b>Pb</b> Lead 5N	3 6.9410 <b>Li</b> Lithium 2N8	12 24.305 <b>Mg</b> Magnesium 5N	42 95.950 <b>Mo</b> Molybdenum 4N
<b>Purity</b>									
28 58.693 <b>Ni</b> Nickel 4N	41 92.906 <b>Nb</b> Niobium 4N	46 106.42 <b>Pd</b> Palladium 5N	78 195.08 <b>Pt</b> Platinum 4N	75 186.21 <b>Re</b> Rhenium 4N	45 102.91 <b>Rh</b> Rhodium 4N	44 101.07 <b>Ru</b> Ruthenium 4N	14 28.086 <b>Si</b> Silicon 5N	47 107.87 <b>Ag</b> Silver 5N	73 180.95 <b>Ta</b> Tantalum 4N
<b>Purity</b>									
52 127.60 <b>Te</b> Tellurium 6N	50 118.71 <b>Sn</b> Tin 6N	22 47.867 <b>Ti</b> Titanium 4N	74 183.84 <b>W</b> Tungsten 5N	23 50.942 <b>V</b> Vanadium 4N	39 88.906 <b>Y</b> Yttrium 3N5	30 65.380 <b>Zn</b> Zinc 6N	40 91.224 <b>Zr</b> Zirconium 4N ex Hf *		
<b>Purity</b>									

\* crystal size limited to a few millimeters

[www.princetonscientific.com](http://www.princetonscientific.com)

Tel. (609) 9243011  
Fax (609) 9243018

info@princetonscientific.com  
P.O. Box 148 · Easton, PA 18044

@Princeton\_Sci

company/princeton-scientific-corp/

@PrincetonScientific

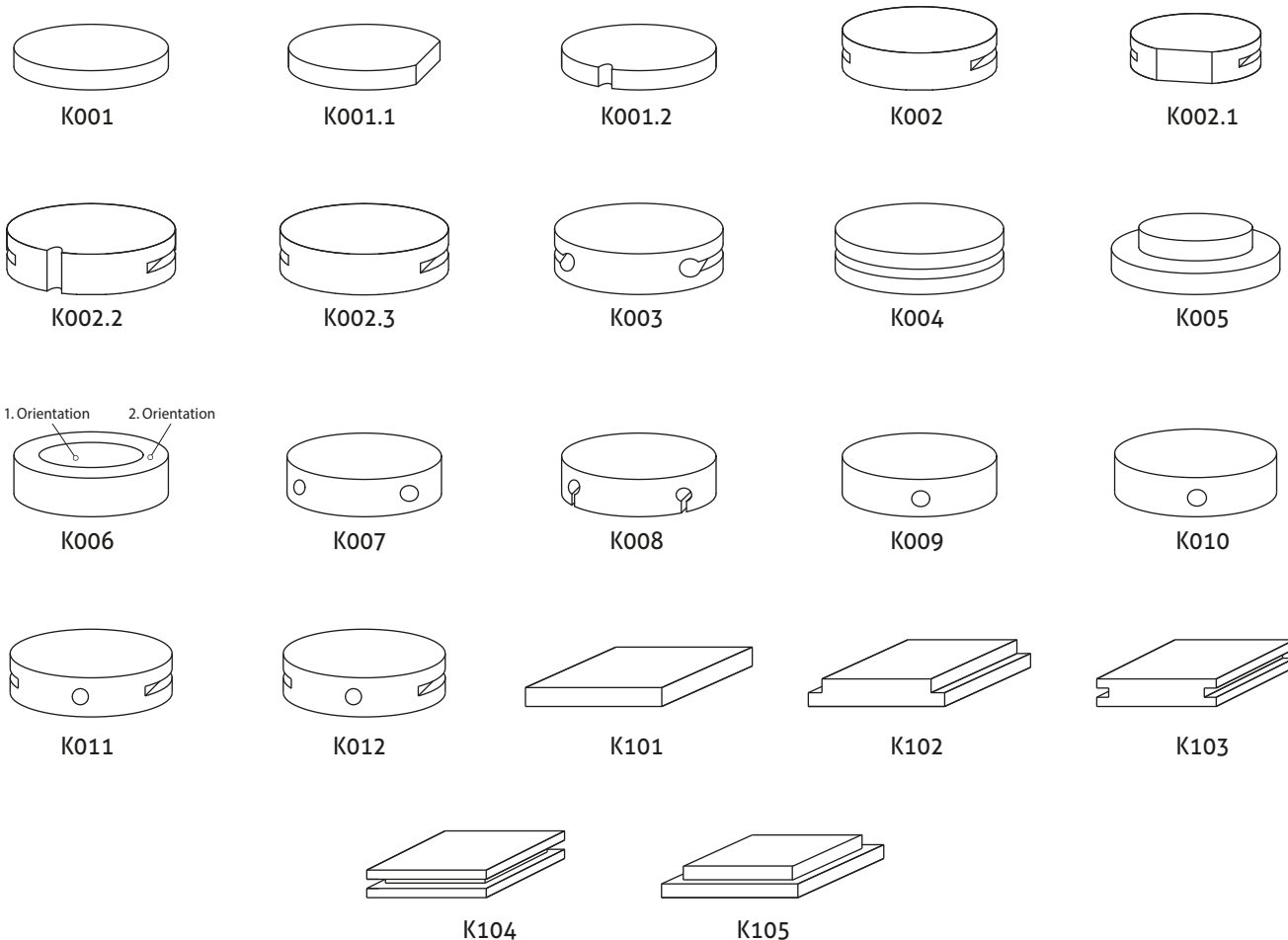


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### Available Geometries

Princeton Scientific offers various geometric shapes when it comes to Metal Single Crystals. Below you will find most common shapes, however custom designs are also feasible. Detailed drawings with template specifications required for quotation are listed on our website at [www.princetonscientific.com/materials/metal-single-crystal-geometries/](http://www.princetonscientific.com/materials/metal-single-crystal-geometries/).



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