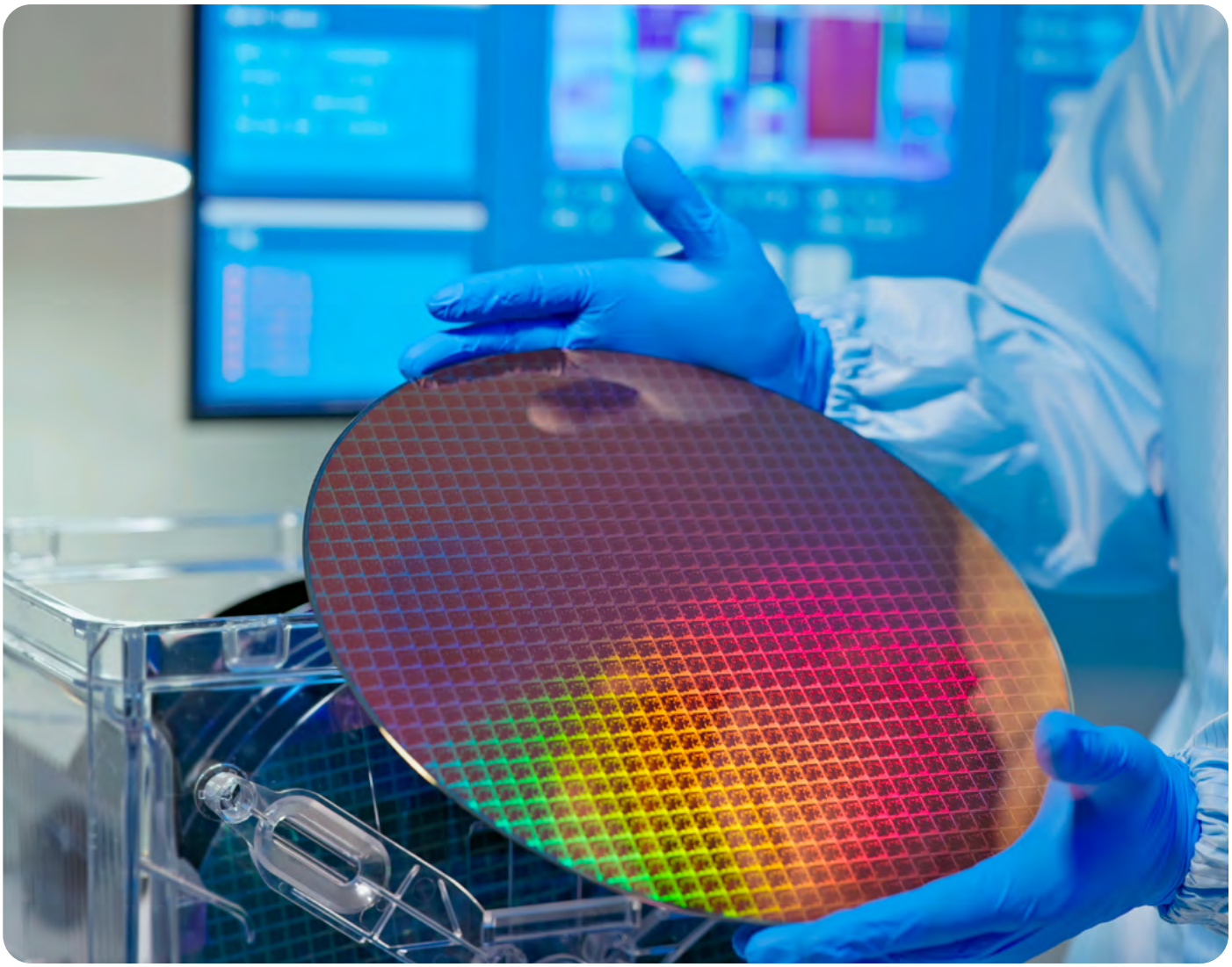
Solstice

PVD SPUTTERING TARGETS AND COIL SETS



SPUTTERING TARGETS

Solstice Advanced Materials offers a range of high-purity, precision-machined Sputtering Targets that offer consistent chemistry and purity combined with a sound, uniform microstructure in various configurations. The advanced metallurgical design of the targets ensures optimum sputtering performance and high yields.

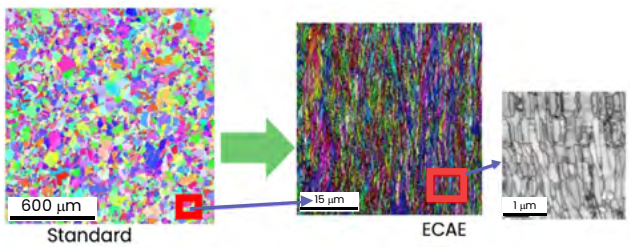
Solstice range of Sputtering Targets include:

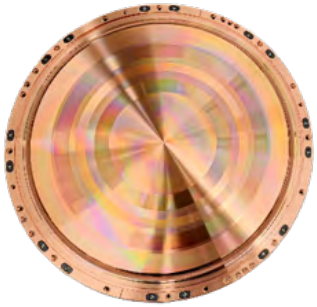
1. Cu and CuMn

Our proprietary **Equal-Channel Angular Extrusion (ECAE) Technology** offers superior performance that cannot be achieved through traditional thermomechanical processes.

During ECAE, material is pressed through two channels of equal cross-section meeting at a 90° angle. Simple shear is the deformation mode. Multiple extrusion passes can be done because there is no change in billet shape and dimensions.

FEATURES	BENEFITS
• Submicron grain size • Monolithic design • High strength until end-of-life • Uniform Mn distribution	• Longer lifetime • Less arcing/particle • High strength / low target deflection • Uniform thin film property • Stable PVD sputtering process • Lower total cost of ownership





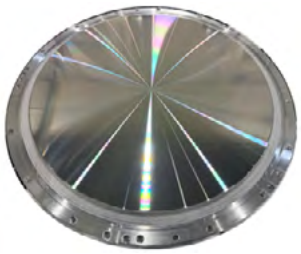
Material & Manufacturing Characteristics

METAL	DESIGN	GRAIN SIZE	PURITY
Cu	ECAE – Monolithic	< 1 micron	99.999% (5N) - 99.9999% (6N)
	ECAE Hardened – Monolithic	< 25 microns	
	Standard- Diffusion Bond	30-50 microns	
CuAl (0.25-0.5at% Al)	ECAE – Monolithic	< 1 micron	
	ECAE Hardened – Monolithic	< 20 microns	
	Standard- Diffusion Bond	30-50 microns	
CuMn (0.25%-2.0%atMn)	ECAE – Monolithic	< 1 micron	
	ECAE Hardened – Monolithic	< 20 microns	
	Standard- Diffusion Bond	30-50 microns	

2. Al, Al Alloys

Solstice provides a comprehensive portfolio of Al and Al alloy target solutions with customizable compositions, grain structures, and bonding configurations, supported by extensive high-volume production experience and successful qualification to multiple OEM specifications .





Material & Manufacturing Characteristics

METAL*	DESIGN	METALLURGY	GRAIN SIZE	PRECIPITATES	PURITY
AlCu AlSiCu	Monolithic	ECAE	<1 micron	none	99.99% (4N)-99.9995% (5N5)
	Diffusion Bond	Standard	30-50 microns	<5 microns	
	Diffusion Bond	ECAE	60-80 microns	<0.5 micron	
Al1Si	Diffusion Bond	Standard	<150 microns	none	
Doped Al**	Diffusion Bond	ECAE	200-250 microns	none	
Al	Diffusion Bond	Standard or ECAE	<300 microns	none	

*Al alloy composition can be tuned to customer request.

**Si doping of pure Al offers significant grain size reduction and better uniformity than standard process, resulting in superior metallurgy.

3. Ti

Solstice's Ti Targets combine high purity, refined grain structures, and advanced design flexibility to deliver consistent performance and reliability, supported by proven high-volume production capability and a strong track record of qualification to leading OEM specifications.





Material & Manufacturing Characteristics

METAL*	PURITY	DESIGN	GRAIN SIZE
Ti	4N5 5N 5N5	Monolithic Diffusion Bond	<25 microns <10 microns

4. Powder Metallurgy

Solstice provides a comprehensive range of powder metallurgy products, tailored to meet diverse material, purity, size, density, and bonding requirements.

Material & Manufacturing Characteristics

METAL	PURITY	SIZE OFFERING	DENSITY	BONDING TYPE
WTi	3N~ 4N8	200mm 300mm	Above 99%	Diffusion Bonding Nano bonding Indium Bonding
W	5N	200mm 300mm	Above 99%	
Mo	3N5~ 4N5	200mm 300mm	Above 95%	
Ru	3N5~ 4N	200mm 300mm	Above 99%	
WSi*, WTi*, WMo	4N~ 5N	200mm 300mm	Above 99%	
TiAl3, TaAl3	3N5	200mm 300mm	Above 99%	

*Custom alloy compositions are available.

COIL SETS

Solstice is a leading supplier of high-purity coils that support ion metal plasma sputtering technology for PVD processing.

A full range of 200mm and 300mm coils in Titanium, Tantalum, and Copper are available in a variety of configurations, purity, and surface finishes. All coils are precision manufactured, cleaned, and inspected to OEM specifications and quality standards.

METAL	PURITY	SIZE	CONFIGURATION	SURFACE FINISH
Ti	4N5, 5N	200mm, 300mm	Pins & cups, EB welded, EB3	Knurled, bead blasted, texture-free
Cu	4N	300mm	EB welded	Texture-free
Ta	3N5, 4N5	200mm, 300mm	Pins & cups, EB welded	Knurled, bead blasted, non-bead blasted






Ta Coil Knurl Patterning Technology

KNURL PATTERN		
AK Aggressive Knurl		• Uniform surface texture
IAM - Inverted Aggressive Knurl		• Uniform surface texture • Captures the re-deposition material and better distributes film stress to prevent peeling

Ta Coil Refurbishment

Ta coil refurbishment is offered as an opportunity to gain a second life from the coil. Spent coils are received and inspected at our manufacturing facility, retextured, and then cleaned and inspected prior to shipment all while maintaining traceability and high quality standards.

GET IN TOUCH WITH US

Work with us to maintain your competitive edge by reducing downtime and increasing Target's life. Our research and development team is available to support the design and fabrication of products that meet your specific needs.

For More Information Visit
solstice.com

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