

ADVANCING SEMICONDUCTOR PERFORMANCE

The broadest portfolio of high-purity
alloys for semiconductor production

INDUSTRY LEADER

40+ years pioneering semiconductor solutions, poised to meet the next generation of challenges

135+ YEARS

alloy and production expertise

KEY GLOBAL SUPPLIER

to major fluid control, metrology, motion system, and shielding device manufacturers

200+ METALLURGISTS

and thousands more material, engineering, and industry experts on staff

\$2 BILLION REVENUE

annually, NYSE publicly listed company

BROADEST PORTFOLIO

of tailored solutions for the semiconductor market, including customized alloys and product forms

- Ultra clean
- High quality
- Low corrosion
- SEMI-F20 compliant

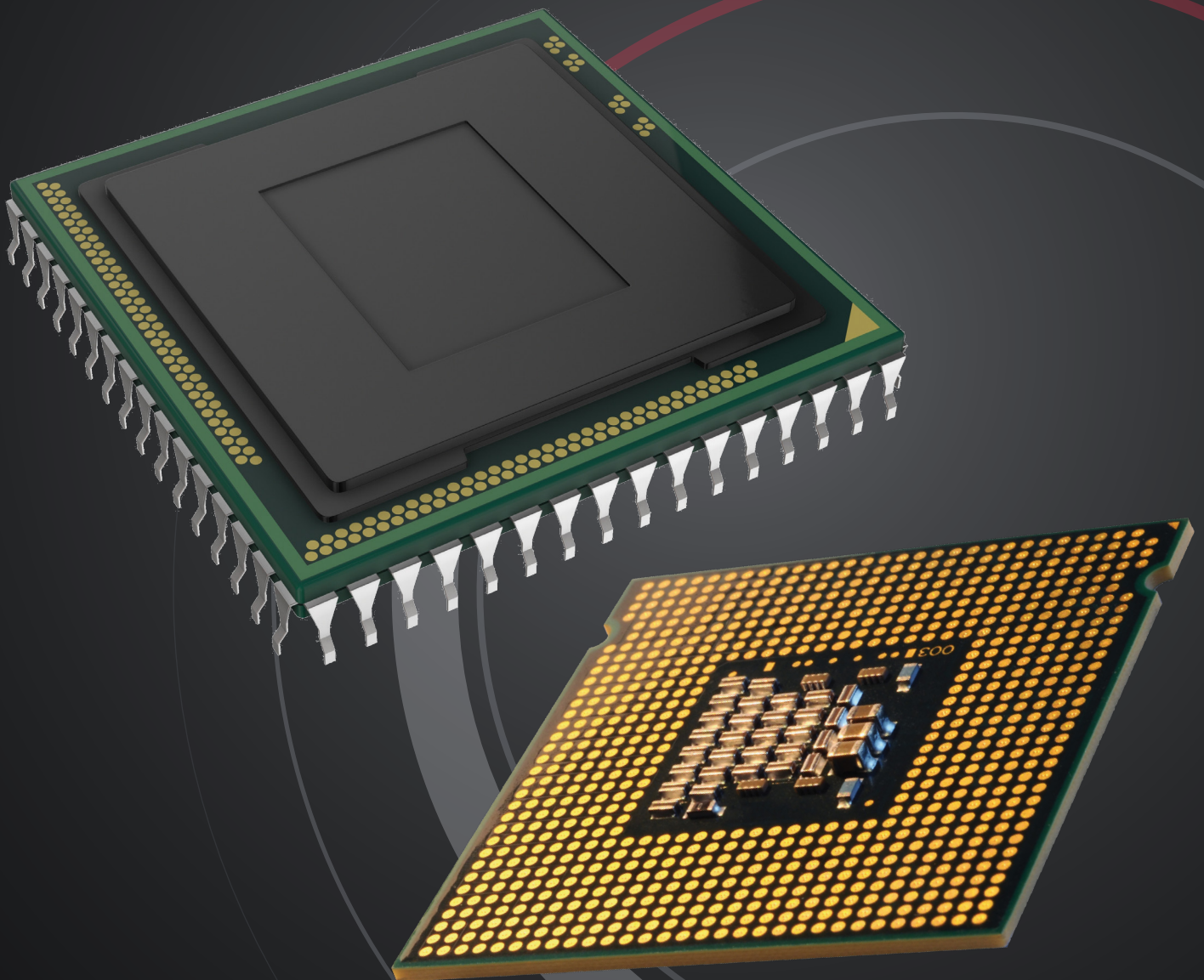
ULTRA PREMIUM MATERIALS

made with vacuum induction melting (VIM) for superior products

PREMIER R&D

expertise, equipment, and infrastructure

- Applied and basic research
- Alloy development
- Process and materials characterization
- Prototyping to production





Highest purity for peak performance

Carpenter Technology specializes in high-purity alloys designed to perform in corrosive environments with no tolerance for contamination. We are **the** trusted partner in ultra-high purity gas delivery applications.

Our semiconductor alloys are engineered to meet unique application requirements in corrosion resistance, cleanliness, weldability, machinability, and electropolish-ability. Our metallurgical and manufacturing expertise gives you the edge.

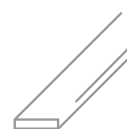
- **Industry vanguard:** Primary producer of high-purity 316L-SCQ, meeting tight specifications and SEMI-F20 standards.
- **High capacity:** Industry-best production volume.
- **Unmatched quality:** Lab-tested and field-proven, our solutions set the standard for industry quality, ensuring component integrity.
- **Tailored solutions:** Have a unique use case or cutting-edge design? We'll partner with you to develop a custom alloy that meets your specific needs.
- **Future-ready:** The path to 2nm technology and beyond requires a new performance standard in FAB materials. Our next-generation alloys answer the call with higher temperature and corrosion resistance to withstand the most challenging environments.

Carpenter Technology brings more than 135 years of metallurgical innovation to semiconductors, pushing the limits of what's possible, solving evolving design challenges, and partnering with industry leaders to build high-value integrated circuits.

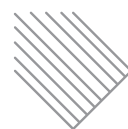
Available in the forms you need



Bar



Flat Bar



Strip



Wire

Advanced alloys for semiconductor production

Carpenter Technology alloys are proven performers and support applications across semiconductor manufacturing.

Gas delivery and filtration

Critical components such as valves, fittings, regulator, and filters demand premium alloys with corrosion resistance, cleanliness, weldability, and electropolish-ability. Our materials are designed for the rigorous demands of deposition, etching, and general fabrication construction.

- **Ultra-High Purity (UHP):** Optimized for strength, corrosion resistance, high pitting resistance, and elevated material cleanliness in demanding environments.
- **High Purity (HP):** The benchmark for reliability in fluid delivery applications.
- **General Purpose:** Utility-grade product for gas systems and less critical applications.
- **Custom solutions:** Materials for bespoke application needs, including Conichrome®/Elgiloy (Co-Cr-Ni-Mo), C-276, and 625.

Measurement systems

Uniformity and thermal, temporal stability are critical for components that uphold the integrity of measurement systems, including precision-crafted sensors and mounts.

- **Ultra-High Purity (UHP), 13-8 Mo:** For applications demanding both uniformity and precision.
- **Invar 36:** Known for its remarkable thermal stability.
- **Super Invar 32-5:** Unparalleled temporal stability in measurement systems.

Motion systems

Specialized components for linear actuation and galling-prone applications require alloys engineered to combat galling and enhance wear resistance to ensure consistent, reliable motion in semiconductor machinery.

- **Gall-Tough® / Nitronic family:** Specifically engineered for galling and wear resistance.
- **440C:** A high-grade stainless steel for high-stress applications.

Shielding

Alloys for advanced flux concentrators and shielding solutions that facilitate superior control over magnetic induction and deliver high performance.

- **High Permeability 49:** Tailored for high permeability in magnetic fields.
- **HyMu 80:** Exceptional shielding capabilities.

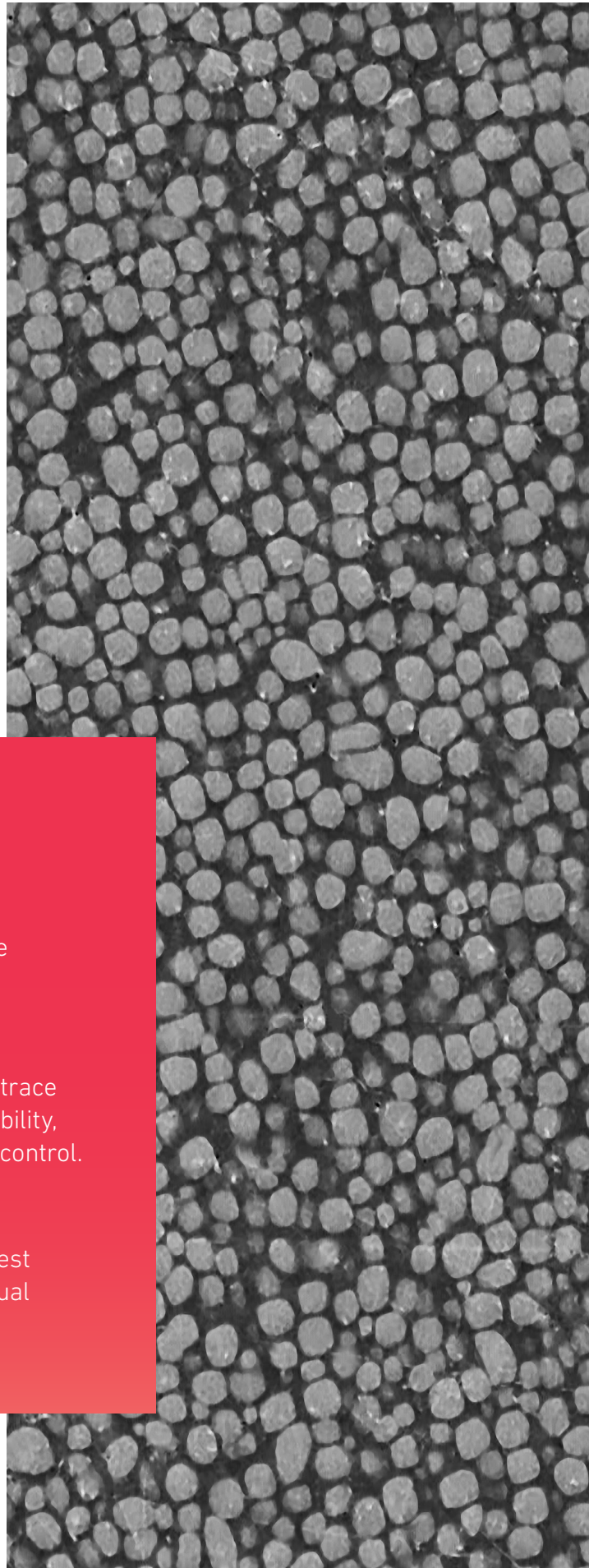


Meeting the most challenging FAB component requirements

In-house premium melting processes give us precise control over the chemistry, microstructure, cleanliness, performance, and quality of our alloys:

- **Air melting + vacuum arc remelting (AOD+VAR):**
Delivers a superior surface finish by refining the metal in a vacuum, resulting in a pristine, inclusion-free alloy.
- **Vacuum induction melting + vacuum arc remelting (VIM+VAR):** Ensures alloys are virtually free of inclusions to meet the most stringent micro-cleanliness requirements.

The resulting high-purity alloys are engineered to reliably manufacture high-value integrated circuits with tight acceptance criteria.



316L-SCQ ALLOYS DELIVER

BEST-IN-CLASS SURFACE FINISH

Designed for applications where extremely fine surface finishes are paramount.

CUSTOMIZABLE CHEMISTRY

Dialed in to your exact requirements with tight trace element control to ensure the highest machinability, electropolish-ability, weldability, and inclusion control.

MICRO-CLEANNESS

Carefully selected melt stock ensures the highest purity, restricting the presence of typical residual elements and optimizing internal cleanliness.



Your trusted partner for ultra-clean alloys

APPLICATION	ALLOYS	RELEVANT SPECS	FORMAT	DESCRIPTION
High purity (HP)	316L-SCQ	SEMI F-20 UHP, SEMI F-20 HP, JIS	Bar, Flat Bar	A suite of high-performance alloys in gas delivery, filtration, and measurement systems tailored to your needs.
Next-gen high purity	316L-SCQ +	UHP, JIS	Bar, Flat Bar	Engineered for higher temperature and corrosion applications for next-gen FABs.
	C-22	UHP	Bar	
Diaphragm	Conichrome®, C-276		Strip	Unique combination of extremely high strength, ductility, excellent corrosion resistance, and high fatigue strength.
	316L-SCQ		Strip	A high-performance diaphragm material.
Motion systems	Hiperco®, HyMu, High Permeability soft magnetic systems		Strip	A series of soft magnetic material designed for shielding and motion system applications.
FAB construction systems	316L	GP	Bar, Flat Bar	A general-purpose material for FAB construction.
Instrumentation	Super Invar, 13-8	Various	Bar	Thermally stable materials for demanding instrumentation applications.

Carpenter Technology is a global leader in high-purity, high-performance alloys for critical applications in the semiconductor, industrial, aerospace, defense, transportation, energy, medical, and consumer electronics markets.

For additional information, please contact your nearest sales office:
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