

# Vacuum Chambers & Custom Fabrication



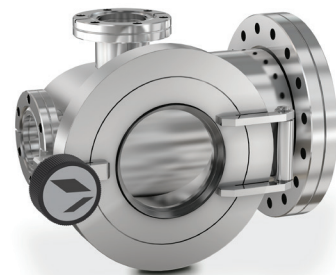
**American manufacturing**  
with the most demanding  
quality standards.



## A Legacy of American Precision and Performance

Pfeiffer Vacuum+Fab Solutions continues the legacy of Nor-Cal with a dedicated team in Yreka, California, producing custom vacuum chambers and manifolds built on a tradition of precision, reliability and engineering excellence.

From research-grade applications in universities and national laboratories to high-volume OEM production, customers trust the Nor-Cal name for proven high-performance vacuum chamber solutions.



Part of the **BUSCH GROUP**

**PFEIFFER**   
**VACUUM+FAB SOLUTIONS**

Visit us at [www.n-c.com](http://www.n-c.com)

## Engineered Precision, American Craftsmanship.

Under the Nor-Cal legacy of craftsmanship and precision fabrication, Pfeiffer delivers standard and fully custom-engineered vacuum chambers, weldments, and modular components.

Designed and manufactured in the US, each solution is developed in close collaboration with customers to ensure optimal performance, manufacturability and cost efficiency from concept through final qualification.



## Fabrication and Engineering Capabilities

### Core in-house processes and quality standards

#### + Advanced Design and Customization

- All pre-designed chambers can be fully customized to meet specific customer and application needs
- Support for complex geometries and specialized configurations
- Collaborative design and optimization, supported by our in-house engineering team, improve performance, manufacturability, and cost efficiency

#### + Precision Fabrication

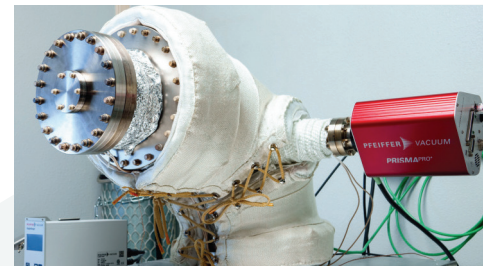
- Automated and orbital welding systems
- Tight-tolerance machining and precision fit-up
- Cleanroom assembly for contamination control

#### + Special Processing

- Vacuum bakeout and RGA (Residual Gas Analyzer) scans for system cleanliness validation
- In-house electropolishing
- Material verification and certification review

#### + Inspection and Quality

- CMM (Coordinate Measuring Machine) inspection and dimensional verification
- Certificates of conformance and material traceability
- Full inspection report printouts available upon request



## Advanced RGA for Assured Cleanliness

Our industry-leading RGA services provide precise verification of chamber cleanliness, supported by UHV capabilities reaching below  $5 \times 10^{-10}$  Torr. With continued investment in advanced technology, we deliver the clarity and confidence your processes depend on.

## Portfolio & Capabilities

With more than six decades of manufacturing experience, the team designs and fabricates a complete range of standard and custom engineered vacuum chambers, manifolds, and weldments for research, industrial, and semiconductor applications.

## Vacuum Chambers

### Standard Chambers

- **Modular chamber designs** include bell jars, base plates, and feedthrough collars
- **Surface Analysis Chambers (SAC)** standard models can be fully customized to spec
- **Standard geometrics such as spherical, cylindrical, and rectangular** for broad applications

### Custom-Engineered Chambers

- **Water-cooled chambers** feature double-walled designs for high-temperature or process-intensive environments
- **Designed for advanced material processing** (Silicon Carbide – SiC)  
*Complex geometries and specialized configurations*



## Custom Fabrication

### Custom Weldments

- Built for efficient vacuum flow and precise integration into complex systems
- Modified standard components and custom geometries ensure the right fit for every process requirement

### Custom Manifolds

- Built to spec for complex geometries or tight space requirements
- Optimized flow path and port layouts for system integration

### Product-Specific Options

*Available by product type or chamber configuration*

### Chamber Materials

- 304SS, 304LSS, 316SS, 316LSS, Aluminum, and other exotic materials upon request

### Vacuum Level

- HV to UHV performance, with select applications capable of achieving XHV levels ( $<10^{-11}$  Torr)
- Base pressure and acceptable leak rate defined per specification

### Surface Treatments

- Glass bead finish
- In-house Electropolish
- Chemical cleaning and passivation
- Optional process-specific surface finishes

### Chamber Accessories

- Blank-off flanges
- Manipulators
- Viewports and load locks
- Feedthroughs and related accessories



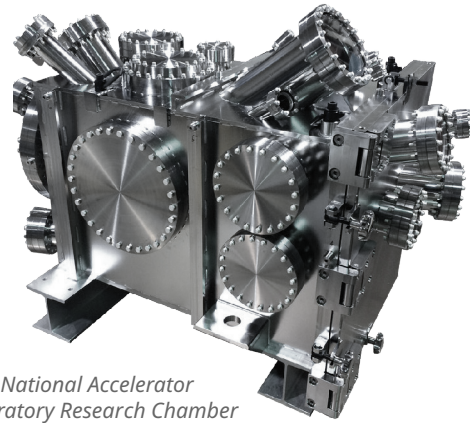
### Vacuum Traps

Standard designs have the ability to be customized on port size and configuration.



# Vacuum Solutions for America's Leading Industries

Pfeiffer Vacuum+Fab Solutions supports research institutions, semiconductor manufacturers, and advanced industrial sectors across the United States with high- and ultra-high-vacuum chambers and customized components, engineered and fabricated by the Nor-Cal team.

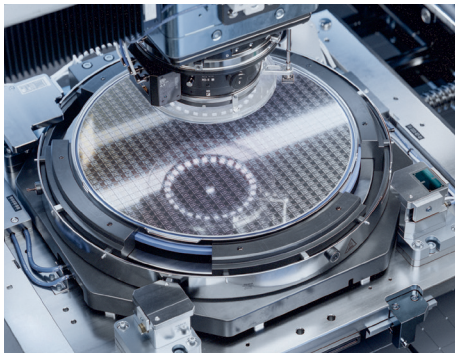


SLAC National Accelerator  
Laboratory Research Chamber



## Research & Development

Nor-Cal HV and UHV chambers provide the stable, contamination-controlled conditions essential for advanced research, supporting professionals working on **particle accelerators, fusion and plasma studies, quantum materials, and space simulation**. These chambers are designed for sensitive scientific measurements across national laboratories, government research programs, and university environments.



## Semiconductor

Semiconductor development depends on intricate **HV and UHV chambers with careful attention to design - for manufacturability, supporting MBE, ALD/ALCVD, PVD, PECVD, MOCVD, EUV technologies and SiC growth**, while delivering the cleanliness, geometric accuracy, and stability required by manufacturers and equipment OEMs.



## Industrial & Advanced Applications

Across high-tech manufacturing and specialized industrial processes, controlled vacuum environments ensure material integrity and product quality. Nor-Cal fabricates robust HV & UHV chambers **tailored for demanding industrial workflows**, enabling optical coating, aerospace component testing, vacuum heat treatment of metals, precision metrology, mass spectrometry, battery, and environmental simulation.

## READY TO LEARN MORE?

Share your project details or request a custom quote today.



REQUEST  
QUOTE



CALL  
TODAY

Part of the **BUSCH** GROUP

**PFEIFFER**  
VACUUM+FAB SOLUTIONS