

PRODUCT

INFORMATION



Standard configuration System VII

KEY FEATURES

- Cold Wall Vacuum furnace design with stainless steel inner and outer jackets with baffled water cooling.
- Standard units rated at 1000°C, 1315°C, 1650°C, and 2200°C in either graphite or metal hot zones. Specials to 3000°C are available upon request.
- Available in standard sizes of 6"x6"x15" or 8"x8"x20".
- PLC with Industrial Programmable Controller or PC system using Intellution™ FIX32 HMI software or Specview® customized by Centorr/Vacuum Industries for vacuum furnaces, with extensive data acquisition; and remote operation capabilities.
- Operation from partial pressures of 10^{-6} torr up to 1-3 psig positive pressures of Argon, Nitrogen, and Hydrogen.
- Our G-10503A positive pressure Hydrogen gas system with Factory Mutual (FM) approval.
- Optional binder removal systems including our patented Sweepgas™ Vacuum Binder Removal System or thermal oxidizer operating at positive pressures.
- Low and high vacuum pumping systems include mechanical pumps, diffusion, turbomolecular, or cryogenic high vacuum units with a graphic control panel.
- Single furnace chamber can be designed with interchangeable graphite and metal hot zones for flexibility while processing metals and ceramics.
- Custom systems available.

System VII / Super VII Furnaces SERIES 2100/2110 MULTIPURPOSE VACUUM METALLURGICAL SYSTEMS

System VII and Super VII vacuum furnaces broaden the capabilities for vacuum and inert atmosphere metallurgical processes with a basic chamber concept that avoids equipment duplication and minimizes cost.

The versatile chamber accommodates accessories carefully designed to conduct all important vacuum metallurgical processes. Equipment can be chosen to meet one specific need. Should requirements change in the future, the basic system can be converted for a different process by merely substituting accessories.

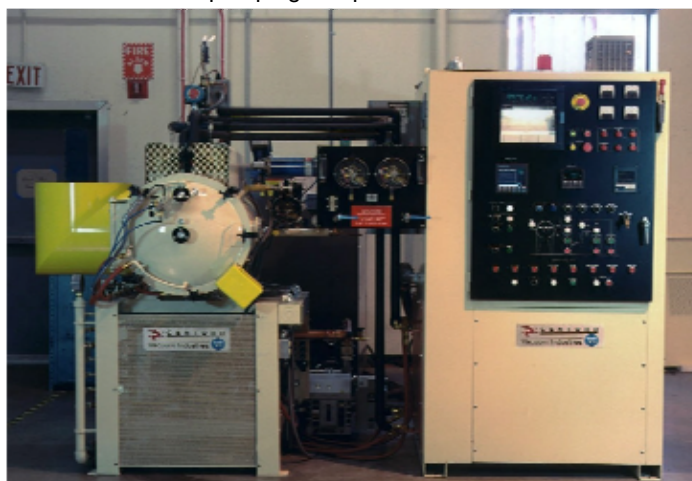
Starting with the multipurpose vacuum chamber, mounted on a standard pumping system, the interchangeable accessories are easily installed to let you melt, sinter, braze, weld, outgas, anneal, heat treat or quench as desired.

Leading materials engineers and metallurgists throughout the world have selected Centorr/Vacuum Industries System VII and Super VII furnaces for the following major benefits:

Efficiency - One multi-purpose system for all major vacuum metallurgical capabilities. Components can be added to convert from one process to another as programs, needs, and budgets change.

Economy - Save valuable floor space while avoiding expensive equipment duplication. Meet current requirements while providing the basics for tomorrow's needs.

Convenience - Accessory change-over is fast and easy, using ordinary hand tools. Easily removable front and rear panels allow full service access to the pumping components.



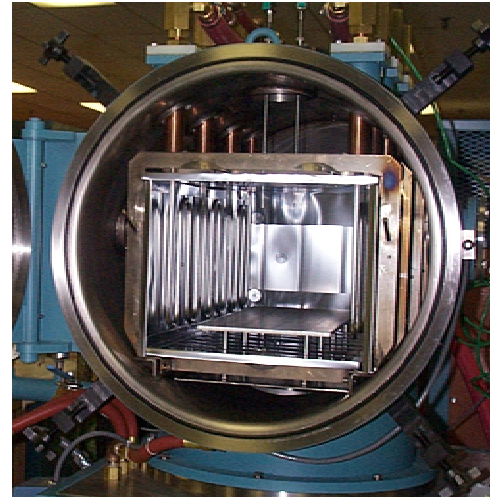
Super VII mounted on frame with combo cabinet, instead of control pod. Unit has optional Hydrogen positive pressure gas system.

System VII / Super VII Vacuum / Controlled Atmosphere Furnace

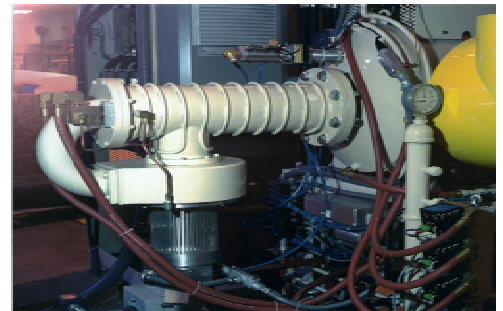
- **Highest Product Consistency** is assured by the uniform temperature gradients, and manual or automatic control of each step in the process.
- **Lowest Cost Operation** is provided by the rapid heating and fast cooling with the optional heat exchanger package.
- **Flexibility** is provided by either manual or automated controls which allow different materials to be successfully processed without time-consuming adjustment of furnace conditions.
- **Minimum Maintenance Cost** is assured by the heavy construction and ease of access to all components of the furnace.

MISC. / OPTIONAL FEATURES

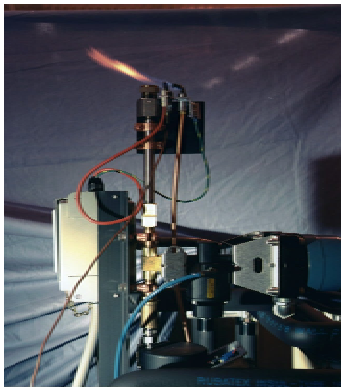
- Manual rotameter or Mass Flow Controllers for precise, repeatable gas flow.
- Integrated cooling fans with integral heat exchangers.
- CE / VDE / TÜV / CSA approvals and other non-U.S. standards for compliance.
- Rigid or Flexible water cooled busswork for improved maintenance and best electrical efficiency.
- Induction Melting Furnace for casting advanced alloys and clean metals.
- Arc Melting Furnace to melt samples for alloy development or phase diagram work. Includes interchangeable hearths for button, bar, or skull melting.
- Inert Gas welding systems for joining reactive refractory metals and other alloys.
- Gas Quenching options when rapid load cooling is required.
- Liquid Quench accessories available for laboratory scale oil or water quenching.
- Optional diffusion pumping system with roughing pump and water-cooled baffle, refrigerated baffle, or liquid Nitrogen cold trap.
- Optional binder removal packages including heat-traced/insulated debind manifolding with combination diffusion pump / Dry Mechanical Pump or OTO (Once-through-oiling) pumps for a variety of binder systems.



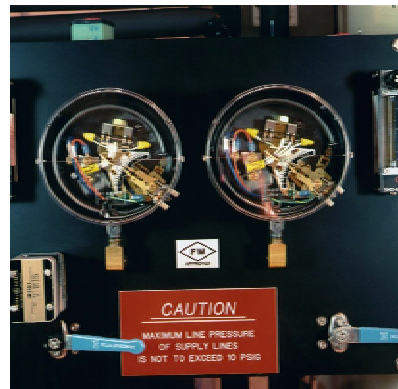
Metal Hot Zone Super VII with two-sided heating elements and metal radiation shields.



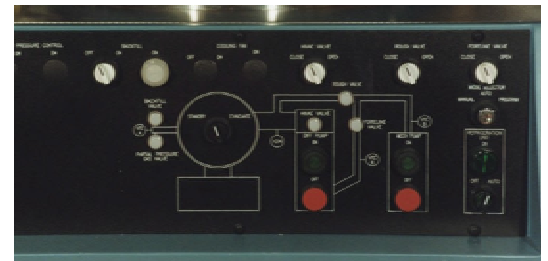
Optional fan cooling system with integrated heat exchanger.



Hydrogen Burnoff tower assembly.



Hydrogen Gas Panel with pressure switches.



System VII Mimic panel on control console.

FURNACE APPROVALS

Centorr Vacuum Industries furnaces are designed to our own internal quality standards developed over almost 50 year history, and are built to the following industry standards:

ASTM NFPA 86D FM (for G-10503A Hydrogen Systems)



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