SVCS

SVCS Process Innovation

Solutions for Semiconductor, Photovoltaic and Nanoscience Technologies

Chemical Vapor Deposition Thermal Reactor

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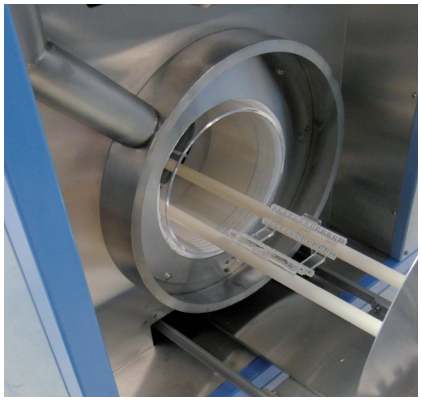
INTRODUCTION

SVCS® SVcFUR-RD Research & Development System for demanding R&D or pilot project applications is a dedicated thermal CVD system for various areas of nanofabrication. While maintaining the major features of full production system, it offers optimized parameters for process development and materials growth in many areas of research including semiconductor, PV, MEMS and other nanotechnology applications. The SVCS design is outstanding for high efficiency, minimized footprint and low cost of ownership while offering high process flexibility. The typical applications include (but are not limited to) Annealing, Diffusion, Oxides, Nitrides, ALD, SW/MW CNT's, Semiconductor Nanowires, Nanoparticles, Nanopillars, Thin film nanostructures, Complex oxide multiferroic heterostructures, Graphene etc.

KEY FEATURES



Key Features:

- Easy operation, processing and maintenance
- High quality deposition film uniformity
- No cross-contamination
- Excellent reproducibility
- Remote operation through Ethernet highway (intranet or internet)
- Maintenance friendly mechanical design

STANDARD CONFIGURATION

Standard Configuration:

- Vacuum or atmospheric operation for wafer size 1" - 6" (25-150 mm)
- State of the art modular control system; in-house designed, highly tailored to meet both process and safety requirements
- Advanced PID temperature control based on proprietary fast cascade algorithm
- Independent Safety Interlocks , emergency off (EMO) switches
- Multilevel user/password protected access
- Top notch components always selected for excellent results and trouble free long life of the furnace equipment
- Quartz or silicon carbide tube reactor chambers for various processes
- 3 or 5 zone Resistance Furnace for temperatures 400 °C – 1200 °C
- Fully automatic Gas System with media flow controlled by thermal electronic digital MFCs (Mass Flow Controllers)
- All gas lines from Ultra High Purity components with all wetted internal surfaces electropolished
- Multiple methods of vacuum control, heated or unheated
  - Throttling Butterfly Valve – TBV
  - N_2 ballast
  - Vacuum pump control with frequency converter
- Integration of vacuum pump system in cooperation with leading vacuum pump manufacturers
- Advanced water cooling system at tube-level, water cooled flanges of reactor chamber
- Contactless fully automated boat-in-tube loading both cantilever or softloading configurations
- Compliant with SEMI - S2/S8 and CE Standards
- Low and high pressure operation including capacitance gauges for 10 Torr and 1000 Torr
- Electrical power supply system: 3-phase 380 VAC, 50 Hz, 5-wire (or per country specifications)
- Leak detection of dangerous gases

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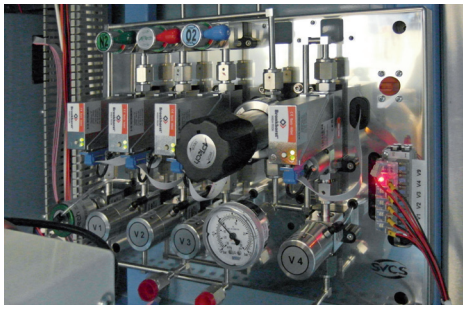
OPTIONAL FEATURES

Optional Features:

- Additional UHP Gas delivery lines (up to 16 lines)
- Precursor Vapor delivery with Temperature Controller (“bubbler”) or CEM-system (MFCs-controlled evaporating and mixing)
- Liquid Chemical Auto Refill system
- Solid source heater in the process tube
- Gas leakage monitoring
- External Torch or Rasirc™ steamer for wet oxidation
- Plasma generator for Plasma Enhanced Processes
- Light Gauge Heating element for better control in low temperature ranges
- Forced-Air Venting technology for fast cool rates
- Up to 4-stacked quartz reactor chambers in one frame for various processes
- Manual Loader for minimized furnace footprint and cost
- SV-DELI Gas Cabinets and Gas Panels for wide range of process media, including hazardous and corrosive gases
- Air pump for quartzware cleaning via carbon residue removal
- Internal air-to-water heat exchanger
- Exhaust (abatement) gas burn-off

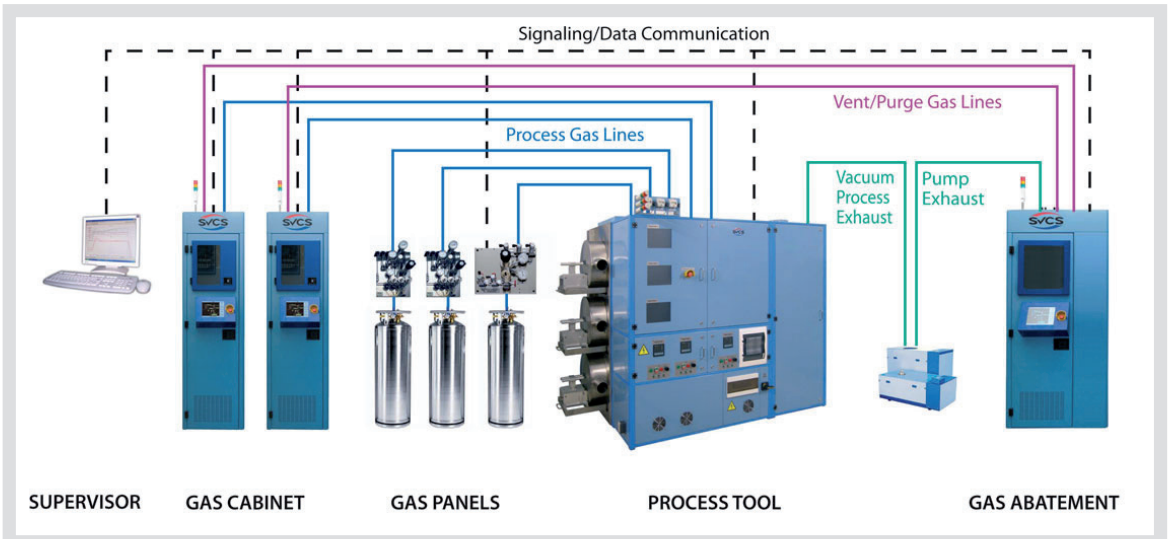
CUSTOMIZED CVD SYSTEM



SVCS manufactures individually customized CVD processing system with additional tools to make the R&D system turn-key delivery. The supporting equipment starts from gas cabinets with optional automatic change-over function for uninterrupted gas delivery, followed by gas panels for inert or purging gases.

The other end of the R&D process is the exhaust media abatement systems both thermal or wet scrubbing. All the tools – gas cabinet, process tool and scrubber can be controlled by the same family control system making unique mesh for complex remote data acquisition and process control.

COMPLETE SOLUTION



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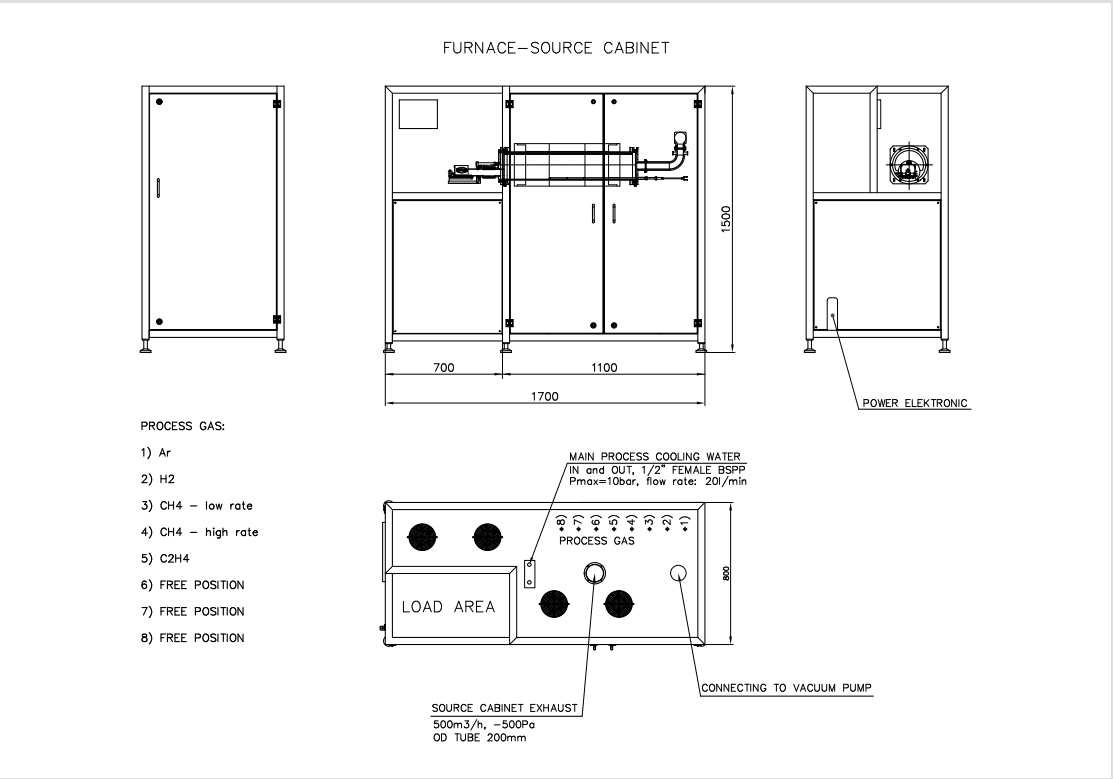
GENERAL INSTALATION DRAWING



Contact our local representative or factory for more information regarding the tailored design for your laboratory.
SVCS is a leader in customized solutions to fit demanding requirements of the research centers.

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