

## EasyTube® 6000 Four Tube Horizontal Furnace

### Standard Configuration

- CVDWinPrC™ based process control software for Real Time Process Control, Data Logging and Display, Recipe Generation and Editing
- One through Four Tube Configurations
- 3 Zone Resistance Furnace (optional - 5 Zone)
- Cantilevered Automatic Substrate Loading/Unloading System
- Wafer Sizes > 200mm (3 Stack Furnace), Wafer Sizes > 150mm (4 Stack Furnace)
- Up to 25-50 Per Load (Process Dependent). Larger Loads Available on Request
- Proprietary Real-Time Cascade Process Temperature Control
- 4 Mass Flow Controlled UHP Gas Lines Per Tube
- Atmospheric and Low Pressure Processes Available
- User Settable Warnings and Alarms
- Application Customized Safety Systems
- Comprehensive Software and Hardware Safety Interlocks
- One (1) Year Warranty
- Semi - S2/S8 and CE Certified

First Nano's EasyTube® 6000 Horizontal Furnace System is offered for Oxidation, Annealing, Diffusion and Low Pressure Chemical Vapor Deposition (LPCVD). Our modular design offers flexibility of configuration with the cost savings of standardization.

Our system can be configured with one through four process tubes. Each tube can be configured for atmospheric or vacuum operation.

Utilizing a Cantilevered Loading System with an optional Horizontal HEPA Laminar Flow Filter, this combination minimizes particle generation and allows the user to load pieces of wafers, a single wafer or a boat of wafers.

Cascade Temperature Control provides the most accurate internal temperature profile with the responsiveness of external (furnace) temperature monitoring and control. Each zone is controlled separately and is automatically tuned to provide the best thermal response and temperature profiles.



Operated through our CVDWinPrC™ process control software, it automatically logs data and graphically shows the time dependent values of user selected parameters. CVDWinPrC™ also allows users to load preprogrammed recipes, modify, check /create new recipes and view real time or saved execution data.

Designed to meet today's more stringent safety standards, the system can safely process most pyrophoric and toxic chemicals including silane, germane, diborane, phosphine, HCl, and metal organic precursors. The system also has application customized safety protocols imbedded into relay logic, PLC and CVDWinPrC™ software.

## R&D Turn-Key Equipment / Process Solutions

### Processes:

#### Oxidation:

- Dry (Oxygen)
- Wet (Bubbler)
- Pyrogenic Oxidation using an independent chamber to generate pure steam

#### Diffusion and Annealing:

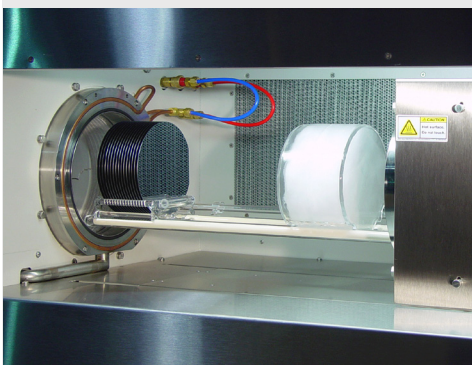
- Inert Gas
- Forming Gas
- Specialty Gas
- Liquid Source Doping
- Gaseous Source Doping
- Solid Source Doping

#### LPCVD:

- Polysilicon
- Silicon Dioxide
- Silicon Nitride
- Silicon Oxynitride

#### Mounting:

- Left Hand
- Right Hand
- Bulkhead
- Ballroom



Batch Wafer Process

### Gas Cabinets      Process Equipment      Gas Abatement



First Nano offers turn-key system capabilities with support equipment such as Gas Cabinets and Exhaust Gas Conditioning Systems. All major components from one vendor makes interfacing easy. The First Nano **EasyGas™** gas cabinet is capable of delivering a variety of toxic and hazardous gases. The **Easy Exhaust™** System will thermally pyrolyze and/or wet scrub the process effluents.

EasyTube™ products are also offered in a single tube configuration with the **EasyTube® 2000** and **EasyTube® 3000** models. The **EasyTube® 6000** can initially be configured with a single process tube or multiple process tubes to meet your current needs, and the capability to populate the remaining process tubes at a future date as your process requirements expand.

Call us at **(631) 981-7081** to discuss a product solution for your project. We can also be reached at [sales@firstnano.com](mailto:sales@firstnano.com) or visit our website at <http://www.firstnano.com>

### FACILITY REQUIREMENTS

Electrical	208 V.A.C	5 Wire	200 AMP
(standard 60Hz) Alternate voltages and frequency available - consult factory			
Dimension	118" L	43" W	90" H
Exhaust	500 CFM for Furnace Compartment 300 CFM for Gas Compartment		
Cooling Water	6 GPM	30-60 PSIG	
Pneumatic Supply	Clean Air or N2	80 PSIG	1 SCFM
Facility Nitrogen	20 SLPM	20 PSIG	
Process Gases	Up to Six (6) per Tube		

\* Note: Electrical varies with country; facility requirements vary with system options. Consult Factory for details.

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