



# YES-VertaVac High Temperature Vacuum Oven

Automated System for MEMS and Wafer-level Packaging Needs

## Specifications

Hardware									
Clean Room Compatibility	Class 10								
Chamber Cleanliness	Class 1								
Wafer Size	300mm FOUP load & unload 200mm with open cassette adapter (OCA) option (200mm/300mm only) 300mm to 200mm conversion								
Capacity	200mm only configuration: 50 wafers 200mm/300mm option configuration: 25 wafers 300mm only configuration: 50 wafers								
Dual Door Seal	Nitrogen purged dual door seal assembly eliminates O <sub>2</sub> leakage into chamber								
Interior Chamber Dimensions	42.6 cm x 58.1 cm deep (16.74" x 22.87")								
Chamber Process Area	36.35 cm x 53.26 cm deep (14.31" x 20.97")								
Overall System Dimensions	131.4 cm (W) x 272.5 cm (D) x 213.4 cm (H) (51.75" x 107.3" x 84")								
Integral EFEM	ISO class 3 mini-environment; accepts 300mm FOUP or 200mm cassette in open cassette adaptor (OCA)								
Chamber Material	316L stainless steel with Titanium fasteners Wafer support is 316L; other materials available								
Process Gas Inputs	1 process gas standard, 3 gases optional								
Process Gas Piping	All-welded construction with VCR® fittings								
Mass Flow Controllers	Optional for all 3 gases								
Pneumatic N <sub>2</sub> or CDA	80-100 psig with a maximum flow of 3 SCFM and an average flow of approximately 0.5 SCFM								
FOUP Load Port	Genmark® Porta300™ Oven wafer cassette integral to process chamber door Auto compensation for thermal expansion of oven cassette								
Robot Wafer Handling Vacuum	14.8-23.6 in Hg of vacuum; maximum flow 40 slpm; average flow approx. 20 slpm								
Cure Vacuum Line Connection	NW25 <i>Minimum performance:</i> <table style="margin-left: 40px; border: none;"> <tr> <td>Pumping speed at connection</td> <td>20 CFM</td> </tr> <tr> <td>Pump base pressure</td> <td>&lt;1 Torr</td> </tr> <tr> <td>Continuous gas flow</td> <td>15-25 SLM</td> </tr> <tr> <td>Maximum inlet gas temperature</td> <td>60°C</td> </tr> </table>	Pumping speed at connection	20 CFM	Pump base pressure	<1 Torr	Continuous gas flow	15-25 SLM	Maximum inlet gas temperature	60°C
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Pump base pressure	<1 Torr								
Continuous gas flow	15-25 SLM								
Maximum inlet gas temperature	60°C								
System Weight	1723 kg (3800 lbs)								
Software									
User Interface	SEMI E37 compliant. HSMS host communications optional; Complies with SEMI E30 & SEMI E5								
Number of Recipes	Unlimited (up to pc hard drive capacity)								
Number of Steps for Each Recipe	32 program steps								
Range of Exposure Time	0 – 600 minutes								
Resolution of Timer Setting	1 minute								

Performance	
Cleanliness	Horizontal laminar airflow allows particle reduction in most applications
Operation Temperature	100 °C to 450 °C
Ramping Temperature	150 - 450 °C, controlled ramp up
Temperature Uniformity	± 3.5°C during dwell after all temperature points have stabilized for 15 minutes (± 1.5 % at 450°C)
Maximum Heat-Up Rate	10°C/min. (at low end of range)
Maximum Cool-Down Rate	5°C/min. (at high end of range) Variable ambient air mixing ratio for maximum cooling performance over entire operating temperature range; forced convection cooling of the exterior of vacuum chamber
Chamber Cooling Exhaust	Chamber cooling air mixed w/ambient air to reduce exhaust temperature below safe exposure limits. Heat exhaust only; no process gases or effluents present in exhaust. Max. flow rate is 2000 SCFM
Particle Levels	<10 average adders >/=0.3um per wafer
Laminar Process Pressure Range	50 - 500 Torr with N <sup>2</sup> flow
High Vacuum Process Pressure Range	1x10 <sup>-5</sup> Torr
Gas Flow Rate	2 SCFM max; 1 SCFM continuous during process Controlled gas composition
N <sub>2</sub> Flow Rate	1 SCFM
Oxygen Concentration	10 ppm over background
Process Gas Filtering	.003 micron filtering on all process gases
Electrical	
Power	208 VAC, 3 phase, 70 AMP, 50/60 Hz
Standard Options	
Additional Process Gases	1 to 3 process gases available
Mass Flow Controllers	Optional on any/all 3 process gases
Exhaust O <sub>2</sub> Monitoring	Continuous monitoring of process chamber vacuum exhaust oxygen concentration to verify oxygen performance
Downstream Pressure Control	Optional CDG pressure measurement and variable vacuum throttle valve
Data Acquisition	Optional data collection for each process run is sampled at a 1 second interval
Communications	Network serial connection, 10/100 Base-T Ethernet, RJ45 connector, TCP/IP communications protocol for data acquisition

*Tool temperature performance is a combination of temperature control accuracy and temperature uniformity. Accuracy is the deviation of the average product temperature from the set point. Uniformity is the deviation between the maximum and minimum product temperatures and is not related to the set point. Accuracy is calculated as set point – average temperature. Uniformity is calculated as (max-min)/(max+min).*

## Contact Us

When you're ready to run process tests, a demonstration can be arranged using your chemicals and samples. Call +1 925-373-8353 (worldwide), 1-888-YES-3637 (US toll free), or visit us online at

[www.yieldengineering.com](http://www.yieldengineering.com).

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