YES-VertaCure Series High Temperature Vacuum Oven

Automated System for Curing Polyimide, BCB, Low-K Dielectrics & Copper Anneal

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_2 leakage into chamber
Interior Chamber Dimensions	42.6 cm x 58.1 cm deep (16.77” 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_2 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 *Minimum performance:* Pumping speed at connection 20 CFM 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

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Performance	
Cleanliness	Horizontal laminar airflow allows particle reduction in most applications
Throughput	300mm 20 wafers/hr.* 200mm/300mm 10 wafers/hr.* 200mm 20 wafers/hr.* * based on 50 wafers per cycle w/typical polyimide process time cure cycle of approx. 2.5 hr. (1hr. dwell @ 350°C)
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) (Empty chamber at pressures above 50 Torr)
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
Process Pressure Range	50 - 500 Torr
Gas Flow Rate	2 SCFM max; 1 SCFM continuous during process Controlled gas composition
N_2 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_2 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 +352 450010 or visit us online at www.bita.lu

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