PROCESS SOLUTIONS, EQUIPMENT AND SERVICES

YES-PB Series

(PB8 and PB12)

Manual Load Vacuum Cure Systems

The YES-PB Series is the result of decades of experience in the design and manufacture of low particle ovens. These dependable systems provide complete removal of residual solvents, uniform temperature distribution, pressure control, a dry inert atmosphere, and precise management of heating and cooling rates.

PB8: up to 2 cassettes of 200mm wafers

PB12: up to 2 cassettes of 300mm wafers

The Vacuum Cure Advantage

- Faster process: 3.5 hours vs 8+ hours
- Laminar flow reduces/eliminates particles
- More complete cure (5x less outgassing)
- Less film stress and low wafer warpage
- 1.6x to 2x less power and N_2 consumption
- Much lower capital cost, 2-3x lower CoO

COMMON APPLICATIONS

Polyimide and BCB cure

Copper anneal

Aluminum anneal

Contact Us: We offer process demonstrations. If you would like to submit samples, please call us. We can run your samples and provide a detailed process report.

Yield Engineering Systems, Inc.

Call: **1-510-954-6889** (worldwide) or **1-888-YES-3637** (US toll free)

www.yieldengineering.com

PB 8-2P-CP SPECIFICATIONS

For Curing Polyimide, BCB, Low-K Dielectrics & Copper Anneal

SPECIFICATIONS	
HARDWARE	
Clean Room Compatibility	Class 10
Chamber Cleanliness	Class 1
Wafer Size	Up to 200mm
Capacity	Up to 50 8" wafers/batch (two 25 wafer cassettes)
Operation Temperature	Ambient to 450˚C
N_2 Flow Rate	1 SCFM
Nitrogen Consumption	15-25 liters/min.
Interior Chamber Dimensions	36.62 cm barrel (ID) x 66.52 cm (D) — (14.42" x 26.19")
Chamber Process Area	23.95 cm (W) x 45.97 cm (D) x 24.69 cm (H) — (9.43" x 18.10" x 9.72")
Overall System Dimensions	68.96 cm (W) x 145.92 cm (D) x 77.87 cm (H) — (27.15" x 57.45" x 30.64")
Control Console Dimensions	59.44 cm (W) x 96.01 cm (D) x 23.62 cm (H) — (23.4" x 37.8" x 9.3")
Chamber Material	316L stainless steel
Process Gas Inputs	1 standard, up to 3 optional
Mass Flow Controllers	Optional – up to 3 for gas mixing
Laminar Flow Filter	100 micron Mott™ plate filter
Cleanliness	Particle reduction in most applications
SOFTWARE	
Number of Recipes	8 temperature profiles
Number of Steps for Each Recipe	16 program steps
Range of Segment Time	0-99 hours
Resolution of Timer Setting	1 minute
PERFORMANCE	
Temperature Uniformity	± 5˚C during dwell after all temperature points have stabilized for 15 minutes
Average Heat-Up Rate (150˚C - 450˚C)	5˚C/min. Empty Chamber Load Dependent
Average Cool-Down Rate (450˚C - 150˚C)	4˚C/min. Empty Chamber Load Dependent
Oxygen Concentration	10 ppm over background
ADDITIONAL	
Power Requirements	208V, 40 amps, 50/60 Hz, 3 phase
Tool Weight (approx.)	575 lbs (261 kgs)

 # OF CASSETTES THAT FIT INSIDE THE LAMINAR FLOW ZONE

2 inch wafers	9 cassettes	150 mm wafers	3 cassettes
3 inch wafers	6 cassettes	200 mm wafers	2 cassettes
100 mm wafers	3 cassettes	300 mm wafers	0 cassettes
125 mm wafers	3 cassettes		

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). YES-PB series tools have dwell accuracy of +/-1.5˚C after stabilization. After stabilizing at dwell, all product temperatures should be within 10˚C or 14˚C of each other (depending on the tool) and within 7˚C or 8.5˚C of set point (depending on the tool).

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PB 12-2P-CP SPECIFICATIONS

For Curing Polyimide, BCB, Low-K Dielectrics & Copper Anneal

SPECIFICATIONS	
HARDWARE	
Clean Room Compatibility	Class 10
Chamber Cleanliness	Class 1
Wafer Size	Up to 300mm
Capacity	Up to 50 12" wafers/batch (two 25 wafer cassettes)
Operation Temperature	Ambient to 450˚C
N_2 Flow Rate	1 SCFM
Nitrogen Consumption	15-25 liters/min.
Interior Chamber Dimensions	54.34 cm barrel (ID) x 104.06 cm (D) — (21" x 40.97")
Chamber Process Area	37.592 cm (W) x 56.64 cm (D) x 36.07 cm (H) — (14.8" x 22.3" x 14.2")
Overall System Dimensions	84.48 cm (W) x 174.57 cm (D) x 138.7 cm (H) — (35.23" x 68.73" x 54.61")
Control Console Dimensions	59.44 cm (W) x 96.01 cm (D) x 23.62 cm (H) — (23.4" x 37.8" x 9.3")
Chamber Material	316L stainless steel
Process Gas Inputs	1 standard, up to 3 optional
Mass Flow Controllers	Optional – up to 3 for gas mixing
Laminar Flow Filter	100 micron Mott™ plate filter
Cleanliness	Particle reduction in most applications
SOFTWARE	
Number of Recipes	8 temperature profiles
Number of Steps for Each Recipe	16 program steps
Range of Segment Time	0-99 hours
Resolution of Timer Setting	1 minute
PERFORMANCE	
Temperature Uniformity	± 7˚C during dwell after all temperature points have stabilized for 15 minutes
Average Heat-Up Rate (150˚C - 450˚C)	3.5˚C/min. Empty Chamber Load Dependent
Average Cool-Down Rate (450˚C - 150˚C)	3.0˚C/min. Empty Chamber Load Dependent
Oxygen Concentration	10 ppm over background
ADDITIONAL	
Power Requirements	208V, 40 amps, 50/60 Hz, 3 phase
Tool Weight (approx.)	894 lbs (406 kgs)

# OF CASSETTES THAT FIT INSIDE THE LAMINAR FLOW ZONE			
2 inch wafers	25 cassettes	150 mm wafers	10 cassettes
3 inch wafers	15 cassettes	200 mm wafers	3 cassettes
100 mm wafers	10 cassettes	300 mm wafers	2 cassettes
125 mm wafers	10 cassettes		

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). YES-PB series tools have dwell accuracy of +/-1.5˚C after stabilization. After stabilizing at dwell, all product temperatures should be within 10˚C or 14˚C of each other (depending on the tool) and within 7˚C or 8.5˚C of set point (depending on the tool).

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