



PROCESS SOLUTIONS, EQUIPMENT AND SERVICES

# PB-Series

## Manual Load Vacuum Cure Systems



PB12



PB8

**Yield Engineering Systems, Inc.**

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

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



# PB Series

## Manual Load Vacuum Cure Systems



**PB12:** up to 2 cassettes of 300 mm wafers



**PB8:** up to 2 cassettes of 200 mm wafers

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.

### 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<sub>2</sub> 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.

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# PB 8 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 200 mm
Capacity	Up to 50 8" wafers/batch (two 25 wafer cassettes)
Operation Temperature	Ambient to 450°C
N <sub>2</sub> 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		

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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).



# PB 12 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 300 mm
Capacity	Up to 50 12" wafers/batch (two 25 wafer cassettes)
Operation Temperature	Ambient to 450°C
N <sub>2</sub> 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		

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