

# PICOSUN® P-300B

The PICOSUN® P-300B ALD system is specially designed for production of MEMS devices such as print heads, sensors, and microphones, and coating of 3D objects such as lenses, optics, mechanical parts, jewelry, coins, and medical implants.

The PICOSUN® P-300 ALD systems have become the new standard in high volume ALD manufacturing. By integrating our patented hot-wall design with fully separated inlets, we can create the highest quality ALD films with excellent yield, low particle levels, and superior electrical and optical performance. The agile design with easy and fast maintenance ensures minimum system downtime and lowest cost-of-ownership in the market. Our proprietary Picoflow® diffusion enhancer technology enables highly conformal coatings on ultra-high aspect ratio substrates with production-proven processes.

The PICOSUN® P-300B ALD system is specially designed for batch processing in MEMS and 3-dimensional component production. The system is fast, highly reliable and extremely easy to maintain.

#### **TECHNICAL FEATURES**

# Typical substrate size and type

- 200 mm wafers in batches of 25 pcs (standard pitch)
- 150 mm wafers in batches of 50 pcs (standard pitch)
- 100 mm wafers in batches of 75 pcs (standard pitch)
- Non-wafer substrates (tailored holders)
- High aspect ratio samples (up to 1:2500)

### **Processing temperature**

• 50 - 500°C

### **Typical processes**

- Batch processes available with cycle times down to single digit seconds
- $Al_2O_3$ ,  $SiO_2$ ,  $Ta_2O_5$ ,  $HfO_2$ , ZnO,  $TiO_2$ ,  $ZrO_2$ , AlN, TiN, and metals
- Down to <1% 1σ non-uniformity in a batch (Al<sub>2</sub>O<sub>3</sub>, WIW, WTW, B2B, 49 pts, 5mm EE)

#### **Substrate loading**

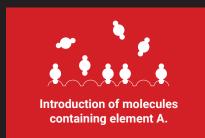
- · Manual loading with a pneumatic lift
- Linear semi-automatic loading
- · Industrial robot loading

#### **Precursors**

- · Liquid, solid, gas, ozone
- Level sensors, cleaning and refill service
- Up to 8 sources with 4 separate inlets



# THE PRINCIPLE OF ALD





Adsorption of the molecules on the surface.



Introduction of molecules containing element B and reaction with element A on the surface.



Completion of one monolayer of compound AB.

Repeat cycle till desired film thickness is reached.



# **PICOSUN HQ**

Email: info@picosun.com Tel. +358 50 321 1955

# **Picosun Oy**

Tietotie 3 FI-02150 Espoo, Finland

# **Picosun Oy (factories)**

Masalantie 365 FI-02430 Masala, Finland

# **PICOSUN BRANCH OFFICES**

Email: sales@picosun.com

## **Picosun Europe**

Tel. +49 1522 449 49 11 (Germany) Tel. +33 60 785 1176 (France)

### **Picosun USA**

Tel. +1 214 790 0844

# Picosun Asia, Singapore

Tel. +65 9830 1709

#### **Picosun Taiwan**

Tel. +886 90 515 2985

# **Picosun China**

Tel. +86 139 2640 6106

# Picosun Japan

Tel. +81 3 6431 9500

# **Picosun Korea**

Tel. +82 10 3493 7831

### Picosun India

Tel. +91 96000 28593

This technology is protected via granted patents or is the subject of pending patent applications.

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