



# PICOSUN® P-300BV

**The PICOSUN® P-300BV ALD system is specially designed for production of LEDs, discrete devices, and MEMS devices such as print heads, sensors, and microphones.**

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-300BV ALD system represents the cutting-edge of industrial ALD. The system is designed for semi-automated handling of wafer batches. The tool is optimized for fast batch production and it can be integrated to factory automation via SECS/GEM option. Vacuum loading system with heating option enables clean processing of sensitive substrates and deposition of materials such as metal nitrides.

The PICOSUN® P-300BV is the ALD system of choice for innovation driven industries!

## 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 – 450°C

### Typical processes

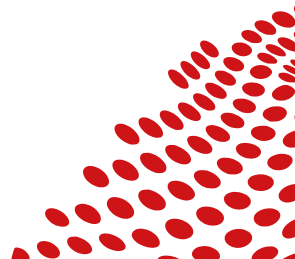
- Batch processes available with cycle times down to single digit seconds
- $\text{Al}_2\text{O}_3$ ,  $\text{SiO}_2$ ,  $\text{Ta}_2\text{O}_5$ ,  $\text{HfO}_2$ ,  $\text{ZnO}$ ,  $\text{TiO}_2$ ,  $\text{ZrO}_2$ ,  $\text{AlN}$ ,  $\text{TiN}$ , and metals
- Down to <1%  $1\sigma$  non-uniformity in a batch ( $\text{Al}_2\text{O}_3$ , WIW, WTW, B2B, 49 pts, 5mm EE)

### Substrate loading

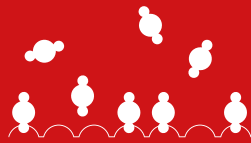
- Semi-automatic loading with vertical loaders (one or two loaders)
- Optional heating for load lock

### Precursors

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



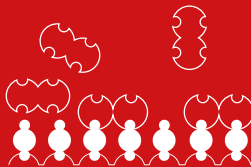
## THE PRINCIPLE OF ALD



Introduction of molecules  
containing element A.



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.

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

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