PAS 5500/1150C

193-nm Step-and-Scan

Description

The PAS 5500/1150C 193-nm Step-and-Scan system enables cost effective 90-nm ArF mass production. The PAS 5500/1150C is the solution for both 90-nm critical and non critical ArF layers. The PAS 5500/1150C can be configured with a number of options that enable low-k1 in manufacturing, extending application of the PAS 5500/1150C below 90 nm.
# Technical Specifications

## Lens
- **Wavelength:** 193 nm
- **NA:** 0.50–0.75
- **Resolution:** ≤ 90 nm
- **Field size, for reticle with pellicle**
  - Max X: 26.0 mm
  - Max Y: 33.0 mm
- **CD Uniformity @ 90-nm L/S**
  - BF: ≤ 7 nm
  - Over 0.3-μm defocus: ≤ 10 nm
- **CD Uniformity @ 90-nm Isolated Lines**
  - BF: ≤ 6 nm
  - Over 0.2-μm defocus: ≤ 9 nm
- **Distortion (Dynamic)**
  - Annular: ≤ 12 nm

## Overlay
- **Single-machine:** ≤ 12 nm
- **Matched-machine:** ≤ 20 nm

## Production Throughput
- **20-mJ/cm² exposure dose**
  - 200-mm wafers, 46 shots: ≥ 135 wph

## AERIAL II Illumination
### Conventional
- σ max: 0.88
- σ min: 0.33
### Annular
- **Intensity:** ≥ 1100 mW/cm² (NA Max)
- σ out: 0.40–0.89
- σ in: 0.16–0.64
- **Integrated slit uniformity:** ≤ 0.6%

## Lasers
- **Type:** Cymer Nanolith 7600A
- **Power:** 20 W
- **Frequency:** continuously variable
- **Beam Delivery:** ≤ 20-m remote capability
Key Features and Benefits

Variable 0.75-NA 193-nm Projection Lens with Advanced Lens Manipulators
Production resolution down to 90 nm.

AERIAL II Illuminator
Provides the ultimate flexibility in illumination modes at maximum throughput.

PAS 5500 Step-and-Scan Body
Commonality with i-line and KrF Step-and-Scan tools for economic mix-and-match.

ATHENA Advanced Alignment Combined With Reticle Blue Align
Increased alignment accuracy for a wide variety of processes.
Ultra stable over time.

20-W ArF Laser With Variable Laser Frequency Control
High power 4-kHz laser enabling maximum throughput over a large dose range.

Batch Streaming With ARMS
Continuous-flow manufacturing.

Image Streaming Package
For enhanced productivity.