

# 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- $k_1$  in manufacturing, extending application of the PAS 5500/1150C below 90 nm.

## Technical Specifications

<b>Lens</b>	
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- $\mu$ m defocus:	≤ 10 nm
CD Uniformity @ 90-nm Isolated Lines	
• BF:	≤ 6 nm
• Over 0.2- $\mu$ m defocus:	≤ 9 nm
Distortion (Dynamic)	
• Annular:	≤ 12 nm
<b>Overlay</b>	
Single-machine:	≤ 12 nm
Matched-machine:	≤ 20 nm
<b>Production Throughput</b>	
20-mJ/cm <sup>2</sup> exposure dose	
• 200-mm wafers, 46 shots:	≥ 135 wph
<b>AERIAL II Illumination</b>	
Conventional	
• $\sigma$ max:	0.88
• $\sigma$ min:	0.33
Annular	
• Intensity:	≥ 1100 mW/cm <sup>2</sup> (@ NA Max)
• $\sigma$ out:	0.40–0.89
• $\sigma$ in:	0.16–0.64
• Integrated slit uniformity:	≤ 0.6%
<b>Lasers</b>	
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.