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

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/cm ^{2} 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/cm ^{2} (@ 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.

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