

PAS 5500/350C

Description

The PAS 5500/350C is a Deep UV stepper for 0.15- μm applications and beyond. The high productivity and low cost of ownership allow capacity extensions in existing DUV stepper fabs as well. The PAS 5500/350C system provides a very cost-effective mix-and-match lithography solution when used in conjunction with other ASML PAS 5500 i-line and DUV steppers.

Technical Specifications

Lens	
Wavelength:	248 nm
NA:	0.40–0.63
Intensity annular:	225 mW/cm ²
Uniformity annular:	$\leq 1.4\%$
Reduction ratio:	4x
Resolution:	$\leq 0.15 \mu\text{m}$
Field size	
• Square field:	22.0 mm x 22.0 mm
• Rectangular field:	27.4 mm x 14.7 mm
UDOF (NA 0.63, Annular):	$\geq 0.5 \mu\text{m}$
CD Uniformity @ BF (NA 0.63, Annular):	$\leq 22 \text{ nm}$
Overlay	
Stage repeatability:	$\leq 15 \text{ nm}$
Single-machine Overlay AA:	$\leq 28 \text{ nm}$
Matched-machine overlay AB:	$\leq 60 \text{ nm}$
Production Throughput	
30-mJ/cm ² exposure dose	
• 200-mm wafers, 70 shots:	88 wph
• 150-mm wafers, 40 shots:	120 wph
AERIAL Illumination	
Annular	
• Intensity:	225 mW/cm ² (@ NA 0.63, σ 0.8/0.5)
• σ out:	≤ 0.8
• σ in:	≥ 0.1
• σ out-in:	≥ 0.3
• Uniformity:	$\leq 1.4\%$
Lasers	
Type:	Cymer 5610
Power:	10 W
Frequency:	1 kHz
Beam delivery:	20-m remote capability

Key Features and Benefits

Variable 0.63-NA Deep UV Lens, Full Stepper Field

Production resolution down to 150 nm.

Continuously variable partial coherence and annular illumination

Fully automated imaging optimization for different process layers.

Beam delivery laser technology

Remote laser location to facilitate easy maintenance and safe operation.

Through-The-Lens (TTL) phase modulated alignment

For optimum overlay and matching simultaneous with industry-leading throughput.