

PAS 5500/450F

i-Line Step-and-Scan

Description

The PAS 5500/450F is the latest and most advanced addition to the i-line Step-and-Scan family. This mass production tool is the successor of the PAS 5500/400 for non-critical applications. This tool has been extended to critical i-line down to 220 nm. The PAS 5500/450F combines the imaging power of a variable 0.48-0.65-NA Carl Zeiss Starlith 4X reduction lens with a high speed scanning stage to deliver a high productivity tool with a superior value of ownership for maximum yield. The system is fully configurable to meet production requirements and offers both ease-of-manufacturing and cost-effectiveness in a high-volume production environment. The PAS 5500/450F continues to raise the bar for imaging performance and productivity in the 200-mm litho market.

Technical Specifications

High performance configuration	
Lens including High Performance Imaging Pack	
Wavelength:	365 nm
NA:	0.48–0.65
Resolution:	≤ 220 nm
Field size, for reticle with pellicle	
• Max X:	26.0 mm
• Max Y:	33.0 mm
CD Uniformity @ 220 nm L/S	
• BF:	≤ 22 nm
• At ± 0.3-μm defocus (@ max NA):	≤ 35 nm
CD Uniformity @ 220 nm isolated lines	
• BF:	≤ 20 nm
• At ± 0.2-μm defocus (@ max NA):	≤ 35 nm
Distortion (Dynamic):	≤ 20 nm
Image Plane Deviation:	≤ 225 nm
Astigmatism:	≤ 135 nm
Production Throughput including PEP 450F	
Throughput under ATP conditions 200-mJ/cm ² exposure dose 16 x 32-mm representative field size	
• 200-mm wafers, 46 shots:	≥ 150 wph
AERIAL Illumination including High Performance Imaging Package	
Conventional	
• Intensity:	> 5500 mW/cm ²
• σ max:	0.85
• σ min:	0.38
• Integrated slit uniformity:	≤ 1.2%
Annular	
• σ out:	0.38–0.88
• σ in:	0.16–0.64
• Integrated slit uniformity:	≤ 1.2%
The ASML refurbished system is configured for high performance.	

Key Features and Benefits

Cost-Effective i-Line High Throughput Scanner, Throughput 150 Wafers per Hour

High throughput resulting in superior cost of ownership.

Applications

The world's most successful i-line scanner system used in a wide range of processes from critical to non-critical i-line layers ensuring ease-of-manufacturing and cost effectiveness for layers with feature sizes down to 220 nm.

High Speed Scanning Stages

The latest successful ASML technology with high speed stage innovations are included resulting in the world's highest 200-mm productivity i-line tools.

PAS 5500 Mature Step-and-Scan Body

The PAS 5500/450F is based upon the industry-leading 200-mm PAS 5500 Step-and-Scan body.

Commonality with PAS 5500 DUV and 193-nm Step-and-Scan Tools for Economic Fab Extensions

- Optimized for mix-and-matching
- Modular design allowing future improvements to be integrated in the body

