

PROJECTION SCANNER FOR LARGE SUBSTRATES

SUSS DSC500

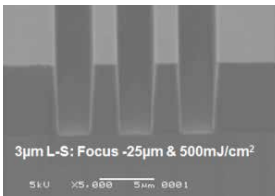
PROJECTION SCANNER FOR LARGE-AREA PANELS, ADVANCED SUBSTRATES AND FLEXIBLE DISPLAYS

The DSC500 is designed to provide low cost of ownership and high process flexibility for panels up to 510 mm x 515 mm. It is tailored for today's challenging large-area exposure applications: displays, interconnects and flex circuits, advanced substrates and panel level fan-out, 450 mm wafers, and more. Model DSC800 available for substrate sizes up to 650 mm x 780 mm.

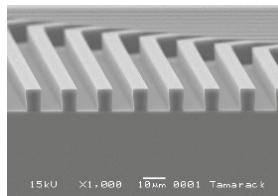
The DSC500 Scanner combines a full-field mask, broadband projection optics (with filters), choice of highly uniform scan beam (diamond or larger hexagonal shaped), optical run-out compensation, and four selectable numerical apertures. The optical design provides a large depth of focus for fine resolution down to 3µm L/S in thin resist, excellent trench shapes in medium thick resists, high aspect ratio vias in thick resists, and substrates with varied topography. Delivers CD uniformity of $\pm 1\mu\text{m}$ for 3µm features. Alignment accuracy of $< \pm 1\mu\text{m}$ is achieved by the On-axis alignment system, and targets can be located anywhere on the substrate. The optical run-out compensation provides enhanced overlay for Fan-Out substrates with die shift. Semi-automatic configuration for R&D and pilot line production; and full automation including SECS/GEM factory control interface for high-volume production.

HIGHLIGHTS

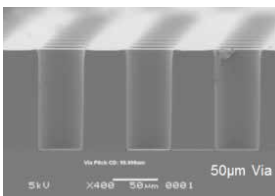
- + Low CoO and high throughput full-field projection imaging
- + No mask contamination
- + Active Optical Run-Out Compensation to correct die placement errors and magnification in Fan-Out
- + 3µm resolution and variable NA for high DoF
- + Exposing features of any size without stitching



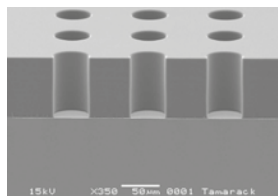
3µm L/S in 7µm TOK-PW1000T



10µm L/S in 12µm AZ15nxT



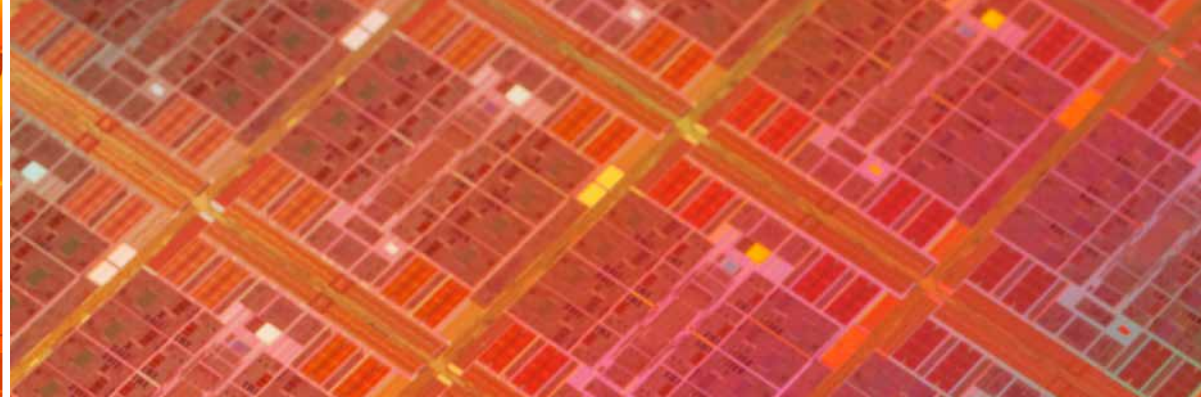
50µm Vias in 115µm ASAHI-CX-A240



45µm Vias in 80µm AZ125nxT

WWW.SUSS.COM





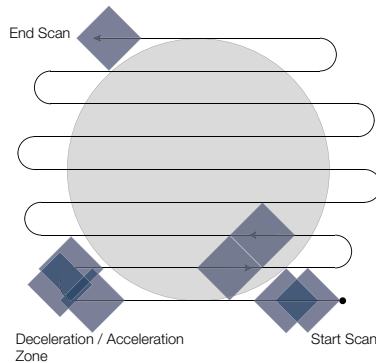
PROJECTION SCANNER FOR LARGE SUBSTRATES

SUSS DSC500

TECHNICAL DATA

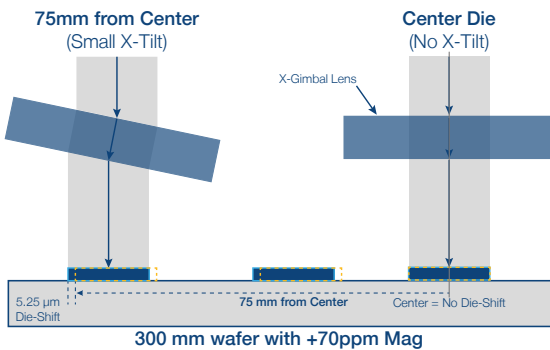
CORE TECHNOLOGY: *Scanning Projection Lithography*

Mask and wafer are co-mounted on a scanning stage. The system scans in a serpentine pattern with controlled velocity in the x-axis and precision stepping in the y-axis. Excellent exposure uniformity is achieved over the entire exposure area by scanning with a high intensity homogenized beam, overlapping adjacent scans, and precisely controlling the scan velocity.



Continuous serpentine scanning technique with diamond shaped beam

NEW TECHNOLOGY: *Optical Run-Out Compensation*



X-Gimbal lens angle adjusted in sync with stage position to compensate for mag/die shift

EXPOSURE SYSTEM

Exposure Mode	Full field projection scanning (Dyson optics)
Resolution	3 μm L/S (1 μm resist)
Numerical Aperture	0.07, 0.10, 0.12, 0.14 NA selectable
Imaging	Non-contact, single side exposure
Scan Beam	29 mm x 29 mm diamond; Optional 41 mm x 26 mm hexagon
Exposure Uniformity	≥ 97 %
Environmental Control	ECU (±0.2°C)

ALIGNMENT SYSTEM

Type	On-Axis - pattern recognition
Top Side Alignment	< ± 1.0 μm
Auto Alignment	yes
Manual Alignment	yes
Run-Out and Fan-Out Compensation	Optional Run-Out Compensation for up to ± 70 ppm mag / die shift

SUBSTRATE AND MASK HANDLING

Substrate Loading	Manual; Optional fully automated; wafer loading only manually
Mask Loading	Manual; Optional fully automated;
Substrate Sizes	Up to 510 mm x 515 mm (consult factory for larger sizes)
Wafer Sizes	Up to 450 mm dia (manual loading only)
Mask Type	Full field (entire substrate layout)
Carrier Mounted Wafers	yes (manual loading only)

DIMENSIONS

Length x Width x Height	3423 mm x 3860 mm x 2494 mm (manual system excluding ECU)
Weight	6500 kg (tool) + 410 kg (ECU)

Data, design and specification depend on individual process conditions and can vary according to equipment configurations. Not all specifications may be valid simultaneously. Illustrations, photos and specifications in this brochure are not legally binding. SUSS MicroTec reserves the right to change machine specifications without prior notice.



Visit www.suss.com/locations for your nearest SUSS representative or contact us:
SUSS MicroTec SE
 +49 89 32007-0 · info@suss.com

WWW.SUSS.COM

