

SEMI-AUTOMATED MASK ALIGNER

SUSS MA12

OPERATOR-ASSISTED MASK ALIGNER FOR INDUSTRIAL RESEARCH AND COST EFFECTIVE PRODUCTION

The MA12 complements SUSS MicroTec's high-precision mask aligner suite as manual tool apt for processing 300mm wafers and square substrates in production environments as well as in process and device development. Equipped with the latest SUSS mask aligner technology providing superior optical performance and high overlay accuracy the MA12 is designed for advanced packaging applications such as 3D WLCSP and the production of MEMS devices on large substrates.

INTELLIGENT HANDLING AS KEY FOR YIELD

The processing of special substrates like highly warped wafers and sensitive material requires tight process control. With its manual material handling capabilities and various alignment functionalities the MA12 facilitates fine tuning and optimal control of the process environment ensuring high yield. The design of the MA12 is construed for manual operation and excels with its user and service friendliness. The operator-assisted system maintains a high degree of process control and reliability in combination with the advantages of manual wafer handling.

ALIGNMENT VERSATILITY

The MA12 offers top side and bottom side alignment to ensure maximum process flexibility needed in the development and adoption of latest lithography processes. In addition an IR alignment setup with both transmitted or incident IR illumination supports the processing of wafer stacks or the alignment of embedded wafer layers.

HIGH PERFORMANCE EXPOSURE SYSTEM

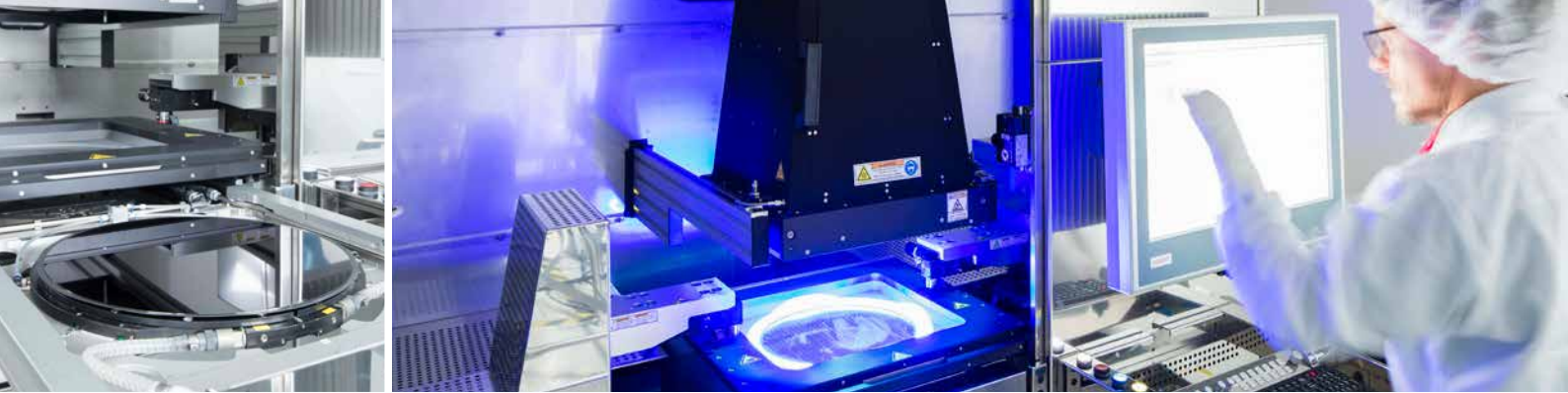
MA12's exposure system is equipped with SUSS MicroTec's latest optics technology MO Exposure Optics® that exposes wafers in substrates up to 300x300mm in one shot. With its telecentric illumination and decoupled light source the optical system ensures excellent light uniformity while exchangeable

HIGHLIGHTS

- + Cost efficient 300 mm exposure tool
- + High intensity exposure optics
- + Easy service ability and user friendliness
- + Interchangeable wavelength filter
- + MO Exposure Optics with exchangeable aperture plates



aperture plates maximize the optics performance according to exposure requirements. Automatically exchangeable wavelength filters provide further optimization of resolution and resist shapes in diverse photoresist materials.



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TECHNICAL DATA

MASK AND WAFER / SUBSTRATE

Wafer Size	200 and 300mm
Max. Substrate Size	300 x 300mm
Wafer Thickness	max. 7mm
Mask Size	9" / 14" (SEMI)

EXPOSURE MODES

Contact	soft, hard, vacuum
Proximity	exposure gap 1 - 1000µm
Modes	constant dose
Options	flood exposure

EXPOSURE OPTICS

Resolution	3µm proximity 1.5µm vacuum
Exposure Source	5000W
Intensity Uniformity	≤3.5% (300mm)
Intensity	broadband (ghi): 100mW/cm ² I-line (365nm): 54mW/cm ²

ALIGNMENT METHODS

Top Side Alignment (TSA)	accuracy <0.5µm
Bottom Side Alignment (BSA)	accuracy <1.0µm
Infrared Alignment (for TSA and BSA)	optional

ALIGNMENT STAGE

MA Movement Range	X: ±3mm Y: ±3mm θ: ±3.5°
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TOPSIDE MICROSCOPE (TSA)

Movement Range	X: 113 – 300mm Y: ±10mm
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BOTTOMSIDE MICROSCOPE (BSA)

Movement Range	X: 113 – 300mm Y: ±10mm
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BOTTOMSIDE MICROSCOPE (BSA) WITH INFRARED ALIGNMENT

Movement Range	X: 138 – 300mm Y: ±10mm
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GRAPHICAL USER INTERFACE

Windows 7
Unlimited Storage of Recipes
24" Touch Screen

UTILITIES

Vacuum	< -0.8kPa
Compressed Air	0.6 - 0.8MPa
Nitrogen	> 0.2MPa

POWER REQUIREMENTS

Power	voltage AC 400V ±10% (3 phase) frequency 50–60Hz
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PHYSICAL DIMENSIONS

Width x Depth	1800 x 2055mm = 3.8m ²
(placement of lamp house outside the cleanroom area possible: 2m ²)	1800 x 1155mm = 2.1m ²
Height	2355mm
Weight	~ 860kg

OPERATOR SAFETY AND ERGONOMICS

SEMI S2 Certificate
SEMI S8 Certificate
CE Compliant

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.



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