



SEMI-AUTOMATED MASK ALIGNER

SUSS MA12 Gen3

ALIGNER FOR LITHOGRAPHY AND IMPRINT PROCESSES

The MA12 Gen3 complements SUSS MicroTec's high-precision mask aligner suite as manual tool apt for processing 300 mm wafers and square substrates. Equipped with the latest SUSS mask aligner technology providing superior optical performance and high overlay accuracy, the MA12 Gen3 is designed for advanced packaging applications and the production of MEMS devices on large substrates. Furthermore, the new generation of the MA12 introduces improved imprint processing features for standard, advanced and high-end processes.

INTELLIGENT HANDLING AS KEY FOR YIELD

The design of the MA12 Gen3 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 Gen3 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

The exposure system is equipped with SUSS MicroTec's latest optics technology MO Exposure Optics®. With its telecentric illumination and decoupled light source the optical system ensures excellent light uniformity while exchangeable aperture plates maximize the optics performance.

SUSS LEVELING SYSTEM

SUSS aligners are equipped with an enhanced leveling system. By direct and instant gap measurement during the stacking process, the parallelism between substrate and substrate, mask or stamp is reached with high precision.

HIGHLIGHTS

- + Cost-efficient 300 mm exposure tool
- + High-intensity exposure optics
- + Easy serviceability and user-friendliness
- + Enhanced SUSS leveling system
- + One tool covering micro- to nanoimprinting

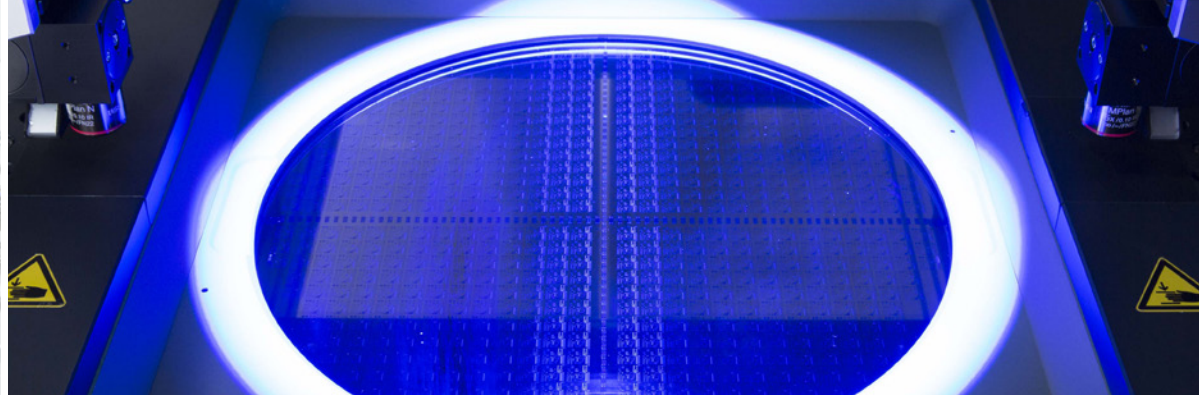
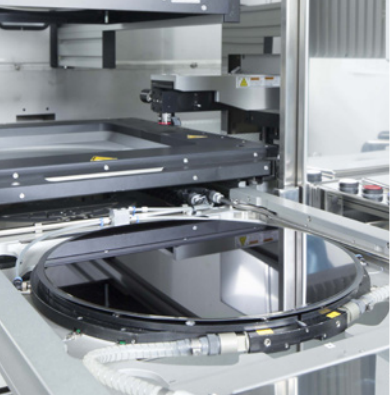


SMILE

For the transfer of patterns in the micro- to nanometer range, SUSS MicroTec offers SMILE (SUSS MicroTec Imprint Lithography Equipment) technology. The SMILE process allows very precise imprint of both micro- and nanopatterns, thereby offering a wide spectrum of potential applications and thus excellent process flexibility.

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TECHNICAL DATA

MASK AND WAFER / SUBSTRATE

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

EXPOSURE MODES

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

UV-LED EXPOSURE OPTICS

Resolution	3.5 µm proximity 1.5 µm vacuum
Exposure Source	water-cooled LED light sources
Intensity	broadband (ghi): up to 60 mW/cm ² i-line (365 nm): up to 27 mW/cm ²
Process Modes	SMILE Processes - nanoimprint - microimprint - stacking

ALIGNMENT METHODS

Top Side Alignment (TSA)	accuracy < 1.0 µm (3σ)
Bottom Side Alignment (BSA)	accuracy < 1.5 µm (3σ)
Infrared Alignment (for TSA and BSA)	optional

ALIGNMENT STAGE

Movement Range	X: ± 3 mm Y: ± 3 mm θ: ± 3.0°
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TOPSIDE MICROSCOPE (TSA)

Movement Range	X: 116 – 300 mm Y: ± 20 mm
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BOTTOMSIDE MICROSCOPE (BSA)

Movement Range	X: 116 – 300 mm Y: ± 10 mm
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BOTTOMSIDE MICROSCOPE (BSA) WITH INFRARED ALIGNMENT

Movement Range	X: 138 – 300 mm Y: + 10 mm / - 20 mm
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GRAPHICAL USER INTERFACE

Windows 10

MAP Software Platform

24" Touch Screen

UTILITIES

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

POWER REQUIREMENTS

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

Width x Depth x Height	1799 mm x 1444 mm x 2356 mm
Weight	~ 860 kg

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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