

WaferMark[®] SigmaClean[®] 300 FOUP

Laser Wafer Marking System



Provides all the compatibility you need for automated 300 mm production

- Patented SuperSoftMark[®] for debris-free wafer marking
- Class 1 clean room compatibility
- SECS II/GEM-HSMS interface for factory communication/networking
- Two FOUP stations, four optional
- Optional read and scribe conforms to SEMI M1.15 (T7 & M12 SEMI specs)
- Optional edge handling robot and aligner
- Windows[®] NT-based software

GSI Lumonics



Automated Laser Marking for 300 mm Wafer Traceability

The *WaferMark® SigmaClean® 300 FOUN* uses laser technology to place permanent, highly readable marks on wafers to allow traceability of the wafers through the semiconductor processes. The most recent addition to GSI Lumonics' proven *WaferMark* family, it provides the compatibility, cleanliness levels, mark quality, and reliability required to support high-volume 300 mm production.

Proven Technology

Standards-based factory networking, FOUN wafer carrier support for compatibility with

other standard 300 mm equipment, tightly integrated robotic transport, vision and laser technologies, automated system data logging functions. These critical features – and more – are brought together under a Windows NT® GUI-based interface for high productivity. Only the *WaferMark SigmaClean 300 FOUN* provides this level of integration with proven dependability.

And The Highest Quality Marks, Of Course

Because it's a *WaferMark* system from GSI Lumonics, you'll benefit from our 20+ years of wafer marking experience. The system incorporates our field-proven, patented *SuperSoftMark®* system for producing durable

marks, and it features an ultra-stable diode-pumped laser that was specifically designed for high-contrast marking of wafers. The system provides the ability to mark OCR, BC412, and 2-D Matrix font formats.

Worldwide Service and Support

Throughout the semiconductor world, our applications engineers and materials scientists continue to develop new solutions in step with semiconductor process advancements. Our service technicians are trained in every aspect of maintenance and troubleshooting, and parts are stocked locally in North America, Japan, Hong Kong, Taiwan, Korea, and Europe.

Specifications

Marking Performance:

- Marking Modes: Dot Matrix Mode (straight line or arc marking)
- SuperSoftMark® Process:
 - Debris Free: based on 0.02 particles/cm, 0.17 µm particle size, measured over a 5 mm area
 - Dot Diameter: 70 µm + 10 µm
 - Inside Diameter: 42 µm + 11 µm
 - Dot Roundness: major to minor axis ratio less than 1.1
 - Dot Depth: 2.6 µm + 0.4 µm
 - Throughput: 125 wafers/hour single pulse, 5 x 9 dot matrix, 12 characters
 - Throughput Using Edge Handling Option: 40 wafers/hour
 - Material: polished, non-coated pure silicon wafers
- Marking Fonts (Standard):
 - 9x17 Single Density Dot Matrix (DM9X17V3)
 - 10x18 Double Density Dot Matrix (DMDSM162)
 - 5x9 SEMI-OCR (DMSEMI60 or DM5X9S3)
 - T1-93 SEMI Specification BC-412 Bar Code (BBC412A2)
 - T7 2D Data Matrix
 - Checksum function is user selectable
- Mark Characters: Maximum number of characters = 80 characters per group
- Mark Field: 50 mm x 50 mm positionable after wafer aligned
- Mark Location: Within a 25 mm band around the wafer circumference
- Mark Repeatability: +/-125 µm in both X and Y axes, relative to the primary fiducial
- Character Formation: Meets SEMI Specification M12-92

Workstation:

- Enclosure: Stainless steel, Class 1 clean room compatible with Class 1 mini-environment
- Control System:
 - Windows NT operating system
 - Embedded computer controller with hard disk job storage
 - Keyboard and flat panel display
 - Multiple job file storage capability
 - Menu-driven "fill in the blank" software
 - Fault and error logging capabilities
 - System diagnostic indicators displayed on front panel and electronics console
 - SECS II/GEM interface
 - 4-color programmable signal tower

Utilities:

- Electrical: 208 VAC +5%, single phase, 50 Hz or 60 Hz, 23 FLA
- Mark Point Exhaust:
 - 20 CFM (560 l/min.) flow rate max.
 - 32 mm (1.25") diameter port
- Process Vacuum: 20 hg - 25 hg
- Ambient Conditions:
 - Static Charge: 197 Volts/cm (550 Volts/inch) max.
 - Air Cooled System Temperature: 12.8°C - 27°C (55°F - 80°F)
 - Humidity: 40%-60% non-condensing
- Dimensions:
 - 2159 mm (height) x 1641 mm (width) x 1204 mm (depth)
 - 85" (height) x 64.6" (width) x 47.4" (depth)
- Weight:
 - 1425 lb. (646.4 Kg)

Wafer Handling:

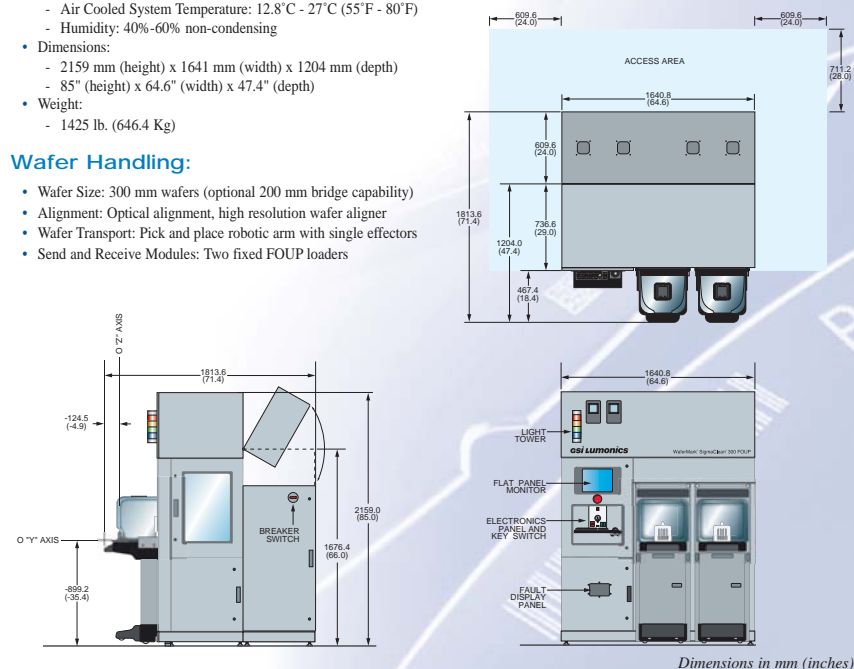
- Wafer Size: 300 mm wafers (optional 200 mm bridge capability)
- Alignment: Optical alignment, high resolution wafer aligner
- Wafer Transport: Pick and place robotic arm with single effectors
- Send and Receive Modules: Two fixed FOUN loaders

Laser and Optics:

- Laser Type: Acousto-optic Q-switched Nd:YLF diode pumped laser
- Optics: Flat field focusing lens

Options:

- Read & Scribe, Bar Code Reader Input, Edge Handling, *WaferTrace®*



Specifications are subject to change. Please consult Product Center for complete details.
The classification of the *WaferMark® SigmaClean® 300 FOUN* is Class 1/I.

GSI Lumonics

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For sales information, visit our web site
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