

# WaferMark® SigmaClean™

Laser Wafer Marking System



- Ultra-stable patented diode-pumped laser
- Proprietary, patented SuperSoftMark® process
- Automated system data logging functions
- Class 1 cleanroom compatibility
- Self-contained water chiller unit
- Yearly preventative maintenance required

**gsi lumonics**



## WaferMark® products continue to lead the way with SigmaClean™

With the rapid advancement of technology in the semiconductor industry, you require a company with dedicated expertise and understanding of wafer processing. As pioneers and global leaders in the laser industry, you can depend on GSI Lumonics to develop cutting-edge products like the new *WaferMark SigmaClean*.

### Proven Technology

The GSI Lumonics *WaferMark SigmaClean* is the most advanced wafer marking system in the world. Based on the established, cleanroom-proven wafer handling technology of the *WaferMark SC*, the *SigmaClean* system uses an innovative, diode-pumped laser design. The *SigmaClean* system will continue the tradition

as the global standard for quickly and permanently identifying wafers throughout the semiconductor fabrication process. No other wafer identification system offers the process flexibility, mark brightness, quality performance and efficiency that can be achieved with the new *WaferMark SigmaClean*.

### Maximum Efficiency

GSI Lumonics understands what Cost of Operation means to you. The *Sigma* laser design requires only one scheduled maintenance per year. Thousands of dollars in maintenance labor savings, coupled with the more substantial savings from decreased downtime, result in a solid economic justification for the *WaferMark SigmaClean*. This self-contained system minimizes the footprint and optimizes floor space. Using the optional bulkhead wall mount adapter, the entire system can be located

in the service chase where maintenance can be performed, when required, without ever entering the room. *WaferMark SigmaClean* is clearly the answer to profitable wafer traceability in your production process.

### Global Service and Support

GSI Lumonics' dedication to the semiconductor industry is backed by a network of service and spare parts facilities around the world. Our field service engineers are fully trained in *WaferMark* system maintenance and troubleshooting. A full complement of spare parts is stocked in the United States, Japan, Germany, United Kingdom and Singapore to assure rapid response to your needs. In addition to the standard systems warranty period, GSI Lumonics also offers a full line of custom comprehensive service contracts and maintenance agreements.

## Specifications

### Marking Performance

**Marking Modes:**  
Dot Matrix SuperSoftMark®

**Fonts:**  
SEMI OCR, BC412, and other Dot Matrix formats available

**Position:**  
Multiple mark groups at any orientation on the wafer front surface within a 25mm band around the wafer circumference

### Wafer Handling

**Wafer Size Range:** 100, 125, 150 and 200mm

**Alignment:**  
Optical alignment over the entire wafer size range with no hardware change-over for both flat and notched wafers

**Repeatability:**  
± 125 µm in both X and Y axes relative to the primary fiducial

**Wafer Transport:**  
Pick and place robotic arm with dual vacuum wand

**Throughput:**  
Up to 240 wafers per hour (marking per SEMI specification M12-92 single pulse)

**Send and Receive Modules:**  
Three load/unload cassette stations capable of performing no-work-over-work handling. Movable presenter for AGV access per SEMI specification E15-91 optional.

### Laser/Optics

**Laser Type:**  
Acousto-optic Q-switched, TEM00  
Nd:YLF Diode-pumped laser

**Optics:**  
Flat field focusing lens

### Workstation

**Control System:**  
MS-DOS based control unit with 3.5" floppy drive and hard disk drive for storage of all system parameters

**Software:**  
Operator prompt, pull-down menu format using a flat panel monitor and full size keyboard. Bar code wedge reader input device optional.

**Diagnostics:**  
Complete system diagnostic indicators displayed on front panel, along with the EMO button and system keyswitch. Automatic laser data logging function.

**Communication:**  
SECS II / GEM Interface optional

### Utilities

**Electrical:**  
Standard connections  
220VAC, single phase, 50/60Hz, 22FLA  
208VAC, single phase, 50/60Hz, 23FLA  
200VAC, single phase, 50/60Hz, 24FLA

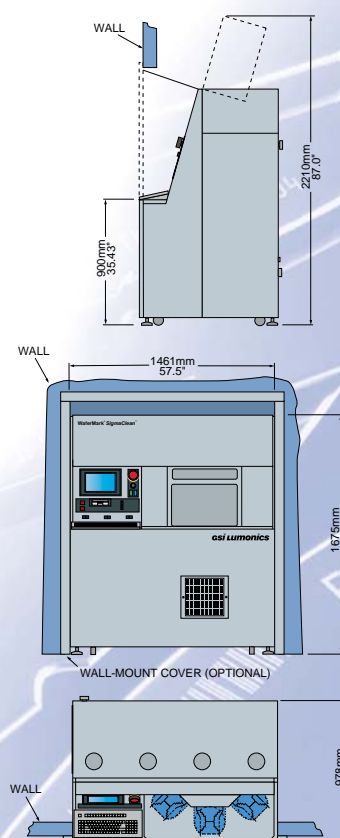
Optional Connections  
400VAC, single phase, 50/60Hz, 12FLA  
416VAC, single phase, 50/60Hz, 12FLA

**Vacuum:**  
25-30 inches Hg at 2 SCFM  
(635-762 torr @ 56.6 l/min)  
1/4 inch diameter press-lock connection

**Exhaust:**  
20 CFM (560 l/min) flow rate max  
1.25 inch (32mm) diameter port

**Dimension:**  
66 inches H x 57.5 inches W x 38.5 inches D  
(1675mm H x 1461mm W x 978mm D)

**Weight:**  
1425 lbs (646 Kg)



Specifications are subject to change. Please consult factory for complete details.  
The classification of the *WaferMark SigmaClean*™ is Class 1/I.

# GSI Lumonics

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