

# WaferRepair™ M435

Fuse Processing System



**“Total solution” system technology to process extremely tight-pitch fuse structures for exceptional yield enhancement on semiconductor devices, including 90nm technology.**

- High-yield laser process: safely and cleanly processes metal links
- Patented high-speed positioning system optimizes throughput and enables a 50,000 links/second processing rate
- Precise  $<0.170\mu\text{m}$  ( $|\text{mean}| + 3\sigma$ ) system accuracy assures safe, reliable processing
- Minimum laser spot size of  $1.4\mu\text{m}$



## Breakthrough Process Technology

The *WaferRepair™ M435* is the most advanced, highest value laser fuse processing system available. It combines precise beam positioning,  $<0.170\mu\text{m}$  (I<sub>mean</sub> + 3σ) system accuracy, laser spot sizes down to  $1.4\mu\text{m}$ , 300mm wafer support, and a host of additional technical innovations to meet your most demanding production requirements.

## Verified Quality

Superior process quality is ensured via the system's fully integrated, high resolution metal-

lurgical grade microscope. Intuitive software tools let you pinpoint links of interest and capture excellent quality images for production floor monitoring.

## High Throughput Link Processing – Without Damage

*GSI Group* has developed technologies for processing copper, metal, and polysilicon fuse materials without damage to adjacent links or surrounding material. *DVS™* energy management provides ultra stable, ultra fine energy settings for sub Pico Joule resolution to deliver the industry's smallest spot size while enabling cuts at a 50,000Hz rate.

In addition, *LinkSprint™* pulse management technology delivers stable energy density for accurate fuse processing rates in excess of 50,000 per second.

## Worldwide 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, Taiwan, Korea, Europe, and China.

## Specifications

### Standard Laser:

- Wavelength: 1.064μm
- Type: DPL
- Maximum repetition rate: 50,000Hz
- Pulse width: 10 +/- 1ns
- Max. pulse energy: 1μJ (adjustable to 3μJ) via acousto-optic modulator
- Polarization: programmable
- Spot size: 1.4 to 3.5μm, selectable

### ShapedPulse™ Laser:

- Wavelength: 1.065μm
- Type: Fiber
- Maximum repetition rate: 50,000Hz
- Pulse width: 5 to 21ns, selectable
- Max. pulse energy: 1μJ (adjustable to 2.5μJ) via acousto-optic modulator
- Polarization: programmable
- Spot size: 1.5 to 3.7μm, programmable

### System Performance:

- Accuracy:  $<0.170\mu\text{m}$  (I<sub>mean</sub> + 3σ)
- Type: Patented air-bearing stage
- Field size: 36mm x 36mm over 300mm range
- Working distance: ~ 6.5mm
- Chuck type: Waffle
- Link inspection: Metallurgical grade microscope, 10,000 X range of magnification

### Wafer Handler:

- 200mm/300mm: 2 open cassettes @ 25 wafers/cassette
- 300mm: 2 FOUP or FOSB @ 25 wafers per FOUP/FOSB
- Custom wafer handling (optional)
- Wafer sensing: Presence, absence, cross-slotted, double-slotted, protruding

- Wafer ID: Reader for top side and bottom side OCR, 2-D matrix and barcode recognition. Fully-integrated camera, processor, lighting and communications unit meets the following standards: SEMI T7, M1.15, M12, M13, M1.15 and SEMI T1-93

### Workstation:

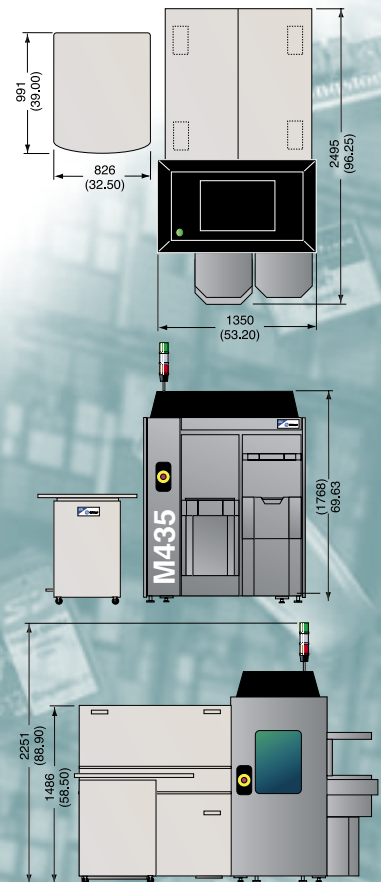
- Computer: SUN® Blade
- Operating system: UNIX
- Networking: Ethernet, TCP/IP, FTP and NFS protocols, RS232
- User environment: MAX 10.1

### Physical:

- Environment: 23°C ± 5°C, 30% - 70% relative humidity
- System unit
  - dimensions: 1283mm x 1276mm x 1486mm (50.5" x 50.25" x 58.5") [WxDxH]
  - weight: 1360kg (3000 lbs)
  - power: 2KVA, 200/208/220-240 selectable 50/60Hz, Single Phase
  - air: 690 - 827 KPa @ 425 SLPM (100-120 psi @ 15 SCFM)
  - vacuum: Internally generated
- Wafer handler
  - dimensions: 1350mm x 1219mm x 2251mm (53.2" x 48" x 88.9") [WxDxH]
  - weight: 681kg (1500 lbs)
- Computer station
  - dimensions: 826mm x 991mm x 902mm (32.5" x 39" x 35.5")
  - weight: 136kg (300 lbs)

### Standards:

- CE Mark
- SEMI S8-1000, S2-0200
- CDRH



Specifications are subject to change. Please consult Product Center for complete details.  
The classification of the WaferRepair M435 is Class 1/1.

[www.gsig.com/systems](http://www.gsig.com/systems)



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