蔚華科技
SPIROX

Revolutionary Breakthrough! Industry-first

Non-Destructive Laser Modification Inspection System SP8000G

SPIROX LTS™

Spirox Laser Tomography Scan

Tomogram of Laser Modification for Superior Pre-Etching Quality Assessment & Precision Control for Success!

- Exclusive Patented SpiroxLTS Technology!
  Advanced optical measurement with SpiroxLTS Technology for the improvement of the laser modification to best match the glass processing.
- No Destruction on Sample!
  Non-destructive inspection with SpiroxLTS enables precise control of laser modification performance, significantly reducing process costs and optimizing production conditions!
- Precise Critical via Dimension Measurements!
  Ultimate optimization tool for the TGV process, ensuring unparalleled manufacturing precision.

Non-Destructive Laser Modification Inspection System — *SP8000G*

- **Multi-Mode Automatic Inspection with Flexibility**
  - ROI (Region of Interest) inspection modes
  - Script scanning workflow
  - Coordinate-based inspection mode
  - Random inspection mode
- **Dynamic Tomogram of Laser Modification (DTLM)**
- **Intuitive User Interface**
- **Manual Loading and Unloading**
  (Maximum Supported Substrate Size: 510 × 515 mm)

Features

- Patented SpiroxLTS technology, precisely analyzing laser modification effectiveness.
- Non-destructive measurement, zero contact, zero damage. Comprehensive inspection of laser modification continuity and uniformity, ensuring that laser modification quality meets process design requirements!
- Comprehensive TGV inspections:
  TCD (Top Critical Dimension), Waist CD (Critical Dimension), BCD (Bottom Critical Dimension), depth, roundness, taper angle, via axis verticality.

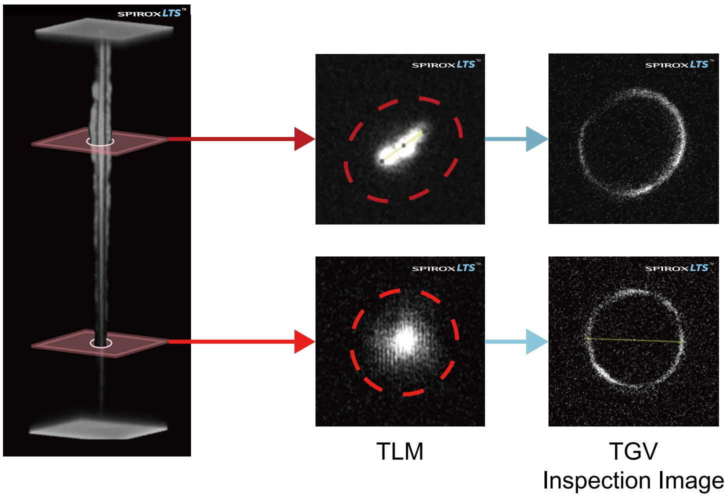
Advantages

- **Industry-First Direct Identification:** The only technology for inspecting laser modification continuity and uniformity, providing early prediction of etched perforation outcomes after laser modification.
- **Process Parameter Optimization and Calibration:** Tomogram of laser modification enables rapid adjustment of laser parameters and optimization of optical path design, significantly saving process development time.
- **TGV Profile Inspection:** Offering a more efficient, direct, and concrete inspection method compared to time-consuming SEM, higher visibility than conventional optical microscopy, and superior to restricted-range surface profilometry.
- **Precise Measurement of TGV Size and Inspection of Structural Defects:** TGV through-hole vertical axis deviation, critical dimensions.

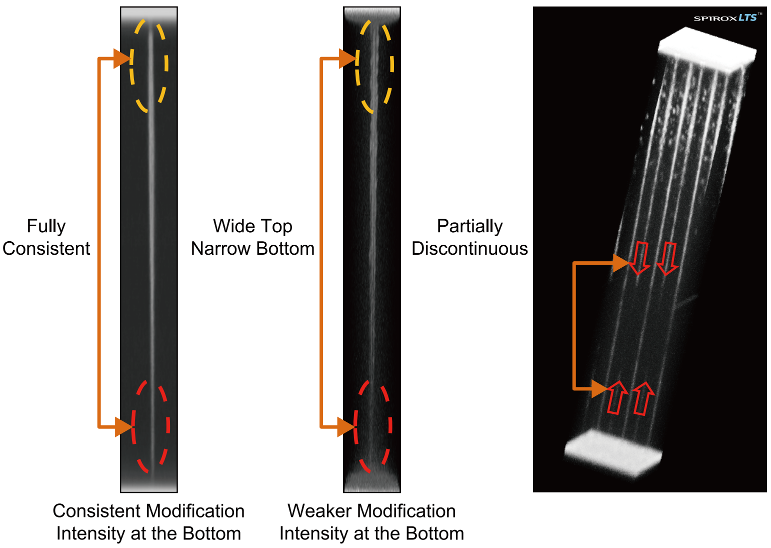
Benefits

- **Process Development:** Significantly shortens development time and effectively reduces R&D costs. Precisely select laser source and glass material to ensure that TGV laser modification and through-hole etching meet manufacturing quality specifications.
- **Process Monitoring:** Monitor laser modification quality before etching, providing real-time prediction on whether etching is necessary, avoiding blind etching from past practices and preventing unnecessary cost waste.
- **TGV Yield Improvement:** Monitor TGV through-hole quality, reduce product defects, increase output, and prevent the batch costs associated with ineffective yield.

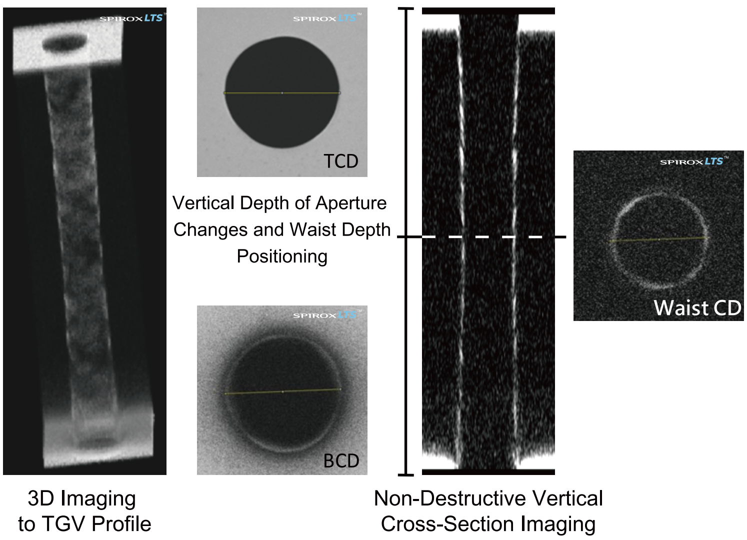
Laser Modification Impact on Post-Etching TGV



3D Tomogram : Continuity and Uniformity of Laser Modification

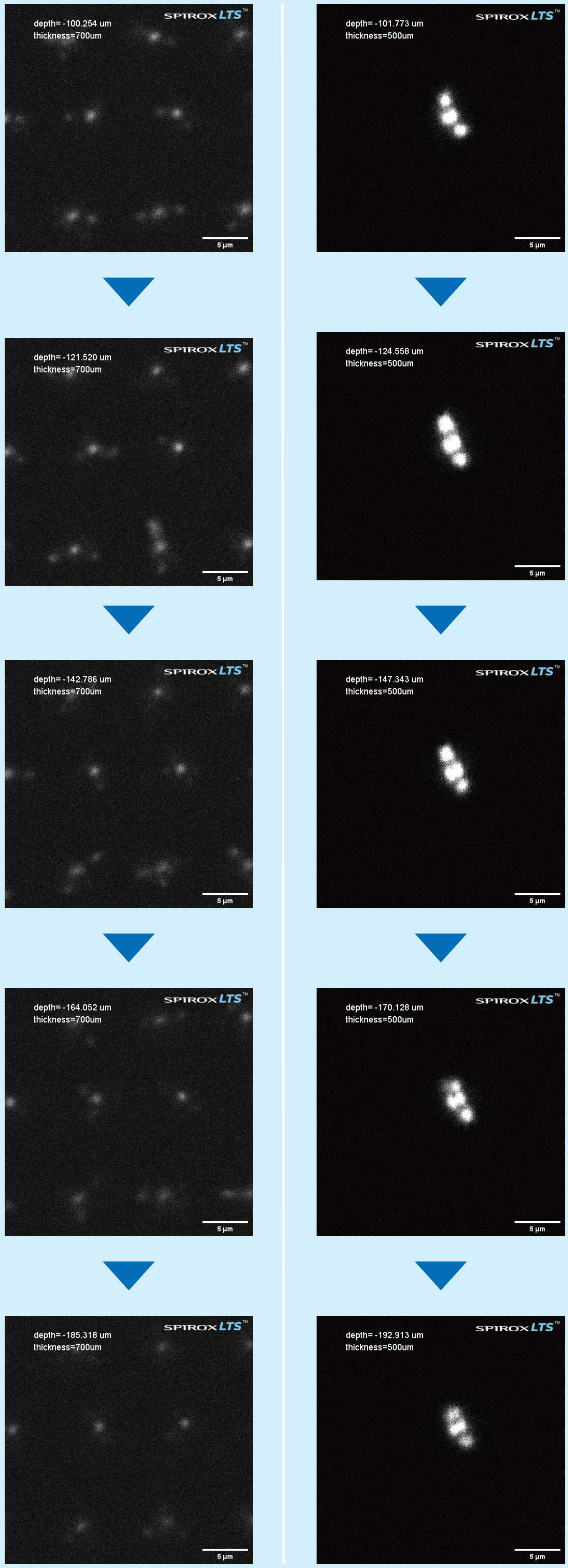


TGV Dimension Measurement

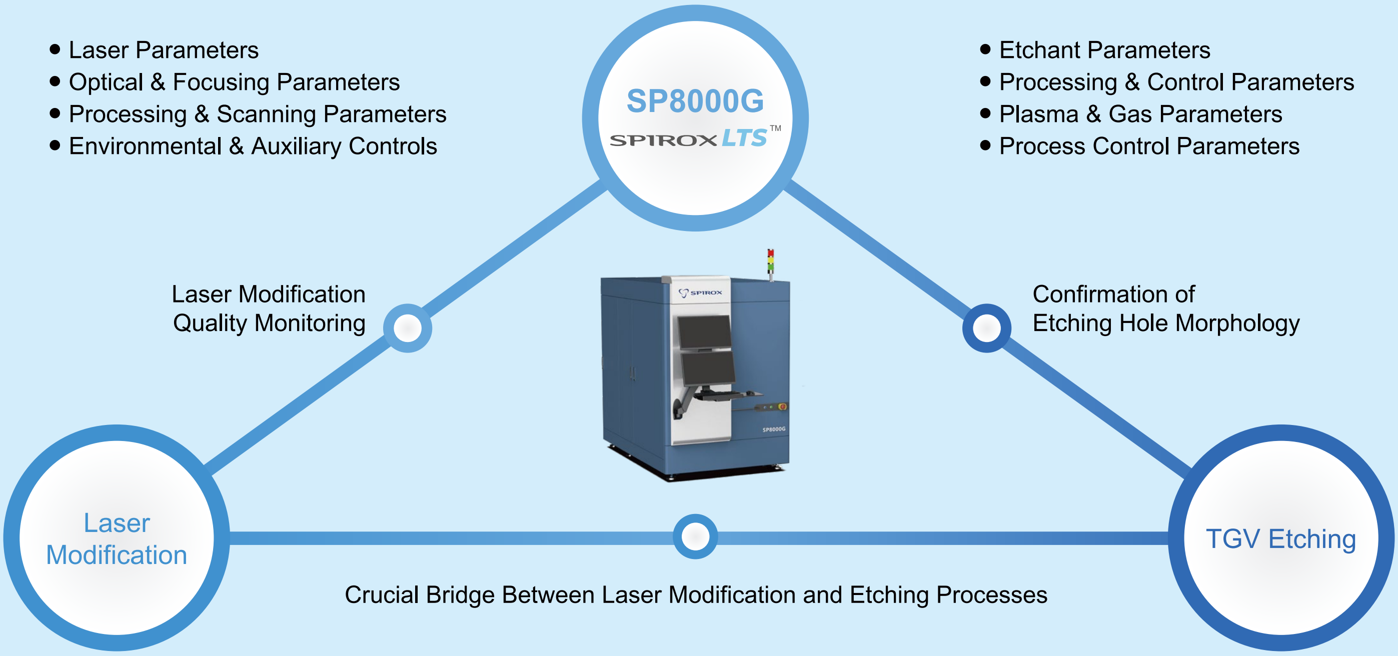


Dynamic Tomogram of Laser Modification (DTLM)

Laser modification changes along the vertical depth



TGV Manufacturing Process Optimization



Specification

Model Number	SP8000G
Model Name	SP8000G Non-Destructive Laser Modification Inspection System
Key Optical Technology	Nonlinear Optical Inspection (Application Wavelength 1200~1800 nm)
Applicable Sample Size	Standard: 300 mm x 300 mm Extended: 510 mm x 515 mm
Sample Thickness	Maximum thickness*: 1200μm
Measurement Items	Laser Tomography Scan, 3D Imaging, and Dynamic Tomogram; TGV Aperture Size and Roundness Measurement, Waist Depth Positioning, 3D Profile Image, and Cross Section Analysis
FOV / Measurement Time	FOV 400μm x 400μm**; 3.5 seconds per frame***
Measurement Accuracy	X, Y axis precision < 1.5μm, Z axis precision < 2μm (@ 20x objective, numerical aperture 0.8)
Inspection Modes	Micro-Area Imaging, Sub-Region Automatic Measurement, Coordinate-Based Automatic Measurement, Random Automatic Measurement, Script Scanning Process
Dimensions and Weight (Tentative)	Standard: L2.4 m x W1.8 m x H1.8 m (Weight: 2600 kg) Extended: L2.6 m x W2.0 m x H1.8 m (Weight: 3200 kg)
Electrical Specification	220V 60Hz AC 1500W

* Double-sided measurement ** At 20x objective magnification *** Scanning resolution: 512 x 512 pixels

Contact us

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