

UP193HE High Energy Eximer Laser Ablation System



The UP193HE Advantage

- The 193nm wavelength couples readily with difficult materials like highly transparent quartz for near matrix-independent ablation.
- The finely homogenized beam yields clean, flat craters down to 4µm diameters at energy densities in excess of 35J/cm² without fracturing of the sample's surface.
- Select from 12 pre-calibrated, aperture imaged spot sizes.
- Its long working-distance objective accommodates ICP, ICP-MS, noble gas and IRMS sample cells and enables depth profiling well beyond a 1:1 crater aspect ratio.
- The air-cooled excimer laser has exceptional stability, within 2%
- A fully integrated, automated system with mobile cart configured for ICP-MS, stable isotope and noble gas MS
- UP193HE operates from the mass spectrometer computer via our acclaimed MerchanteK software.

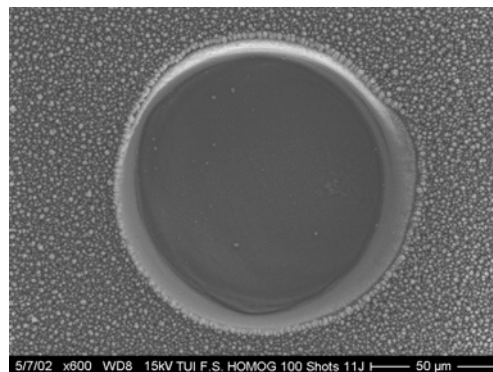
The UP193HE Excimer Laser Ablation System

New Wave™ Research introduces the UP193HE, high energy; excimer-based laser ablation system is specifically designed for solid sampling introduction to ICP, ICP-MS, noble gas MS and stable isotope MS instruments of all makes and models. Its high energy density (>35J/cm²) at the sample, homogenized beam and short 193 nm wavelength makes it ideal for opaque and highly transmissive materials alike.

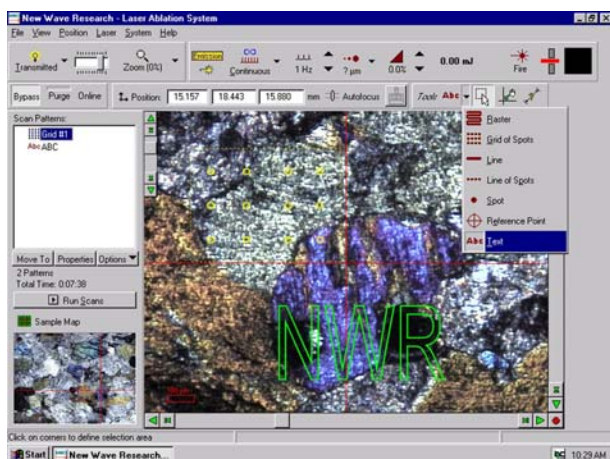
The user can target micro-features such as defects and inclusions with spots down to 4-µm diameter. The control software offers a wide variety of ablation methods such as depth profiling and raster scanning for bulk analysis. This versatile instrument is equipped to handle a wide variety of applications including diamonds, forensics, geochemistry and bioscience analysis.

Applications

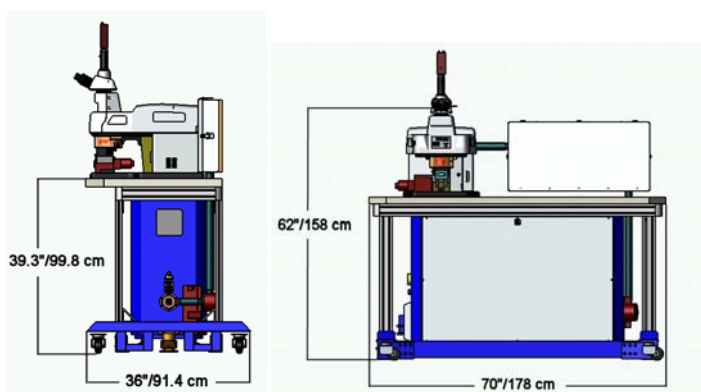
- Gemstones, diamonds
- Geochemical Analysis of fluid inclusions, zircons, calcite, apatite, basalt
- Forensic analysis of plastics, glass, ceramics
- Laser fluorination (e.g., 18O/16O, 17O/16O, 34S/32S, 33S/32S)
- Rare gas isotope ratio measurements (e.g., 40Ar/39Ar dating)



100µm crater in fused silica



Merchantek Laser Ablation Software



Site Requirements

Temperature	70° ± 10° F (21° ± 5° C)
Relative Humidity	20 – 80% non-condensing
Voltage	190 - 240 VAC, 50/60 Hz
Power	3500 Watts

Physical Parameters

Length	70" / 178 mm
Width	36" / 91.4 mm
Height	62" / 158 mm
Weight	1150 lb. / 520 kg



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System Configuration

The system includes a high-magnification video system, sub-micron precision stages, F/O illumination, cross polarizers, ICP/ICP-MS sample chamber and Merchantek control software for semi-automated and automated operation. The system's software package controls all laser parameters, sample viewing and stage positioning and has many unique features such as sample contour following and tilt correction, sample mosaic navigation and alphanumeric character marking.

The UP193HE is our 2nd generation excimer-based laser ablation system, comprised of the highest quality optical components and latest technology. Its homogenized beam provides better control over the ablation process, improving shot-to-shot precision. This is particularly important for depth-profiling and fluid inclusion analysis. With output stability of 2% the UP193HE is twice as good as comparable lasers and is the latest in reliable, low-maintenance excimer laser systems.

Features

- The excellent beam quality from the laser itself is homogenized by the purge-capable, beam delivery system.
- Sample Mosaic Navigation function for up to 50mm virtual FOV (field of view) of samples.
- 6x zoom for viewing samples under high magnification and wide (FOV) field-of-view.
- Built-in laser energy for real-time measurement of energy and energy density.
- Pulse repetition rates from 1 to 50Hz – continuous pulsing, single shot and burst modes.
- System operates from the ICP-MS computer.
- Mobile cart with wheels and vibration-dampening foot-locks.

Warranty

One year – call for limited warranty statement