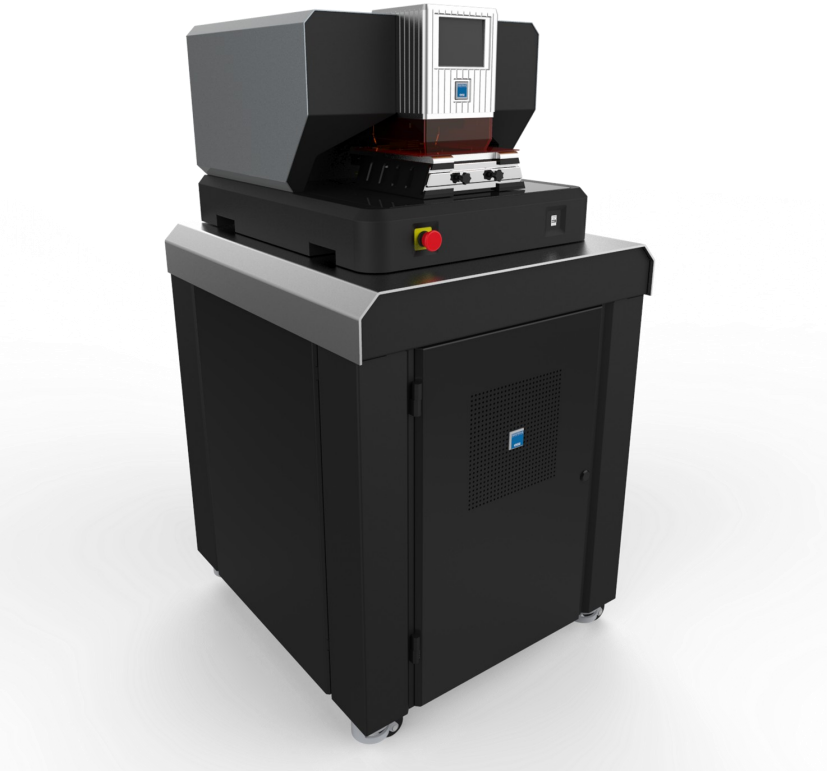
NEW WAVE RESEARCH
a division of esi

NWR193 UltraCompact



Ultra Compact, Ultra Rugged...

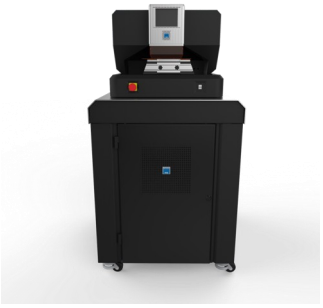
- **New, Rugged Universal Compact Cart (RUCC)**
- **Smallest footprint and greatest mobility**
- **Unique beam homogenization for the ultimate in crater profile and definition**
- **Unmatched High Definition Viewing**
- **Touch screen, Wide Angle Navigation**
- **100mm x 100mm, high performance ablation chamber**
- **New high resolution optical attenuation for the most accurate and precise energy selection**
- **Truly upgradable to femtosecond technology**
- **ActiveView software including Layer Management**
- **Optional TruLine technology**
- **Optional rotating XY (XYR) shutter for square and rectangular ablations**
- **Optional infinitely variable apertures (IVA) spot size selection**

Continuous innovation in 193nm Excimer laser ablation….

The NWR193^{UC} is the 4th generation, high-performance, ArF excimer based laser ablation system from ESI's New Wave Research Division. Utilization of a short pulse width 193nm excimer laser source provides highest peak power for efficient ablation of all materials to produce small particles that can be efficiently transported and ionized by the ICP. This in turn leads to higher sensitivity, improved stability and less fractionation.

The NWR193^{UC} makes use of ESI's new **Rugged Universal Compact Cart (RUCC)** for ultimate laser and viewing system stability. Not only is the NWR193^{UC} the most compact excimer laser ablation instrument on the market, thanks to the **RUCC** design, it is also the most rugged and stable.

The **RUCC** design uses high quality robust materials and a unique frame design to add mechanical rigidity and stiffness. Ultimately this enables the NWR193UC to be transported to be utilized on multiple ICP-MS instruments without constant video or laser re-alignment.



The **NWR193^{UC}** is supplied with a new **high resolution optical attenuator** offering improved accuracy and reproducibility in energy density selection. Over 200 attenuation positions offer the user selection of energy density in 0.1 Jcm-2 increments with an error of just ± 2%RSD.

New **IVA** and **XYR** shutter increase application flexibility by providing the user with countless aperture imaged crater options including circles, squares and rectangles—all with 1 micron size increments. No longer is the user limited by a small number of physical positions on a mechanical aperture wheel.

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Site Requirements	
Temperature	70°F ± 10°F (21°C ± 3°C)
Relative Humidity	20% - 65% non condensing
Power Requirements	100-110V (AC), 3A, 50/60 Hz 220-240V (AC), 3A, 50/60 Hz

Additional Options
150mm x 150mm, high performance Large Format Cell
Additional software-controlled mass flow controller for N_2 addition
Alternative ablation cell technology including TruLine™ technology
Flexible service contract models
Rotating XY shutter
Infinitely variable, aperture imaged spot selection (IVA)

**No known hazards to eyes or skin during normal operation.*
Service operation may require access to hazardous embedded lasers.

Performance Specification	
Laser	193nm. <4ns pulse width
Repetition rate	1-200Hz (extendable to 300Hz)
Fluence	12J/cm^2 at the sample surface
Spot sizes	13 spots between 2µm and 150µm 149 in IVA configuration
Ablation chamber	High performance, 100mm x 100mm
Beam profile	Flat-topped, externally homogenized
XY Stage	100mm x100mm travel, <1µm resolution
Mass flow controller	Fully integrated and software controlled
ICP-MS Triggering	Bi-directional for full automation
Primary viewing system	True, high resolution digital camera with 15X to 60X (objective to camera mag.) < 2 micron optical resolution
Secondary viewing system	25mm field of view navigational optics with touch screen technology
Lighting	3 high intensity, LED based and software controlled.
Polarizer	Software controlled rotating cross-polarizer
Software	Class leading ActiveView™ software

General Specification	
Safety Classification	Fully interlocked, Class-1 system*
Warranty	12 month
Dimensions	150cm x 79cm x 89cm (H x W x D)
Weight	150 kg
Cooling	Air cooled
Platform	Completely stable “bridge” design and RUCC frame