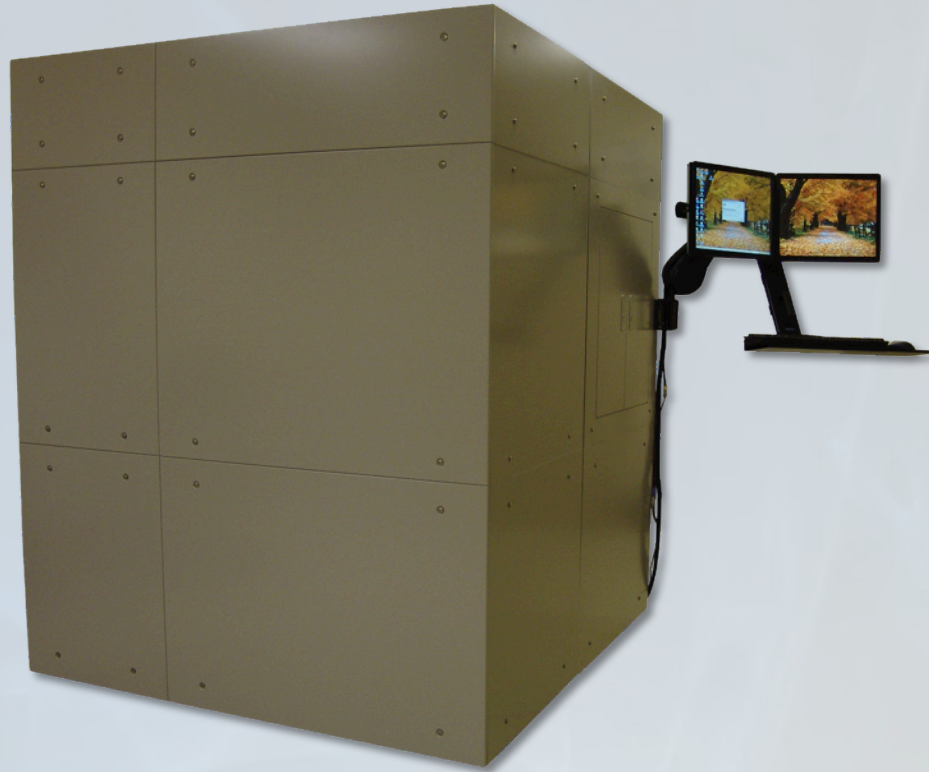


# Model UMW-Series

## Ultrafast Micromachining Workstation



- Fully-integrated system including
  - Field-proven laser source technology (Model CPA-Series, Model IMPULSE)
  - Multi-axis positioning system
  - Beam delivery system
  - Selection of processing parameters
  - Class I enclosure
  - Integrated, intelligent, on-axis machine vision and inspection system
  - Motion control
- Pulses “on-demand” (1, 2, ... 64,000 at user-selectable repetition rate<sup>1</sup>)
- Optional digital and/or analog IO
- Complete computer control
- Granite base mounted on pneumatic vibration isolators
- Small footprint

Over twenty years experience with ultrashort pulse lasers combined with hundreds of real-world projects and years of processing know-how have led to our latest generation of femtosecond micromachining workstations. The Model UMW-Series encompasses everything you need to micromachine with ultrashort pulse lasers. This design benefits from our years of experience learning the optimum combination of components, performance parameters, and software required to micromachine materials with ultrashort pulses of light. The Model UMW-Series provides ample space for custom beam delivery and manipulation, and includes a sophisticated machine vision and inspection system, and complete computer control. The software interface provides powerful and intuitive access to all system functionality including the laser, motion, and machine vision systems, and provides advanced intercommunication between them.

## Performance Parameters:

### Positioning System<sup>2</sup>

#### X, Y Axis

Max. Travel: 300 mm  
Repeatability: 0.5  $\mu\text{m}$   
Accuracy: 1.0  $\mu\text{m}$   
Orthogonality: 5 arc sec  
Max. Velocity: 5 cm/sec

#### Z Axis

Max Travel: 100 mm  
Repeatability: 1.0  $\mu\text{m}$   
Accuracy: +/- 1  $\mu\text{m}$   
Max. Velocity: 5 cm/sec

### Vision System

Zoom Lens: 12x  
Resolution<sup>3</sup>: 1  $\mu\text{m}$   
Inspection System: Pattern recognition, edge location, part rotation, part measurement  
Field of View<sup>3</sup>: 4 mm  
Lighting: LED Ring and Coaxial Light

### Laser

See Model IMPULSE, CPA-2101, and CPA-2110 brochures for performance parameters & features.

### Enclosure

Class I Laser Enclosure

### Warranty

Please contact us for details.

This product protected under US patent numbers: 5,530,582; 5,572,358; 5,592,327; 5,594,256.

1. TTL-0,+1  $\Delta T = 1/\text{repetition rate}$
2. Values are for the base system. Other configurations are available upon request.
3. Resolution is for maximum magnification and depends on focusing objective;  
FOV is for minimum magnification.

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Clark-MXR, Inc.  
7300 West Huron River Dr.  
Dexter, MI 48130 USA  
Tel: 1-734-426-2803 Fax: 1-734-426-6288  
Email: [sales@cmxr.com](mailto:sales@cmxr.com) Web: [www.cmxr.com](http://www.cmxr.com)  
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