

## Contact Us

Phone: 029-88890356

Fax: 029-88890356

Email: [stgd\\_gl@163.com](mailto:stgd_gl@163.com)

UpTek Solutions Corp.

# Sabray

## Femtosecond Laser Micromachining System

### Features:

- Integrated multi-axis high-precision positioning platform
- Stable marble gantry support structure
- Compatible with most ultrafast laser systems
- Modular design of beam transmission system
- Feature-rich laser processing head
- Customizable double station structure



The Sabray femtosecond laser micromachining system is a precise machining tool, built upon the UpTek Solutions Phidia series femtosecond laser system and the Spearay series laser processing module.

UpTek Solutions femtosecond laser precision machining systems are perfect for both scientific and industrial applications such as ultra-fast laser etching, surface treatment, 3D engraving, touch screen, ITO cutting, and drilling and the cutting of materials such as metal, ceramics and more.

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## Machining Head Options

- Scanning galvanometer machining head
- Spiral beam scanning machining head
- High numerical aperture objective machining head

## Applications

- Femtosecond laser direct writing optical waveguide
- Femtosecond laser precision cutting
- Femtosecond laser precision drilling
- Femtosecond laser 3D microstructure fabrication

### Sabray Platform parameters

	X	Y	Z
Travel <sup>(1)</sup>	160mm	160mm	60mm
Resolution	0.5nm	0.5nm	1nm
Positioning accuracy	$\leq \pm 225\text{nm}$	$\leq \pm 225\text{nm}$	$\leq \pm 200\text{nm}$
Repeated positioning accuracy (bidirectional)	$\leq \pm 75\text{nm}$	$\leq \pm 75\text{nm}$	$\leq \pm 75\text{nm}$
Straightness	$\pm 300\text{nm}$	$\pm 300\text{nm}$	$\pm 2.0\mu\text{m}$
Flatness	$\pm 1.0\mu\text{m}$	$\pm 1.0\mu\text{m}$	$\pm 2.0\mu\text{m}$
Maximum speed	145mm/s	145mm/s	145mm/s
Maximum load	12kg	12kg	10kg

Note: (1) Platform travel and other parameters can be customized  
(2) Can support extended double Z-axis double work station system

### Sabray Laser parameters <sup>(1)</sup>

	Ti:sapphire/Astellra	Yb:KGW/Pharos	Yb:KGW/Tangor
Pulse width	$\leq 35\text{fs}$	$\leq 290\text{fs}$	$\leq 350\text{fs}$
Output power	$\geq 7\text{W}$	10W,20W	50W,100W
Repetition rate	Up to 10KHz	Up to 1MHz	Up to 1MHz
Central wavelength	$790 \pm 10\text{nm}$	515nm, and 1030nm	515nm, and 1030nm
Spot pattern	$M^2 \leq 1.3$ (TEM <sub>00</sub> )	$M^2 \leq 1.5$ (TEM <sub>00</sub> )	$M^2 \leq 1.5$ (TEM <sub>00</sub> )
Energy stability	$< 0.75\%\text{RMS}$	$< 0.5\%\text{RMS}$	$< 0.5\%\text{RMS}$
Contrast	$> 1000:1$ pre pulse $> 150:1$ post pulse	$> 1000:1$ pre pulse $> 150:1$ post pulse	$> 1000:1$ pre pulse $> 150:1$ post pulse
Beam stability	$< 20 \mu\text{rad}/^\circ \text{C}$	$< 20 \mu\text{rad}/^\circ \text{C}$	$< 50 \mu\text{rad}/^\circ \text{C}$
Spot size (1/e <sup>2</sup> )	$\sim 6\text{mm}$	$\sim 3\text{mm}$	$\sim 3\text{mm}$
Polarization state	Linear polarization, horizontal direction	Linear polarization, horizontal direction	Linear polarization, horizontal direction
Dimension	1234 × 768 × 305	640 × 410 × 305	640 × 410 × 305

Note: (1) The system is compatible with a variety of models and parameters of femtosecond lasers, you can contact the manufacturer according to specific needs