Origami
03XP-3P
Triple wavelength UV femtosecond laser
Flexible femtosecond micromachining

The ORIGAMI 03XP-3P is a triple wavelength femtosecond laser, allowing computer-controlled, flexible switching between IR, green or UV wavelengths in one laser system.

Based on the highly successful ORIGAMI XP platform, the same advantages of clean, femtosecond pulse output, excellent beam quality together with unprecendented beam stability are obtained by virtue of the Optocage™ laser design.

Applications

- Foil cutting
- LCD patterning
- OLED display repair
- Flex PCB processing
- Medical device manufacturing
Reliable

High reliability for industrial and medical applications
The ORIGAMI 03XP-3P has been designed with a focus on high reliability and unprecedented UV lifetime.

Easy availability of IR, green, and UV wavelengths ensure the user can process a variety of materials with the Origami 03XP-03.

The combination of multiple wavelengths together with clean femtosecond pulse output allows efficient processing of materials where low HAZ is essential.
Performance

Typical output pulse width

Typical clean output pulse traces from the 03XP-2P showing a close fit to ideal (Sech²).

IR 1030 nm (352 fs)

Green 515 nm (258 fs)

UV 343 nm (280 fs)
Performance

Typical pulse energy and output power performance of 03XP-3P

Performance optimized at 100 kHz

[Graph showing the relationship between repetition rate (kHz) and IR Pulse Energy (µJ) and IR Power (W)]
Performance

Typical pulse energy and output power performance of 03XP-3P

Performance optimized at 100 kHz
Performance

Typical pulse energy and output power performance of 03XP-3P

Performance optimized at 100 kHz
## Specifications

### Optical

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td>1030</td>
<td>&gt; 4</td>
<td>&lt; 400</td>
<td>40</td>
<td>&lt; 7.5</td>
</tr>
<tr>
<td></td>
<td>515</td>
<td>&gt; 1.5</td>
<td>&lt; 350</td>
<td>15</td>
<td>&lt; 4</td>
</tr>
<tr>
<td></td>
<td>343</td>
<td>&gt; 1.2</td>
<td>&lt; 300</td>
<td>12</td>
<td>&lt; 2</td>
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</tbody>
</table>

**Pulse selection options**: Single-shot to 1 MHz, Pulse-on-demand

<table>
<thead>
<tr>
<th>Laser output</th>
<th>Beam quality (TEM00)</th>
<th>Polarization orientation</th>
<th>Polarization / PER [dB]</th>
<th>Beam diameter ± 10% [mm]</th>
<th>Beam divergence (2σ) [mrad]</th>
<th>Power stability [%] 1</th>
<th>Beam circularity 2</th>
</tr>
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<tbody>
<tr>
<td>Collimated free-space</td>
<td>M² ≤ 1.2</td>
<td>Horizontal</td>
<td>&gt; 20</td>
<td>2.2</td>
<td>&lt; 1.0</td>
<td>&lt; 1</td>
<td>&gt; 0.85</td>
</tr>
<tr>
<td></td>
<td>M² ≤ 1.3</td>
<td>Horizontal</td>
<td>&gt; 20</td>
<td>2.0</td>
<td>&lt; 1.0</td>
<td>&lt; 1.5</td>
<td>&gt; 0.85</td>
</tr>
<tr>
<td></td>
<td>M² ≤ 1.3</td>
<td>Vertical</td>
<td>&gt; 20</td>
<td>2.0</td>
<td>&lt; 1.0</td>
<td>&lt; 2</td>
<td>&gt; 0.85</td>
</tr>
</tbody>
</table>

**Beam quality** (TEM00): M² ≤ 1.2, M² ≤ 1.3, M² ≤ 1.3

**Polarization orientation**: Horizontal, Horizontal, Vertical

**Polarization / PER [dB]**: > 20, > 20, > 20

**Beam diameter ± 10% [mm]**: 2.2, 2.0, 2.0

**Beam divergence (2σ) [mrad]**: < 1.0, < 1.0, < 1.0

**Power stability [%]** 1: < 1, < 1.5, < 2

**Beam circularity 2**: > 0.85, > 0.85, > 0.85

**Pointing stability**: < 30 μrad rms (12h), constant temperature

< 15 μrad / °C 18 – 28 °C

**Wavelength switching [s]**: < 1, < 1, < 1

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1 RMS, 12 h, constant temperature.
2 Measured at 300mm from aperture
### Specifications

#### Electrical/Mechanical

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>Laser output</td>
<td>Collimated free-space</td>
</tr>
<tr>
<td>Warm-up time [min.]</td>
<td>&lt; 10 (warm start)</td>
</tr>
<tr>
<td></td>
<td>&lt; 30 (cold start)</td>
</tr>
<tr>
<td>Operation temperature [°C]</td>
<td>18 – 28</td>
</tr>
<tr>
<td>Storage temperature [°C]</td>
<td>-20 – 55</td>
</tr>
<tr>
<td>Power supply requirements</td>
<td>24 VDC/20A or 90-264 VAC, 47-63 Hz</td>
</tr>
<tr>
<td>Power consumption [W]</td>
<td>&lt; 500</td>
</tr>
<tr>
<td>Laser head dimensions (WxHxD) [mm]</td>
<td>675.2 x 222.6 x 585.4</td>
</tr>
<tr>
<td>Power supply dimensions (WxHxD) [mm]</td>
<td>165 x 85 x 314</td>
</tr>
<tr>
<td>Laser head weight [kg]</td>
<td>52</td>
</tr>
<tr>
<td>Cooling</td>
<td>Water or Air</td>
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</table>

#### Support and warranty

All ORIGAMI products come with an industry-leading reliability. The product is covered by a comprehensive warranty. Service options are available. For details, please enquire.
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