i401 CO₂ Laser

Robust, reliable laser with more than 400 Watts of average power for high speed cutting and drilling applications

High performance CO₂ laser engineered with excellent power and divergence stability for demanding industrial applications

- 400 Watts of average power for faster throughput and higher yields across a variety of target materials
- Internal beam conditioning delivers near perfect circular output in both near and far fields, ensuring a focused spot size with high power density for greater detail and faster processing speeds
- Highly reliable RF modules ensure maximum uptime and are field-replaceable for improved serviceability
- Real-time performance monitoring reduces unplanned downtime with onboard advanced diagnostics that are Industry 4.0 ready

Specifications

<table>
<thead>
<tr>
<th>Output Specifications</th>
<th>10.2 µm</th>
<th>10.6 µm</th>
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</thead>
<tbody>
<tr>
<td>Wavelength</td>
<td>10.2 µm</td>
<td>10.6 µm</td>
</tr>
<tr>
<td>Output Power¹</td>
<td>&gt;400 W</td>
<td></td>
</tr>
<tr>
<td>Power Stability (cold start)²</td>
<td>±7%</td>
<td></td>
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<tr>
<td>Power Stability (typical, after 3 min.)</td>
<td>±5%</td>
<td></td>
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<tr>
<td>Beam Quality (M²)</td>
<td>&lt;1.2</td>
<td></td>
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<tr>
<td>Beam Diameter³</td>
<td>6.7 mm ± 0.7 mm</td>
<td></td>
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<tr>
<td>Divergence (full angle)</td>
<td>2.5 mrad ± 0.3 mrad</td>
<td></td>
</tr>
<tr>
<td>Ellipticity</td>
<td>&lt;1.2</td>
<td></td>
</tr>
<tr>
<td>Linear (45°)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rise Time</td>
<td>&lt;100 µs</td>
<td></td>
</tr>
<tr>
<td>Operating Frequency</td>
<td>0 - 100 kHz</td>
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Power Supply

- DC Input Voltage: 48 VDC
- Maximum Current: 125 A

Cooling

- Maximum Heat Load: 6000 W
- Coolant Temperature: 18 - 22°C (water)
- Minimum Flow Rate: 4.0 GPM, <60 PSI

Environmental

- Operating Ambient Temperature: 15 - 40°C
- Maximum Humidity: 95%, non-condensing

Physical

- Dimensions (LxWxH) mm (inches): 1227 x 208 x 300 (48.3 x 8.2 x 11.8)
- Weight: 59.0 kg (130 lbs.)

Clean Cuts, Faster Throughput

The i401 has excellent power and stability that provide consistently high quality results at even the most demanding speeds. With zero contact to the target material, the i401 is the perfect solution for high-speed cutting applications. Surface deformation commonly associated with mechanical cutting systems are eliminated.
i401 CO2 Laser

Outline and Mounting Illustrations dimensions are in mm (inches)

Recommended Applications

Cutting

 Excellent power stability and 400 Watts of average laser power delivers the precision and throughput speed required for high speed label kiss cutting.

Kiss Cutting

400 Watts of continuous output power drives faster throughput for higher production yields. Excellent divergence stability minimizes HAZ for clean, polished edges cuts.

Avoid deformation caused by mechanical processes: the i401 provides a non-contact, fully digital solution that allows customized results on even the most challenging materials.

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