Fiber-Coupled Laser

*Monocrom @FLEX Direct Diode*

**Features:**
- Clamping™ Patented Technology (Solder free mounting of laser bars)
- Long lifetime
- High reliability
- Low thermal resistances
- Wide storage temperature - 40°C to +85°C
- No SMILE effect

**Suitable for:**
- Marking
- Plastic welding
- Brazing
- Cladding
- Additive manufacturing
## Monocrom @FLEX Direct Diode

**TECH Specifications**

<table>
<thead>
<tr>
<th>Laser Parameters(^1(2,3,4))</th>
<th>HIP-2</th>
<th>HIP-4</th>
<th>HIP-6</th>
<th>HIP-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength(^3) [nm]</td>
<td></td>
<td>808 - 1060</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linewidth(^3) [nm]</td>
<td>&lt; 5</td>
<td>5-7</td>
<td></td>
<td></td>
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<tr>
<td>Optical Power (unpolarized) [W]</td>
<td>400</td>
<td>600</td>
<td>1000</td>
<td></td>
</tr>
<tr>
<td>Optical Power (linearly polarized) [W]</td>
<td>200</td>
<td>300</td>
<td>500</td>
<td>800</td>
</tr>
<tr>
<td>Optical Power after 600 / 400 µm fiber [W]</td>
<td>180 / 160</td>
<td>350 / 300</td>
<td>520 / 500</td>
<td>900 / 800</td>
</tr>
<tr>
<td>Repetition rate [Hz]</td>
<td></td>
<td>CW – 100 kHz</td>
<td></td>
<td></td>
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<tr>
<td>Pulse width</td>
<td>1 µs - CW</td>
<td></td>
<td></td>
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<tr>
<td>Power stability</td>
<td>&lt; 1% @ 8 h</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulse to pulse stability</td>
<td>&lt; 1% rms</td>
<td></td>
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</tbody>
</table>

### Optics

| Divergence\(^7\) [mrad]         | 10 - 15 |        |       |        |
| Beam size [mm x mm]             | 12 x 6  |        |       |        |
| Beam quality BPP\(^7\) @ 600 µm | 68      |        |       |        |
| Beam quality BPP\(^7\) @ 400 µm | 44      |        |       |        |
| Pointing stability              | ± 50 µrad |        |       |        |

### Operating Parameters\(^8\)

| Coolant flow [l/min]            | < 1.2 | < 2.5 | < 5   | < 10   |
| Coolant pressure [bar]          |       | < 3.5 bar |       |        |
| Coolant                         | 90% distilled water + 10% ethylene glycol |        |        |        |
| Warm up time                    | < 2 min |        |       |        |
| Operating temperature           | Non-condensing – 55 |        |       |        |

### Body

| External trigger                | BNC / SMA |        |       |        |
| Driver electronics              | included  |        |       |        |
| Weight [Kg]                     | < 15      | < 25   |       |        |
| Laser head dimensions (L x W x H) [mm\(^3\)] | 356 x 432 x 45 | 636 x 432 x 89 |       |        |
| Laser class product (EN-60825)  | 4         |        |       |        |
| Expected lifetime [pulses]      | > 2 \(10^9\) pulses |        |       |        |
1. This is a preliminary specification sheet, validation of specification is in process.
2. If any other requirements are needed, please contact us.
3. Specifications at 20 °C, at the beginning of the lifetime.
4. Specifications are subject to chips availability.
5. Other wavelengths on request.
6. Measured at FWHM.
7. Measured at FW95% energy.
8. Determined by taking $1\sigma$ values.
9. Values for related to coolant properties are recommendations. External chiller is needed.