Cobolt 05-01 Series

High power, single frequency, CW diode pumped lasers

- CW output power up to 3 W in a perfect beam
- Ultra-robust, hermetically sealed packages
- Ultra-low noise
- 355 nm, 457nm, 491 nm, 515nm, 532 nm, 561 nm, 640nm, 660 nm and 1064 nm
- Up to 24 months warranty, unlimited hours

The Cobolt 05-01 Series lasers are continuous-wave diode pumped laser (DPL) devices operating at a fixed wavelength between 355 nm and 1064 nm. The lasers are built using proprietary HTCure™ manufacturing technology for ultra-robustness in a compact hermetically sealed package.

The lasers emit a very high quality laser beam with stable characteristics over a wide range of operating conditions. Single frequency operation provides a narrow spectral bandwidth and long coherence length. The lasers are designed and manufactured to ensure a high level of reliability.

The Cobolt 05-01 Series lasers are intended for stand-alone use in laboratory environments or for integration as OEM components in instruments for applications including fluorescence microscopy, flow cytometry, DNA sequencing, HCA, Raman spectroscopy, interferometry, holography and particle analysis.
### Cobalt 05-01 Series Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Wavelength (nm)</th>
<th>Max. Pwr (mW)</th>
<th>CW</th>
<th>Long-term stability</th>
<th>Noise (20 Hz - 20 MHz) (pk-pk)</th>
<th>Beam divergence (full angle, mrad)</th>
<th>Spatial Mode (TEM&lt;sub&gt;000&lt;/sub&gt;)</th>
<th>Laser Power Density</th>
<th>Operating Temperature</th>
<th>Ref. Class</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zouk™</td>
<td>355</td>
<td>10-20</td>
<td>200</td>
<td>&lt; 1%</td>
<td>&lt; 2%</td>
<td>&lt; 1.2</td>
<td>M² &lt; 1.1</td>
<td></td>
<td>10 °C - 40 °C</td>
<td>Class 4</td>
<td></td>
</tr>
<tr>
<td>Twist™</td>
<td>457</td>
<td>200</td>
<td>300</td>
<td>&lt; 1%</td>
<td>&lt; 5%</td>
<td>&lt; 1.4</td>
<td>&lt; 1.1</td>
<td></td>
<td></td>
<td>Class 3B</td>
<td></td>
</tr>
<tr>
<td>Calypso™</td>
<td>491</td>
<td>100-200</td>
<td>500</td>
<td>&lt; 2%</td>
<td>&lt; 1%</td>
<td>&lt; 1.5</td>
<td>&lt; 1.1</td>
<td></td>
<td></td>
<td>Class 3B</td>
<td>3A</td>
</tr>
<tr>
<td>Samba™</td>
<td>515</td>
<td>500-1000</td>
<td>200</td>
<td>&lt; 1%</td>
<td>&lt; 1%</td>
<td>&lt; 1.5</td>
<td>&lt; 1.1</td>
<td></td>
<td></td>
<td>Class 3B</td>
<td>3A</td>
</tr>
<tr>
<td>Jive™</td>
<td>515</td>
<td>500-1000</td>
<td>300</td>
<td>&lt; 1%</td>
<td>&lt; 1%</td>
<td>&lt; 1.5</td>
<td>&lt; 1.1</td>
<td></td>
<td></td>
<td>Class 3B</td>
<td>3A</td>
</tr>
<tr>
<td>Bolero™</td>
<td>561</td>
<td>500-1000</td>
<td>500</td>
<td>&lt; 1%</td>
<td>&lt; 1%</td>
<td>&lt; 1.5</td>
<td>&lt; 1.1</td>
<td></td>
<td></td>
<td>Class 3B</td>
<td>3A</td>
</tr>
<tr>
<td>Flamenco™</td>
<td>640</td>
<td>1000-3000</td>
<td>1000</td>
<td>&lt; 1%</td>
<td>&lt; 1%</td>
<td>&lt; 1.5</td>
<td>&lt; 1.1</td>
<td></td>
<td></td>
<td>Class 3B</td>
<td>3A</td>
</tr>
<tr>
<td>Rumba™</td>
<td>1064</td>
<td>500-1000</td>
<td>3000</td>
<td>&lt; 1%</td>
<td>&lt; 1%</td>
<td>&lt; 1.5</td>
<td>&lt; 1.1</td>
<td></td>
<td></td>
<td>Class 3B</td>
<td>3A</td>
</tr>
</tbody>
</table>

* Thermal resistance specified at 35°C ambient temperature, in all other cases this value is calculated based on the maximum ambient temperature of 40°C.

### Options & Accessories

- Customized controller cable
- Mount for external fiber coupling
- Laser head heatsink (HS-04)

This device is sensitive to Electrostatic Discharge (ESD). Always handle diode lasers with extreme care to prevent electrostatic discharge, the primary cause of unexpected diode failure.

**WARNING VISIBLE AND INVISIBLE LASER RADIATION!**

Avoid exposure to beam.

Class 3B Laser Product

Classified per IEC 60825-1:2014

### Product Specifications

- **Center Wavelength and accuracy (nm):**
  - Zouk™: 355.8 ± 0.3
  - Twist™: 457.0 ± 0.3
  - Calypso™: 491 ± 0.3
  - Samba™: 515 ± 0.3
  - Jive™: 532 ± 0.3
  - Bolero™: 561 ± 0.3
  - Flamenco™: 640 ± 0.3
  - Rumba™: 1064 ± 0.6

- **Available Power Levels (mW):**
  - Zouk™: 10-20
  - Twist™: 100-200
  - Calypso™: 200-300
  - Samba™: 500-1000
  - Jive™: 200-300
  - Bolero™: 500-1000
  - Flamenco™: 1000-2000
  - Rumba™: 1064-3000

- **Noise, 20 Hz - 20 MHz (pk-pk):**
  - Zouk™: < 2%
  - Twist™: < 5%
  - Calypso™: < 2%
  - Samba™: < 1%
  - Jive™: < 7%
  - Bolero™: < 2%
  - Flamenco™: < 1.6

- **Long-term stability (8 hrs ± 2°C and 8hrs):**
  - Zouk™: < 2%

- **Beam divergence (full angle, mrad):**
  - Zouk™: < 1.2
  - Twist™: < 1.4
  - Calypso™: < 1.5

- **Spatial mode (TEM<sub>000</sub>):**
  - Zouk™: M² < 1.1

- **Wavelength stability (after warm-up):**
  - < 2pm over ±2°C and 8hrs

- **Beam symmetry at aperture:**
  - Zouk™: > 0.9:1
  - Twist™: > 0.95:1

- **Polarization ratio (linear, vertical):**
  - Samba™: > 0.95:1

- **Total system power consumption:**
  - Samba™: < 0.90:1

- **Operating temperature:**
  - Samba™: 10 °C - 40 °C

- **Maximum laser head baseplate temp.:**
  - Flamenco™: 50 °C

- **Heat sink thermal resistance:**
  - Flamenco™: 0.2 K/W

- **Heat sink dimensions:**
  - Flamenco™: 125 x 70 x 45

- **Controller dimensions:**
  - Flamenco™: 190 x 72 x 28

- **Communication:**
  - Flamenco™: RS-232 or USB

### Warranty

- 12 months, unlimited hours: Zouk™, Twist™, Fandango™ and Bolero™
- 24 months, unlimited hours: Calypso™, Samba™, Jive™, Flamenco™, and Rumba™
Cobolt 05-01 Series

Mechanical Specifications

Laser Head

Controller dimensions

Electrical Interface

<table>
<thead>
<tr>
<th>Interfaces</th>
<th>Connector</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input power</td>
<td>Kycon KPJX-45, 4-pin</td>
<td>Power supply to Controller</td>
</tr>
<tr>
<td>Laser Head to Controller</td>
<td>HD-sub 26-pin, male</td>
<td>Connection to Laser Head</td>
</tr>
<tr>
<td>Controller to Laser Head</td>
<td>HD-sub 26-pin, female</td>
<td>Connection to Controller</td>
</tr>
<tr>
<td>Data port</td>
<td>USB-type mini B</td>
<td>Control and monitoring via control commands</td>
</tr>
<tr>
<td>Remote interlock &amp; Analog signals</td>
<td>Molex 30150-3206</td>
<td>Analog input 5 – 12 V =&gt; Laser ON</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Analog input &lt; 2.7 V =&gt; Laser OFF</td>
</tr>
<tr>
<td>Warm-up time</td>
<td></td>
<td>3 min</td>
</tr>
</tbody>
</table>

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