HighLight FL Single Mode

Compact Single Mode High Power Fiber Laser

The HighLight™ FL Single Mode lasers are compact high brightness, high power fiber lasers with 500 up to 2,500 Watts output power generated from just one fiber laser module allowing for utmost compactness in this power class. These Compact Single Mode lasers are equipped with a 20 µm fiber.

With their modular and robust design the lasers have been set-up for optimum efficiency, flexibility and reliability in industrial applications such as cutting, welding and surface treatment. HighLight FL lasers incorporate field proven reliable components including the flexible industrial control (RCU) which allows the easy integration into system concepts and the adaptation to the application needs.

FEATURES & BENEFITS
• Output power: 500 - 2,500 Watts
• Field-proven “all fiber” technology
• High wall plug efficiency
• Long life diode pumping modules on T-bars
• Inherently back reflection safe
• Industry leading power control for high process consistency
• Equipped with control unit for internet-accessible diagnostics and e-service
• Utmost compactness in this power class

APPLICATIONS
• Cutting
• Welding
• Surface Treatment
• Remote and Scanner-based Applications
### SPECIFICATIONS

<table>
<thead>
<tr>
<th></th>
<th>HighLight FL500CSM</th>
<th>HighLight FL750CSM</th>
<th>HighLight FL1000CSM</th>
<th>HighLight FL1500CSM</th>
<th>HighLight FL2000CSM</th>
<th>HighLight FL2500CSM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Power (W)</td>
<td>500</td>
<td>750</td>
<td>1000</td>
<td>1500</td>
<td>2000</td>
<td>2500</td>
</tr>
<tr>
<td>Power Range (%)</td>
<td>10 to 100</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Laser Beam Quality (BPP) at Collimator</td>
<td>≤ 0.4 mm x mrad</td>
<td></td>
<td></td>
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<tr>
<td>Power Stability (%)</td>
<td>± 2</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Pulse Frequency Range</td>
<td>CW - 5 kHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Wavelength (nm)</td>
<td>1070 ± 10</td>
<td></td>
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</tbody>
</table>

### ELECTRICAL RATINGS

- **Voltage**: 3 x 230 / 400 V ± 10% or 3 x 277 / 480 V ± 10%; 50/60 Hz; PE
- **Connected Load (kVA)**: 2.1, 2.9, 3.6, 5, 6.6, 7.2
- **Effective Power at Nominal Power (kW)**: 2, 2.7, 3.3, 4.7, 6.1, 6.8
- **Fuses Type NH (A)**: 16, 32

### COOLING

- **Recommended Cooling Capacity** *(kW)*: ≥ 2.4, ≥ 3.2, ≥ 4, ≥ 5.6, ≥ 7.3, ≥ 8.1
- **Flow Rate (l/h)**: ≥ 1000; CCU Laser: 850; Optic: 150
- **Temperature (°C)**: 25; CCU Laser: 25; Optics: 34
- **Temperature Tolerance Range (°C)**: ± 1
- **Max. Pressure (hPa)**: 6000
- **Pressure Drop (hPa)**: 4000; CCU Laser: 4000; Optic: 3500

### FIBER DELIVERY SYSTEM

- **Interface**: QBH, QD
- **Diameter (µm)**: 20
- **Type**: Step index fiber incl. RSY safety system
- **Length (m)**: 8, 5
- **Accessories (options)**: Collimators, Focussing optics, Cross-Jet

### DIMENSIONS & WEIGHTS

- **Laser Dimension (L x W x H) (mm)**: 751 x 953 x 584; CCU: 751 x 983 x 584
- **Laser Weight (kg)**: < 140; CCU: < 155; < 150; CCU: < 165

### ENVIRONMENTAL CONDITIONS

- **Ambient Temperature (°C)**: 5 - 40
- **Humidity (°C)**: Dewpoint < 24; (CCU: Dewpoint ≤ 34, other on request)

### CUSTOMER INTERFACE

- **Digital Signals (V DC)**: 24
- **Power Control (V DC)**: 0 to 10 (50 µs to 70 µs [Level] resp. a pulse period)
- **Trigger Control (V)**: Gate 24, 15, or 5; Frequency 15/5
- **Laser Operating Elements**: Pilot Laser / PC-control

### OPTIONS LASER

- Fieldbus-Interface, Scanner processing solution, Customer specific color, Casters, Climate Control Unit (CCU), Handheld (Touch screen)

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*The recommended cooling capacity covers maximum power dissipation due to diode degradation and 100% laser power absorbed at an internal or external beam dump.

**An additional flow rate of 500l/h is recommended for the use of a external power meter.*
MECHANICAL SPECIFICATIONS

HighLight FL500CSM - HighLight FL2500CSM

Design with Mounting Points (Standard)
Design with Climate Control Unit (Optional)
Design with Casters (Optional)

Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice.

Warning labels as shown in the figure appear on each Coherent-Rofin laser to indicate the respective classification.

Coherent-Rofin industrial lasers are designed in strict accordance with the respective safety regulations. We certify that each laser manufactured by our company complies with FDA Radiation Performance Standards, 21 CFR Subchapter J and with IEC 60825. Warning labels as shown in the figure appear on each Coherent-Rofin laser to indicate the respective classification.