



HighLight FL1000P

1 kW High Power Pulsed Fiber Laser

The HighLight FL1000P pulsed fiber laser with 1 kW average output power from Coherent-ROFIN offers the highest beam quality currently available at this power level, thus enabling high throughput, precision ablation for a variety of industrial and solar applications.

Specifically, the HighLight FL1000P delivers a maximum pulse energy of 100 mJ, at pulse widths between 10 ns and 100 ns, and with repetition rates ranging from 10 kHz to 30 kHz. A beam parameter product of typical 20 mm x mrad (for a 400 μm , round core output fiber) enables this power to be effectively concentrated into small focused spot sizes.

The unique combination high average power, high pulse energy and superior beam quality makes the HighLight FL1000P an ideal laser source for ablation, surface cleaning, and precision material and coating removal in a range of applications. These include AlSi removal from tailored blanks prior to welding, edge deletion for thin film (a-Si, CdTe, CIGS) solar cells, cleaning of molds, aerospace components and other precision parts, as well as other surface cleaning, activation and structuring uses. The HighLight FL1000P laser is constructed to deliver exceptional reliability and high uptime in demanding, multi-shift industrial environments and its compact footprint is virtually predestined for integration into existing machining workstations.

The lasers are equipped with the Coherent-ROFIN Control Unit (RCU), which offers numerous monitoring tasks and e-service capability. A scanner processing solution package is optionally available enabling simple implementation of scanner-based applications.

FEATURES

- Output power: 1 kW
- High wall plug efficiency
- Pulse energy of 100 mJ at 10 kHz, $P < 1.7 \text{ MW}$
- 10 ns to 100 ns pulses selectable
- 400 μm fiber for high beam quality (typ. 20 mm x mrad, round core output fiber)
- Based on field-proven components and safety concept of high power fiber laser series
- Back reflection safe due to integrated isolator
- Detachable fiber

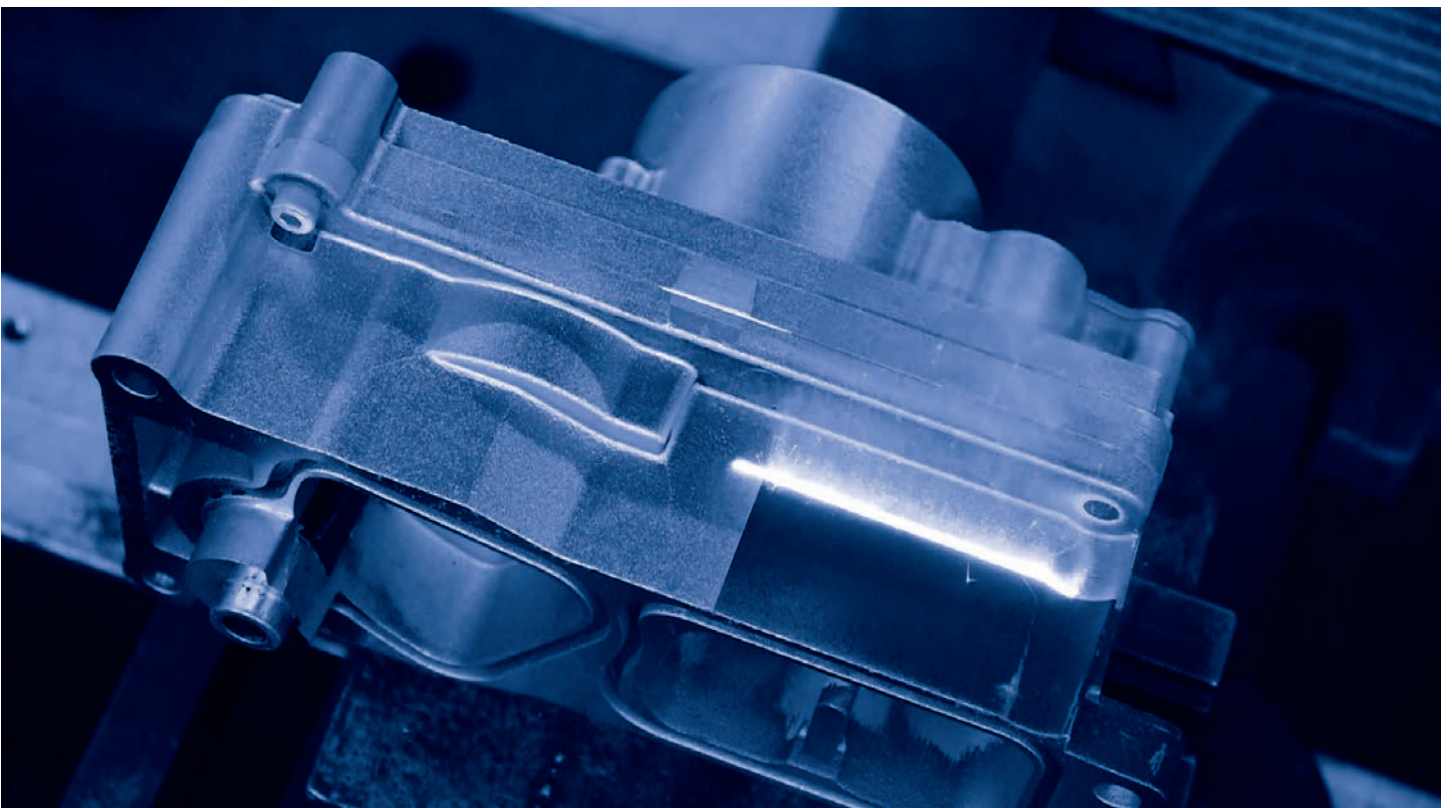
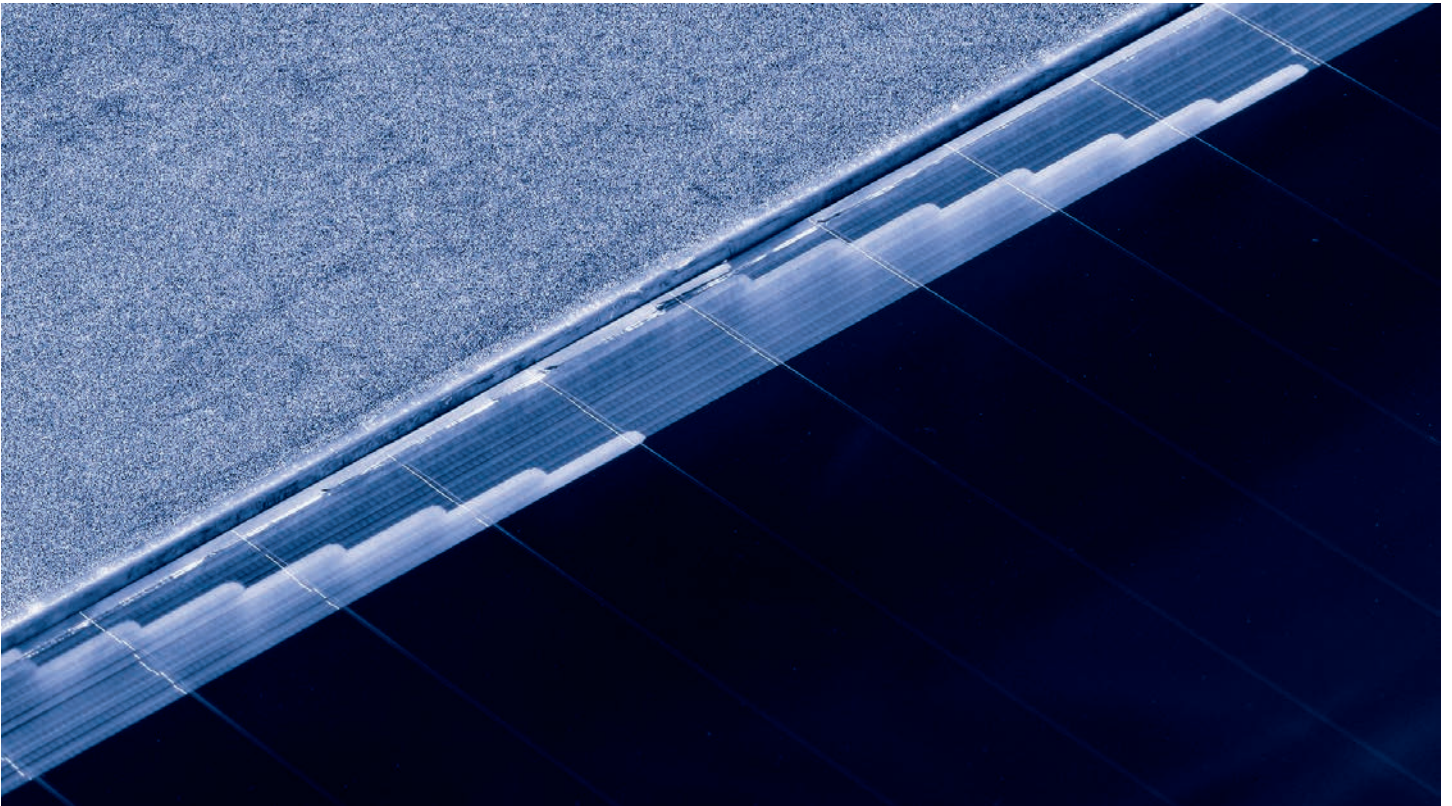
APPLICATIONS

- Ablation
- Surface Cleaning, Activation and Structuring
- Precision Material and Coating Removal
- Edge Deletion of Solar Cells



SPECIFICATIONS		PRELIMINARY Technical Data HighLight FL1000P Pulsed Yb:YAG Fiber Laser	
Nominal Power (W)		1000	
Laser Beam Quality (BPP) at Collimator		<24 mm x mrad for 400 µm round fiber core; <35 mm x mrad for 400 µm square fiber core	
Pulse Frequency Range (kHz)		Standard: 10 to 30 (others on request)	
Max. Pulse Energy (mJ)		100	
Pulse Length Range (ns)		10 to 100	
Pulse to Pulse Stability (%)		±3	
Wavelength (nm)		1064	
Excitation		Laser diodes	
ELECTRICAL RATINGS			
Voltage		3 x 230/400 V ±10% or 3 x 277/480 V ±10%; 50/60 Hz; PE	
Effective Power at Max. Laser Power (kW)		5	
Max. Current Consumption at 400 V (A)		9.0	
Fuses Type NH (A)		16	
COOLING			
Recommended Cooling Capacity* (kW)		4 to 5	
Flow Rate (l/h)		800	
Cooling Water Temperature (°C)		25; ±1K, above dew point	
Supply Pressure Range (hPa)		4000 to 5000 at cabinet input	
Back Pressure (hPa)		<1000	
FIBER DELIVERY SYSTEM			
Interface		QBH, QD	
Diameter (µm)		400 and larger	
Type		Step index fiber incl. RSY safety system	
Length (m)		10	
Accessories (options)		Collimators, Focusing optics, Cross-Jet, etc.	
DIMENSIONS & WEIGHTS			
Laser Dimension (L x W x H) (mm)		~ 800 x 900 x 600	
Laser Weight (kg)		<200	
ENVIRONMENTAL CONDITIONS			
Ambient Temperature (°C)		5 to 40	
Humidity		10% to 90% non-condensing; CCU or dry air kit	
CUSTOMER INTERFACE			
Digital Signals (V DC)		24	
Power Control (V DC)		0 to 10	
Trigger Control (V)		Gate 24,15, or 5; Frequency 15/5	
OPTIONS LASER			
		Positioning laser, Fieldbus-Interface, Scanner processing solution, Customer specific color, Casters, Climate Control Unit (CCU), Handheld (Touch screen)	

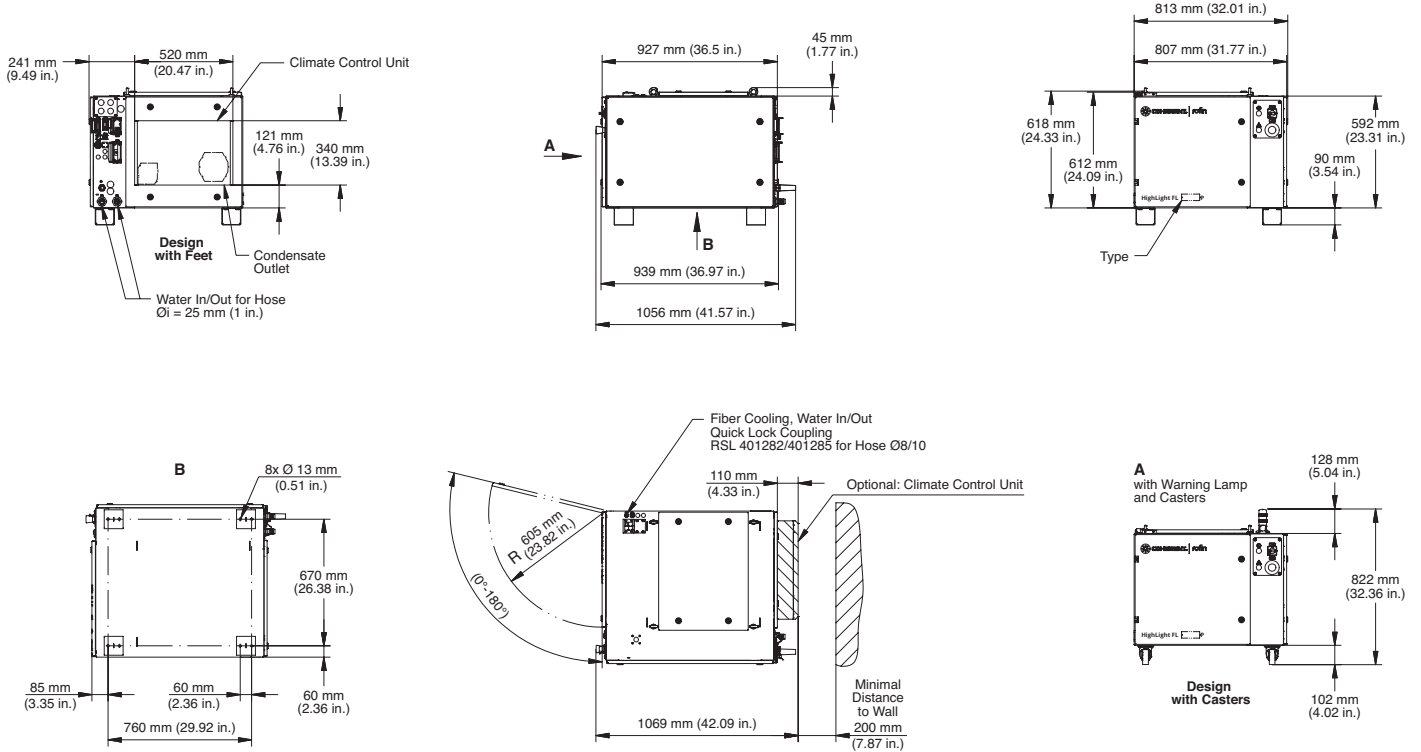
* The recommended cooling capacity covers maximum power dissipation due to diode degradation and 100% laser power absorbed at an internal or external beam dump.



MECHANICAL SPECIFICATIONS

HighLight FL1000P

- Design with Feet (Standard)
- Design with Climate Control Unit (Optional)
- Design with Casters (Optional)



Coherent, Inc.,
 5100 Patrick Henry Drive Santa Clara, CA 95054
 p. (800) 527-3786 | (408) 764-4983
 f. (408) 764-4646

tech.sales@Coherent.com www.coherent.com www.rofin.com

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

Coherent offers a limited warranty for all HighLight lasers. For full details of this warranty coverage, please refer to the Service section at www.Coherent.com or contact your local Sales or Service Representative. Printed in the U.S.A. MC-XXX-17-0M0617 Copyright ©2017 Coherent, Inc.



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.