

HyperRapid NXT 266

Deep UV Picosecond Laser for Industrial Micromachining with Maximum Flexibility

HyperRapid NXT 266 is a high average power deep UV laser based on the proven HyperRapid NXT platform. HyperRapid NXT is Coherent's high power industrial picosecond laser platform, and the benchmark for industrial micromachining applications.

Designed for high power deep UV industrial applications, utilizing the HyperRapid NXT platform for stable DUV power modulation, pulse on demand and variable repetition rates, this laser sets a new standard in micromachining applications with lowest heat affected zone and control of depth.

The HyperRapid NXT 266 is backed up with worldwide service support to match the most demanding uptime and cost-of-ownership requirements.



FEATURES

- Single wavelength output: 266 nm
- Stable DUV power modulation
- Guaranteed FHG module lifetime of over 5,000 hours at full power
- Compact and light weight
- Worldwide product support options to optimize uptime and cost-of-ownership

APPLICATIONS

- Cutting, drilling, selective removal of complex composite structures from dissimilar materials, including oxides, plastics and organics
- Ideally suited for applications in flat panel display and microelectronics processing
- Glass marking with features sizes well below 5 μm

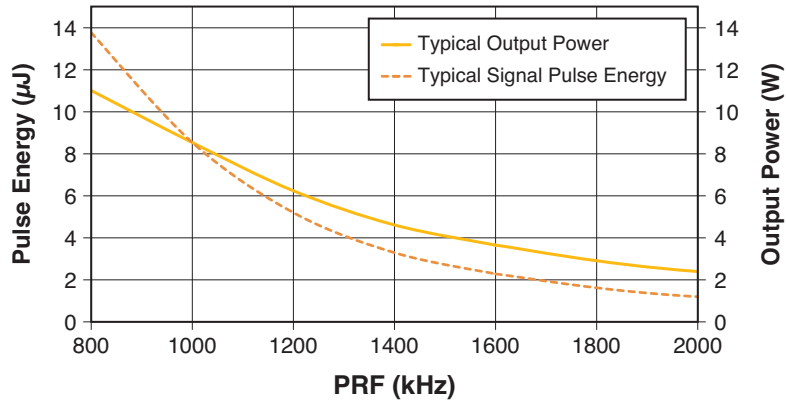
Specifications ^{1,2}	
Single Wavelength Output ³ (nm)	266
Power ⁴ (W)	10
Pulse Repetition Rate Range (kHz)	800 to 4000
Pulse Duration ⁵ (ps)	<10
Average Power Stability ⁶ (RMS 1 σ , %)	≤ 1
Maximum Pulse Energy ⁷ (μ J)	12.5
Pulse-to-Pulse Energy Stability ⁸ (RMS 1 σ , %)	≤ 2
Beam Quality Parameter ⁹ (M^2)	≤ 1.3
Beam Diameter, 1 m in Front of Laser (mm)	4.0 \pm 0.3
Beam Divergence, Full Angle (mrad)	≤ 1
Beam Circularity, 1 m in Front of Laser (%)	≥ 85
Beam-Pointing Stability (μ rad/ $^{\circ}$ C)	≤ 50 (peak-to-peak)
Bore Sight Accuracy, Lateral (Beam to Specified Exit Location)	≤ 1 mm
Bore Sight Accuracy, Angular (Beam to Specified Exit Direction)	≤ 5 mrad
Direction of Polarization (Vertical/Horizontal)	V
Polarization Ratio	>100:1
Electrical Supply	100 to 230 V AC/50 to 60 Hz/2.5 kW
Mounting Orientation	Horizontal
Chiller	Water-to-Air or Water-to-Water
Dimensions Laser Head Power Supply SMC Chiller Recirculator	600 x 885 x 245 mm 3U 19" rack 500 x 317 x 615 mm 276 x 230 x 223
Weight Laser Head Power Supply SMC Chiller Recirculator	≤ 67 kgs 16 kg 43 kg 16 kg
Operating Specifications	
Allowed Temperature Range During Operation	+15 $^{\circ}$ C to +30 $^{\circ}$ C (Free of Condensation)
Humidity	[0 to 90]% RH, Non-Condensing, Dew-Point <22 $^{\circ}$ C
Output Window Purging Requirement	CDA or Nitrogen. See manual for details.

Notes:

1. Due to our continuous product improvement program, specifications may change without notice.
2. All specifications at 800 kHz.
3. After warm-up time, chiller temperature = 23 \pm 0.1 $^{\circ}$ C
4. Maximum power with variable attenuator and process shutter at maximum transmission.
5. DUV Autocorrelation at 800 kHz operation.
6. Over 8 hours, $\pm 1^{\circ}$ C ambient temperature.
7. Single-pulse operation (burst number = 1).
8. Steady-state (no pulse gating or change of pulse repetition rate).
9. Average of M_x^2 and M_y^2 .

TYPICAL PERFORMANCE DATA

HyperRapid NXT 266 - Typical Single Pulse Energy and Output Power



Measurement of DUV Output Power During Modulation.
Gating Cycle: On-Time: 128 sec / Off-Time
Increasing from 1 to 128 sec

