Ultrashort Pulse (USP) Lasers

HyperRapid NXT 532

High Power 532 nm Picosecond Laser for Industrial Processing with Maximum Flexibility

HyperRapid NXT is a high power industrial picosecond laser,used in a variety of industrial micromachining applications. The laser features a compact and modular design with an identical footprint and electronic interfacing for all power levels and wavelengths.

Its unique combination of highest laser power and superior flexibility enables optimum process performance. High average power levels deliver high throughput and minimize cost-per-part while flexibility in repetition rate and pulse energy results in excellent quality.

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

FEATURES

- Single wavelength output: 532 nm (see separate data sheet for 1064, 532 and 266 nm)
- Unique combination of power and operational flexibility delivers significantly reduced cost-per-part for micromachining applications
- PulseEQ provides equal, perfectly stabilized pulse energy down to single shots with maximum timing accuracy
- Compact and light weight, common interfacing for all models
- Many product support options to optimize uptime and cost-of-ownership

APPLICATIONS

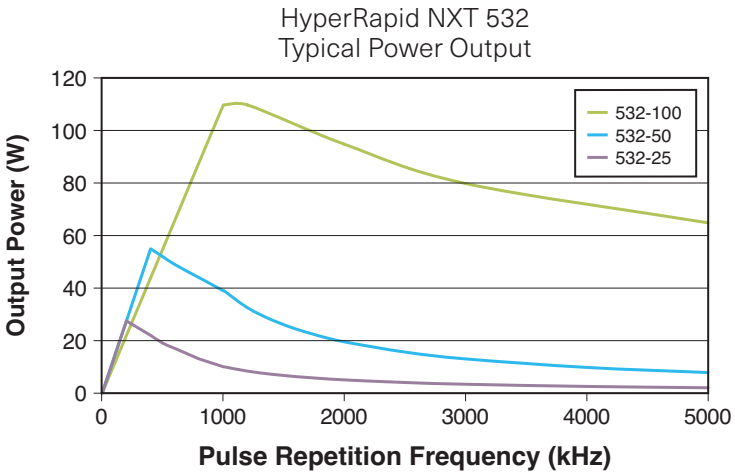
- Cutting, drilling, selective removal of complex composite structures from dissimilar materials, including oxides, plastics and organics
- Ideally suited for applications in flat panel display, photovoltaic and battery foil processing
- Micromachining and structuring of large surfaces with line focusing or multiple beams

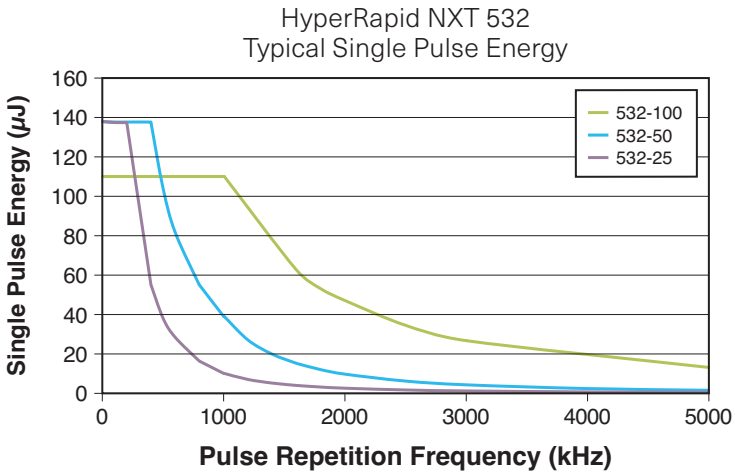
COHERENT

Specifications[1,2]	HyperRapid NXT 532-25	HyperRapid NXT 532-50	HyperRapid NXT 532-100
Single Wavelength Output[3] (nm)	532		
Power[4] (W)	25	50	100
Pulse Repetition Rate Range (kHz)	Single Shot to 5000		
Pulse Duration[5] (ps)	<12		
Average Power Stability[6] (RMS 1σ,%)	≤1		
Maximum Pulse Energy[7] (µJ)	125	125	100
Pulse-to-Pulse Energy Stability[8] (RMS 1σ, %)	≤2		
Beam Quality Parameter[9] (M^2)	≤1.3		
Beam Diameter, 1 m in Front of Laser (mm)	5.0 ±0.5		
Beam Divergence, Full Angle (mrad)	≤1		
Beam Circularity, 1 m in Front of Laser (%)	≥85		
Beam-Pointing Stability (µrad/°C)	≤50 (peak-to-peak)		
Bore Sight Accuracy, Lateral (mm) (beam to specified exit location)	≤1		
Bore Sight Accuracy, Angular (mrad) (beam to specified exit direction)	≤5		
Direction of Polarization (Vertical/Horizontal)	H		
Polarization Ratio	>100:1		
Warm-Up Time from Chiller Start (min.)	<45		
Electrical Supply	100 to 230V AC/50 to 60Hz/2.5 kW		
Mounting Orientation	Horizontal		
Chiller	Water- to-Air or Water-to-Water		
Laser Head - Dimensions	600 x 780 x 245 mm (23.6 x 30.7 x 9.6 in.)		
Laser Head - Weight	≤67 kg (147.7 lbs)		
Power Supply - Dimensions	3U 19” rack		
Power Supply - Weight	16 kg (35.3 lbs)		
SMC Chiller - Dimensions	500 x 317 x 615 mm (19.7 x 12.5 x 24.2 in.)		
SMC Chiller - Weight	43 kg (94.8 lbs)		
Operating Specifications			
Allowed Temperature Range During Operation	+15°C to +30°C (free of condensation)		
Humidity	[0 to 90]% RH, non-condensing, Dew-point <22°C		

Notes:
1. Due to our continuous product improvement program, specifcations may change without notice.
2. All specifications at 400 kHz for HyperRapid NXT 532-25 and HyperRapid NXT 532-50, all specifications at 1000 kHz for HyperRapid NXT 532-100.
3. After warm-up time, chiller temperature = 23 ±0.1°C.
4. Maximum power with variable attenuator and process shutter at maximum transmission.
5. DUV Autocorrelation at 800 kHz operation.
6. Over 8 hours, ± 1°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_y^2 and M_x^2.

Typical Performance Data

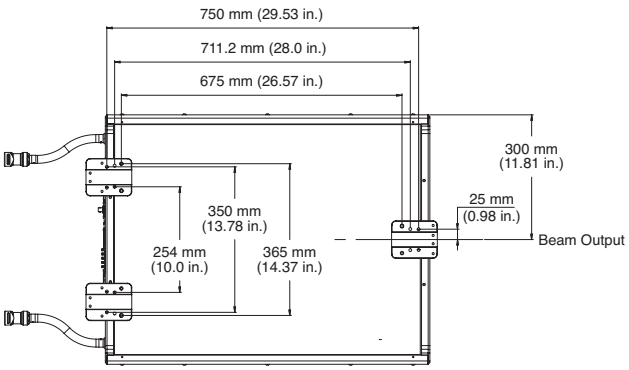


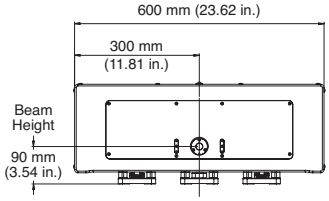


Mechanical Specifications

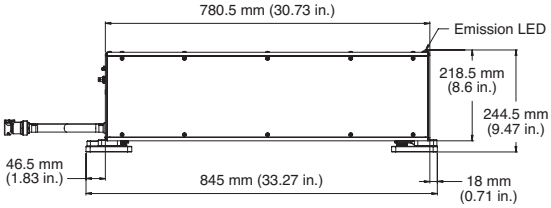
HyperRapid NXT 532

Bottom View

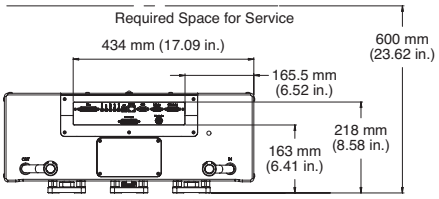




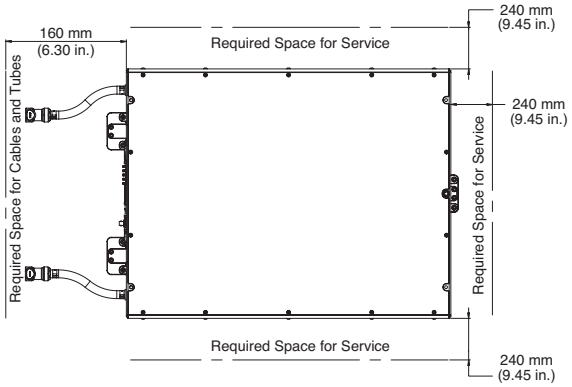
Front View



Side View



Rear View



Top View

For more information
www.coherent.com