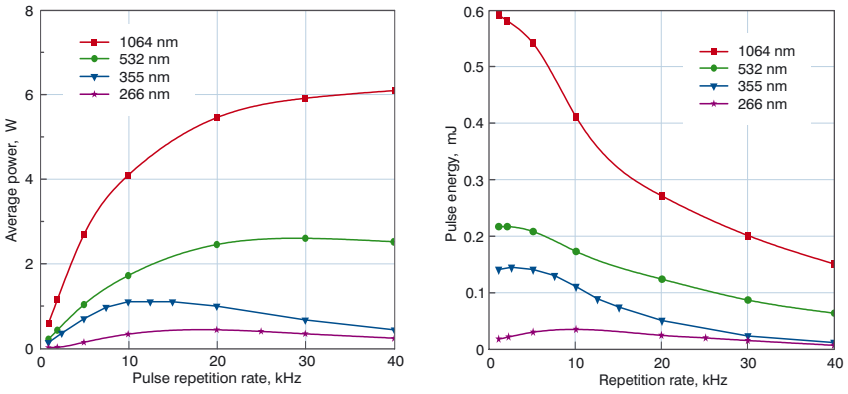
# NL640 SERIES

## Nanosecond Diode Pumped Nd:$YVO_4$ Laser


A diode pumped solid state Q-switched Nd:$YVO_4$ laser offers up to 6 W output power and high 40 kHz repetition rate. End-pumped design ensures compact size of the laser cavity. Down to 6 ns pulse duration is achieved due to the innovative Q-switching. Short pulse duration, high repetition rate and compact design make this laser an attractive tool for wide range of material processing applications.

Featuring compact size and turn-key operation NL640 series laser is ideal for integrating into micromachining or marking systems with limited space availability and tough weight requirements. Sealed cavity as well as rugged body ensures reliable 24/7 operation.




NL640 typical performance data

## FEATURES

- Up to **6 W** output power at **40 kHz**
- Up to **0.5 mJ** pulse energy at **5 kHz**
- **6–14 ns** pulse duration
- **532 nm**, **355 nm, 266 nm** wavelengths as standard option
- **$M^2$ <1.5**
- **Internal/external** triggering
- **Electro-optical** Q-switching
- **Air** cooled
- **Sealed** cavity
- Extremely **compact** size
- Processor control via **USB/CAN**
- **Remote** control via keypad

## APPLICATIONS

- Marking
- Engraving
- Micromachining
- Ablation
- Drilling
- Cutting
- Structuring
- Trimming
- Mask repair
- Cleaning
- Your application is welcome...

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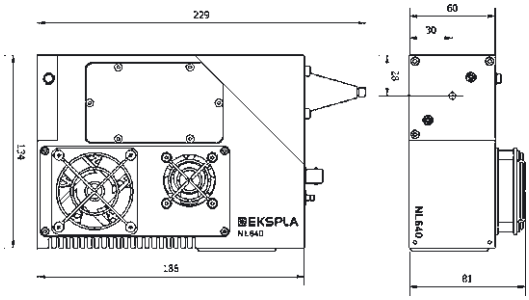
## SPECIFICATIONS

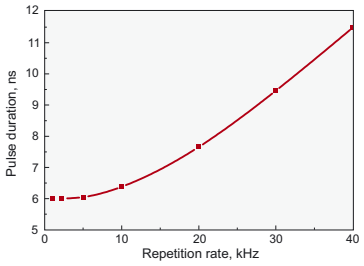
| MODEL | NL640 |
|---|---|
| Max. output power at 40 kHz, W | |
| at 1064 nm | 6 |
| at 532 nm | 2.5 |
| at 355 nm | 0.5 |
| at 266 nm | 0.2 |
| Pulse energy at 5 kHz, mJ | |
| at 1064 nm | 0.5 |
| at 532 nm | 0.25 |
| at 355 nm | 0.1 |
| at 266 nm | 0.04 |
| Pulse duration, ns [1] | 6–14, depends on rep. rate |
| Pulse energy stability at 1064 nm, % [2] | 1.0 |
| Repetition rate, kHz | 0–40 |
| Beam diameter, mm | 0.7 |
| Beam profile | $TEM_{00}$ |
| $M^2$ | < 1.5 |
| Polarization | linear, horizontal > 100:1 |
| Optical jitter, ns [2] | < 0.5 |
| Beam divergence, mrad [3] | < 2.5 |
| **PHYSICAL CHARACTERISTICS** | |
| Laser head size (W×H×L), mm | 134×81×229 |
| Power supply/pump diode unit (W×H×L), mm | 365×289×365 |
| Umbilical length, m [4] | 1.5 |
| **OPERATING REQUIREMENTS** | |
| Ambient temperature, °C | 15–30 |
| Relative humidity (noncondensing), % | 10–80 |
| Voltage | 100–240 VAC, single phase 50/60 Hz |
| Power, W | < 200 |

[1] *FWHM.*
[2] *Std. dev. at 5 kHz.*
[3] *Full angle at $1/e^2$.*
[4] *Other lengths available.*

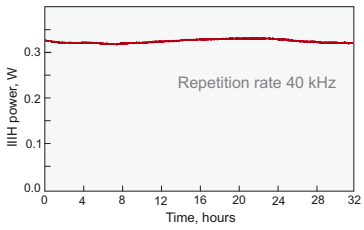
*Specifications are subject to changes without advance notice.*




Laser head outline drawing



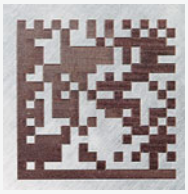

Typical pulse duration vs repetition rate performance data



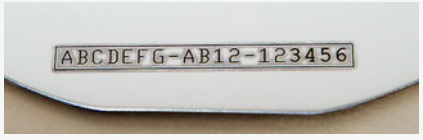

Typical long term energy stability at 355 nm performance data

## MICROMACHINING SAMPLES

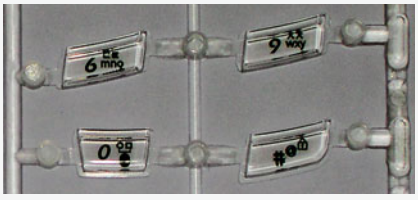
Copper foil cutting



Marking of stainless steel




Silicon wafer marking



Polycarbonate marking

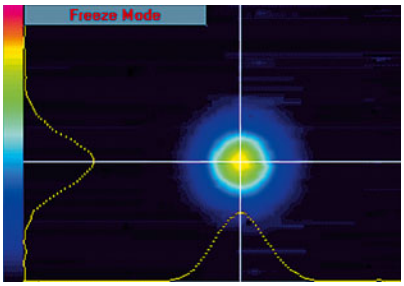

Marking of aluminium


Marking of cast acrylic glass (PMMA)


Marking of polyester


Marking of carbon fiber


Marking of fiber glass




Typical beam profile


**Requests for custom made products are welcome !**

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