NEXGEN LASER MARKER - MOPA

Redefine your laser marking capability with the **NEXGEN Laser Marker** — a compact, high-performance system that combines precision optics, intelligent auto-focus, and portability in one advanced unit.
NEXGEN integrates a powerful **25 W MOPA nanosecond pulse** fiber laser capable of pulse width as short as 2 nanoseconds, delivering exceptional marking quality and resolution for the most demanding applications.

With an impressive 150 mm x 150 mm marking area, the system supports a wide variety of tasks — from deep engraving and fine cutting to high-speed multi-target operations using built-in **AI object detection**. A sharply focused **25 µm** laser spot size (FWHM) enables exceptionally high-resolution marking, ideal for intricate designs and small components.

The integrated **autofocus**, paired with a calibrated onboard camera, ensures perfect alignment and consistent results every time. An intuitive touchscreen interface, combined with our user-friendly software that integrates directly with LightBurn (included), makes layout, editing, and execution remarkably simple — even for first-time users.

Designed for industrial environments, automated production lines, and small business operations, NEXGEN delivers robust performance and flexibility in a compact footprint. The system is password-protected for secure operation and features configurable interlocks to meet safety compliance standards in professional settings. With a pulse repetition rate up to 4,000 kHz, scan speeds up to 6,000 mm/s, and optional rotary marking for cylindrical components, NEXGEN is engineered for unmatched productivity.

To ensure long-term reliability, the NEXGEN Laser Marker is backed by a 2-year manufacturer's warranty. Whether you're scaling production, starting a new venture, or upgrading an existing system, NEXGEN offers the speed, precision, and industrial-grade power to meet your marking needs with confidence.

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MOPA (Master Oscillator Power Amplifier) fiber lasers offer advanced control over pulse parameters, making them ideal for high-precision and specialty applications. Unlike traditional lasers with fixed pulse widths, MOPA lasers allow for adjustable pulse durations and frequencies, providing users with exceptional flexibility in energy delivery.

This control enables color marking on stainless steel and titanium, as well as precise removal of engineered coatings—a key requirement for components like keyboards, switches, and electronic housings. MOPA lasers produce sharper, cleaner, and higher-contrast markings, making them suitable for intricate designs and delicate materials.

Their versatility extends across industries requiring fine detail and consistent results, such as medical devices, aerospace, jewelry, and electronics. While MOPA lasers typically come at a higher cost, their precision, adaptability, and superior marking quality make them the preferred choice for demanding applications.

SUMMARY:

- Ultra-compact, high-performance fiber laser marking system
- 25 W 1064 nm MOPA ytterbium fiber laser with 2–500 ns pulse width
- High-resolution marking with 25 µm focused spot size (FWHM)
- Fast marking with pulse repetition rate up to 4,000 kHz
- Maximum scan speed of 6,000 mm/s
- Marking area: 150 mm × 150 mm
- Built-in camera with precise calibration for perfect alignment
- Autofocus via integrated distance detection
- Intuitive 4.0" touchscreen interface
- User-friendly Windows software with full LightBurn integration (included)
- AI object detection for rapid multi-target identification
- Optional rotary accessory for marking cylindrical parts
- Password protection and interlock support for safety compliance
- Designed for industrial use, automation lines, and small business applications
- Operating voltage: 24 V DC, 6 A max
- 2-year manufacturer’s warranty

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MARKING LASER

Type:	1064 nm ytterbium fiber laser, MOPA
Mode of operation:	Pulsed / CW
Optical max average power:	25 W
Optical peak pulse power:	14 kW
Laser pulse width:	2-500 ns
Pulse repetition rate:	1–4000 kHz
Laser class:	Class 4 IEC 60825-1:2014

GUIDE RED LASER

Optical max average power:	5 mW, 635 nm laser
Laser class:	Class 3R IEC 60825-1:2014

MARKING PROPERTIES

Marking area:	150 mm x 150 mm (at 0 mm height)
Working distance:	208mm (window to base)
Focusing mechanism:	Internal, autofocus or manual
Focusing range:	0-51 mm (above base)
Focused beam spot:	25 µm (FWHM)
Positional resolution:	< 5 µm
Maximum scan speed:	6000 mm/s

ELECTRICAL PROPERTIES

Operating voltage:	24 V DC
Operating current:	6 A

SOFTWARE AND INTERFACE

PC communication:	USB type-C (USB 2.0, 480 Mbps)
Compatible CAD software:	LightBurn 2.0 (included)
Control panel advanced features:	AI multitarget detection
Display:	4.0” capacitive touchscreen
Camera:	Built-in, fully calibrated

SAFETY PROPERTIES

Emergency stop switch:	Top side, twist to reset
Interlock:	3.5mm jack, electrically isolated
Laser safety shield:	Protection wavelength: 800-1100nm OD>6 @800-900nm OD>7 @900-1100nm
Laser safety glasses:	Protection wavelength: 800-1100nm OD>6 @800-900nm OD>7 @900-1100nm
Password Protection:	Access restricted by user-set passwords

WORLD STAR TECH

NEXGEN LASER MARKER - MOPA

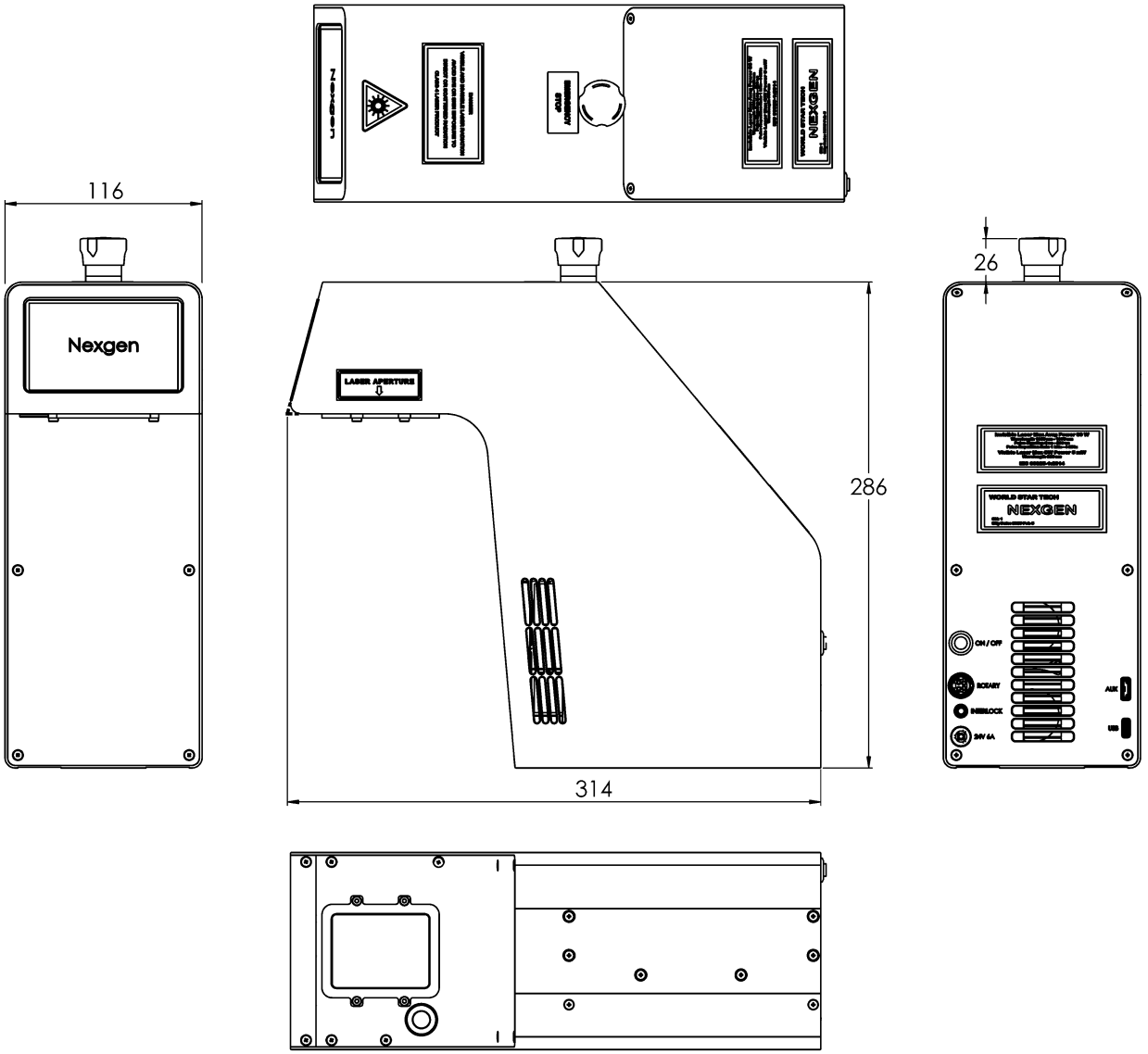
MECHANICAL PROPERTIES

Size (L x W x H):	314 mm x 312 mm x 116 mm
Weight:	4.5 kg

TEMPERATURE PROPERTIES

Operating temperature:	+10ºC to +40°C
Cooling:	Internal Fans
Humidity:	Non-condensing
Storage temperature:	-40ºC to +80°C

MECHANICAL DRAWING



Nexgen Laser Marker Mechanical Drawing. All units are in mm.

WORLD STAR TECH

NEXGEN LASER MARKER - MOPA

OPERATIONAL HAZARD

This laser module emits visible and invisible radiation that is hazardous to the human eye and skin. Never look directly into the laser beam or the emitting aperture, even when the laser appears to be off. Direct or reflected exposure to the laser output may cause serious eye injury or burns.

To ensure safe operation:

- Use appropriate laser safety eyewear rated for 1064 nm wavelength when operating or servicing the system.
- Do not operate the laser in the presence of flammable materials or explosive environments.
- Ensure the work area is clearly marked as a laser-controlled area, with access restricted to trained personnel.
- Always enable available safety interlocks and use protective enclosures or shields where applicable.
- Comply with local laser safety regulations and follow ANSI Z136.1 or IEC 60825-1 standards for laser use.

Failure to observe safety precautions may result in permanent injury or equipment damage.

WARRANTY

NEXGEN is backed by a two-year limited warranty.
Warranty does not cover disassembly, unauthorized modifications, or damage resulting from misuse, abuse, or improper application.

CERTIFICATIONS

Manufactured in accordance with ISO quality standards and fully RoHS compliant, ensuring product reliability, environmental responsibility, and adherence to international safety regulations.

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