

Applications

Material
microprocessing

Ophthalmology

Cold marking

Dicing and scribing
of semiconductors,
glasses, ceramics

Display
manufacturing

Scientific research

lilit

INDYLIT 10

Industrial femtosecond laser for microprocessing
1030nm, 450fs, 10W, 80kHz-1MHz



Features

Extremely robust
and stable

High pulse energy
and clean pulse
shape

Maintenance-free &
turn-key

Adjustable
repetition rate,
pulse duration,
power

Passively air cooled

**Built
like a tank firing
femtosecond shells**

Indylit 10 is high energy air-cooled laser suitable for a variety of ultrafast applications.

The laser head features an entirely passively-cooled design (patent pending), ensuring high stability of the optical parameters such as pulse duration, beam pointing and power.

Its mechanical construction can withstand almost everything you can throw at it, making Indylit a new kind of industrial femtosecond technology.



Distributor

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Specifications

	Indylit 10
Central wavelength	1030 ± 2 nm
Average power ¹⁾	>10 W @ 300-1000 kHz
Max. pulse energy ¹⁾	>100 µJ @ 80 kHz, >10 µJ @1 MHz
Pulse duration	<450 fs
Pulse duration tunability	450 fs - 2 ps
Internal Pulse repetition rate (RR)	80 kHz – 1 MHz
Pulse repetition rate after pulse picker	RR/N, N = 1, 2,...
Triggering mode	Pulse picker control via TTL
Power attenuation ²⁾	100-0.1%
Beam quality	M ² <1.2
Beam circularity ³⁾	>0.87
Beam diameter (at 1/e ² level)	1.5 ± 0.5 mm
Beam divergence (full angle)	< 1.5 mrad
Beam pointing (pk-to-pk)	<30 µrad @ 80-500 kHz. <50 µrad @ 0.5-1 MHz
Beam pointing vs temp. (pk-to-pk)	< 20 µrad/°C
Pulse Energy Stability (RMS)	<1.0 %
Power Stability (RMS)	<1.0 %
Warm-up time (cold start)	<15 min
Warm-up time (warm start)	<10 s
Laser control interface	CAN, USB
Operating voltage	100...240 V AC, 47...63 Hz
Average power consumption (after warm-up)	<300 W
Operating temperature	15 – 35 °C
Humidity	non condensing
Transportation/storage temperature	-20 – +70 °C
Dimensions:	
Laser head (LxWxH)	483 x 204 x 186 mm
Control unit (WxDxH)	449 x 368 x 140 mm
Umbilical length	3 ± 0.3 m
Colling:	
Laser head	air (passive)
Control unit	forced air (fans)

¹⁾ Please refer to the power and energy vs. pulse repetition rate curves for typical values

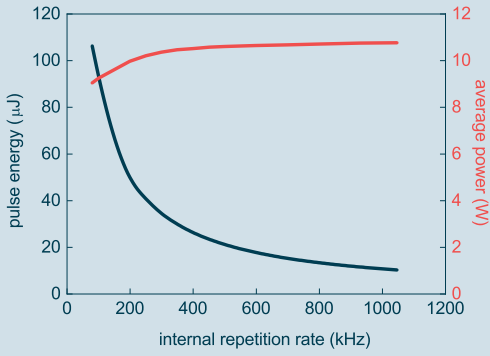
²⁾ Attenuation can be control in a few different regimes: a) via PC user interface, b) by CAN register, c) by analog input (0-1V)

³⁾ Defined as the worst case ellipticity along the z-scan ($\pm 5 \times L_{\text{Rayleigh}}$) of the beam

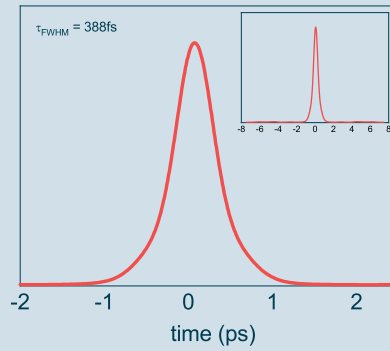
⁴⁾ Indylit lasers are class 4 laser products. Avoid eye or skin exposure to direct or scattered laser light

⁵⁾ World patented technology: US10038297, JP6276471, EP3178137, CN106575849

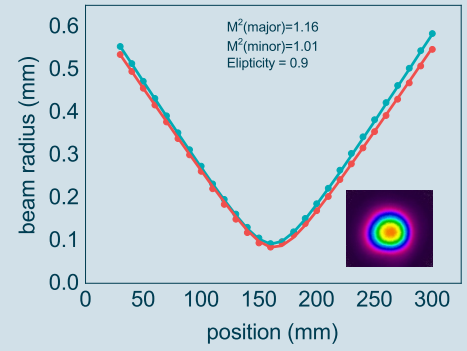
Performance



Energy and power dependence on internal repetition rate of the Indylit 10 laser

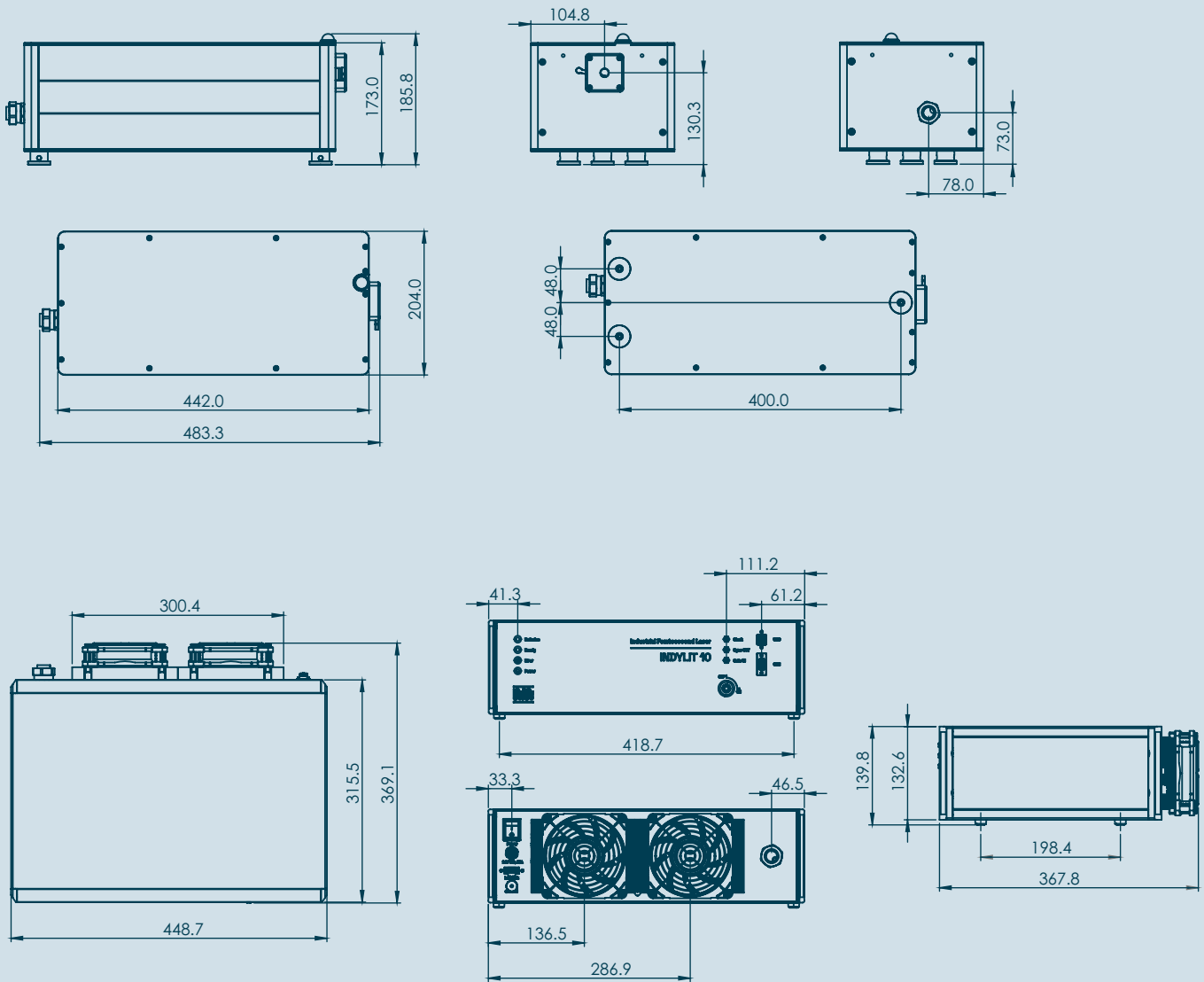


Pulse autocorrelation trace of Indylit 10 laser at 100uJ output energy

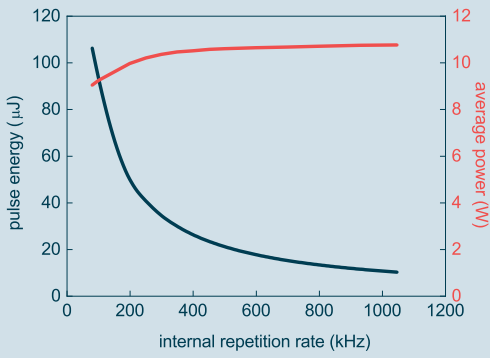


Beam diameter dependence on propagation distance (z-scan) of Indylit 10 laser and M^2 fit

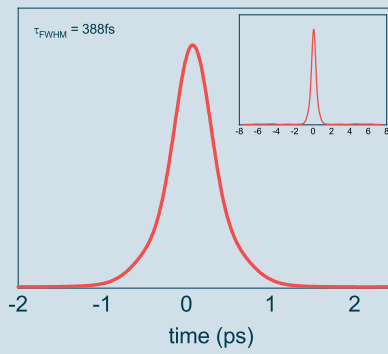
Drawings



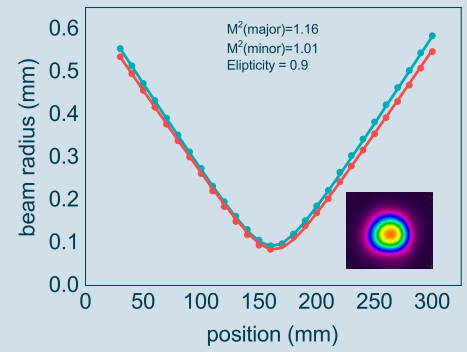
Performance



Energy and power dependence on internal repetition rate of the Indylit 10 laser

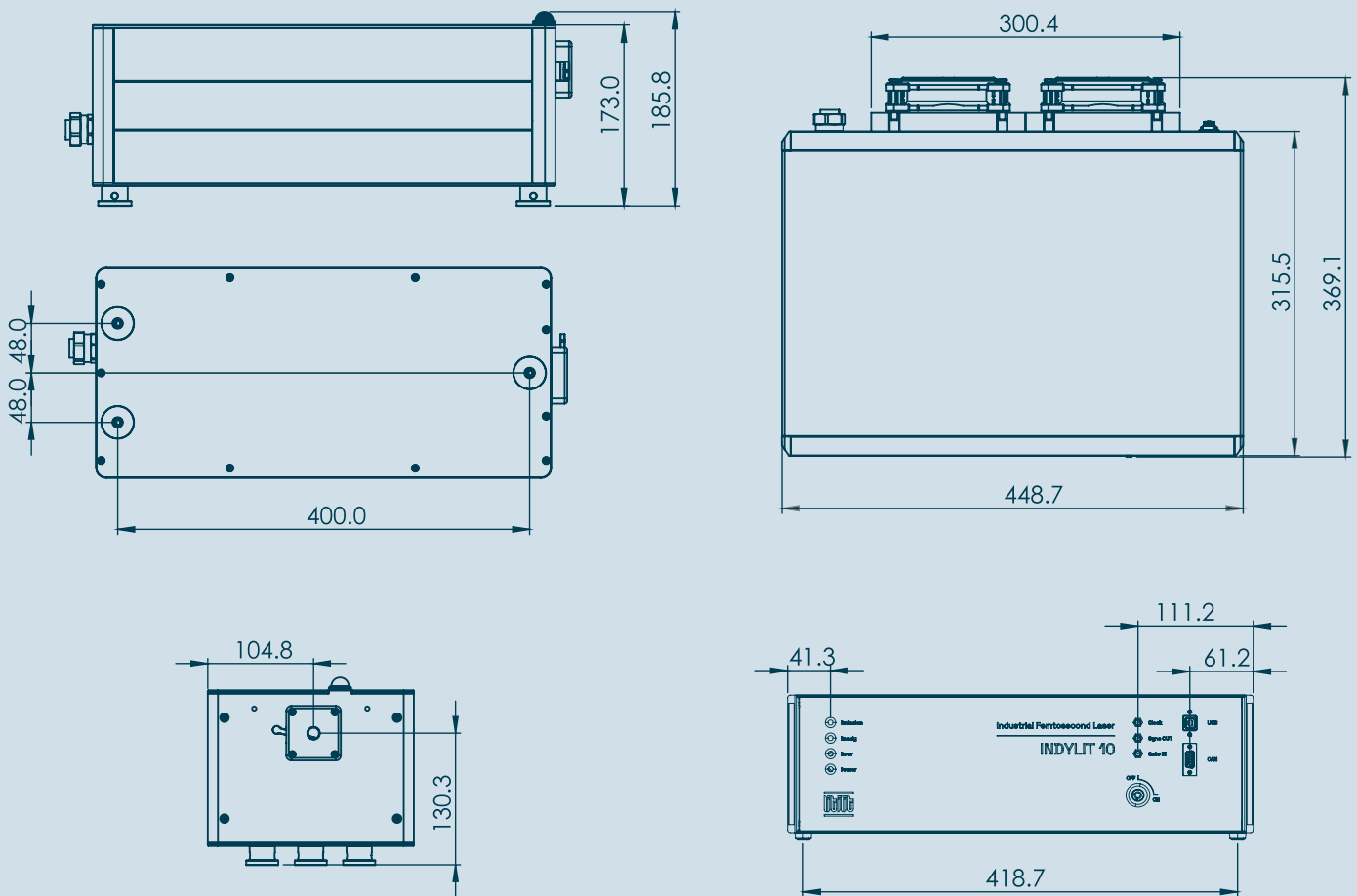


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Drawings



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