



IMPACT®-2000 SERIES

Short-Pulse Industrial CO₂ lasers

A versatile range of short-pulse CO₂ lasers for machining, patterning and drilling of plastic, polymer and other non-metallic materials

- Megawatt peak powers give excellent edge-definition in non-metallic materials
- Greatly reduced heat-affected-zone (HAZ) compared to conventional CO₂ lasers
- A cost-effective alternative to excimer lasers for many processes

Typical Applications

- Drilling, patterning and ablation of non-metallic materials
- Selective removal of polymer materials from a metal substrate with no damage to the metallic backing
- Wire stripping
- Medical device components
- Drilling of controlled-release and rapid-release pharmaceutical tablets and capsules
- Microvia-hole drilling in printed circuits
- Flex-circuit processing
- Laser ultrasound non-destructive testing

IMPACT-2000 Series short-pulse (TEA) CO₂ lasers (originally developed by Lumonics Inc. and now offered by LightMachinery Inc.) are primarily designed for fine processing of non-metallic materials. The IMPACT-2000 Series lasers are ideally suited for the selective removal or machining of non-metallic layers deposited on a metallic under-layer. Unlike conventional CO₂ lasers, the short pulses and high peak powers of TEA CO₂ lasers enable the surface layer to be removed (“ablated”) with little or no

effect on the underlying metal substrate, and with minimal thermal damage (“heat-affected zone” or “HAZ”) to the surrounding polymer material.

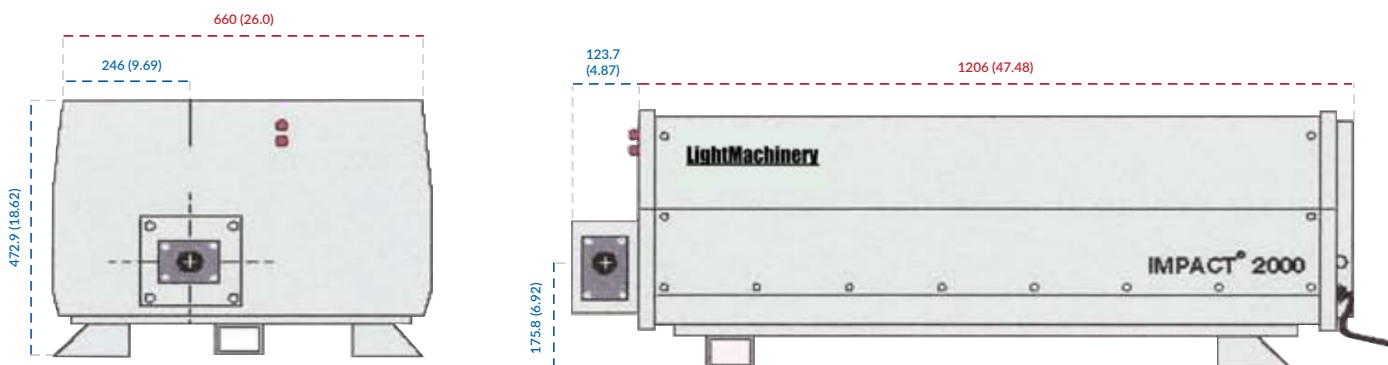
Typical applications include processing of medical device components (insulation stripping of fine electrical wires, leads and coils for implantable devices, drilling and coating removal of catheters and leadwires); microvia-drilling and insulation patterning / removal in printed and flexible circuits; “on-the-fly” drilling or patterning of controlled and rapid release pharmaceutical capsules and tablets; marking of security and anti-counterfeiting codes; laser ultrasound non-destructive testing. Feature sizes as low as ~50 µm can be achieved.

In these and other applications, IMPACT-2000 Series lasers can offer an extremely cost-effective alternative to excimer lasers, with faster throughput, simpler operation and lower cost-of-ownership. Industrial CO₂ lasers normally operate at an infrared wavelength of 10.6 µm. However, for most applications involving the processing of non-metallic / polymer materials, a wavelength in the 9 µm region usually provides superior processing quality. The IMPACT-2000 Series lasers can be set to operate at either wavelength, depending on the specific application. Various models of the IMPACT-2000 Series lasers are available, offering a choice of pulse energy and repetition rates. LightMachinery will be happy to process your samples in our Applications Laboratory and to recommend the particular model and configuration of IMPACT-2000 Series laser best suited for your application.

Specifications

Model Number:	2012	2015	2030	2150	2500
Pulse Energy (J)	5	4	2	0.4	0.15
Max. Average Power (W)	60	60	60	60	75
Max. Repetition Rate (pps)	12	15	30	150	500
Beam Size (H x V, mm) at laser	25 x 25	25 x 25	12 x 16	11 x 14	8 x 9

Note: Specifications apply to operation in both the 10 µm and 9 µm wavelength ranges



Dimensions in mm (inches)

For further technical and sales information, please visit our website or contact:

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