OPTON LASER INTERNATIONAL

IRADION
CORE LASER TECHNOLOGY

ENDURING EXCELLENCE, PULSE BY PULSE.

CO2 LASERS

CERAMICORE®

The World's Leading CERAMICORE® Laser Source

Precision Industrial Tool
A powerful CERAMICORE® laser for industrial applications.

Consistent Laser Processing
Proven high quality performance track record.

Production Reliability
Maximize productivity and minimize downtime.

Outperforming Conventional Sealed CO_2 Laser Technology

Iradion's Patented CERAMICORE® Laser Technology

Iradion's laser technology with a ceramic core represents the next generation of CO_2 laser sources. Compared to conventional designs built with glass or metal tubes, our patented CERAMICORE® laser technology offers greater reliability, superior laser performance, and durability.

CERAMICORE® versus Conventional CO_2 Lasers

Long-Lasting Stability with CERAMICORE® Lasers

Conventional CO_2 lasers use glass or metal tube designs with internal metal electrodes. All these designs enclose the laser gas mixture of carbon dioxide, helium and nitrogen with the metal electrodes and other components. The laser gas is energized through the electrodes inside the tube. Over time, the internal metal electrodes shed atoms that degrade the laser gas as well as contaminate the internal optics, thus reducing power.

The CERAMICORE® Innovation - Superior Performance

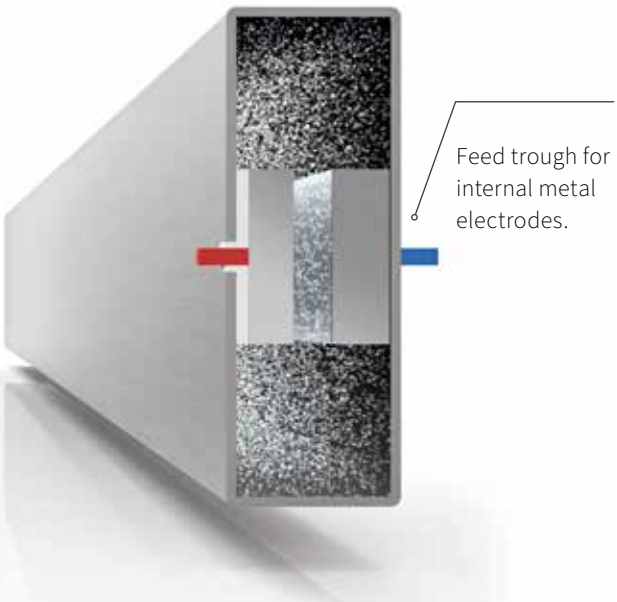
CERAMICORE® technology provides a non-reactive container for the laser gas mixture. No contamination can occur because the externally mounted metal electrodes excite the laser gas. As a result, CERAMICORE® lasers provide a powerful and stable laser beam for many years. **In the event of laser gas degradation, Iradion will provide free refills for a 7-year period from the date of shipment.**

The CERAMICORE® Difference

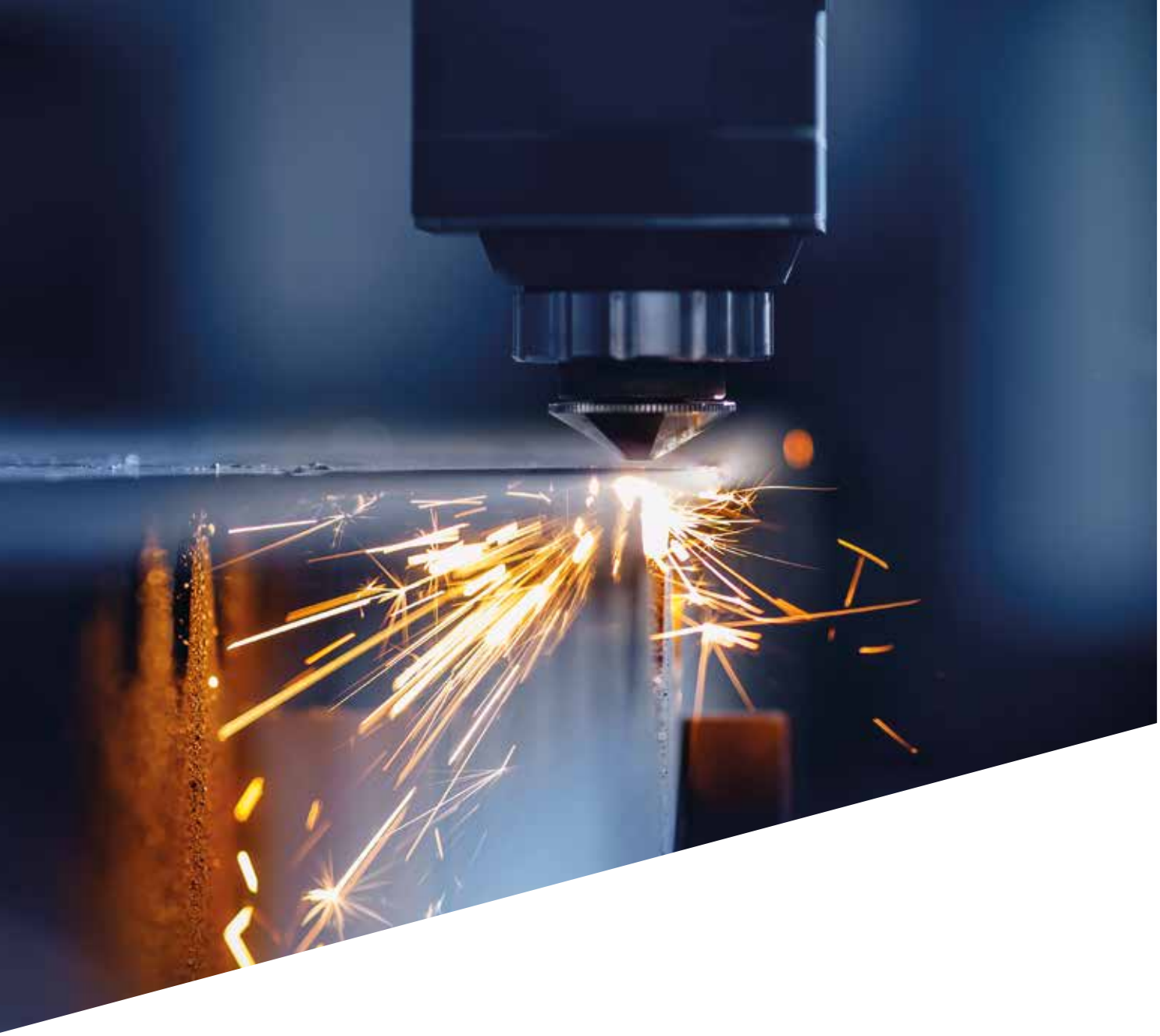
Patented CERAMICORE® CO_2 Tube

CERAMICORE® CO_2 eliminate laser gas contamination ensuring stable power, beam quality and longevity.

Typical Metal CO_2 Tube



Conventional Metal CO_2 tubes shed atoms over time, contaminate laser gas causing power loss.



Benefits

CERAMICORE® Lasers: A New Standard of Excellence

- **Superior Part Quality:** All Iradion CERAMICORE® lasers offer power and stability with the widest power range: 2% to maximum power. Jobs that require limited energy input or those that require maximum power can be easily set up with precision.
- **Reliable Long-Term Part Production:** All lasers can perform when new, but can they guarantee consistent and reliable results over time? CERAMICORE® eliminates the problems of laser gas degradation and power loss associated with conventional CO_2 lasers.
- **Maximum Productivity and Uptime:** Certain Iradion lasers offer the fastest pulse rise/fall times in the industry, which translates into 4 times the productivity and maximum uptime.

Advantages

Industry-Leading CERAMICORE® Lasers

Iradion's CERAMICORE® CO_2 lasers maintain consistent optical alignments, power, pointing stability and beam quality. Higher laser gas chamber pressures enable extended power stability from 2% through maximum power.

Some CERAMICORE® laser models feature a propreitary chamber configuration in the resonator. The innovation produces some of the industry's fastest pulse rise and fall times of less than 40 milliseconds as well as superior power stability.

CERAMICORE® Technology simplifies laser construction using 30% fewer components. This ensures greater durability and reliability compared to other CO_2 lasers.

Applications

Process a Wide Range of Materials

CERAMICORE® lasers are successfully utilized in an extensive range of applications:

- Cutting, perforating, and drilling
- Marking and Coding
- Engraving and etching
- Heat treating and surface modifications
- Surface ablation
- Textile cutting and stressing
- Wire or busbar stripping
- 3D Plastic / polymer sintering and additive mfg
- Medical or dental procedures and surgery
- Glass processing

Customization & Options

CERAMICORE® Lasers Fitted to Your Application

Customize your CERAMICORE® laser for your individual application with power, wavelength, pulsing and cooling options:

- Power: 25, 30, 40, 50, 60, 80, 100, 120, 150, 200 and 250-watt models
- Wavelengths: 9.3 µm, 10.2 µm, 10.6 µm, 11.2 µm
- Pulsing: Standard and fast pulse
- Cooling: Air-cooled, fan-cooled, or water-cooled
- Mounting adaptor plates for retrofit replacement of old lasers
- Power supply models and sources
- Beam expansion/collimation: 2.5x, 3x, 4x, 5x, 6x
- Laser controls
- Customized final testing
- Operation and training programs
- Rapid response service program
- Laser gas degradation insurance for all models

Unmatched Performance and Longevity

Iradion CO_2 Laser Solutions for Your Applications

Eternity Series
Space-saving footprint that offers 25, 30 and 40-Watt models with a choice of wavelengths.

Infinity Series
Largest selection of power levels from 50 to 150 Watt and wavelengths in the same compact design.

Infinity PLUS Series
Identical operation and footprint as the standard version, but high stability and faster rise and fall times. 50 to 100 watt and choice of 10.6, 10.2 and 9.3 wavelengths.

Destiny Series
Most compact and high-powered 200 and 250-Watt lasers in the industry.

Unique Wavelengths

Our patented laser models are engineered and manufactured in a variety of CO_2 wavelengths. Select the optimum wavelength for your application.

ETERNITY | CO_2 LASERS

Compact and High Performance

Compact Footprint
Easy integration and best application results

Unmatched Longevity
No laser gas degradation for exceptional power stability.

Superior Beam Quality
Consistent power stability for precise processing.

Exceptional CeramiCore® Performance

Powerful with a Small Footprint

The Eternity series represents our smallest laser tubes. Built with our **patented CERAMICORE® technology,** these CO_2 lasers are available as 25, 30, and 40-Watt models.

They provide **superior performance,** particularly for compact platforms. Enhance your automated web systems, laser scanner modules, and small workstations with **excellent process repeatability.**

Applications

CO_2 Laser Tubes for Your Application Needs

- Cutting / perforating
- Marking / coding
- Engraving / etching
- Wire Stripping
- Fiber optic splicing
- Medical surgery

Benefits

Superior Stability and Precision

Iradion CERAMICORE® Laser tubes produce reliable and stable maximum rated power levels as well as minimum power levels for heat sensitive applications. Unlike conventional CO_2 lasers that lose stability under 10 % power settings, the Eternity series operates down to 2 % **without any loss of power stability.**

The Eternity series exhibits exceptional beam quality and **pointing stability** ensuring precise procession of materials. Compared to conventional glass or metal laser tubes, our patented CERAMICORE® technology provides exclusive processing benefits.

Advantages

Excellent Beam Stability

Get better process results with the Eternity series and enjoy the following advantages:

- Compact footprint, easy to integrate
- Patented CERAMICORE® design ensures longevity
- Inert CERAMICORE® prevents laser gas contamination, power loss
- Low thermal expansion CERAMICORE® for high stability
- Extended power stability from 2 % to maximum power
- Short rise and fall times; good pulsing characteristics
- Advanced RF driver electronics: reliable, efficient and state-of-the-art
- 30 % fewer laser components; highest reliability

Specifications

Eternity			
Model	E25	E30	E40
Nominal Power	25 W	30 W	40 W
Beam Quality	$M^2 \leq 1.2$	$M^2 \leq 1.2$	$M^2 \leq 1.2$
Beam Ellipticity	< 1.2:1	< 1.2:1	< 1.2:1
Beam Diameter (mm), 1/e2 @ 0m	2.5 ±0.5	2.5 ±0.5	2.5 ±0.5
Beam Divergence (full angle)	8 ± 1 mrad	8 ± 1 mrad	8 ± 1 mrad
Wavelength	9.3 µm	10.2 µm, 10.6 µm	10.2 µm, 10.6 µm
Rise Time	<75 µs	<75 µs	<75 µs
Power Stability, Fan	<± 5 %	<± 5 %	<± 5 %
Polarization	Random	Random	Random
Cooling	Fan	Fan	Fan
Input power / Heat Load	580 W	580 W	720 W
Input Voltage, Current	48 V / 12 A	48 V / 12 A	48 V / 15 A
Frequency Range	0.1 -140 kHz	0.1 -140 kHz	0.1 -140 kHz
Operating Temperature	5 °C - 40 °C / 40 °F - 104 °F	5 °C - 40 °C / 40 °F - 104 °F	5 °C - 40 °C / 40 °F - 104 °F
Operating Humidity	Non-Condensing	Non-Condensing	Non-Condensing
Shipping Temperature	-10 °C - 60 °C / 14 °F - 140 °F	-10 °C - 60 °C / 14 °F - 140 °F	-10 °C - 60 °C / 14 °F - 140 °F
Weight	9 kg / 20 lbs.	9 kg / 20 lbs.	9 kg / 20 lbs.
Dimensions (L x W x H)	324.8 mm x 199.2 mm x 138.4 mm	324.8 mm x 199.2 mm x 138.4 mm	324.8 mm x 199.2 mm x 138.4 mm

*Power Stability is measured after 5 minutes warmup.
Iradion follows a policy of continuous product improvement. All specifications are subject to change without notice. Rev. 1.0, 06/2023.

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ENDURING EXCELLENCE, PULSE BY PULSE.

INFINITY | CO_2 LASERS

Achieve High Performance

Unmatched Performance
Achieve better application results with our patented CERAMICORE® technology.

Unmatched Longevity
No laser gas degradation for exceptional beam stability.

Fast Part Production
High-speed pulsing option for most power levels and wavelengths.

Versatility to Process Wide Range of Applications

Widest Selection of Lasers with Same Footprint

The Infinity CERAMICORE® CO_2 laser tubes represent the most **universal laser package** in the industry. Infinity CO_2 laser tubes are available as 50, 60, 80, 120 and 150-Watt models with a choice of wavelengths and pulse specifications, **all with same footprint.**

Fan-cooling or water-cooling is available on all power levels except for the 150-Watt laser. All models can **easily be integrated** and are **interchangeable** to fit your product lines.

Applications

Faster Laser Processing

A wide range of industries including Automotive, Electronics, Identification marking or coding, Retail packaging, Food packaging, Job shop production and Industrial manufacturing have employed Infinity lasers for:

- Cutting/perforating
- Marking/coding
- Engraving/etching
- Ablation
- 3D polymer sintering
- Textile processing

Benefits

Easy to Integrate

The Infinity series is truly a universal laser source for all applications and platforms. Choose the power levels, wavelengths, and pulsing specifications to maximize your ability to handle all your applications.

The rise and fall time specifications of the Infinity Plus CO_2 laser tube are among the fastest in the industry. Experience **faster processing speeds** with a **higher resolution.** Increase your part production by up to 4 times compared to conventional CO_2 laser tubes.

All Infinity models are scalable and modular for easy integration into new or existing systems. The footprint, beam specification and laser operation are nearly identical, giving integrators, OEM equipment builders and users maximum versatility and flexibility for their product lines and systems. **CERAMICORE's superior performance, reliability and longevity outperform conventional CO_2 lasers, enabling the lowest total cost of ownership.**

Specifications

Infinity

Model	i50	i60	i80	i100	i120	i150
Nominal Power	50 W	60 W	80 W	100 W	120 W	150 W
Beam Quality	$M^2 \leq 1.2$	$M^2 \leq 1.2$	$M^2 \leq 1.2$	$M^2 \leq 1.2$	$M^2 \leq 1.2$	$M^2 \leq 1.2$
Beam Ellipticity	< 1.2:1	< 1.2:1	< 1.2:1	< 1.2:1	< 1.2:1	< 1.2:1
Beam Diameter (mm), $1/e^2$ @ 0m	2.5 ±0.5	2.5 ±0.5	2.5 ±0.5	2.5 ±0.5	2.5 ±0.5	2.5 ±0.5
Beam Divergence (full angle)	6 ± 1 mrad	6 ± 1 mrad	6 ± 1 mrad	6 ± 1 mrad	6 ± 1 mrad	6 ± 1 mrad
Wavelength	10.2 µm, 10.6 µm	10.2 µm, 10.6 µm	10.2 µm, 10.6 µm	10.2 µm, 10.6 µm	10.2 µm, 10.6 µm	10.2 µm, 10.6 µm
Rise Time	<75 µs	<75 µs	<75 µs	<75 µs	<75 µs	<75 µs
Power Stability. Fan (Water)	< ±5% (< ±3%)	< ±5% (< ±3%)	< ±5% (< ±3%)	< ±5% (< ±3%)	< ±5% (< ±3%)	(< ±3%)
Polarization	Random	Random	Random	Random	Random	Random
Cooling	Fan / Water	Fan / Water	Fan / Water	Fan / Water	Fan / Water	Water
Input power / Heat Load	900 W	1000 W	1125 W	1440 W	1500 W	1800 W
Input Voltage, Current	36 V / 25 A	40 V / 25 A	45 V / 25 A	48 V / 30 A	50 V / 30 A	60 V / 30 A
Frequency Range	0.1 kHz - 140 kHz	0.1 kHz - 140 kHz	0.1 kHz - 140 kHz	0.1 kHz - 140 kHz	0.1 kHz - 140 kHz	0.1 kHz - 140 kHz
Operating Temperature	5˚C - 40˚C (40˚F - 104˚F)	5˚C - 40˚C (40˚F - 104˚F)	5˚C - 40˚C (40˚F - 104˚F)	5˚C - 40˚C (40˚F - 104˚F)	5˚C - 40˚C (40˚F - 104˚F)	5˚C - 40˚C (40˚F - 104˚F)
Operating Humidity	Non-Condensing	Non-Condensing	Non-Condensing	Non-Condensing	Non-Condensing	Non-Condensing
Shipping Temperature	-10˚- 60˚ (14˚F- 140˚F)	-10˚- 60˚ (14˚F- 140˚F)	-10˚- 60˚ (14˚F- 140˚F)	-10˚- 60˚ (14˚F- 140˚F)	-10˚- 60˚ (14˚F- 140˚F)	-10˚- 60˚ (14˚F- 140˚F)
Weight	14.7 kg / 32.4 lbs.	14.7 kg / 32.4 lbs.	14.7 kg / 32.4 lbs.	14.7 kg / 32.4 lbs.	14.7 kg / 32.4 lbs.	14.7 kg / 32.4 lbs.
Dimensions (for i150) (L x W x H)	534.4 mm x 200.0 mm x 157.7 mm (water-cooled width: 176.0 mm)	534.4 mm x 200.0 mm x 157.7 mm (water-cooled width: 176.0 mm)	534.4 mm x 200.0 mm x 157.7 mm (water-cooled width: 176.0 mm)	534.4 mm x 200.0 mm x 157.7 mm (water-cooled width: 176.0 mm)	534.4 mm x 200.0 mm x 157.7 mm (water-cooled width: 176.0 mm)	643.2 mm x 176.0 mm x 157.7 mm

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ENDURING EXCELLENCE, PULSE BY PULSE.

DESTINY | CO_2 LASERS

Most Compact High Power Design

Easy to Integrate
Powerful and compact for easy integration: robot arm-mount cell, gantry-mount tables, automated web systems and more.

Unmatched Longevity
No laser gas degradation for exceptional power stability.

The CeramiCore® Edge
Realize the benefits of Improved CO_2 Laser Performance and Reliability.

Optimized CERAMICORE® Performance

Unparalleled Efficiency

The Destiny Series' unique CERAMICORE® technology can process most applications with **greater efficiency and performance** than conventional glass and metal laser tubes. How we do it: The electrodes are mounted externally to the inert ceramic chamber that hermetically seals the laser gas. This eliminates potential metal contamination and power loss associated with conventional sealed CO_2 lasers.

You achieve **maximum performance and uptime.** The low thermal expansion coefficient of the ceramic material is a major advantage.It promotes consistent optical alignment, long-term power stability, and superior beam characteristics that results in **higher productivity and profitability!**

Applications

High Performance Destiny Sealed CO_2 Laser

The Destiny Series provides more efficient production for the following applications:

- Cutting/perforating
- Engraving/etching
- Ablation
- Glass processing
- Textile processing
- Acrylic processing

Benefits

Unlock More Efficient Solutions for Your Applications

The Destiny Series is widely known for its outstanding performance in the 200 to 300 W sealed CO_2 laser market. It is the **most compact laser in its class!** You benefit from:

- Space-saving CERAMICORE® design and construction.
- Simple and concise optics for superior laser beam quality.
- Efficient RF power supply electronics to generate maximum laser power.
- The most compact dimensions, lowest weight, and highest operating efficiency.
- Superior performance in power, stability, pulsing, beam quality, and lifetime.

Specifications

Destiny

Model	D200	D250
Nominal Power	200 W	250 W
Beam Quality	$M^2 \leq 1.2$	$M^2 \leq 1.2$
Beam Ellipticity	< 1.2:1	< 1.2:1
Beam Diameter, $1/e^2$ @ 0 m	2.5 ±0.5 mm	2.5 ± 0.5 mm
Beam Divergence (full angle)	6 ± 1 mrad	6 ± 1 mrad
Wavelength	10.6 µm, 10.2 µm	10.6 µm, 10.2 µm
Rise Time	<75 µs	<75 µs
Power Stability*, Water	< ± 4 %	< ± 4 %
Polarization	Vertical to mounting plate	Vertical to mounting plate
Cooling	Water	Water
Input power / Heat Load	2340 W	2640 W
Input Voltage, Current	45 V / 52 A	48 V / 55 A
Frequency Range	0.1 - 140 kHz	0.1 -140 kHz
Operating Temperature	5 °C - 40 °C / 40 °F - 104 °F	5 °C - 40 °C / 40 °F - 104 °F
Operating Humidity	Non-Condensing	Non-Condensing
Shipping Temperature	-10 °C - 60 °C / 14 °F - 140 °F	-10 °C - 60 °C / 14 °F - 140 °F
Weight	24.6 kg / 52 lbs.	24.6 kg / 52 lbs.
Dimensions L x W x H	684 x 196 mm x 99 mm	684 x 196 mm x 99 mm

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IRADION
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White Glove Service
We offer exceptional global service, fast response times and keep your laser processes running 24/7.

Short Distances to your partner
With our subsidiaries and global network of partners, we provide fast support all over the world.

Experienced Laser Experts
Talk to our well-trained laser specialists about your specific needs and requirements.

Votre partenaire

OPTON LASER INTERNATIONAL

Une équipe commerciale et un département Service & Applications à votre disposition en France.

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VISIBLE AND INVISIBLE LASER RADIATION
AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION
CLASS 4 LASER PRODUCT
DIN EN 60825-1: 2015-7

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