

ENDURING EXCELLENCE, PULSE BY PULSE.





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## World Leader in **Core** Laser Technology



### **Reliable Laser Processes**

Improve the quality of your production with repeatable and precise laser processes.



### **Reduced Production Costs**

Get a long laser lifetime with our patented CERAMICORE® technology and durable laser design.



### **Easy Integration**

Keep downtime to a minimum with our customized solutions.

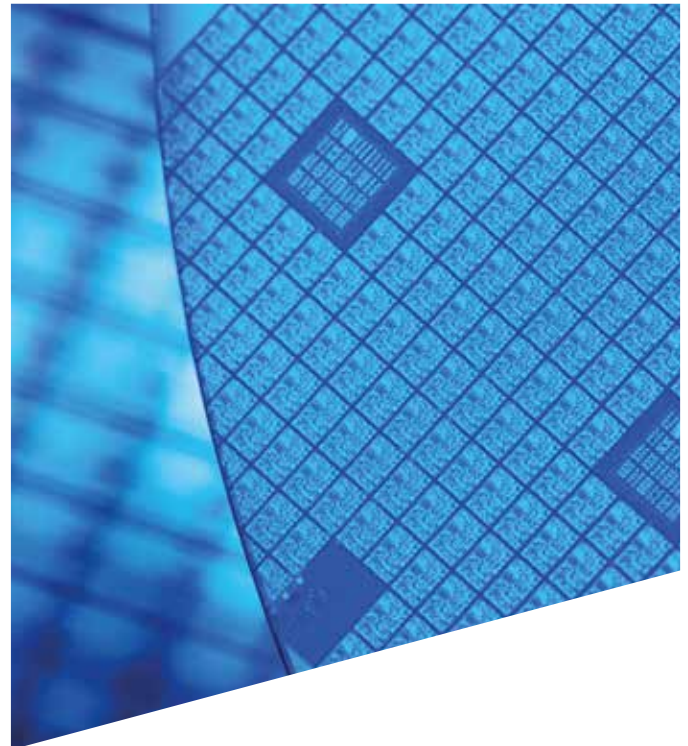
### Solutions for a Variety of Industrial Applications

#### Iradion Laser Innovations for Your Individual Processes

Iradion is a manufacturer of laser sources based on differentiated and cutting edge laser technologies. With our **core laser technology**, we are dedicated to carefully designing and modifying our laser sources for our customer's exact processes. Our core laser technology is fundamental to our mission to help our customers achieve optimal performance and deliver best-in-class laser sources that enable them to compete and win in today's fast-paced markets.

#### Our product portfolio includes:

- CO<sub>2</sub> CERAMICORE® RF-excited lasers in different wavelengths – Patented Technology
- Nanosecond Q-switched lasers from UV to IR
- Ultrashort pulse Femtosecond lasers in different wavelengths
- Customized and modified laser sources



### Advantages

#### Systems Tailored to Your Needs

Laser technology comes in a wide variety of wavelengths, beam characteristics, and pulse shapes. Iradion utilizes specialized technologies to produce high performance Core Laser models to achieve maximum productivity while producing superior part quality. Our specialists will help you select the best solution for your applications.

Iradion's leading core laser technology

- Provides you the best total cost of ownership
- Gives you superior consistent production quality
- Can easily be integrated into your systems longevity



# Iradion **Core** Laser - Excellence redefined

Quality, Longevity, Affordability



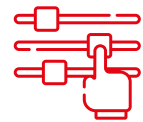
### **Optimize Production Processes**

Precise and fast processing of a variety of materials.



### **Long Laser Lifetime**

Durable design to increase return on investment.



### **Adjusted to Your Needs**

Explore customized laser sources modified for your individual application.

Experience superior power stability with our innovative core laser technology and get precise results. Increase uptime and profits with reliable components for your production

## Select the Best Laser Solution for Your Application

Iradion provides solutions in all major industrial markets. The Core laser technology helps companies to develop their business and to reach challenging manufacturing goals in a mass production environment. We offer decades of experience in laser technology to help you **achieve the best process results** possible.



### CERAMICORE® Lasers

Iradion's CERAMICORE® tubes use inert ceramics for the core instead of the reactive components found in metal-based CO<sub>2</sub> lasers. This prevents gas degradation and power loss over time for exceptional performance. This patented technology outperforms conventional CO<sub>2</sub> lasers, ensuring consistency and longevity.

### NANOCORE® Lasers

NANOCORE® nanosecond lasers provide superior constant quality of applied laser beam. Our experts fine-tune your laser source to the exact process reducing your total cost of ownership. Precision control of pulsing modes facilitates more accurate laser processing of your materials resulting in excellent part quality and tolerances.

### FEMTOCORE® Lasers

FEMTOCORE® femtosecond lasers, all in fiber core design, can be used for a wider range of applications. They are easy to adjust with integrated pulse pickers, pulse-on-demand functionality, and a variety of burst mode options.

### Customized Lasers

Laser sources, customized and modified to perfectly match the demanding requirements of your laser processing equipment. We help you optimize your application results for quality and long-term consistency.

## Design Your Reliable Production Process with Iradion Laser Sources

We customize and modify our laser sources to your needs, helping you increase uptime and profits. Explore our modular designs with our team of experts to find the best laser and process design for your production. We support you in the following topics:



#### Step 1 – Feasibility Studies

We want to make your applications work. Benefit from our experience and test our lasers on your material.



#### Step 2 – Product Selection

We support you to select the best laser for your application. Choose from a variety of wavelengths, pulse durations and power levels.



#### Step 3 – Process Design

Use our laser sources in the best way. Let us help you to find the appropriate process design to be precise and fast.



#### Step 4 – Integration

Our modular design and small footprint of the lasers as well as the flexible interfacing makes integration as easy as possible.



# CERAMICORE®

The World's Leading CERAMICORE®  
Laser Source



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



**Consistent Laser Processing**  
Proven high quality perfor-  
mance track record.



**Production Reliability**  
Maximize productivity and  
minimize downtime.



**Outperforming Conventional Sealed CO<sub>2</sub> Laser Technology**

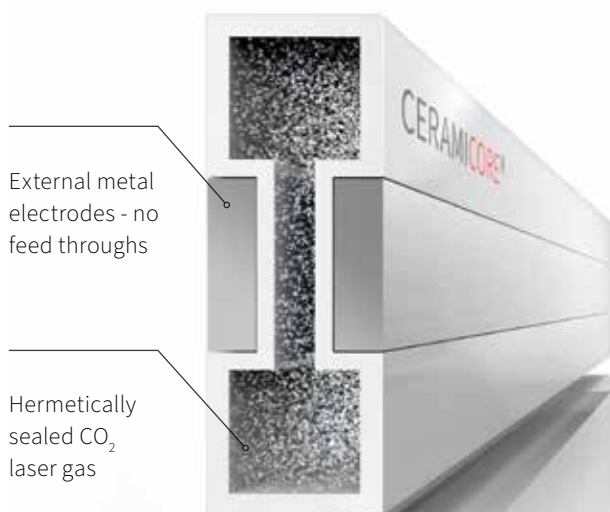
Iradion's Patented CERAMICORE® Laser Technology

Iradion's laser technology with a ceramic core represents the next generation of CO<sub>2</sub> 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.



The CERAMICORE® Difference

**Patented CERAMICORE® CO<sub>2</sub> Tube**



CERAMICORE® CO<sub>2</sub> eliminate laser gas contamination ensuring stable power, beam quality and longevity.

**CERAMICORE® versus Conventional CO<sub>2</sub> Lasers**

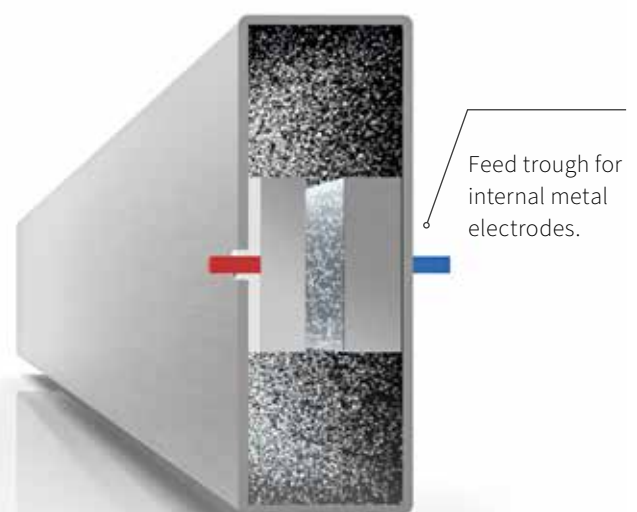
Long-Lasting Stability with CERAMICORE® Lasers

Conventional CO<sub>2</sub> 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.

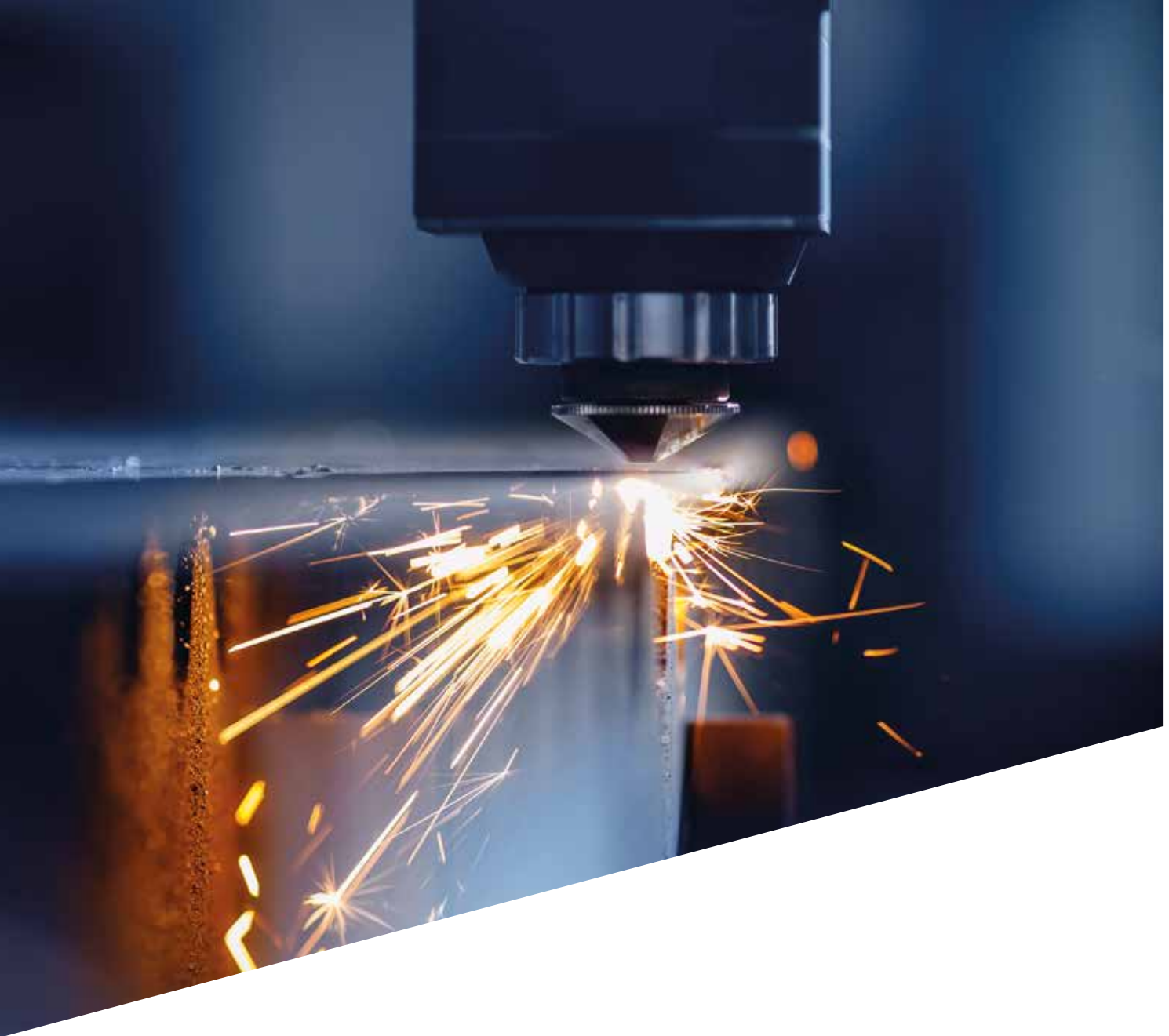
The CERAMICORE® Innovation - Superior Performance

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.**

**Typical Metal CO<sub>2</sub> Tube**



Conventional Metal CO<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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 proprietary 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<sub>2</sub> 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

### Iradian CO<sub>2</sub> 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.

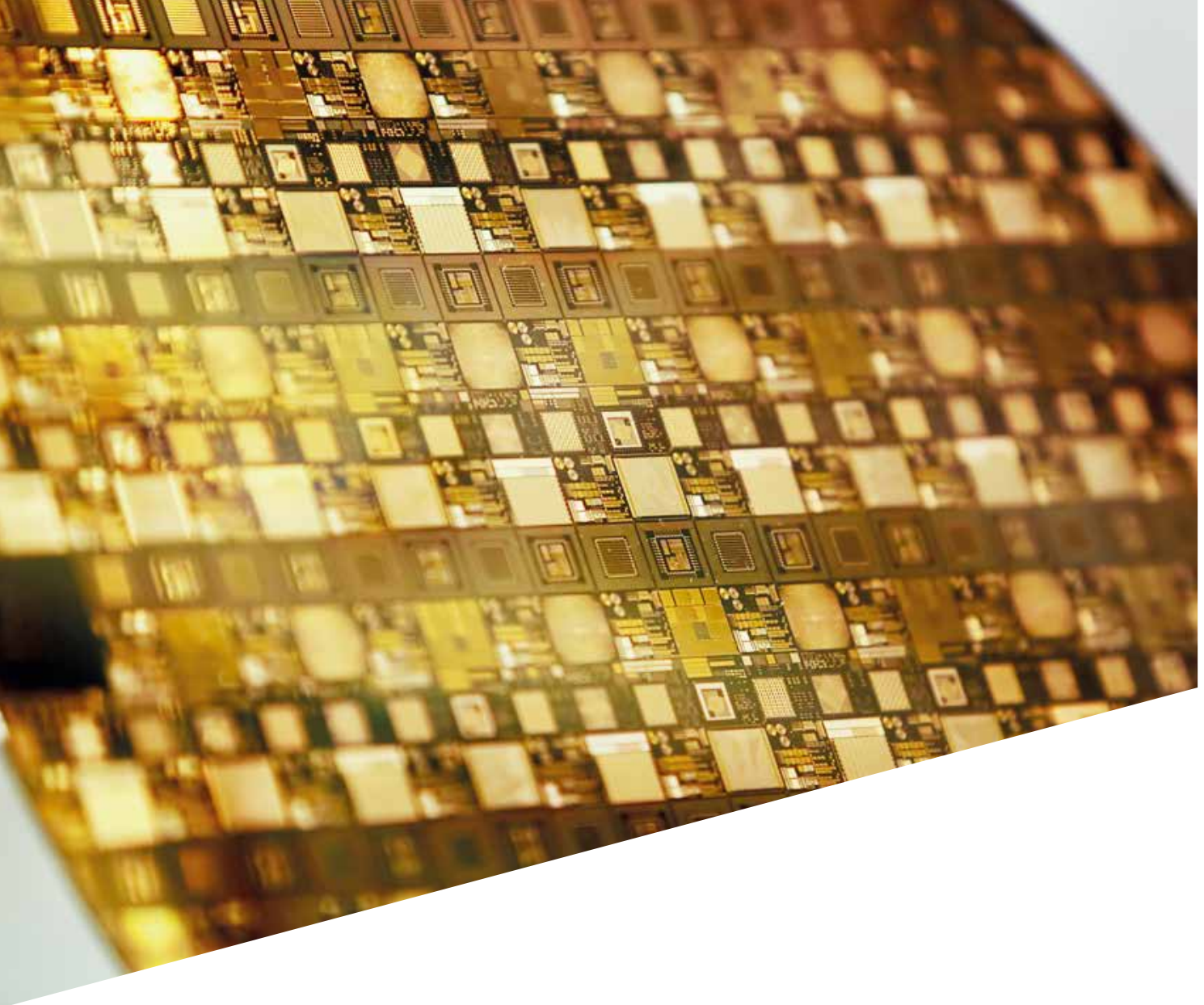


#### Destiny Series

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<sub>2</sub> wavelengths. Select the optimum wavelength for your application.



## NANOCORE®

### Integrator's Choice



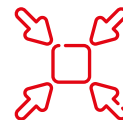
#### **Unprecedented Reliability**

Closed-loop air purification system ensures laser longevity.



#### **Increase Productivity**

Match the nanosecond laser to your application for the highest throughput and process quality.



#### **Minimize Downtime**

Exchange field replaceable components within minutes without dismantling the laser head.

### **Laser Sources for Industrial Applications**

#### Your Perfect Fit for Demanding Applications

Discover the our reliable laser sources that are the perfect choice well suited for your specific laser application. Choose a nanosecond laser that perfectly matches to your process. Optimal specifications and superior performance will provide you with consistent results in continuous use, such as 24/7 operations.

**Benefits**

NANOCORE® nanosecond lasers - Flexibility for Your Individual Applications

Our NANOCORE® nanosecond lasers offer a wide range of solutions for your applications. Find the laser that is a perfect fit in terms of parameters, design, and control features:

- Get the best speed and quality by using lasers that are optimized for your application.
- Select what you need from the widest range of pulse widths, wavelengths, and power levels.

All NANOCORE® lasers guarantee excellent reliability for both standard and customized lasers. Our application and laser experts help you develop specialized laser specifications for faster processing, better part quality and lower cost per part.

**NANOCORE® Nanosecond Laser Overview**

Unparalleled Laser Performance for Your Applications



**Nanio**

The modular design of the Nanio nanosecond lasers is perfect for customization and simplifies integration and maintenance.



**Nanio Air**

The Nanio Air lasers combine the flexibility of the Nanio series with a cost-effective vibration-free air-cooled design.



**Blizz**

The Blizz nanosecond lasers offer high output powers to meet your maximum speed and quality needs.



**Blizz Air**

The Blizz Air lasers combine excellent performance with the lowest cost of ownership in an air-cooled design.



**Vivio**

The Vivio hyperclean UV technology comes in a compact all-in-one design that is setting new standards in UV laser reliability.



**Mosquitoo**

A super compact conduction-cooled design with short pulses makes Mosquitoo the perfect tool for small machines in 24/7 use.

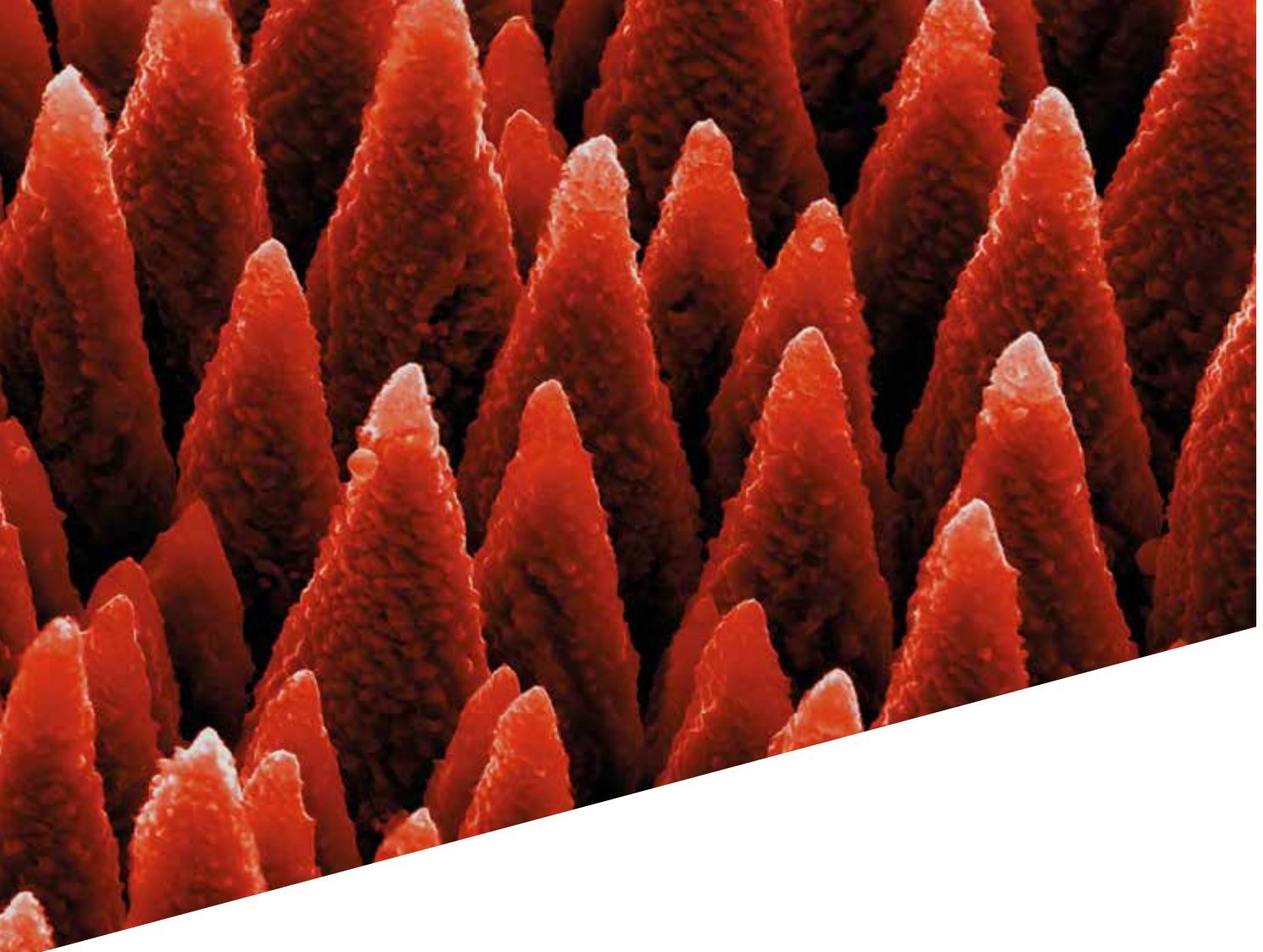
**Why Iradion**

Innovative CO<sub>2</sub> Laser Design DPSS lasers with outstanding performance

Iradion developed the NANOCORE® lasers to provide laser tools that exactly match the process requirements of any laser application. You can choose from a **large selection of standard products**. Or we can optimize the performance of our nanosecond lasers according to your **specific application needs** push the limits by customizing our nanosecond lasers.

**Easy to integrate, service and maintain:**

- Iradion lasers are easy to integrate and service with field-replaceable components that can be exchanged in minutes.
- The integrated air purification systems ensure a long laser lifetime.
- The superior pulse-to-pulse stability and beam quality make our nanosecond lasers a highly reliable tool.



# FEMTOCORE®

## Precision Redefined



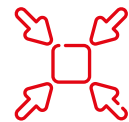
### Optimize Your ROI

The all-in-fiber design of the core ensures the quality and high longevity of the laser source.



### Get the Best Support

Meet our experienced development and application specialists.



### Minimize Your Downtime

Easy to integrate and highly reliable femtosecond laser.

## Achieve Superior Product Quality with Aionis Ultrafast Lasers

### Precise Laser Manufacturing for Demanding Applications

Our all-in-one femtosecond lasers are designed for 24/7 industrial production. Experience high-quality manufacturing with ultrashort laser pulses and benefit from:

- Damage-free processing
- Minimized failure rate
- HAZ free laser processing
- Highly flexible processing on the surface, backside, and in volume
- A wide range of wavelengths: 515 nm, 1030 nm, 1950 nm

**Benefits**

FEMTOCORE® Technology for Next Generation Material Processing

Our durable FEMTOCORE® Aionis femtosecond lasers are designed specifically for demanding industrial applications. The all-in-one design significantly reduces system cost and ensures long laser lifetime.

Aionis ultrashort pulse lasers are suitable for different manufacturing processes like ablation, cutting, engraving, marking, and shaping. The laser will process a variety of materials from ceramics to metals to polymers.

The easy-to-integrate laser source can also be used for advanced micro-machining. Manufacture nanostructures and microstructures in all shapes without any geometrical constraints.

The short pulse width of our fiber-based Aionis femtosecond laser ensures that there are no heat-affected zones (HAZ) for superior product quality. This gives you excellent edge quality, reduced roughness and the precise shape you need.

**Ultrashort Pulse Laser**

Aionis Ultrashort Pulse Laser for High-Precision Manufacturing



**Aionis 1950**

Our unique 1950 nm femtosecond laser is the optimum choice for Silicon-based, glass or medical applications.

**Aionis 1030, 515**

Highest quality, easy integration and cost-saving design. Our femtosecond laser is suitable for the most demanding applications.

**Why Iradion**

High-Quality Manufacturing With FEMTOCORE® Femtosecond Lasers

Iradion understands the needs of its customers. That's why we developed fiber-based femtosecond lasers with **FEMTOCORE® technology**. The laser performance is designed for high quality manufacturing in a variety of industries:

- Automotive
- Electronics
- Semiconductors
- Environmental engineering
- Luxury goods

We work closely with our customers from checking feasibility to laser integration to service. We have a **global network** of distributors, machine integrators, service partners, and application labs. This enables us to **offer reliable delivery** and **quick response** to your inquiries.



# Precision for Industrial Processes

## Innovative Solutions for Your Individual Laser Applications



### Process expertise

A wide range of lasers is available in our application labs to support laser process development.



### Core laser technology

CO<sub>2</sub>, nanosecond and femtosecond lasers in different wavelengths enable laser processing like cutting, engraving, and marking.



### Solutions for many industries

Provide solutions for laser processes in many different industries.

### Solutions for Manufacturing Challenges

## The Best Results for Your Laser Applications

At Iradion Laser, we provide solutions for a wide variety of laser applications. We offer **decades of experience** in laser technology to help you achieve the best possible results.

Our **Core Laser Technology** is available for a variety of applications like cutting, drilling, engraving, marking, and scribing. Process all classes of materials with no industry limitations.



### Benefits

#### Fully Equipped Application Lab to Improve Your Laser Processes

Iradion provides easy-to-integrate laser sources for a wide range of industries. From demanding **manufacturing** processes to precise **scientific applications**, our lasers offer exceptional performance.

Achieve precise results with a laser tailored to your needs. Send samples and requirements specific to your laser applications. In our fully equipped application labs, our **experienced specialists** work on customized solutions to help you achieve the best results.

### Why Iradion

#### Highest Quality for Your Laser Applications

We collaborate closely with our customers to find a solution that fits your **individual application**. From determining **feasibility to laser integration** and service, Iradion is your partner for industrial laser application.

Take advantage of our worldwide network of partners including application labs, distributors, integrators, and service partners. Our lasers are engineered for **high-quality manufacturing**, and we have conducted application studies in a variety of industries.





# Applications Overview

Exceptional Performance for Your Laser Applications



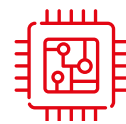
Manufacturing & Material Processing

Efficient high-quality and productive manufacturing for all material classes.



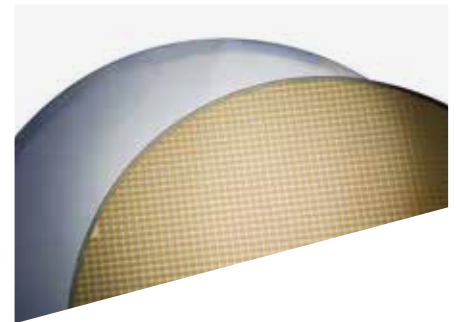
Food & Beverage

High-Speed processing, discrete or on the fly.



Microelectronics & Semiconductor

Lasers for precise, fast, and cost-efficient micro-processing.





### Fashion

Suitable for highly productive and large-area manufacturing.



### Medical & Pharmaceutical

Highly reliable lasers for stable and reproducible manufacturing.



### Packaging

Lasers for high-speed processing on cardboard and other materials.



### Automotive & Electromobility

Cost-efficient and reliable lasers for high-quality processing.



### Scientific

Move frontiers using core laser technology?



### Others

We provide the appropriate laser for your specific application.



# The Global Network of Iradion



## 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.



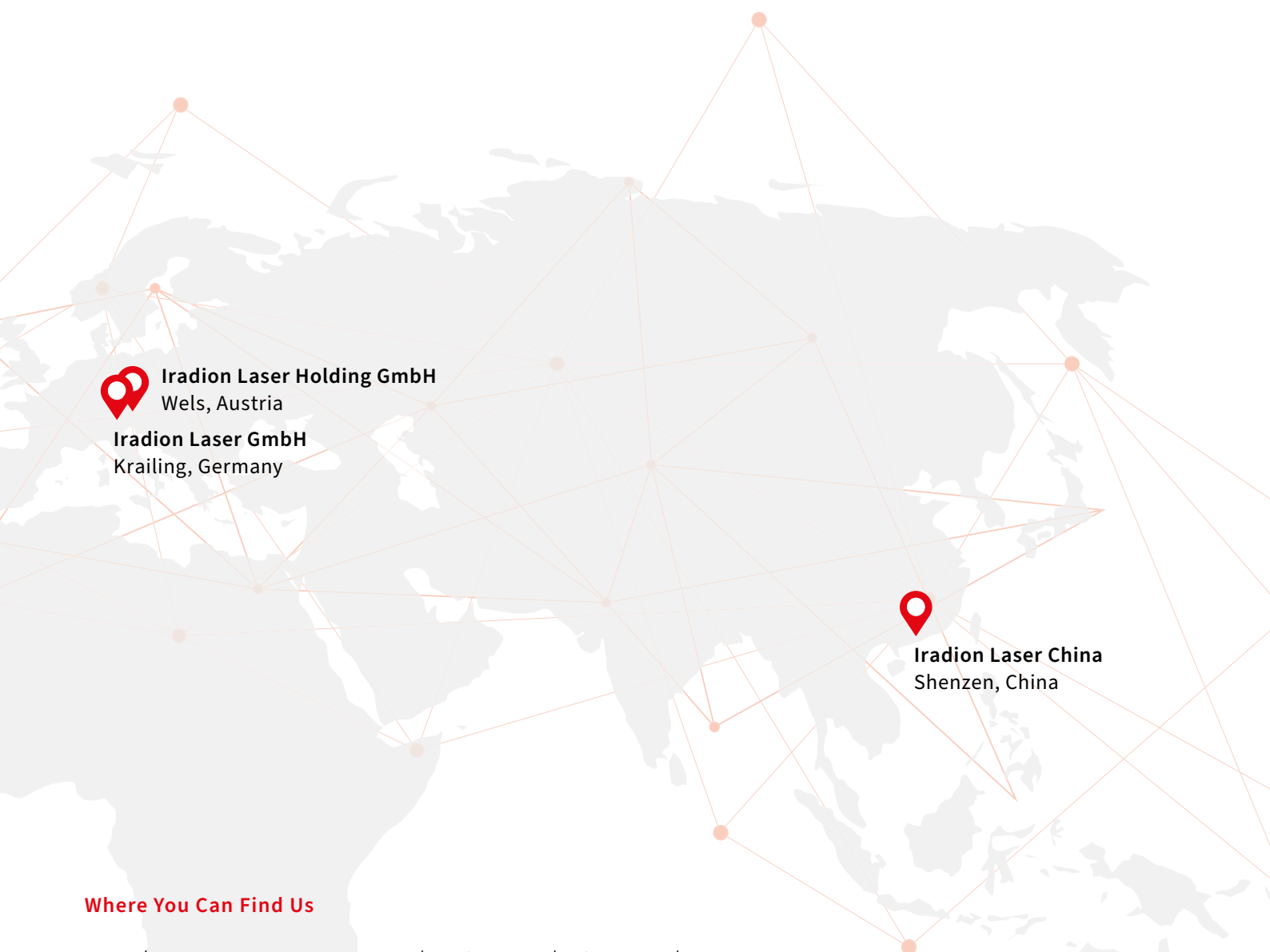
**Iradion Laser Inc.**  
Uxbridge, USA

## Contact us

### Talk to Our Laser Specialists

Iradion's global presence provides excellent sales and service support with our well-trained and experienced staff as well as our partners all around the world.

We support you from feasibility studies and product selection to process design and system integration. Our technical and sales experts are happy to answer your questions and will help you to solve your problems.



**Iradion Laser Holding GmbH**  
Wels, Austria

**Iradion Laser GmbH**  
Krailling, Germany



**Iradion Laser China**  
Shenzhen, China

**Where You Can Find Us**

Headquarter

Production and Direct Sales

**Austria**

**Iradion Laser Holding GmbH**  
Linzer Straße 156  
4600 Wels  
Austria

**Americas**

**Iradion Laser Inc.**  
One Technology Drive  
Uxbridge, MA 01569-2235  
USA

**Europe**

**Iradion Laser GmbH**  
Justus-von-Liebig-Ring 8  
82152 Krailling  
Germany

**Asia**

**Iradion Laser China**  
2nd floor, Building 4, Changyuan  
New Material Port, No. 2, Gaoxin  
Middle 1st Road, Nanshan District  
Shenzhen, Guangdong  
P.R. China

# Our Worldwide Network of Partners

## Find Highly Specialized Technology

### Global Presence

#### Laser Support Across the World

Iradion provides customer sales and service support through direct sales and partners around the world. Find Iradion's laser experts near you.

### What We Do for You

#### Excellent Service Next to You

We provide a fast service to minimize downtime and keep your laser processes running 24/7. Our experienced service experts are ready to work with you to find solutions and answer your questions.

#### Partners in the Americas



**USA | Canada | Mexico**

##### **IRADION Laser Inc.**

One Technology Drive,  
Uxbridge, MA 01569-2235  
USA  
[www.iradionlaser.com](http://www.iradionlaser.com)

#### Partners in Europe



**France**

##### **Opton Laser International**

Z.A. Courtabœuf  
6, Avenue des Andes - Bâtiment 8  
91940 Les Ulis  
France  
[www.optonlaser.com](http://www.optonlaser.com)



**France**

##### **Optoprim SAS**

21-23, Rue Aristide Briand,  
92170 Vanves  
France  
[www.optoprim.com](http://www.optoprim.com)



**Germany**

##### **Optoprim Germany GmbH**

Max-Planck-Straße 3  
85716 Unterschleißheim  
Germany  
[www.optoprim.de](http://www.optoprim.de)



**Italy**

##### **Optoprim s.r.l.**

Via Carlo Rota 37  
20900 Monza  
Italy  
[www.optoprim.it](http://www.optoprim.it)



**Lithuania**

##### **UAB Altechna**

Savanorių pr. 176B  
03154 Vilnius  
Lithuania  
[www.altechna.com](http://www.altechna.com)



**Netherlands**

##### **TLS - Te Lintelo Systems B.V.**

Technopark Mercurion  
Mercurion 26  
6903 PZ Zevenaar  
Netherlands  
[www.tlsbv.nl](http://www.tlsbv.nl)



**Poland**

##### **ATMSolutions Sp.z o.o. Sp.k.**

Kolejowa 311  
05-092 Łomianki  
Poland  
[www.atmsolutions.pl](http://www.atmsolutions.pl)



**Poland**

##### **Spectropol**

ul. Trakt Lubelski 271G  
04-667 Warszawa  
Poland  
[www.spectropol.pl](http://www.spectropol.pl)



### Spain | Portugal

#### Innova Scientific

C/ Encinar, 4  
28290 Las Rozas (Madrid)  
Spain  
[www.innovasci.com](http://www.innovasci.com)



### United Kingdom

#### InnoLas UK Ltd.

20 Butlers Leap  
Rugby, Warwickshire, CV21 3RQ  
UK  
[www.innolas.co.uk](http://www.innolas.co.uk)

## Partners in Asia



### China

#### PulsePower Technology Ltd.

Rm1-104  
84-8 Zhongguancundong Rd.  
Haidian District  
Beijing 100190  
P.R. China  
[www.pulsepower.cn](http://www.pulsepower.cn)



### India

#### Aimil Ltd.

BSEL Tech Park  
B-Wing, 11th floor  
Sector 30A  
Opp. Vashi Railway Station  
Vashi  
Navi Mumbai 400705 Maharashtra  
India  
[www.aimil.com](http://www.aimil.com)



### India

#### C. AND C. Laser Engineering Pvt. Ltd.

A/205  
Mihar A CHS  
M G ROAD, Charkop Village  
Kandivali (W)  
Mumbai 400067  
Maharashtra  
India  
[www.cnclaserengg.com](http://www.cnclaserengg.com)



### India

#### Specialise Products Pte. Ltd.

B-502 Eklvya Chsl  
Plot #69 D/J/K, Sector 21  
Kharghar  
410210 Maharashtra  
India  
[www.specialiseproducts.com](http://www.specialiseproducts.com)



### Japan

#### AkiTech LEO Inc.

Suzuki Bldg. 302  
2-11-18 Nishiki-cho  
Tachikawa-shi  
Tokyo, 190-00224  
Japan  
[www.akitechleo.com](http://www.akitechleo.com)



### Japan

#### Japan Laser Corporation

2-14-1  
Nishi-Waseda  
Shinjuku-ku  
Tokyo, 169-0051  
Japan  
[www.japanlaser.co.jp](http://www.japanlaser.co.jp)



### Korea

#### Wooyang Photonics Co., Ltd.

Leaders Bldg, 13th Floor  
1599-11 Seocho-Dong  
Seocho-Ku  
Seoul, 137-070  
Korea  
[www.coslaser.co.kr](http://www.coslaser.co.kr)



### Korea

#### ShinhoTEK Co., Ltd.

#1306 #1307  
19 Gasan digital 1-ro  
(Daerung Techno Town-18)  
Geumcheon-gu  
Seoul, 08594  
Korea  
[www.shinhotek.com](http://www.shinhotek.com)



### South East Asia

#### JD Union Pte. Ltd.

8 Boon Lay Way,  
#07-06, Tradehub 21  
Singapore 609964  
Singapore  
[www.jd-union.com](http://www.jd-union.com)



### Taiwan

#### ALASER Co., Ltd.

6F., No. 17, Qiaohe Rd.  
Zhonghe Dist.  
New Taipei City 235029  
Taiwan (R.O.C.)  
[www.alaser.com.tw](http://www.alaser.com.tw)

**Iradion Laser GmbH** | Justus-von-Liebig-Ring 8 | 82152 Krailling | Germany  
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Phone: +1 (401) 762 - 5100 | [info.us@iradionlaser.com](mailto:info.us@iradionlaser.com) | [www.iradionlaser.com](http://www.iradionlaser.com)

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**ENDURING EXCELLENCE, PULSE BY PULSE.**

