



LC Lasers

NETTOYAGE

WELD CLEAN. MARK.



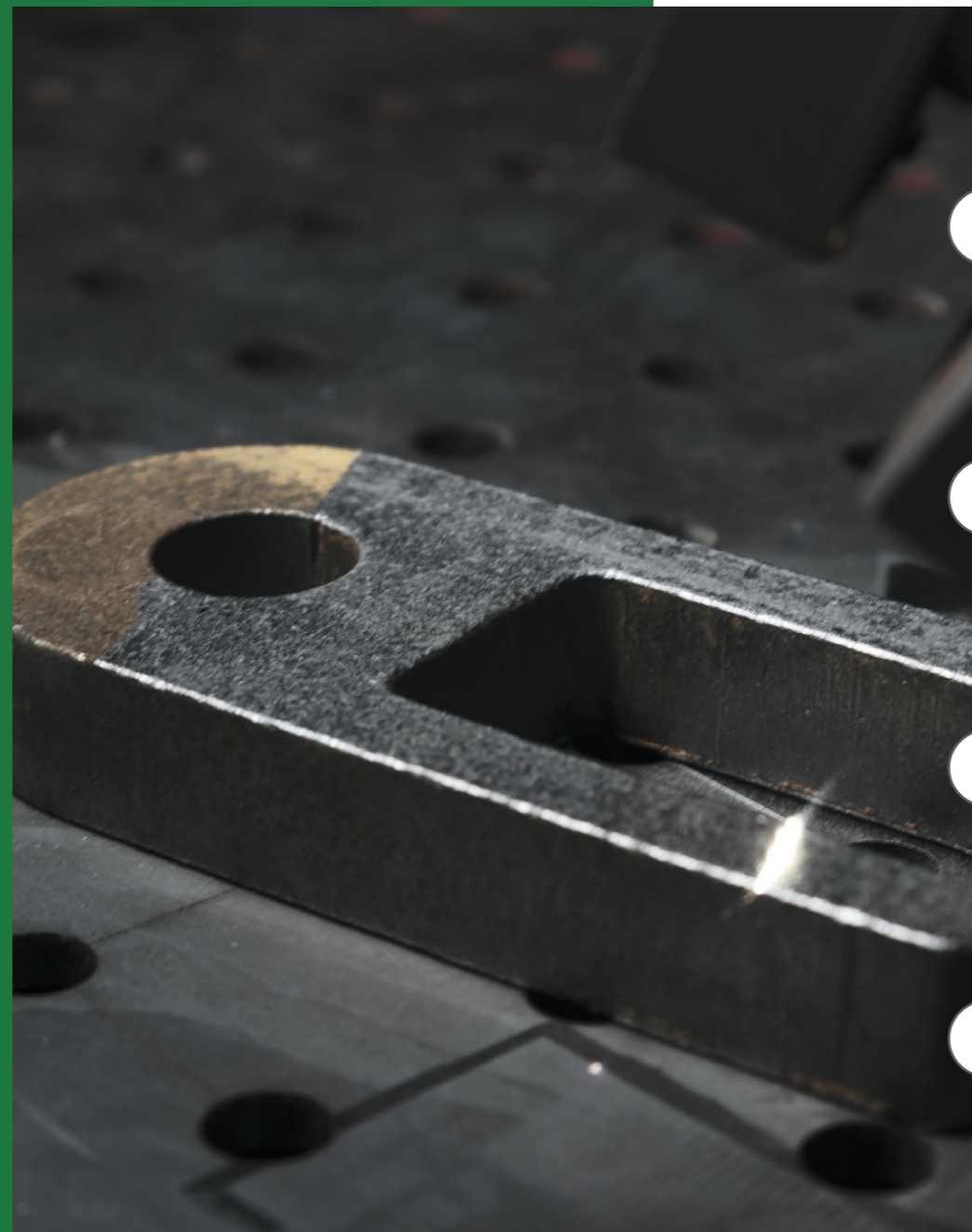


WELD. CLEAN. MARK.

Global presence

Own manufacturing and original design

At LC we work to offer the best laser solutions in the world of welding, industrial cleaning and product marking and engraving.



Analysis, versatility and customization

Every day we work to give our clients maximum satisfaction. We aim to ensure that your laser equipment is the most suitable for you. We want it to be the best option in the laser world and that is why we want to advise you so that you make the perfect decision. We offer 100% personalized solutions to each client.



Production and design in Spain

At LC we produce laser equipment in our facilities, to provide a fast, efficient and high-quality service. Thanks to our production system we can ensure every detail and finish of our machines.



Quality and reliability

Our components are from top brands so that your laser equipment works at 100% from the first moment. We work with rigorous systems to improve controls and ensure the highest performance of the equipment.



After-sales service

We offer a comprehensive 2.0 after-sales service, with telephone and email support and, if required, in-person assistance. We have qualified technicians who provide online and in-person training, as well as offering a rigorous and fast technical service. We seek to offer the fastest and most effective solution possible.

LC Project

At LC Lasers, we understand that each industry has its own needs and challenges. That's why we offer tailor-made projects specifically designed to adapt to any industrial application. Our commitment to innovation and excellence allows us to create customized solutions that optimize productivity and improve efficiency in your processes.

I+D

Our Research and Development (I+D) team is made up of experts who continuously work on developing advanced technologies and innovative solutions. We closely collaborate with our clients to understand their requirements and provide the necessary technical support, ensuring that each project meets their expectations.

Automation and Robotic Solutions

Automation is key in modern industry, and at LC Lasers, we are at the forefront of this trend. We offer robotic solutions that not only enhance process efficiency but also improve safety and reduce operational costs. Our automated systems integrate seamlessly into existing operations, providing a smooth transition toward digitalization and automation.

Advantages of Choosing LC Lasers

- **Customized Solutions**
Projects tailored to the specific needs of your industry.
- **Continuous Innovation**
A dedicated I+D team focused on developing advanced technologies..
- **Enhanced Efficiency**
Automation that optimizes processes and reduces costs.
- **Technical Support**
Consulting and technical assistance throughout all phases of the project.



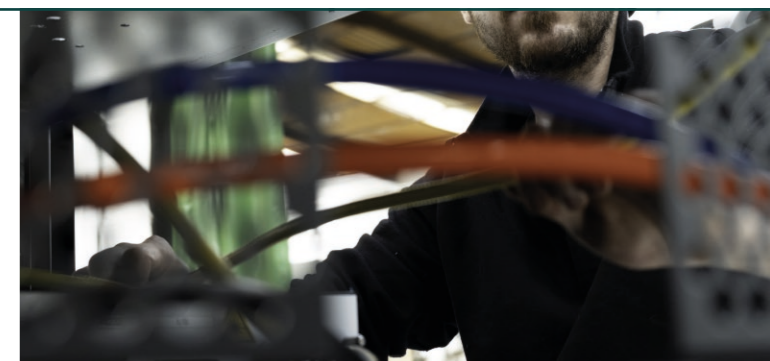
Why LC Lasers?

- **The most compact system on the market**
- **Equipment with more than 10 patents guaranteeing technology and innovation**
- **The most intuitive interface**
- **The only European manufacturer**
- **The only company with a genuine CE certification**
- **The only one with machine and cabin certified together for total protection**
- **The highest laser power on the market**



For greater peace of mind, all our laser welding systems come with a **2-year laser warranty**, demonstrating the confidence we have in our products and their ability to meet the highest industrial requirements. LC Lasers offers a comprehensive solution that combines cutting-edge technology with customer-focused service, ensuring that your company is always in good hands.

**2-year
laser
warranty**



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LC Laser Cleaning

1 Speed and Precision

Laser technology has proven to be extremely versatile, being applied in various fields such as cutting, engraving, marking, and, of course, surface cleaning. Laser cleaning is gaining popularity in many industrial sectors due to its efficiency and precision. This process can be used to remove oxide, paint, coatings, dirt, and other contaminants from both metallic and non-metallic surfaces, making it an excellent alternative to traditional methods such as chemical cleaning, sandblasting, or mechanical brushing.

2 Minimal Deformation

Laser cleaning machines use high-power fiber lasers, designed to provide precise and safe control of the process. With an interactive and easy-to-use system, these machines allow adjustments to the power, speed, and intensity of the laser based on the specific cleaning requirements of the material, ensuring an optimal finish without damaging the original surface. Additionally, laser cleaning is environmentally friendly, as it does not produce hazardous waste and does not require the use of chemical products, making it an innovative and sustainable solution for the industry.

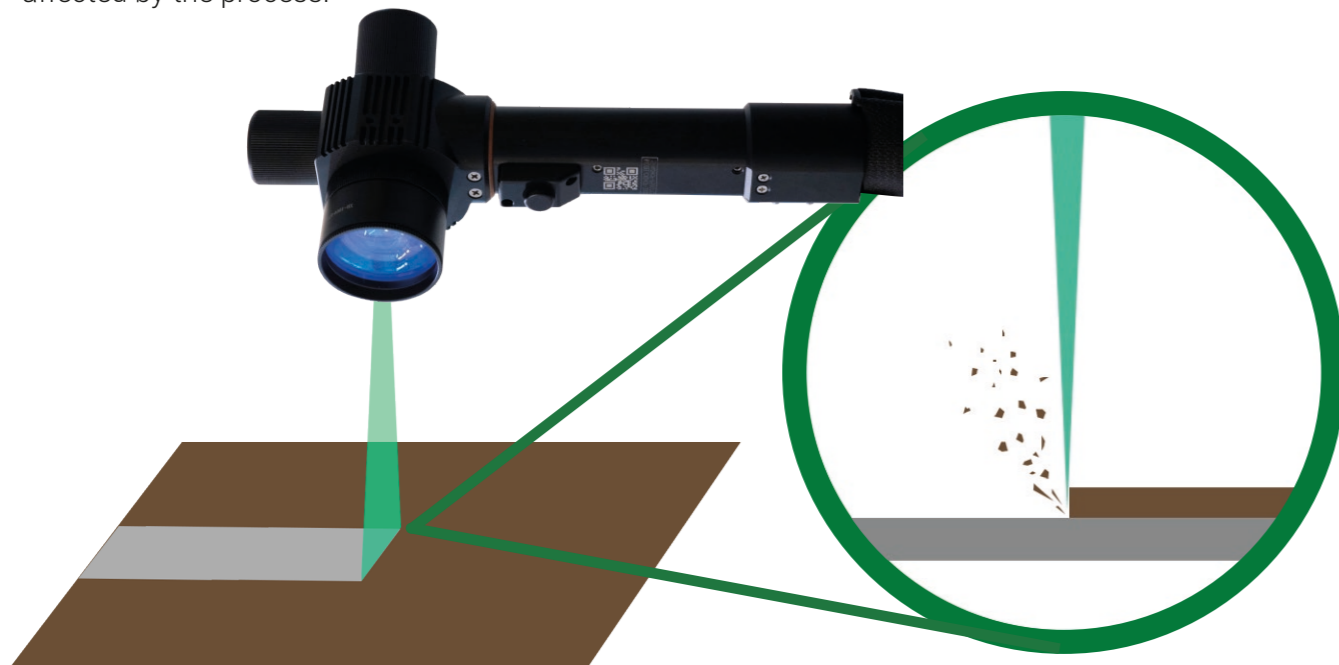
3 Environmentally Friendly

THE INDUSTRIAL CLEANING REVOLUTION

Laser Cleaning Technology

Laser cleaning removes contaminants by vaporizing them into dust and fumes through the process of laser ablation. When the laser beam hits the surface, part of its energy is absorbed by the metallic surface, while the rest is reflected.

Contaminants are expelled when they have absorbed enough energy to reach their ablation threshold. Since the ablation threshold of metallic surfaces is higher than that of contaminants, the substrate is not affected by the process.



Laser Ablation

Laser ablation is a process in which a laser instantly removes material by transforming it from a solid to a gas. It is used for cleaning, marking, texturing, and cutting. In the industry, CO and fiber lasers are the most commonly used for this type of work.

Each material has a limit beyond which it begins to decompose under the effect of the laser. If the intensity is sufficient, the material is eliminated; otherwise, it only heats up slightly. When it burns, it releases fumes, which require extraction systems to maintain a safe environment and prevent laser blockages.



Laser Ablation Parameters

Laser parameters are essential for mastering laser ablation. By adjusting them, experts can optimize the laser process for different applications. Below, you will find the most important laser parameters to consider. Note that for laser cleaning, different parameters must be adjusted.

Power

Galvanometer Frequency

Pulse Width

Galvanometer Width

Laser Frequency

Waveform

Process Comparison

Laser cleaning can be a good alternative to other industrial cleaning methods.

| | Laser Cleaning | Chemical Cleaning | Mechanical Cleaning | Dry Ice Cleaning | Ultrasonic Cleaning |
|------------------------------|------------------|-------------------|---------------------|------------------|-------------------------|
| Contact Type | No contact | Chemical contact | Mechanical abrasion | No contact | With contact |
| Damage to the Piece | None | Causes damage | Causes damage | None | None |
| Efficiency | High | Low | Low | Medium | Medium |
| Consumables | Electricity | Chemical agents | Abrasives | Dry ice | Special cleaning agents |
| Overall Effectiveness | Excellent | Medium | Medium | Excellent | Excellent |
| Precision | Very high | Low | Low | Low | Medium |
| Environmental Impact | No contamination | Contaminant | Contaminant | No contamination | No contamination |
| Operability | Easy | Complex | Complex | Easy | Easy |

LC-CLEAN P 300W Equipment

A truly small, portable, and adaptable system.



Air Cooling

High-efficiency air cooling system.

Touch Screen

Integrated screen with an intuitive and user-friendly interface.

High-Quality Laser

Pulsed laser up to 100 kW peak power (Pp).

With a pulse energy reaching up to 15 mJ.

Grandes roues

Wheels adapted for a wide variety of surfaces.

Head



Small and Handy

Compact and ergonomic design that facilitates use and handling.

Easy Lens and Protector Exchange

Intuitive design allowing for quick and simple lens and protector replacement.

Enables Two-Axis Figure Creation

Increases versatility and applications with a variety of shapes to create.

Very Lightweight

Lightweight construction allows for fast and comfortable handling, minimizing operator fatigue.

Technical Data Sheet: LC-CLEAN P 300W

Main

| | |
|---------------------------|----------------|
| Model | LC-CLEAN 300W |
| Product Reference | LC-LL300W |
| Power Consumption | <1500 W |
| Voltage | 230VAC |
| Approx. Dimensions | 250×400×700 mm |
| Approx. Weight | <40kg |
| Hose Length | 4m approx. |

Laser

| | |
|------------------------|---------------------|
| Laser Power | Pm 300W Pp <100kW |
| Laser Type | Pulsed fiber laser |
| Wavelength | 1064nm |
| Frequency Range | 1-3000kHz |
| Cooling System | Air cooling |
| Laser Class | 4 (IEC 60825-1) |

Very compact design

Air cooling

High-efficiency cleaning

Lightweight and comfortable gun design

LC-CLEAN CW 1500W Equipment

Deeper and faster cleaning with the 1500W continuous fiber laser.

Aluminum Construction

Machine built with aluminum for reduced weight and improved comfort.

Large Wheels

Wheels adapted for a wide variety of surfaces.



Compact System

The most compact and portable 1500W laser cleaning system on the market.

High-Quality Laser

High-quality 1500W continuous fiber laser.

Head

Air Blowing (AAK)

Annular Air Knife system to protect the lens.

Enables Two-Axis Figure Creation

Increases versatility and applications with a variety of shapes to create.



Security Lock

Cover with a security device to protect the lens and prevent accidents.

Lightweight Design

Lightweight construction allows for agile and comfortable handling, minimizing operator fatigue.

Technical Data Sheet: LC-CLEAN CW 1500W

Main

| | |
|---------------------------|----------------|
| Model | LC-CLEAN 1500W |
| Product Reference | LC-LL1500W |
| Power Consumption | <5500 W |
| Voltage | 230VAC |
| Approx. Dimensions | 250×400×700 mm |
| Approx. Weight | <40kg |
| Hose Length | 6m approx. |

Laser

| | |
|------------------------|------------------------|
| Laser Power | Pm 1500W |
| Laser Type | Continuous fiber laser |
| Wavelength | 1064nm |
| Frequency Range | 1-10kHz |
| Cooling System | Air cooling |
| Laser Class | 4 (IEC 60825-1) |

Ultra-compact design

Air cooling

Maximum cleaning efficiency

Ergonomic gun

Materials

Materials Table

| | Cleaning |
|---------------------|----------|
| Oxide | ✓ |
| Resins | ✓ |
| Stains | ✓ |
| Dirt | ✓ |
| Greases and oils | ✓ |
| Coatings and paints | ✓ |

- 1 Minimal thermal input
- 2 Does not damage the material
- 3 Adjustable according to the work

Applications

Applications and

Laser cleaning is essential in the industry due to its precision and efficiency. It is used for removing oxide and corrosion from metal parts, ensuring their restoration without damaging their structure. In the automotive industry, it facilitates the removal of greases and oils from critical components. It is also essential for weld cleaning, improving adhesion and durability in the process. Additionally, it is used to prepare surfaces before applying new coatings and to clean heat exchanger plates, optimizing their performance. Its ability to remove paint layer by layer allows for detailed restorations, making it an indispensable tool in manufacturing, energy, and industrial maintenance sectors.



LC-CLEAN P 300 W

Pulsed Fiber Laser

High-energy, short-duration pulses, reaching up to 100 kW peak power (Pp).

High Precision, Lower Speed

High precision, ideal for selective cleaning. Lower speed, more efficiency in details.

More Superficial Cleaning

Allows for more controlled and superficial cleaning with minimal impact on the material.

Lower Energy Consumption

Low energy consumption, leading to more efficient system usage.

Less Overheating

Low energy consumption results in more efficient heat management.

Applications

Automotive industry, aerospace, art restoration, electronics...

LC-CLEAN CW 1500W

Continuous Fiber Laser

Continuous energy emission. Constant 1500W laser.

Lower Precision, Higher Speed

Faster and more efficient cleaning but with less detail control.

Deeper Cleaning

Faster and deeper cleaning, which can cause overheating and thermal alteration.

Higher Energy Consumption

Due to its higher power and capacity, it has a greater energy consumption.

Less Overheating

Low energy consumption results in more efficient heat management.

Applications

Heavy industry, shipyards, large-scale restoration, metal construction...



Products Designed and Manufactured in Spain

Best Quality on the Market



Long laser lifespan



Compliance with CE standards



Compact and portable systems



Cleaning efficiency

Safety

Workspace

The proper configuration of the workspace is essential to ensure the safety and efficiency of laser cleaning processes. There are different ways to adapt the environment to make it suitable and secure, optimizing both operator protection and equipment performance. Below, we describe these methods designed to minimize risks and maximize process efficiency:

LC-CABIN Laser Safety Cabin

Modular installation that can be adapted to the customer's work environment. It is equipped with the necessary safety systems to comply with regulations.

At LC Lasers, we offer a comprehensive solution alongside our equipment, allowing each customer to adapt the cabin to their workspace and easily comply with the required safety measures.

General Features



E25 Modular Barrier System Laser Safety Partitions

The E25 modular folding wall system, fully assembled and protected against class laser beams, offers a flexible and fast solution to block laser radiation during maintenance and service work on powerful lasers. This partition can also be used as a space separator in laboratories or to create secure compartments around optical tables.



- Available with 2 to 9 segments
- Standard filling with M7P06
- Simple and quick installation
- Ideal for maintenance and service work
- Usable as a space separator in laboratories with high-power lasers

Filtoo Extraction System

Suitable for various types of dust, including welding fumes, its use is recommended in dental laboratories and the restoration field. The equipment is IFA-certified for welding fume class "W3" (separation rate >99%). When used according to recommendations, the Filtoo system is ideal for separating fumes generated by cutting and welding processes during the treatment of non-alloyed steels, including chrome/nickel and aluminum steels.



- Fan airflow: 1,600 m³/h
- Motor power: 1,1kW (230V/50Hz)
- Noise level: ± 72 db (A)
- Filter types: Coarse filter, Pre-filter, Activated carbon filter, Main filter
- Dimensions and weight: 580 x 580 x 900 mm (without arm) 80 kg

Personal Protective Equipment

Beyond the proper configuration of the workspace, it is crucial that the operator working with laser cleaning is protected with the appropriate PPE. People within the designated area must also protect themselves with PPE.

Safety Glasses Laser Protection Glasses



Laser safety glasses are specifically designed to provide adequate protection when using laser equipment, complying with the EN 207 standard, which regulates the safety of these devices. These glasses are essential for protecting the eyes from radiation of different wavelengths. For Nd lasers, it is necessary to use DLB6 protection level glasses. This protection level ensures that the glasses absorb laser energy at this wavelength without compromising user safety, minimizing the risk of eye injuries, such as retina or corneal burns, which could lead to permanent vision loss.

Clearmaxx Mask Shade 3 Protection Screen



The Clearmaxx protective mask, equipped with a shade 3 screen, is specifically designed to provide additional safety for tasks involving exposure to ultraviolet rays and particle projections. This equipment meets the highest safety standards, offering an effective barrier against risks caused in industrial and medical environments, such as UV rays and fragment impacts. Although the Clearmaxx mask is not designed to protect against laser radiation, it serves as an ideal complement to laser safety glasses compliant with the EN 207 standard. By combining both, a complete protection system is achieved: The glasses protect the eyes from specific laser radiation. The Clearmaxx mask protects the face from other risks in the work environment.

MASTR - Laser Welding Helmet Full-Face Helmet for Laser Welding

Designed with safety in mind, MASTR offers complete protection for the face and eyes. This helmet is specifically designed to protect against the light radiation that each operator is exposed to during welding processes with portable laser systems operating in the near-infrared.

MASTR provides complete defense against diffused laser radiation generated by the source and incoherent UV-IR light produced during the welding process.

- Specifically designed for welding and manual laser cleaning systems
- Extended protection for the eyes and face
- Fully constructed from composite material resistant to laser radiation
- Wide-spectrum laser protection filter ensuring visibility of the most commonly used alignment pointers (630-670 nm)
- Digitally adjustable auto-darkening welding filter (ADF), with a "3" setting in a clear state
- Lightweight (700g) for maximum comfort during prolonged use
- Adjustable height and tilt system for the helmet, along with a fully adaptable headband



Class 4 laser protection



Comfortable and adjustable helmet



Full-face laser and UV-IR protection

Juba HEAT STOP Glove Fire-Resistant Gloves

Fire-resistant gloves with high heat resistance on contact (100°C for 15 seconds), excellent flame resistance, and protection against small molten metal splashes, as well as good resistance to convective and radiant heat.

- Inner polyester lining in the palm.
- High abrasion resistance for better durability.
- Kevlar thread stitching, resistant to cuts and welding sparks.
- Protective glove for welders.



Half Mask Series 6000 Mask for Gases, Vapors, or Particles

The 3M™ Series 6000 reusable half masks are made of a lightweight and comfortable elastomeric material. Additionally, they feature a dual filter system with bayonet-type connection, a head harness with support, and an adjustable neck strap. These reusable half masks have a low-profile design and are available in three sizes.

They can be equipped with the following filters for gases, vapors, and particles:

| | |
|------|---|
| 6059 | 3M™ Gas and vapor filter, ABEK1 |
| 6075 | 3M™ Gas and vapor filter, A1 + formaldehyde |
| 6055 | 3M™ Gas and vapor filter, A2 |
| 6054 | 3M™ Gas and vapor filter, K1 |
| 6051 | 3M™ Gas and vapor filter, A1 |
| 6096 | 3M™ Gas, vapor, and particle filter, A1E1HgP3 |
| 6095 | 3M™ Gas, vapor, and particle filter, A2P3 R |

Minimum quantities may apply.

Thanks to its dual filter system, it ensures even weight distribution and minimal obstruction of the field of view. These masks are cost-effective, easy to maintain, and simple to use.



Swiss Air - Air Masks Respiratory Protection Systems

The Optrel Swiss Air respiratory protection system provides clean, breathable air to its environment, allowing you to breathe freely—an advantage typically reserved for outdoor activities.

The central element of the Optrel Swiss Air Blower protection system is a ventilated half-mask that completely covers the mouth and nose while supplying purified air. In this area, a respiratory space is created thanks to positive pressure, which facilitates breathing and eliminates fatigue caused by inhalation resistance.

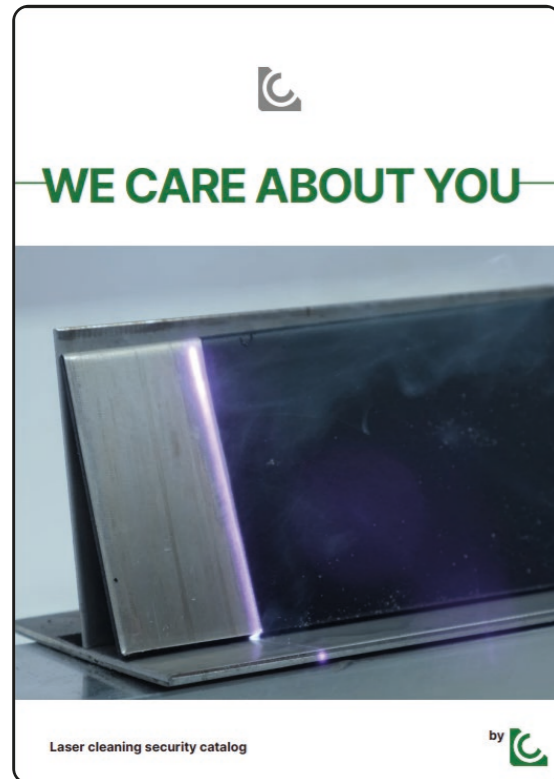
The high-tech fabric half-mask is designed to perfectly fit each user, thanks to an adjustable headband. This design eliminates the need for long adjustment tests, common in conventional half-masks.

Clean air is delivered through a Y-shaped hose and a miniaturized blower system, which is comfortably worn on the back via a transport unit. In this way, the user is always in an "overpressure air system," continuously protecting their respiratory tract from contaminated air.



| | | | | |
|----------------------|---------------------------|--------------------------|-------------|---------------------|
| | | | | |
| TH3-certified blower | Main filter | Adjustable airflow | Battery | Respiratory support |
| | | | | |
| TM3-certified blower | No mask fit test required | ABE1P combination filter | Odor filter | Control system |

Safety and Certifications



At LC Lasers, safety is our top priority. That is why we always place it at the center of our operations. We provide the necessary training information to ensure that users can work correctly with laser welding equipment.

WE CARE ABOUT YOU

"We Care About You" is the laser safety document that we provide with our equipment. It details protocols, best practices, and safety systems for working with laser technology.

Additionally, it includes technical explanations on how this type of technology works.

Regulations

Article 6 of Directive 2006/25/EC, concerning the minimum safety and health requirements regarding worker exposure to risks from physical agents (artificial optical radiation), requires that workers exposed to optical radiation risks receive information and training. This is particularly important for workers using laser products of Class 3B and Class 4. The training must include:

- Measures taken to ensure safety.
- Exposure limit values and associated potential risks.
- Results of evaluations, measurements, and/or calculations of exposure levels to artificial optical radiation, along with explanations of their significance and potential risks.
- How to detect harmful health effects due to exposure and how to report them.
- Circumstances in which workers are entitled to medical surveillance.
- Safe working practices to minimize exposure risks.
- Correct use of appropriate personal protective equipment.

The above provisions are subject to the obligations set forth in Directive 2006/42/EC of the European Parliament and the Council of May 17, 2006, regarding machinery, amending Directive 95/16/EC, and Directive 2006/25/EC concerning the minimum safety and health requirements related to worker exposure to risks from physical agents (artificial optical radiation). In addition to European regulations UNE EN 60825-1 and UNE EN 60825-4 regarding laser safety and laser classification, UNE-EN 208 (2010) and UNE-EN 207 (2018) establish eye protection standards, which are essential for the safe use of the equipment.

Certificates

All our equipment is certified by the laser safety expert company PROCARELIGHT. This certification has involved exhaustive studies verifying its reliability, safety, and compliance with all regulations.

ULTIMATE PRECISION, ABSOLUTE SAFETY





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