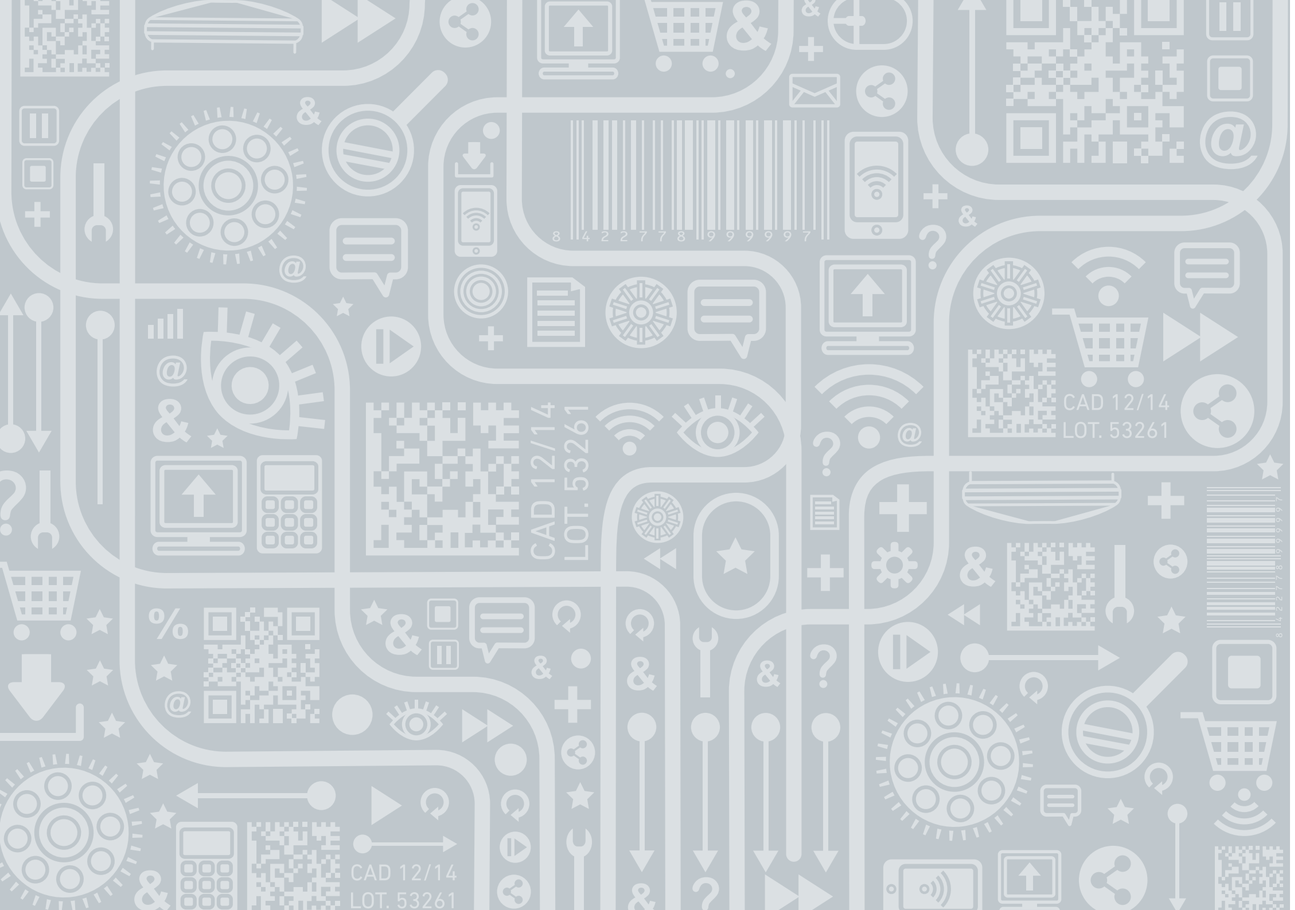
# WE CHANGED THE RULES, AGAIN

## SPA

THE FIRST MODULAR LASER
THAT GROWS WITH YOUR NEEDS

**SPA** by **MACSA**
modular, better, complete

Macsa id
a code you can trust



# RELIABILITY

*"I need a laser that operates reliably in the difficult environment condition of my production plant."*

*Geza Nazy*
*Senior Packaging Specialist*
*Nestlé*
*Switzerland*

Even the best run factories can be dusty and when dust gets inside a laser its reliability suffers. That's why SPA lasers have been designed, built and tested to IP54. No dust inside means more reliable operation.


# VERSATILITY

*"I need a laser that is designed to be easy to integrate and to use in my plant."*

*Sina Adeniran*
*National Electrical & Automations Manager*
*Coca-Cola*
*Nigeria*

Factory managers always look for ways to increase throughput but too often the laser cannot cope. The novel, proprietary digital signal processor used for the real time management of SPA lasers can easily respond to this challenge.


# PRECISION


*"I need a laser that can consistenly deliver the print quality that my customers demand."*

*Anthony Micallef*
*Packaging Manager*
*Simonds Farsons Ask Plc*
*Malta*

It's increasingly important that the codes which companies put on their products are high quality and easy for end-users to read. SPA lasers incorporate several features including Macsa's proprietary VCS* to ensure that high print quality is maintained.

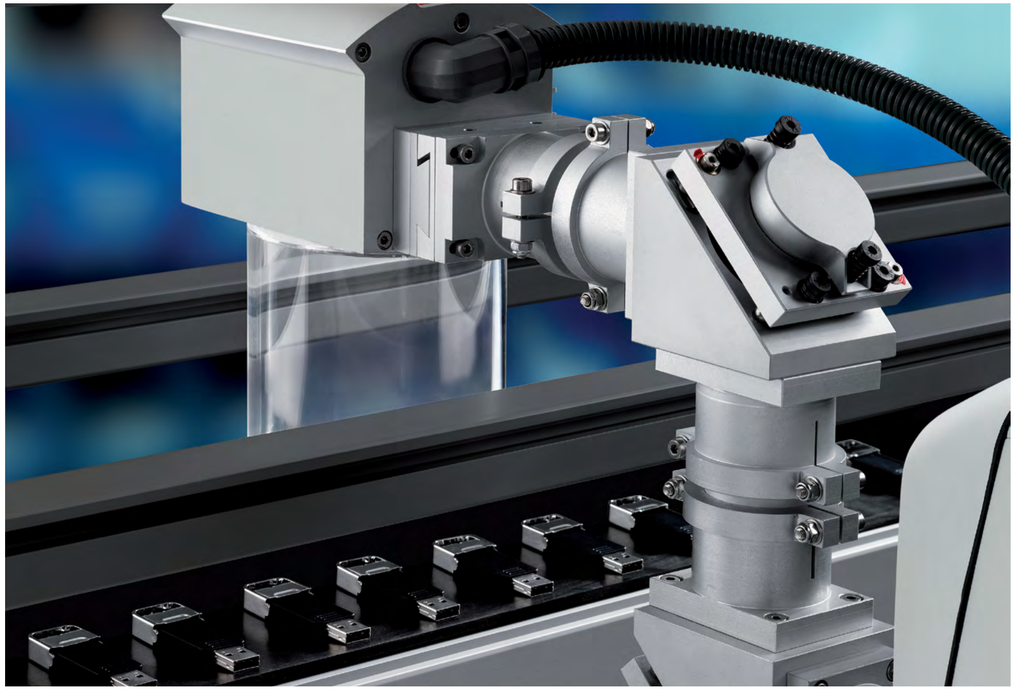
* VCS: Vibration Compensation System


# SIMPLICITY

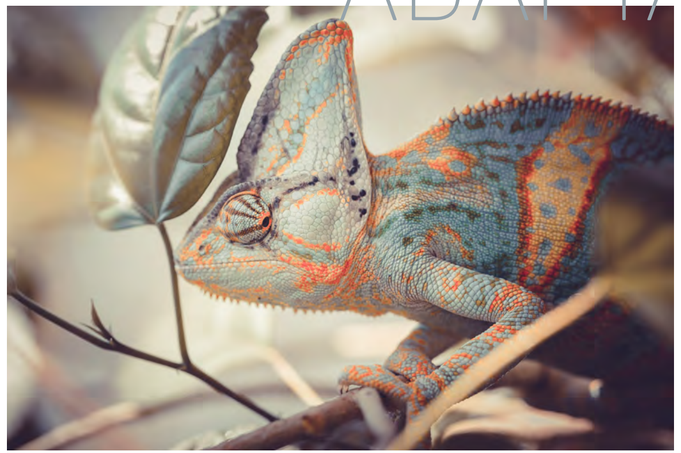
*"I want a laser that can easily acomodate the needs of my production line."*

***Jozsef Torok***
*T&L Manager*
*Unilever*
*Hungary*

Time is money in the factory and managers don't want equipment which uses lots of operator time. Marca software that is used to set up, program and drive SPA lasers has been redesigned to make it very easy to use and to eliminate errors.



# ADAPTABILITY



*"I need a laser that not only meets my needs today but can also adapt to my needs tomorrow."*

*Miquel Prats*
*Packaging Specialist*
*Nestlé*
*Spain*

Demands in the production environment change: faster lines, new materials, changes on messages and graphics. Too often this means buying a new laser, but that's not true for SPA lasers. Because they are modular, they can be easily adapted to respond to changes, saving both time and money.


# COST

*"I need a laser that does not cost me more to acquire, operate and own than I expected."*

*Joe Lim*
*Business Development Manager*
*Syspex Technologies Pte Ltd*
*Singapore*

The cost of a laser is largely hidden. It includes the cost of maintenance to keep the lenses dust free. The proprietary RAF* cooling system used for SPA lasers doesn't just keep them running reliably it also cleans the lenses saving money by enabling continuous operation.

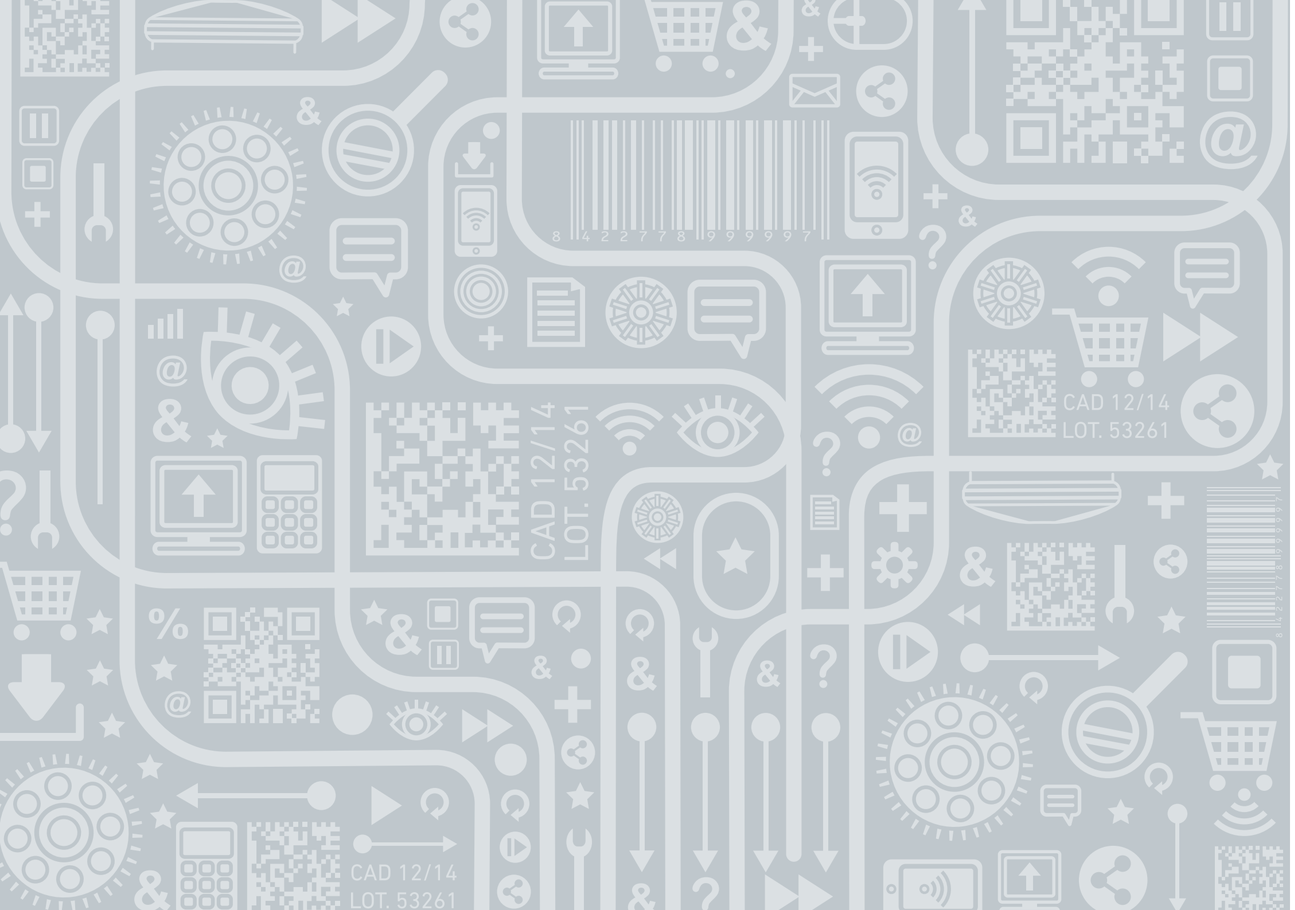
*RAF: Reverse Air Flow


# RESPONSIBILITY

Macsa Solidaria, the charity part of MACSA, has invested in housing for disabled people in India and to rehabilitate a maternity unit in Mali. And closer to home it has created the Viuràlia Foundation to support people in unemployment, to make available micro-credits to entrepreneurs unable to secure funding and to provide practical support to new start-up businesses.

*"I prefer to work with suppliers which have a clear and visible ethical policy including a responsible approach to the environment, and their employees and other stakeholders."*

*Fernando Prieto*
*Managing Director*
*Pritech*
*Brasil*



SCALABLE PRODUCT ARCHITECTURE

# CHANGES THE RULES, AGAIN

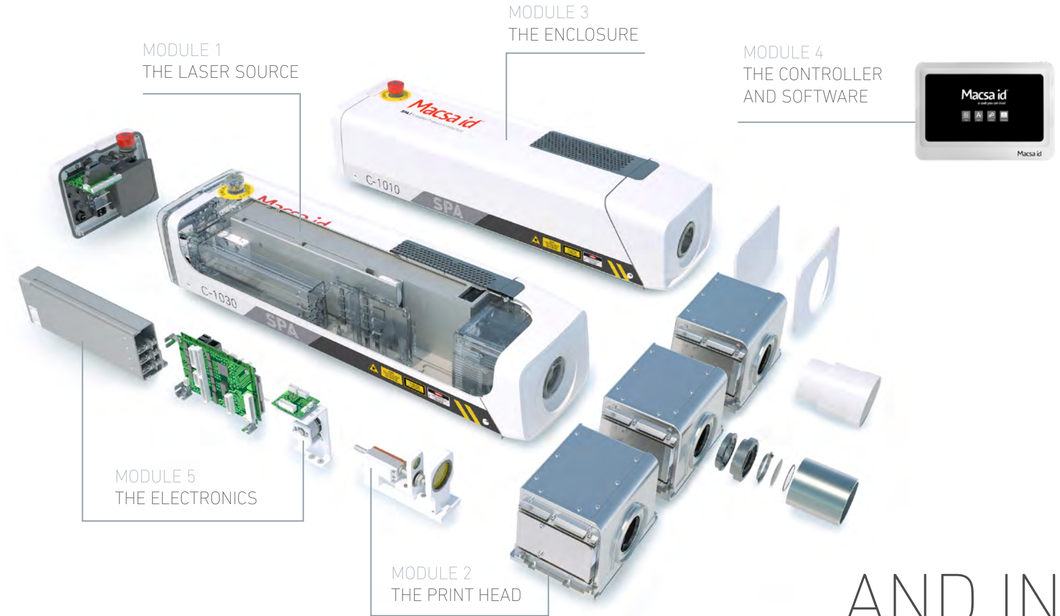

Until today, when you bought a laser you had to make compromises. You had to buy a standard product for today's needs which might become obsolete when those needs changed.

But it shouldn't be that way and that's why Macsa has developed the **SPA Scalable Product Architecture.**

The **SPA laser** platform simplifies everything. It's **modular** so you can specify exactly the laser which you need today knowing that you will be able to adapt it when your needs change tomorrow.

SPA lasers incorporate features and technology enabling them to deliver **better** quality **coding and marking** at higher speeds more consistently over time. They are more versatile and reliable, and lower cost to own, mantain and operate.

It's not just about selling lasers but about supplying, installing and supporting **complete** laser systems.




Macsa® Technology

# AND IN YOUR FAVOUR


# RELIABILITY

Production environments can test the reliability of laser systems. SPA lasers are designed to operate reliably in dusty or damp environments even subject to extremes of temperature.

## RESISTANT TO HARSH ENVIRONMENTS

They have been designed to meet **IP54**. This means that they are dust tight. This makes them more reliable.

Furthermore an affordable **IP65** option is avaliable. This enables them to be equally reliable in wash down and other wet environments.

High and low temperature kits are avaliable so that users can be confident that performance will be mantained even at ambient temperatures outside the laser's normal operating range.

IP54


IP65


## CLEAN COOLING

SPA laser uses the novel RAF reverse airflow cooling system. It takes in air from the back of the laser where it does not pick up dust from the laser's operation. This means that filters are changed less frequently and in some circumstances are not needed.

There is a sealed air system which transfers heat from the laser to the cooling air itself. This means that there is no risk of any dust being deposited directly into system component.

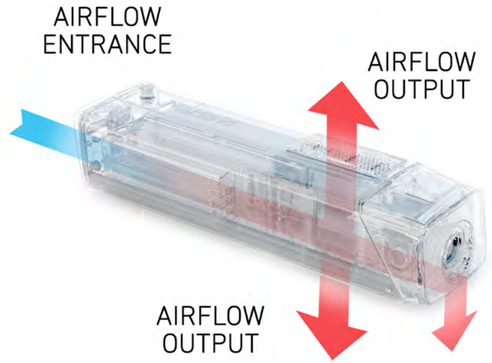
Finally, a part of the exhaust air is blown over the focusing lens keeping it dust free so that print quality is maintained without the need for operator intervention.

RAF® Reverse Air Flow

## RELIABLE CONNECTIVITY

The connectors on the back of SPA lasers are high specification and reliable in harsh production environments. They ensure that communication is maintained without the risk of disconnection or data transfer errors.

IP54 certified by

# VERSATILITY

The SPA modular system enables an easy integration to the needs of every production line or marking type. The SPA is so versatile that a single unit can meet the requirements of many applications.

## EASY LENS INSTALLATION

SPA lasers by Macsa allows you exchange lenses safely and quickly, which means that you can select the set of lenses that is suitable for each project and easily adapt the laser to it.

## OPTICS KITS FOR IMPROVED CODING

SPA lasers by Macsa give you the option of adding an Optics Kit that includes elements to improve the focus and resolution of the coding, such as a laser beam expander or an optical pointer, among others.

## EASY SWITCHING BETWEEN HEADS

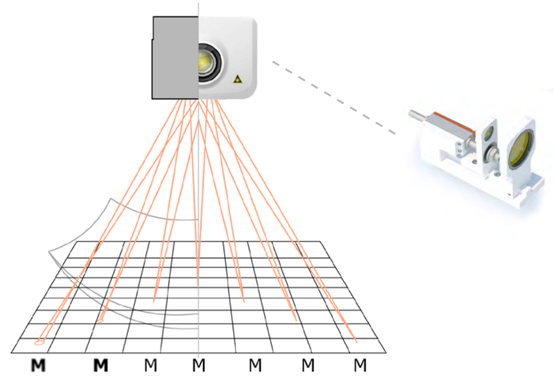
Thanks to SPA printer head exchange system, operators can switch them on site with just two connectors, adapting the laser to the needs of the production line at all times.

**EEP®** Easy Exchange Printhead

## A LASER FOR EVERY SUBSTRATE.

SPA lasers work with $CO_2$, YAG and Fiber laser technology to provide the best coding and marking result on a wide range of materials.






## 3D PRINTING OPTIONS

The SPA enables you to print on multi-level surfaces thanks to a surface recognition system included in its 3D printing kit, which ensures an optimal focal point at all times.

**3D PRINTING**

## EXTERNAL Z-AXIS CONTROL

Macsa provides you with an external Z-axis controller that allows you to adapt the SPA's vertical coding axis in order to vary the height between print cycles and adapt it to different products.

## CONNECTOR BOX

The SPA connector box offers a wide range of communication ports, which ensure that the laser is integrated with all of the elements in your production line.

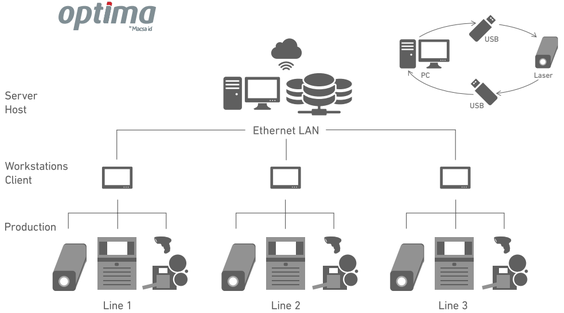

# VERSATILITY
# Connectivity

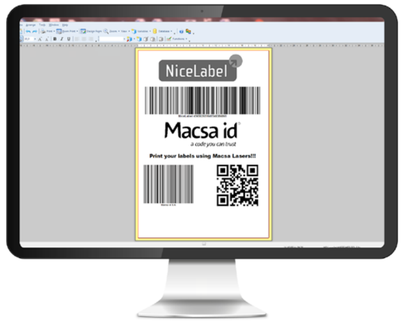
SPA lasers can work individually, but they can also work in team. These are the connectivity options:

## OPTIMA

SPA lasers support Optima software by Macsa. It is suitable with desktop printers, print & label applicators, readers and even inkjets. All this ensures full real-time control of the production of your company through our application or your ERP server.

optima
™Macsa id





## NICE LABEL

Compatibility between SPA and NiceLabel management software is complete. Design, create and print labels directly with SPA lasers without using anything else. You can use the SPA laser as a normal printer.

NiceLabel

## ILABEL SYSTEMS

Just press a button, that's all. The SPA system will print the label and apply it wherever you want. The wide range of possibilities of iLABEL systems guarantees the use of all kinds of labels for any type of application.

## REMOTE CONTROL

A Macsa's technician will be able to set the device and help in the creation of messages remotely.

REMOTE CONTROL

# PRECISION

Quality marking speaks volumes to the consumers of a brand or product. That is why the SPA platform has been designed to offer maximum marking resolution and definition, even on high-speed production lines.

## HIGHER SPEED AND BETTER RESOLUTION

There are three basic SPA printheads to use for different speed/quality challenges:

- UHS printhead is recommended for very high-speed production lines and for multiple lines of code or for complex messages with graphics and 2D codes.
- HPD printhead is recommended for working on difficult substrates, large marking areas and high resolution graphics and for product modification.
- NXT is a utility printhead for applications requiring a balance of power and speed.

## HIGHER-QUALITY LENSES

SPA lasers operate with new high-definition flat field lenses. These enable higher quality coding on a wide range of materials and across the entire marking area.

## DUAL PROCESSOR

SPA has a dual processor that dedicates all the resources of one processor to operating the laser, and simultaneously dedicates the resources of the other processor to real-time control of the marking, thus increasing the precision of the coding.

## VIBRATION CORRECTION SYSTEM (VCS)

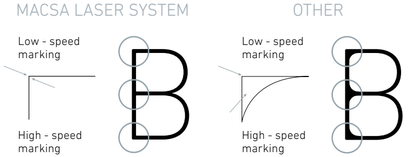
Macsa's propietrary VCS, based on a novel approach to product detection, improves print quality by eliminating the impact of production line vibration.

## LASER BEAM EXPANDER

A beam expander is avaliable as an SPA option. This expands the beam making it more uniform and increasing the definition of coding.

## OPTIMUM FOCUS CONTROL

Obtaining the optimum focus distance is much easier with the SPA as it includes a light pointer for the laser beam that indicates the height at which to place the product for better print definition.





Vibration Compensation System

VCS® Vibration Compensation System


# SIMPLICITY

Macsa has used the SPA software environment to make it easy to install, program and operate SPA lasers. There's a wizard to support installation. There are on-line help videos to provide advice in situ. There is a completely new user interface to make programming quicker and to eliminate operator errors.

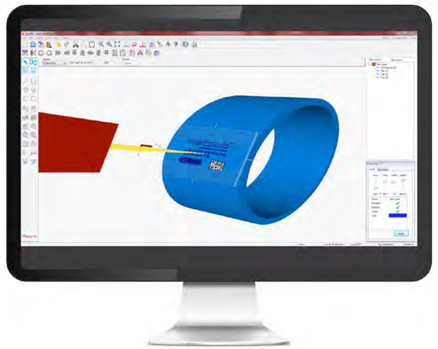
## MULTIMEDIA GUIDE FOR INSTALLATION AND CONFIGURATION

SPA lasers are even easier to install and configure thanks to the technical guides, videos and tips that can be accessed on site via a touch screen.

## ALL OPTIONS AT YOUR FINGERTIPS

SPA lasers may be controlled by a best of class 10 inch handheld touch screen controller. It comes complete with a new version of Marca software which is even easier to use and more powerful than previous releases. SPA lasers may alternatively be controlled direct from a PC via an ethernet link.



## NEW MARCA® SOFTWARE

SPA lasers may be controlled using Marca® software, which has been redesigned to be even more intuitive and easy to use. It provides laser operators with a full suite of features for designing the messages and driving the laser.

MARCA software®


# ADAPTABILITY

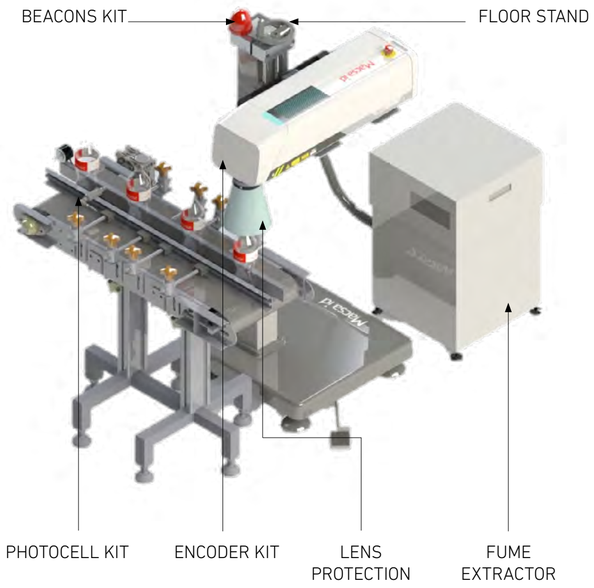
## MODULAR

Because the SPA platform is modular lasers can be adapted to meet users changing needs. New lasers can be fitted, the laser head can be changed, different options can be chosen and different extras installed.

## ESSENTIAL EXTRAS

A laser doesn't deliver until it's installed and running, this is the reason why it needs essential accessories. Macsa makes these essentials avaliable as a part of the SPA package. They are chosen because they work well within a SPA system and Macsa is confident to recommend them.

- Product detectors
- Line protection integration
- New articulated floor stands
- Special application cabinets (Workstations)
- Cooling dryer
- Fume extractors
- Lens / operator protection
- Safety kits




## OPTIONAL EXTRAS

Every production environment is different. Different performance, different ambient conditions, different regulations, different products and different substrates. Macsa supports and makes available a range of extras which meet the standards and complement the SPA laser installation.

- Optic kits
- Environmental kits
- Warming kit
- Cooling kit
- Connector box
- Filters
- Chiller
- Mechanical head kits


# RESPONSIBILITY

At MACSA ID, this is what we do. We are a team, or better yet, a family. From the moment of our inception, our family has grown exponentially to meet the challenges of tomorrow, today. We strive to offer the best solutions in laser marking and coding for product traceability. And in so doing, eliminating the need for costly consumables and at the same time protecting the environment. The results of the applicability and versatility of our products can be found in the daily lives of people around the world.

In the end, that's what we 're all about: people helping people.

MACSA HAS A RESPONSIBLE APPROACH TO THE ENVIRONMENT AND A CLEAR AND VISIBLE ETHICAL POLICY

## SUSTAINABILITY

Macsa lasers respects highly the environment. No fumes and no waste products. No consumables needed.

Consumers today expect and demand new environmental and social values to companies and its brands.
*(Source : Havas Worldwide Report, March 2015 with 10.131 people survey in 28 countries):*


**Consumers thinks that companies have an ethical obligation to operate in a way that does not harm the environment**

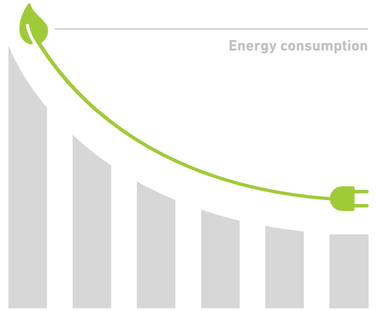

**Consumers avoid buying from companies that have a negative social or environmental impact**

*"Consumers want brands to be more responsible"*

*Jan Zijderveld*
*President, Europe Unilever*

## ENERGY EFFICIENCY

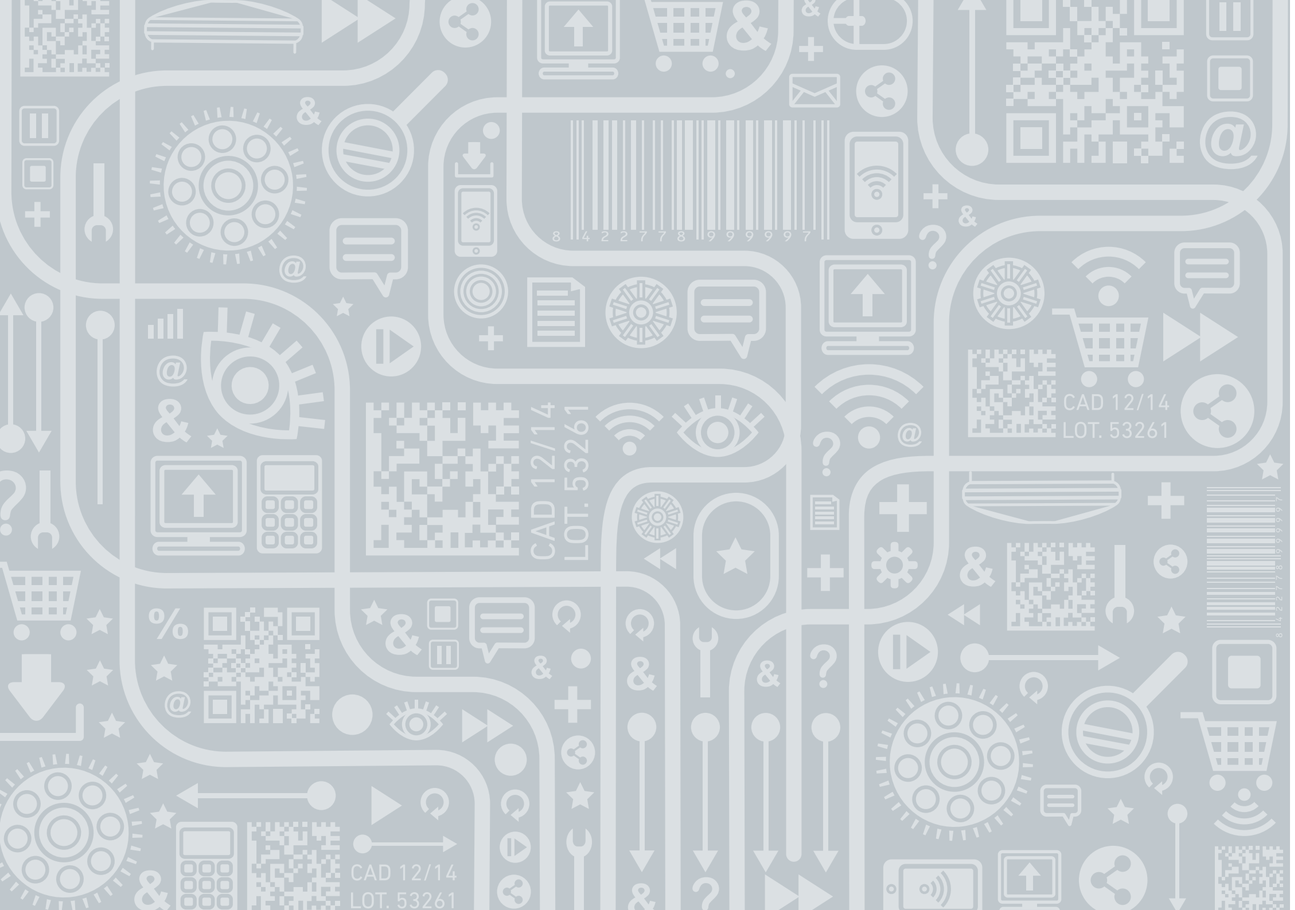
SPA lasers are better in power consumption during the execution of the image process than competitors' lasers. In short, our technology offers the same print quality and speed with less energy.




## ALL SECTOR REGULATIONS

Macsa, thanks to its wide offer of Coding and marking equipments of all technologies, helps to fulfill all sector regulations:

- * 21CFR/11
- * GSD Data Matrix
- * DCTA Tobacco



1

## CHOOSE THE TECHNOLOGY

- The substrate you need to code, mark or score determines whether you need a $CO_2$, a YAG or a fiber laser.
- If it's a $CO_2$ laser you can also choose the wavelength to better mark PET and PVC.

- **$CO_2$:** Paper and board, glass, wood, PVC (10,2 micron), PET (9,3 micron).
- **YAG and fiber:** Metals,engineering thermoplastics, styrenics olefinics, epoxy resins plastic films (continuous fiber).

2

## CHOOSE THE POWER

- A range of laser powers is available for all SPA families.
- Typically a higher speed application will need a higher power laser.
- Some more difficult to mark substrates will also need a higher power laser.

3

## CHOOSE THE PRINTHEAD

- If it's a high speed and/or multi line and/or complex graphic application you need an SPA UHS laser.
- If it's a difficult to mark substrate or a scoring application you need an SPA HPD laser.
- For most other applications an SPA NXT laser is sufficient.

- **UHS:** High speed production lines; large, more complex graphics.
- **HPD:** Scoring applications; difficult to mark substrates.
- **NXT:** Moderate speed production lines; typical coding messages.

4

## CHOOSE THE OPTICS

- The size of the message or graphic determines the focal length of the lens to be used.
- A beam expander may also be chosen to improve print quality.
- Beam expanders are standard for UHS and HPD lasers.
- A focussing pointer is also available.
- 3D printing options are available as extras.

5

## CHOOSE THE ENCLOSURE

- All SPA lasers are designed, built and tested to IP54.
- An IP65 option is available for users with damp and/or wash down environments.
- High and low temperature kits are available to ensure reliable operations at extreme temperatures.
- An optical head split kit aids installation in difficult environments.

6

## CHOOSE THE CONTROLLER

- The easiest way to program and control an SPA laser is to use its handheld touchscreen controller.
- Alternatively you can use Marca software and drive it from a PC via an ethernet link.

7

## CHOOSE THE ELECTRONICS

- The electronics module is standard for all SPA lasers.
- The power supply is modular but its size is determined by the choices of laser (technology, family and power) and optics.

8

## CHOOSE THE ESSENTIALS

- Several essential accessories are needed to complete most laser solutions:
  - Photocell
  - Shaft encoder
  - Support stand
  - Fume extractor
  - Laser beam protector

9

## CHOOSE THE EXTRAS

- All installations are different and it is generally necessary to add other equipment to complete a safe and robust installation:
  - 3D printing
  - Enhanced safety
  - Chiller
  - Connector box
  - Workstation

10

## CHOOSE THE EXPERIENCE

- A laser is just hardware until it's installed and operational. Macsa provides a range of services to ensure that users are fully satisfied:
  - Advise and Consulting
  - Installation
  - Training
  - Technical support
  - Extended warranty

# CHOOSE THE TECHNOLOGY

| MATERIAL | | TECHNOLOGY | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Family | Substrate | CO2 | | | Fiber | YAG | Green | UV |
| | wavelength | 10.6 µm | 10.2 µm | 9.6 µm | 1064nm | 1064nm | 537nm | 355nm |
| Wood, Paper and Board | Wood | 🟢 | 🟡 | 🟡 | 🟡 | 🟡 | 🔴 | 🔴 |
| | Thermal label | 🟢 | 🟡 | 🔴 | 🟡 | 🟡 | 🔴 | 🔴 |
| | Paper | 🟢 | 🟢 | 🟢 | 🟡 | 🟡 | 🔴 | 🔴 |
| | Board | 🟢 | 🟢 | 🟢 | 🟡 | 🟡 | 🔴 | 🔴 |
| | Metallised Board | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟡 | 🔴 |
| Food | Fruits and vegetables | 🟢 | 🟡 | 🟡 | 🔴 | 🔴 | 🔴 | 🔴 |
| Glass | Glass | 🟢 | 🟡 | 🟡 | 🔴 | 🔴 | 🟢 | 🟢 |
| | Glass Fiber | 🟢 | 🟡 | 🟡 | 🟡 | 🟡 | 🟡 | 🟢 |
| Ceramics | Ceramic | 🟢 | 🟡 | 🟡 | 🟢 | 🟢 | 🟡 | 🟡 |
| Plastics | Polypropylene (PP) | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Low density polyethylene (LDPE) | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 |
| | High density polyethylene (HDPE) | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Polystyrene (PS; GPPS and HIPS) | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 |
| | ABS | 🔴 | 🔴 | 🔴 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Polyacetal (POM; polyoxymethylene) | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Polyamide (PA) | 🟡 | 🟡 | 🟡 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Polycarbonate (PC) | 🔴 | 🔴 | 🔴 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Polyethylene terephthalate (PET) | 🟡 | 🟡 | 🟡 | 🔴 | 🔴 | 🟡 | 🟢 |

🟢 Excellent Reaction 🟡 Good Reaction 🔴 Poor Reaction

SCALABLE PRODUCT ARCHITECTURE

| MATERIAL | | TECHNOLOGY | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Family | Substrate | CO2 | | | Fiber | YAG | Green | UV |
| | wavelength | 10.6 µm | 10.2 µm | 9.6 µm | 1064nm | 1064nm | 537nm | 355nm |
| Plastics | Polybutylene terephthalate (PBT) | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Polyvinyl chloride (PVC) | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Silicone coated | 🟢 | 🟢 | 🟢 | 🟡 | 🟢 | 🟢 | 🟢 |
| | Epoxy resins | 🔴 | 🔴 | 🔴 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Phenolic resins | 🟢 | 🟢 | 🟢 | 🟡 | 🟡 | 🟢 | 🟢 |
| | Polyurethane | 🟡 | 🟡 | 🟡 | 🟡 | 🟡 | 🟢 | 🟢 |
| Plastic foams | Polystyrene foam | 🟢 | 🟢 | 🟢 | 🟡 | 🟡 | 🟢 | 🟢 |
| | Polyethylene foam | 🟢 | 🟢 | 🟢 | 🟡 | 🟡 | 🟢 | 🟢 |
| | Polyurethane foam | 🟢 | 🟢 | 🟢 | 🟡 | 🟡 | 🟢 | 🟢 |
| Plastic films and foils | Aluminized Foil | 🟡 | 🟢 | 🟡 | 🟢 | 🔴 | 🔴 | 🔴 |
| | Polyethylene terephthalate (PET) | 🟡 | 🟢 | 🟢 | 🟢 | 🟡 | 🔴 | 🔴 |
| | Oriented polypropylene (OPP) | 🟡 | 🟢 | 🟡 | 🟢 | 🟡 | 🔴 | 🔴 |
| Metals | Coated metal | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Anodized aluminium | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Steel | 🔴 | 🔴 | 🔴 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Aluminium | 🔴 | 🔴 | 🔴 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Copper | 🔴 | 🔴 | 🔴 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Gold | 🔴 | 🔴 | 🔴 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Iron | 🔴 | 🔴 | 🔴 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Metallised board | 🔴 | 🔴 | 🔴 | 🟢 | 🟢 | 🟢 | 🟢 |
| | Nickel | 🔴 | 🔴 | 🔴 | 🟢 | 🟢 | 🟢 | 🟢 |
| Rubber | Natural rubber | 🟢 | 🟢 | 🟢 | 🟡 | 🟡 | 🟡 | 🟡 |
| | Synthetic rubber | 🟢 | 🟢 | 🟢 | 🟡 | 🟡 | 🟡 | 🟡 |

# CHOOSE THE POWER

| WAVE LENGTH | TECHNONOLGY | PRINTHEAD | 10 | 20 | 30 | 40 | 50 | 60 | 80 | 100 | 200 | 400(1) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.6 micron 10.2 micron 9.3 micron | $CO_2$ | NXT | YES | | YES | | | YES | YES | YES | YES | YES |
| | | UHS | | | YES | | | YES | YES | | | |
| | | HPD | | | YES | | | YES | YES | YES | | |
| 1064 nm | PULSED FIBER | NXT | YES | YES | YES | | YES | | | YES | | |
| | | UHS | YES | YES | YES | | YES | | | YES | | |
| | | HPD | YES | YES | YES | | YES | | | YES | | |
| 1064 nm | CONTINUOUS FIBER | UHS | YES | YES | | | YES | | | YES | | |
| 1064 nm | YAG | NXT | YES | YES | | YES | | | | | | |
| | | HDP | YES | YES | | YES | | | | | | |

(1) 10.6mMicron only

| | Specialist Laser (NXT ONLY) | | | | |
|---|---|---|---|---|---|
| 533 | GREEN | YAG | 6 | AND | 10W |
| 355 | UV | YAG | 1.5 | AND | 4W |



## MODULE 1:

**RELIABILITY** · VERSATILITY · **PRECISION** · **EASINESS** · ADAPTABILITY · COST · RESPONSIBILITY



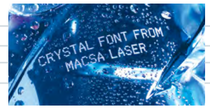
# CHOOSE THE PRINTHEAD

| HPD | NXT | UHS |
|---|---|---|
| product modification (slitting, scoring or perforating) | • <1m/sec line speed<br>• 1 or 2 Lines of code<br>• Simple messages or graphics<br>• <40K Products/Hour cadence | >1m/Sec line speed |
| high resolution graphics | | More than 2 lines of code |
| difficult substrates | • Coding or marking<br>• Moderate resolution<br>• Easy substrate<br>• Marking area <250mm² | Complex messages with graphics and 2D codes |
| marking area >250mm² | | >40K products/ hour cadence |

POWER | SPEED







## MODULE 2:

**RELIABILITY** · VERSATILITY · **PRECISION** · **EASINESS** · ADAPTABILITY · COST · RESPONSIBILITY

**SPA** | SCALABLE PRODUCT ARCHITECTURE

# CHOOSE THE OPTICS

Standard

| System Type | | | $CO_2$ | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | NXT without beam expander | | | NXT with beam expander | | | UHS | | | | | HPD | | | | |
| Power | | | all | 10w | 30w | all | 10w | 30w | all | 10w | 30w | 60w | 80w | all | 30w | 60w | 80w | 100w |
| scan field (mm) | working distance mm | focal length mm | beam diameter micron | power density KW/cm2 | | beam diameter micron | power density KW/cm2 | | beam diameter micron | power density KW/cm2 | | | | beam diameter micron | power density KW/cm2 | | | |
| 40x40 | 55 | 65 | 301 | 28,1 | 84,4 | 150 | 112,6 | 337,8 | | | | | | | | | | |
| 60x60 | 85 | 95 | 385 | 17.2 | 51.6 | 192 | 68.8 | 206.5 | 256 | 38.7 | 116.2 | 232.4 | 309.8 | 137 | 408,4 | 816,9 | 1089,2 | 1361,5 |
| 75x75 | 115 | 125 | 506 | 9.9 | 29.8 | 253 | 39.8 | 119.3 | 337 | 22.4 | 67.1 | 134.2 | 178.9 | 180 | 235,9 | 471,8 | 629,1 | 786,4 |
| 100x100 | 150 | 160 | 648 | 6.1 | 18.2 | 324 | 24.3 | 72.8 | 432 | 13.7 | 41 | 81.9 | 109.2 | 230 | 144,0 | 288,0 | 384,0 | 480,0 |
| 100x100 | 190 | 200 | 810 | 3.9 | 11.7 | 405 | 15.5 | 46.6 | 540 | 8.7 | 26.2 | 52.4 | 69.9 | 288 | 92,2 | 184,3 | 245,7 | 307,2 |
| 150x150 | 230 | 240 | - | | | 486 | 10.8 | 32.4 | 648 | 6.1 | 18.2 | 36.4 | 48.5 | 346 | 64,0 | 128,0 | 170,7 | 213,3 |
| 200x200 | 310 | 320 | - | | | 648 | 6.1 | 18.2 | 864 | 3.4 | 10.2 | 20.5 | 27.3 | 461 | 36,0 | 72,0 | 96,0 | 120,0 |
| 250x250 | 400 | 410 | - | | | 830 | 3.7 | 11.1 | 1107 | 2.1 | 6.2 | 12.5 | 16.6 | 590 | 21,9 | 43,9 | 58,5 | 73,1 |

| System Type | | | YAG NXT | | | | | GREEN HPD | | Fiber NXT | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Power | | | all | 4w | 6w | 10 | 20w | 6w | | all | 10w | 20w | 30w | 50w |
| scan field (mm) | working distance mm | focal length mm | beam diameter micron | power density KW/cm2 | | | | beam diameter micron | power density KW/cm2 | beam diameter micron | power density KW/cm2 | | | |
| 55x55 | 128 | 100 | 27 | 1387.5 | 2081,3 | 3468.8 | 6937,6 | 14 | 8325.1 | 27 | 3481.9 | 6963.7 | 10445.6 | 17409.3 |
| 100x100 | 205 | 162 | 44 | 528.7 | 793,0 | 1321.7 | 2643.5 | 22 | 3172.2 | 44 | 1326.7 | 2653.4 | 3980.2 | 6633.6 |
| 160x160 | 321 | 254 | 69 | 215,1 | 322,6 | 537.7 | 1075.3 | 34 | 1290.4 | 69 | 539.7 | 1079.4 | 1619.1 | 2698.4 |
| 200x200 | 427 | 346 | - | - | 173,9 | 289,8 | 579.5 | 47 | 695.4 | 94 | 290.8 | 581.7 | 872.5 | 1454.2 |




| Technology | CO2 | | | FIBER | | | | YAG | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | continuous | pulsed | pulsed | pulsed | | | Green | UV |
| name | NXT | UHS | HPD | UHS | NXT | UHS | HPD | NXT | HPD | HPD | HPD |
| | utility | speed | power | speed | utility | speed | power | utility | power | power | power |
| mirror size mm | 8 | 6 | 15 | 6 | 10 | 6 | 15 | 10 | 15 | 15 | 15 |
| focal length range mm | 40-250 | 40-130 | 40-500 | 55-130 | 55-250 | 55-130 | 55-500 | 55-250 | 55-500 | 55-500 | 55-500 |
| 90 degree ouput | standard | standard | standard | standard | standard | standard | standard | standard | standard | standard | standard |
| 0 degree ouput | standard | standard | no | no | no | no | no | no | no | no | no |
| beam expander | option | standard | standard | standard | standard | standard | standard | standard | standard | standard | standard |
| beam pointer | option | option | option | option | standard | standard | standard | standard | standard | standard | standard |
| focal length pointer | option | option | option | option | option | option | option | option | option | option | option |
| 3D marking | no | no | option | no | no | no | option | no | no | option | option |

# CHOOSE THE ENCLOSURE

| technology | $CO_2$ | | | FIBER | | | | YAG | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | continuous | pulsed | pulsed | pulsed | | | Green | UV |
| **name** | **NXT** | **UHS** | **HPD** | **UHS** | **NXT** | **UHS** | **HPD** | **NXT** | **HPD** | **HPD** | **HPD** |
| | **utility** | **speed** | **power** | **speed** | **utility** | **speed** | **power** | **utility** | **power** | **power** | **power** |
| **standard IP rating** | IP 54 | IP 54 | IP 54 | IP 54 | IP 54 | IP 54 | IP 54 | IP 54 | IP 54 | IP 54 | IP 54 |
| **special IP rating** | IP65 | IP65 | IP65 | no | no | no | no | no | no | no | no |
| **IP54 split kit** | option | option | standard | no | no | no | no | no | no | no | no |
| **IP65 split kit** | option | option | option | no | no | no | no | no | no | no | no |
| **warming kit** | option | option | option | option | option | option | option | option | option | option | option |
| **cooling kit** | option | option | option | option | option | option | option | option | option | option | option |
| **air blowing kit** | standard | standard | no | no | standard | standard | no | standard | standard | standard | standard |
| **air pressure kit** | option | option | option | option | option | option | option | option | option | option | option |

IP65 rating: for wash down applications and others where the laser system is used in a humid or wet environment.

IP65 Split kit: for applications where the head is cleaned with pressurized water.

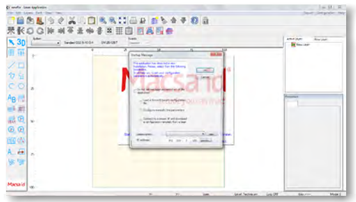
Warming kit: for low temperature environments such as the Nordic countries and low ambient temperature industries. The minimum ambient operating temperature is reduced to 0°C.

Cooling kit: for high temperature environments such as tropical countries and high ambient temperature industries. The maximum ambient operating temperature is increased to 50°C.

MODULE 3:

RELIABILITY · VERSATILITY · PRECISION · EASINESS · ADAPTABILITY · COST · RESPONSIBILITY

# CHOOSE THE CONTROLLER

## TOUCH SCREEN

There's a brand new user interface which means that SPA lasers are easy to install, program, operate and service.

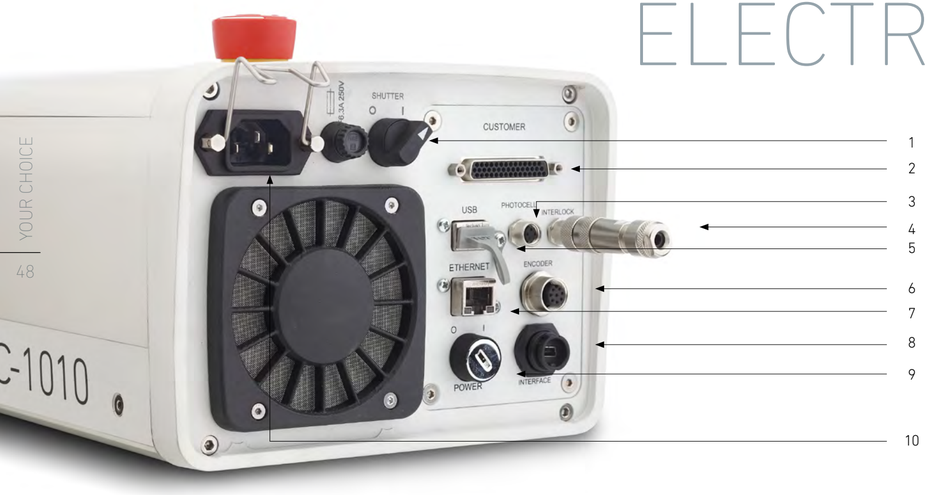
- There's a Wizard to makes SPA lasers easy to install
- There's a totally new and unique interface for operators and a best of class-hand held touch screen controller
- On line help videos are available in the factory where you need them
- LCD 10.1 inch Touch Screen
- Fully tactile to improve the experience
- 24 bit colours


## MARCA SOFTWARE

The Marca programming software has been redesigned and is even more powerful and easy to use.

- Dynamic static print feature
- Script generator for special applications
- Crossfree fonts
- Algorithms optimized for improved speed of scanners
- Software made and optimized by Macsa
- Enhanced fill algorithm (connect hatchlines for improved speed)
- Second monitor feature for displaying message on a projector
- Userinterface adaptable to PC panels with touch devices
- 2D codes with visible human-readable text
- Support multilanguages (chinese, arabic with ligatures, etc.)
- Promotion software available
- Z-axis Contolsystem
- Accept DXF, JPG, BMP, TIF....

# CHOOSE THE ELECTRONICS




## MODULE 5:

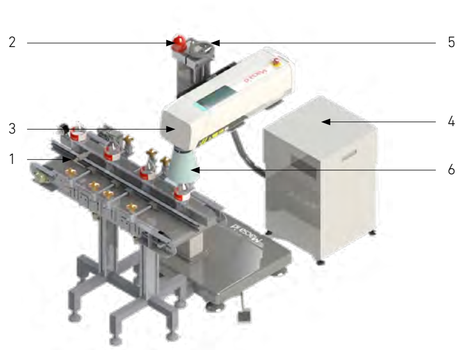
RELIABILITY · VERSATILITY · PRECISION · EASINESS · ADAPTABILITY · COST · RESPONSIBILITY

| 1. SHUTTER | 2. CUSTOMER | 3.PHOTOCELL | 4. INTERLOCK | 5. USB |
|---|---|---|---|---|
| Enable the output beam to be mechanically stopped at the outlet of the laser tube. This guarantees safety during maintenance and other work on the laser. | Used to monitor the status of the laser, to integrate with other systems. There are 12 input/ output channels and direct connection to a PLC or similar may be made. | Used to trigger printing and to control the number of products printed in a certain time. | The interlock is a safety connection that disables the laser beam when 'open'. It may be connected to a cabinet door. | Used to enable extra interconnectivity.<br>• Connect to an RS232 port to control the laser via communication protocol.<br>• Receive and send data to a PLC or computer.<br>Protocols are available for advanced integration. |

| 6. ENCODER | 7. ETHERNET | 8. INTERFACE | 9. KEY SWITCH | 10. MAIN POWER SUPPLY CONNECTION |
|---|---|---|---|---|
| Used to monitor the speed of the line to improve the quality of print in dynamic mode and to minimize the noise caused by the conveyor by means of Macsa's proprietary VMS. | Used to connect the laser with MARCA message creation and laser control software.<br>• Enables the creation of complex labels and special objects actions scripts.<br>• Provides the facility to monitor the status of the laser and to control total prints, and modify its configuration. | Enables the laser to be connected to an external user interface such as a touchscreen controller. | This interlock is a fundamental safety device. The laser cannot be operated without this switch being 'on'. | System ready to support 110v/230V and 50Hz or 60Hz.<br>There is a special holding system for a better functionality. |

| CPU BOARD | | DUAL CORE PROCESSORS |
|---|---|---|
| • Form factor | Q seven Form Factor 2.0 compliant | • Redesigned Control Board compatible with all laser tubes and equipment configs<br>• 6 LED for indicate the status of most important signals<br>• Test Bridges for assist in the reparation<br>• Test points included for an easy measuring |
| • CPU | Intel Atom E3815 1.46GHz Single Core L2 Cache 5WTDP | |
| • DRAM | 8 GB Dual Channel I up to 1GB onboard DDR3L with 1066MT/s | |
| • Chipset | Integrated in SoC | |
| • Power Consumption | Typ. Application 4.5W...12W | |
| • Temperature | Operating: -40 to +85°C Storage: -45 to +85°C | |
| • Humidity | Operating: 10 to 90% r.H non condensation | |

# CHOOSE THE ESSENTIALS




| 1. PHOTOCELL KIT | 2. BEACONS KIT | 3. ENCODER KIT | 4. FUME EXTRACTOR | 5. FLOOR STAND | 6. LENS PROTECTION |
|---|---|---|---|---|---|
| • Consumption 40mA Max<br>• Sensivitive distance 10cm<br>• Output signal PNP/NPN<br>• Response delay 0.5ms<br>• Operating environment -25º-55ºC<br>• Indicator red Led (624nm)<br>• Cover material ABS Plastic<br>• Photocell + bracketup | • Beacon alarm three colour signal | • Body Aluminium<br>• Shaft Stainless steel<br>• Max. Speed 6000rpm<br>• Max. Acceleration [1.5x10]^5 rad/s^2<br>• Vibration<br>• [100 m/s] ^5 (from 10 to 200MHz)<br>• Shaft dimmensions 6x10mm<br>• Electronic levelout TTL (5VDC)<br>• Number of pulses per revolution 3000 | • Integral silencer<br>• 30,000 hours life<br>• 99.997% efficiency at 0.3 micron Activated carbon mix | • Floor stand adjustable in X/Y/Z axis<br>• Support for Laser<br>• Material aluminium<br>• Dimensions 115x150x495mm | • Plexiglass protection to prevent laser reflections and for safety purposes<br>• Easy to mount<br>• Anti-radiation protection class 1<br>• Materiall policarbonate<br>• Adapt to the laser |

# CHOOSE THE EXTRAS

**1. CHILLERS**

An external chiller is needed in some circumstances to further cool the laser with water. This will prevent the laser from over heating and print quality will thereby be maintained.

**2. SAFETY KITS**

SPA lasers may be configured to operate at safety levels A, B, C, D and E according to EN ISO 13849-1:2008.

**3. CONNECTION BOXES**

Multiple connection boxes are available for multiplatform connectivity I/O signals.

**4. WORKSTATIONS**

Manual

**ILASERBOX 480/20 SP**

Compatible with Macsa's full product range.
Several optional features:
- Touch-screen
- Focal distance red pointer
- Open door red pointer
- Fume extractor
- Manual table

Manual Automatic

**ILASERBOX 480/850 RACK**

Compatible with Macsa's full product range.
Several optional features:
- Touch-screen
- Focal distance red pointer
- Open door red pointer
- Fume extractor
- Manual and automatic tables
- Performance level D: curtain and electric sensor

Manual Automatic

**ILASERBOX 480/850**

Compatible with Macsa's single module lasers.
Several optional features:
- Touch-screen
- Focal distance red pointer
- Open door red pointer
- Fume extractor
- Manual and automatic tables
- Performance level D: curtain and electric sensor

iLaserBox workstations are a compact, affordable, easy to set-up. They enable YAG and fiber lasers to be operated safely to class I standard and are used in low volume semi-manual laser marking applications.

# CHOOSE THE EXPERIENCE

A laser is just hardware until it's installed and operational. Macsa provides a range of services to ensure that users are fully satisfied.

## ADVICE AND CONSULTATION

Macsa provides advice to its customers in:

- regulatory compliance
- supply chain management
- factory integration

It makes its experts available to help its customers to make more effective use of their coding and marking equipment, to respond to changing external needs and to run their factories more efficiently.

## INSTALLATION

Macsa operates globally with a network of independent value adding distributors. It has a rigorous training and certification program so that every customer which buys a Macsa laser gets the same high quality product experience.

The start of this experience is the installation and because of the importance of good installation to ongoing reliable operation the process is standardised and supported by an installation wizard and in situ video guides.

## TRAINING

Macsa and its distributor partners offer training to their customers for two main reasons. The first is to ensure ongoing reliable operation. The second is to enable them to take full advantage of the powerful Marca message creation and laser driver software. This reduces their dependency on Macsa. Costs are lower and user satisfaction is increased.

Three levels of training are available:

1. User training: the basics of start stop and simple message management
2. Full message creation
3. Advanced laser settings

## TECHNICAL SUPPORT

Even the most reliable lasers need occasional technical support and like all production line equipment they benefit from regular maintenance. Macsa's world-wide network provides a consistent level of response appropriate tor the location of the laser.

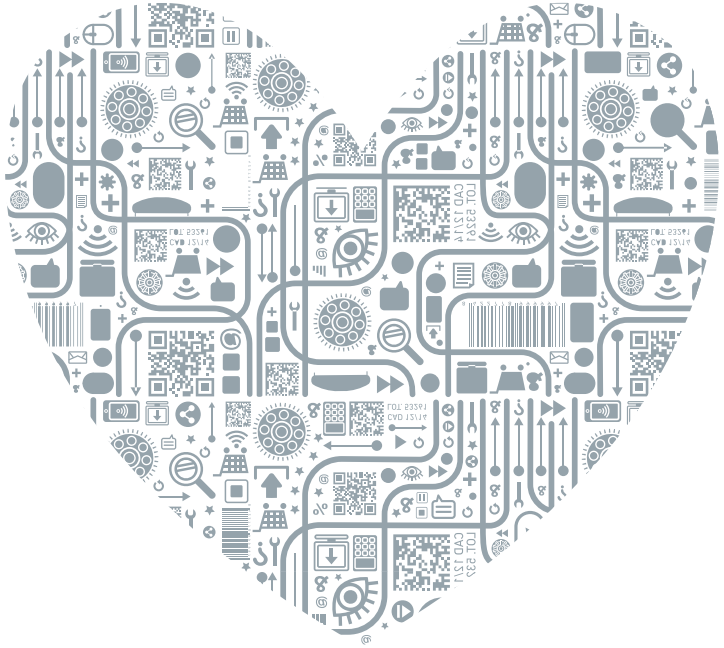
Standard maintenance plans are available from all Macsa distributors. These range from basic plans with just a regular maintenance to more comprehensive offerings designed to minimise long term cost of ownership.

## EXTENDED WARRANTY

Nobody likes to face repair and component replacement costs after the expiry of a vendor's warranty. Macsa and its partners offer 1, 2 and 3 year extended warranty programs so that users of Macsa lasers can be even more confident that they will not face unexpected charges.

"Because Macsa supplies its lasers via value-adding distributors worldwide service standards may vary"

# MACSA
# WORLD WIDE



# MACSA we care

Macsa id®
*a code you can trust*

Version JUNE 2018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