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YOUR
NEEDS

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YOUR
LASER

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YOUR
CHOICE

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CHOOSE THE TECHNOLOGY

- The substrate you need to code, mark or score determines whether you need a CO₂, a YAG or a fiber laser.
- If it's a CO₂ laser you can also choose the wavelength to better mark PET and PVC.
- **CO₂**: 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).

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.

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.

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.

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.

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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.

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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.

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CHOOSE THE ESSENTIALS

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

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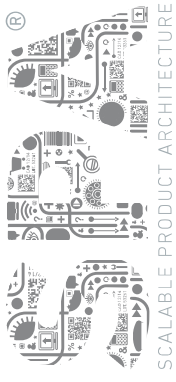
CHOOSE THE EXTRAS

- 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

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CHOOSE THE EXPERIENCE

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



● Excellent Reaction ● Good Reaction ● Poor Reaction

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

CHOOSE THE POWER

WAVE LENGTH	TECHNOLOGY	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		
		NXT	YES	YES								
		HDP	YES	YES								

(1) 10.6mMicron only

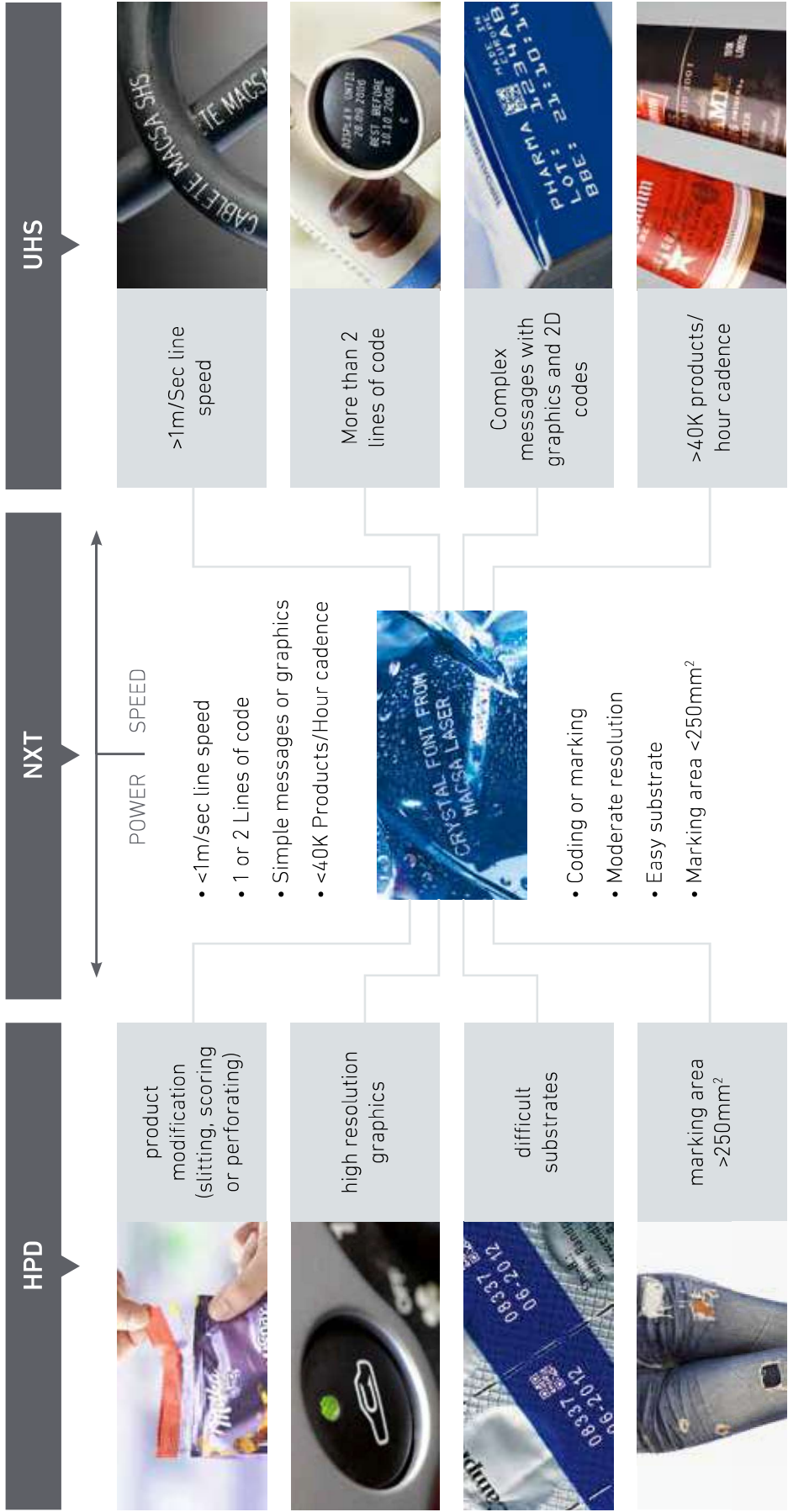
Specialist Laser (NXT ONLY)					
533	GREEN	YAG	6	AND	10W
355	UV	YAG	1.5	AND	4W



MODULE 1:

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

CHOOSE THE PRINTHEAD



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			
		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/cm ²	beam diameter micron	power density KW/cm ²	beam diameter micron	power density KW/cm ²	beam diameter micron	power density KW/cm ²	beam diameter micron	power density KW/cm ²	beam diameter micron	power density KW/cm ²	beam diameter micron	power density KW/cm ²	
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	408.4	816.9	1089.2	
75x75	115	125	506	9.9	29.8	253	39.8	119.3	337	22.4	67.1	134.2	178.9	235.9	471.8	786.4	
100x100	150	160	648	6.1	18.2	324	24.3	72.8	432	13.7	41	81.9	109.2	144.0	288.0	384.0	
100x100	190	200	810	3.9	11.7	405	15.5	46.6	540	8.7	26.2	52.4	69.9	92.2	184.3	245.7	
150x150	230	240	-	-	-	486	10.8	32.4	648	6.1	18.2	36.4	48.5	64.0	128.0	170.7	
200x200	310	320	-	-	-	648	6.1	18.2	864	3.4	10.2	20.5	27.3	36.0	72.0	96.0	
250x250	400	410	-	-	-	830	3.7	11.1	1107	2.1	6.2	12.5	16.6	21.9	43.9	58.5	

System Type		YAG NXT				GREEN HPD		Fiber NXT						
		all		4w	6w	20w	6w		all		10w	20w	30w	50w
		beam diameter micron	power density KW/cm ²	beam diameter micron	power density KW/cm ²	beam diameter micron	power density KW/cm ²	beam diameter micron	power density KW/cm ²	beam diameter micron	power density KW/cm ²	beam diameter micron	power density KW/cm ²	beam diameter micron
scan field (mm)	working distance mm	focal length mm	beam diameter micron	power density KW/cm ²	beam diameter micron	power density KW/cm ²	beam diameter micron	power density KW/cm ²	beam diameter micron	power density KW/cm ²	beam diameter micron	power density KW/cm ²	beam diameter micron	power density KW/cm ²
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		
	NXT	UHS	HPD	continuous	pulsed	pulsed	NXT	Green	UV
name	utility	speed	power	UHS	UHS	HPD	utility	HPD	HPD
mirror size mm	8	6	15	speed	speed	power	10	15	15
focal length range mm	40-250	40-130	4.0-500	55-130	55-130	55-500	55-250	55-500	55-500
90 degree output	standard	standard	standard	standard	standard	standard	standard	standard	standard
0 degree output	standard	standard	no	no	no	no	no	no	no
beam expander	option	standard	standard	standard	standard	standard	standard	standard	standard
beam pointer	option	option	option	option	standard	standard	standard	standard	standard
focal length pointer	option	option	option	option	option	option	option	option	option
3D marking	no	no	option	no	no	option	no	no	option

CHOOSE THE ENCLOSURE

technology	CO ₂				FIBER				YAG					
	name	NXT	UHS	HPD	continuous	pulsed	pulsed	pulsed	NXT	HPD	power	HPD	power	UV
					speed	utility	speed	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	IP 54	IP 54	IP 54
special IP rating	IP65	IP65	IP65	IP65	no	no	no	no	no	no	no	no	no	no
IP54 split kit	option	option	option	standard	no	no	no	no	no	no	no	no	no	no
IP65 split kit	option	option	option	option	no	no	no	no	no	no	no	no	no	no
warming kit	option	option	option	option	option	option	option	option	option	option	option	option	option	option
cooling kit	option	option	option	option	option	option	option	option	option	option	option	option	option	option
air blowing kit	standard	standard	standard	no	no	standard	standard	standard	standard	standard	standard	standard	standard	standard
air pressure kit	option	option	option	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.

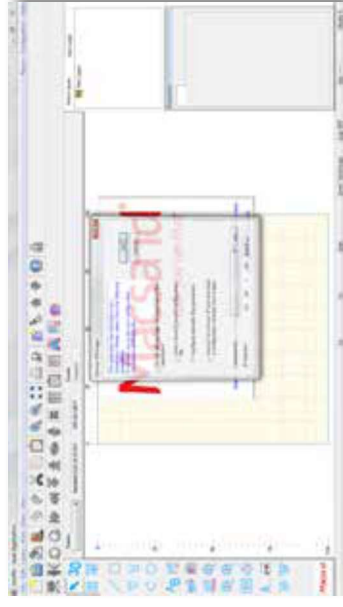
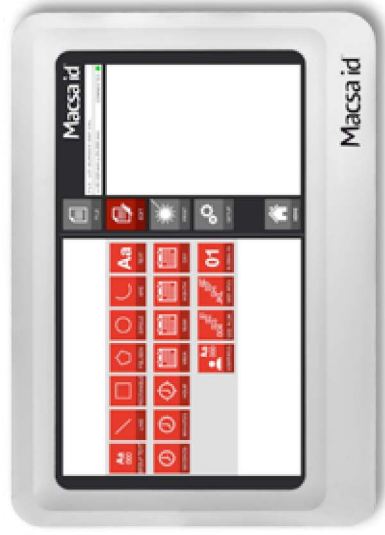
Cooling kit: for high temperature environments such as tropical countries and high ambient temperature industries. The maximum ambient operating temperature is increased to 50°C.



MODULE 3:

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

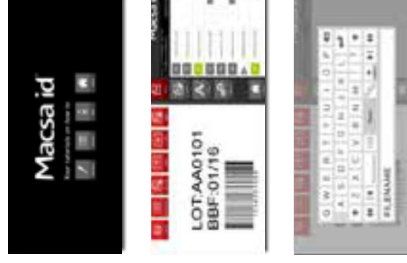
CHOOSE THE CONTROLLER



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 Controlsystem
- Accept DXF, JPG, BMP, TIF, ...



CHOOSE THE ELECTRONICS



YOUR CHOICE

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C-1010



MODULE 5:

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

1. SHUTTER	2. CUSTOMER	3. PHOTOCELL	4. INTERLOCK	5. USB
<p>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.</p>	<p>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.</p>	<p>Used to trigger printing and to control the number of products printed in a certain time.</p>	<p>The interlock is a safety connection that disables the laser beam when 'open'. It may be connected to a cabinet door.</p>	<p>Used to enable extra interconnectivity.</p> <ul style="list-style-type: none"> Connect to an RS232 port to control the laser via communication protocol. Receive and send data to a PLC or computer. <p>Protocols are available for advanced integration.</p>

6. ENCODER	7. ETHERNET	8. INTERFACE	9. KEY SWITCH	10. MAIN POWER SUPPLY CONNECTION
<p>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.</p>	<p>Used to connect the laser with MARCA message creation and laser control software.</p> <ul style="list-style-type: none"> Enables the creation of complex labels and special objects actions scripts. Provides the facility to monitor the status of the laser and to control total prints, and modify its configuration. 	<p>Enables the laser to be connected to an external user interface such as a touchscreen controller.</p>	<p>This interlock is a fundamental safety device. The laser cannot be operated without this switch being 'on'.</p>	<p>System ready to support 110v/230V and 50Hz or 60Hz.</p> <p>There is a special holding system for a better functionality.</p>

CPU BOARD		DUAL CORE PROCESSORS	
<ul style="list-style-type: none"> Form factor: Q seven Form Factor 2.0 compliant CPU: Intel Atom E3815 1.46GHz Single Core L2 Cache 5WTDTP DRAM: 8 GB Dual Channel 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 	<ul style="list-style-type: none"> Redesigned Control Board compatible with all laser tubes and equipment configs 6 LED for indicate the status of most important signals Test Bridges for assist in the repairation Test points included for an easy measuring 		

CHOOSE THE ESSENTIALS



1. PHOTOCCELL KIT	2. BEACONS KIT	3. ENCODER KIT	4. FUME EXTRACTOR	5. FLOOR STAND	6. LENS PROTECTION
<ul style="list-style-type: none"> Consumption 40mA Max Sensitivitive distance 10cm Output signal PNP/NPN Response delay 0.5ms Operating environment -25°-55°C Indicator red Led (624nm) Cover material ABS Plastic Photocell + bracketup 	<ul style="list-style-type: none"> Beacon alarm three colour signal 	<ul style="list-style-type: none"> Body Aluminium Shaft Stainless steel Max. Speed 6000rpm Max. Acceleration $[1.5 \times 10]^{\wedge}5 \text{ rad/s}^2$ Vibration $[100 \text{ m/s}]^{\wedge}5$ (from 10 to 200MHz) Shaft dimmensions 6x10mm Electronic levelout TTL (5VDC) Number of pulses per revolution 3000 	<ul style="list-style-type: none"> Integral silencer 30.000 hours life 99.997% efficiency at 0.3 micron Activated carbon mix 	<ul style="list-style-type: none"> Floor stand adjustable in X/Y/Z axis Support for Laser Material aluminium Dimensions 115x150x495mm 	<ul style="list-style-type: none"> Plexiglass protection to prevent laser reflections and for safety purposes Easy to mount Anti-radiation protection class 1 Materiall polycarbonate Adapt to the laser

CHOOSE THE EXTRAS

					
<p>1. CHILLERS</p>	<p>2. SAFETY KITS</p>	<p>3. CONNECTION BOXES</p>	<p>4. WORKSTATIONS</p>		
<p>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.</p>	<p>SPA lasers may be configured to operate at safety levels A, B, C, D and E according to EN ISO 13849-1:2008.</p>	<p>Multiple connection boxes are available for multiplatform connectivity I/O signals.</p>	<p>ILASERBOX 480/20 SP</p> <p>Compatible with Macsa's full product range.</p> <p>Several optional features:</p> <ul style="list-style-type: none"> • Touch-screen • Focal distance red pointer • Open door red pointer • Fume extractor • Manual table 	<p>ILASERBOX 480/850 RACK</p> <p>Compatible with Macsa's full product range.</p> <p>Several optional features:</p> <ul style="list-style-type: none"> • Touch-screen • Focal distance red pointer • Open door red pointer • Fume extractor • Manual and automatic tables • Performance level D: curtain and electric sensor 	<p>ILASERBOX 480/850</p> <p>Compatible with Macsa's single module lasers.</p> <p>Several optional features:</p> <ul style="list-style-type: none"> • Touch-screen • Focal distance red pointer • Open door red pointer • Fume extractor • Manual and automatic tables • Performance level D: curtain and electric sensor
<p>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.</p>					

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.

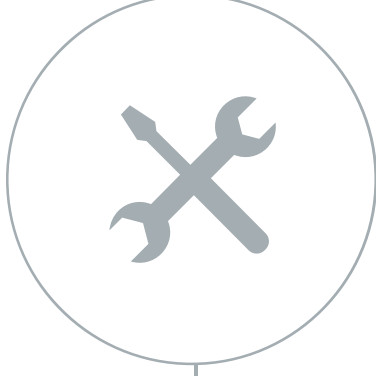


ADVICE AND CONSULTATION

Macsa provides advice to its customers in:

- regulatory compliance
- supply chain management
- factory integration

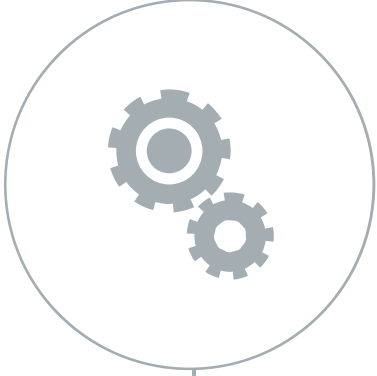
It makes its experts available to help its customers to make more effective use of their coding and marking equipment, to respond to changing external needs and to run their factories more efficiently.



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.

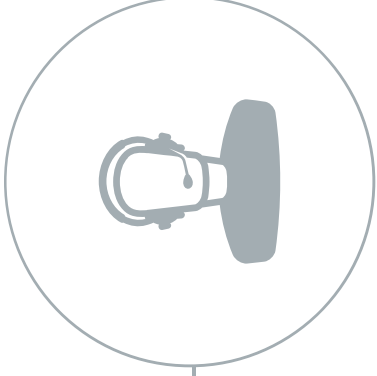


TRAINING

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:

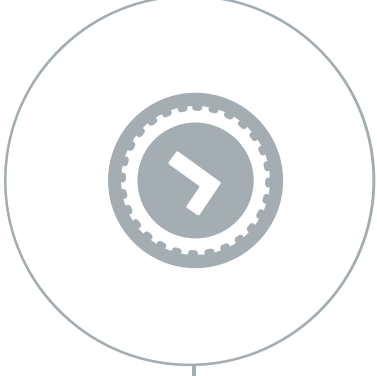
1. User training: the basics of start stop and simple message management
2. Full message creation
3. Advanced laser settings



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 for 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"