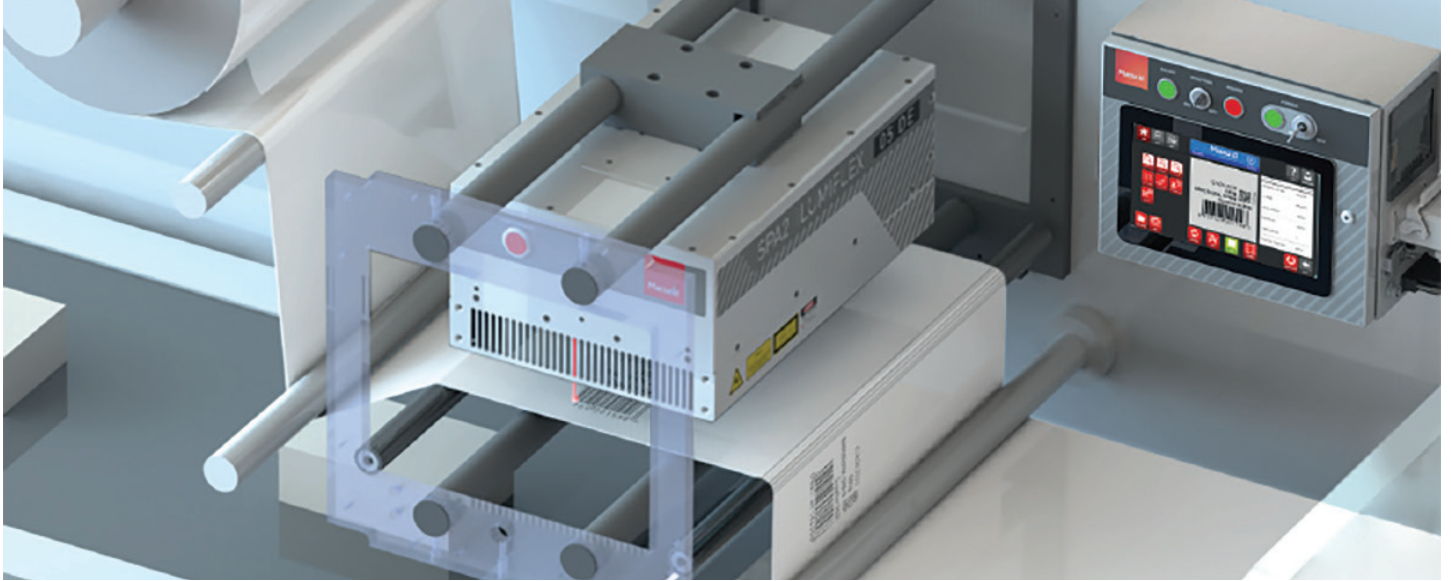


SPA2 ILUMIFLEX

FROM RIBBON TO UV LASER: REDEFINING CODING FOR FLEXIBLE PACKAGING WITH UNBEATABLE TCO.



SPA2 iLumiFlex marks a turning point: eliminating the need for ribbons and printheads. Macsa's UV laser offers nonstop productivity in the compact size of a standard TTO.



THE ULTIMATE NON-STOP UV LASER SOLUTION FOR EVERY FLEXIBLE PACKAGING LINE WITH THE LOWEST TCO.

iLumiFlex is Macsa ID's UV laser coder that replaces thermal transfer printers (TTO) in flexible packaging. It marks directly on film using light - no ink, no ribbon, no waste - delivering permanent, high-contrast codes while enabling continuous, sustainable, PPWR-compliant production, in a compact design with the same footprint as a conventional TTO printer.

PERFECT MARKING AT AN INCREDIBLE SPEED.



ESSENTIAL

Dynamic mode

1 TEXTLINE OF 3mm= 350 m/min
 2 TEXTLINES OF 3mm= 200 m/min

Static mode

1 TEXTLINE OF 3mm= 15 ms
 2 TEXTLINES OF 3mm= 30 ms



ESSENTIAL

Dynamic mode

1 TEXTLINE OF 3mm + QR 8X8= 60 m/min
 2 TEXTLINES OF 3mm + QR 8X8= 50 m/min

Static mode

1 TEXTLINE OF 3mm + QR 8X8= 110 ms
 2 TEXTLINES OF 3mm + QR 8X8= 120 ms



ESSENTIAL

Dynamic mode

5 TEXTLINES OF 4mm + QR 8X8 + EAN 13= 12 m/min

Static mode

5 TEXTLINES OF 4mm + QR 8X8 + EAN 13= 500 ms



ESSENTIAL

Dynamic mode

18 TEXTLINES OF 3mm + EAN 13= 4 m/min

Static mode

18 TEXTLINES OF 3mm + EAN 13= 1500 ms

STOP STOPPING: END DOWNTIME AND WASTE FOR GOOD.

Traditional TTO printers force production lines to stop for ribbon changes and head cleaning, creating film waste and production losses. The iLumiFlex is specifically designed to eliminate these challenges, providing a clean, continuous, and permanent marking method.

ILUMIFLEX KEY BENEFITS.

TTO Limitation

- High Running Costs
- Frequent Downtime
- Environmental Impact
- Marking Fading

iLumiFlex Solution

- Zero Consumables. Eliminates ink ribbon, thermal head replacement, and air-related costs.
- Continuous production. Eliminates line stoppages for ribbon changes, head cleaning, or specialized periodic maintenance.
- 100% Sustainable. Eliminate waste ribbons and associated industrial waste.
- Permanent, damage-free mark. iLumiFlex acts directly on the film's marking layer, permanently changing its color without burning or damaging the substrate.

Key Benefits

- Significant cost savings with unbeatable TCO.
- Increased production capacity (additional units/year).
- Contributes to sustainability goals (elimination of tons of CO2 emissions annually).
- Immunity to surface contaminants (oil, powder, water, alcohol, heat sterilization).



OIL



POWDER



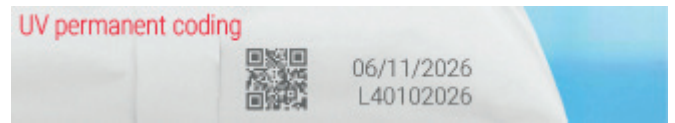
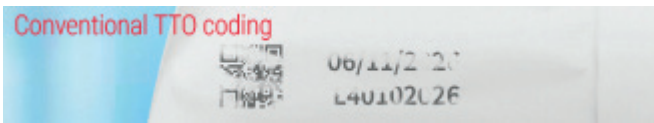
ALCOHOL



HEAT STERILIZATION



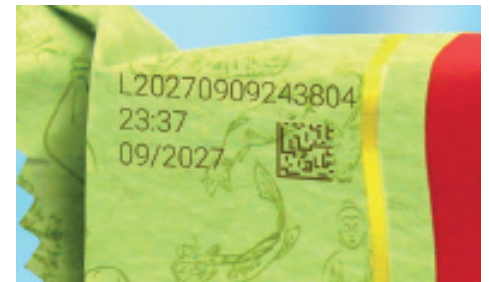
ICE



Comparison of results after rubbing the marked area of the film

PERFORMANCE YOU CAN MEASURE. RESULTS YOU CAN SEE.

Feature	Specification	TTO Replacement Advantage
Technology	YV04 UV Laser Source, Class 4.	Utilizes cold marking technology.
Wavelength	355 nm.	Optimized for flexible packaging film marking layers.
Output Power	Up to 5W (Targeted output @ 50 kHz to 80 kHz).	Provides higher energy margin for faster, higher-contrast marking.
Maximum Scan Speed	≤12,000 mm/s.	Superior marking speed for complex codes and demanding cycle times.
Maximum Line Speed	0-350 m/min.	Supports high-speed production lines.
Repetition Rate	50 - 80 kHz (Most usual), up to 150 kHz.	Flexibility to achieve optimal dot separation at various line speeds.
Marking Resolution	1.6 µm.	Ensures high-quality, precise coding for small characters and complex codes.
Marking Area	100 x 100 mm.	Wide marking field capacity.



YOUR BRAND. YOUR CODE. YOUR FIT.

iLumiFlex is designed for integration into common packaging machines where TTO is traditionally used, ensuring high-quality, permanent marks on sensitive film materials, monomaterials and even D4R films.

Fully compatible with standard TTO brackets, iLumiFlex can replace traditional printers in minutes, fitting directly into existing mounts without modification.

Pillow-type packaging machines (horizontal/vertical):

Ideal for high-turnover lines, preventing product and film waste caused by downtime.

Bag feeding machines (rotary):

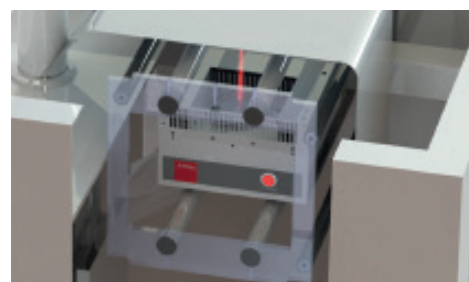
Provides non-contact, fade-resistant marking, even if oil, powder, or water is present on the pouch surface.


Stick packaging machines:

A Single device can mark multiple locations on multi-strand films, without generating dust or odors.

Flexible packaging:

Perfect for marking expiry dates, lot codes, and traceability codes on various films, including mono-materials for sustainable packaging.





EASY CONNECT

A compact head and quick-release connectors make TTO replacement fast and effortless, fitting existing mounts with no modification.

Sealed, waterproof connections ensure stable performance in dusty, harsh and washdown environments.

SPECIFICATIONS:

CONTROLLER

DIMENSIONS (WxDxH)

TOUCH SCREEN TYPE

SIZE

COLOUR

LUMINANCE

MEMORY

VOLTAGE

CONNECTIVITY

SOFTWARE

LANGUAGES

INTERFACE

COVER CONDITIONS

IP RATE

ENVIRONMENT

SPA2 ILUMIFLEX CONTROLLER

330x265x157mm

Capacitive Touch Screen Display

10,1"

1064 x 600

16,2M

340 cd/mq

2 GB

12 VDC

TYCO Connector

MarcaTouch™ OS 2.0 or newer

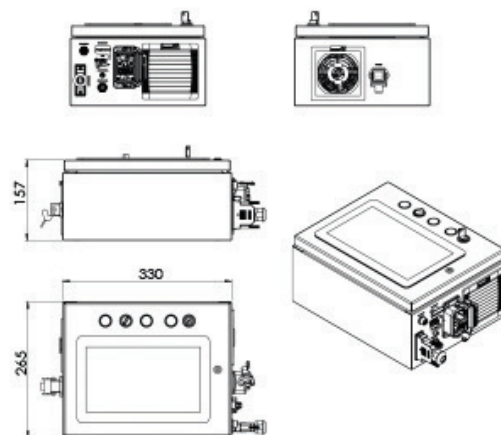
26 languages

WYSIWYG technology which displays what is going to be printed.

Stainless steel

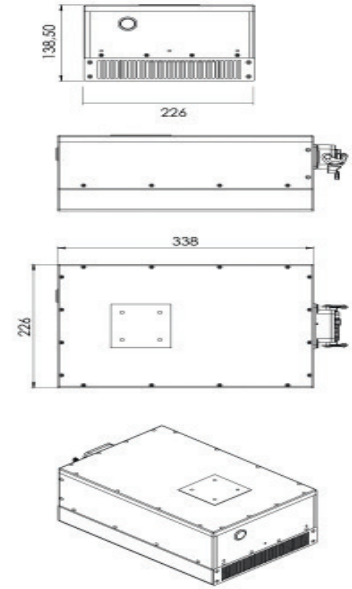
IP54

0 – 40°C, Non-condensing



SPECIFICATIONS:

MODEL	FEATURE	SPA2 ILMUMIFLEX
LASER DATA	Output Power Technology WAVELENGTH PULSELENGTH	Up to 5W (@ 50 kHz to 80 kHz) YVO4 UV Laser Source, Class 4 355 nm < 18 ns
MAIN POWER SUPPLY	Input voltage rating 100 / 240 V AC Frequency 50 / 60 Hz Power (1 Phase + N) 700 VA	
MARKING SYSTEM	Forced Air (integrated). No external chiller required.	
MARKING SYSTEM	Maximum Scan Speed Maximum Production Line Speed Marking Resolution Marking Area Repetition Rate	≤12,000 mm/s. 0-300 m/min. 1.6 μm. 100 x 100 mm (3.94" x 3.94") 50 - 80 kHz (Most usual), up to 150 kHz.
MARKING HEAD (Compact)	The laser head is compact and designed to allow installation in restricted spaces Working Distance	Std. 0 to 20 mm
MARKING HEAD ACCESSORIES		Working distance adjustment gauges
CONTROL	Integrated TouchScreen Head cable 5 m (16.4') Pc with Marca software	10,1" 10 m (32.8') (Opt.) Opt.
SOFTWARE	Scanlinux MarcaTouch OS 2.0 Marca full graphics pc software TCP/IP protocol Profinet protocol OPC-UA protocol Ethernet/IP protocol Internal barcode generator	Std. Opt. Opt. Std. Opt. Opt. Opt. Opt.
SAFETY	Performance level d safety kit	Opt.
ACCESSORIES	Encoder Kit - Mounting Support - Photocell Kit	
ENVIRONMENTAL CONDITIONS	Operating Temperature Humidity Vibrations Protection Rate	0 to 40° C (32 to 104° F) < 95 % non-condensing No Vibrations DE IP54 (Dusty Environment)
DIMENSIONS	WxDxH	226 mm (W) x 338 mm (D) x 138 mm (H) 8.90" (W) x 13.31" (D) x 5.43" (H)
WEIGHT	Net Weight Gross Weight	10 kg + 8 kg (Head + Controller) 20 kg



* Customizable marking area also available

