

# FLYPeak

The revolution of plastics:  
a laser to mark them all



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The FlyPeak laser is the revolution of laser marking on plastics. This DPSS system (Diode Pumped Solid State) combines high peak power with a much shorter pulse duration than solid-state lasers on the market, while maintaining average power: there is currently no laser source on the market with the same performance.

FlyPeak operates in a single shot to 100kHz range with a pulse-width between 2 and 10 ns. Controlling the heat input is a determining factor in obtaining quality marking on plastics: too much heat can create burns at the edges of the marking, compromising the quality and therefore the contrast: instead of the white color, we will obtain a brown-yellow color.

▶ The FlyPeak laser pulse is always below 10ns throughout the range (at 20kHz = 3.5ns), which lets us cool down the marking compared to traditional nanosecond lasers, including fiber lasers, and consequently increase the quality of the process and result.



Surface Removal



Circuit Boards

## PROCESSES AND EXAMPLES OF APPLICATION



Colored Plastics



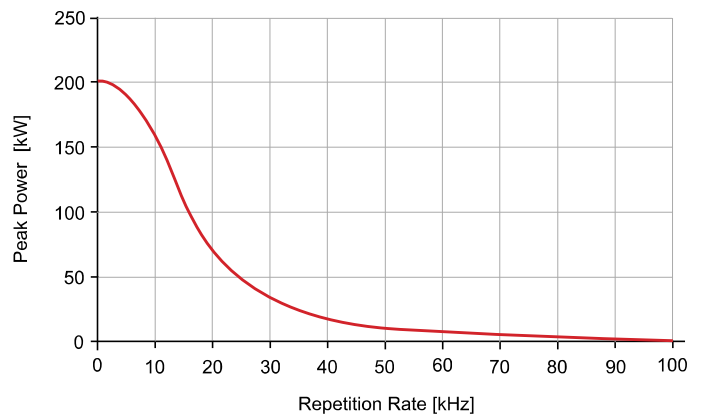
Switches/Containers

The peak power is 3 times higher than the green lasers on the market and 50 times higher than the fiber laser.

This allows the beam to remain on the surface for such a short period of time that the risk of burning is reduced to 0, with optimal results for contrast and definition.



FLYPeak 532nm: Peak Power



## ▶ FLYPeak Vs UV Laser

While marking quality is not compromised, the advantages of the FlyPeak over ultraviolet technology are mainly:

- **Average Life:** the UV laser has very high performance but its technology is very complex: due to the consumable nature of the third harmonic generation crystal, the UV has a limited life and often requires maintenance. The FlyPeak laser, on the other hand, has no components that can be damaged, with the exception of the diode, which guarantees about 20,000 hours of work (to be considered continuously 24 hours a day and highly dependent on the power and frequency at which the laser is used).



## Laser Sources Comparison

LASER TYPE	POWER	PULSE LENGTH	PEAK POWER
FLYPeak	5-10 Watt	<10ns	<100kW
UV	1-8 Watt	<35ns	2.1kW
Fiber	20-100 Watt	<120ns	<10kW

- **Peak Power:** the peak power is very high compared to the UV (150kW compared to 2.1kW). The short pulse of the ONDA (<10ns) minimizes the thermal effect.
- **Cost:** you pay for the very high performance of UV, and quite a lot at that. Given the price x of a UV, a FlyPeak laser with the same power costs up to 30% less.

## ▶ FLYPeak Vs Fiber Laser

As far as the fiber laser is concerned, an apparent disadvantage may be the slightly higher price of the Fly Peak. However, when comparing the quality of the results obtained on plastics and the total absence of a risk of burns due to the high peak power and reduced time, the economic disadvantage is irrelevant. The advantages of FlyPeak, on the other hand, are considerable:

- **Precision:** a smaller spot (about 50% smaller) than infrared lasers, which allows more complex and imperfection-free processing, carried out without any problems.
- **Peak Power:** the peak power is much higher compared to fiber lasers (which usually reach a few Kw).

## TECHNICAL FEATURES

### > Technology

Laser Nd: YV04 pompato a diodo

### > Wavelength

532 Nm

### > Maximum average power

5W

### > Maximum pulse energy

400µJ

### > Repetition rate

Single shot to 100kHz

### > Pulse-width

2 a 10 ns

### > Maximum peak power

200kW

### > Polarization

Linear 100:1 (option: circular polarization)

### > DC voltage IN

24V

### > Maximum Absorption

250W

### > Total weight

Drawer and shroud: 10.4Kg  
FlyPeak Laser: 9.6Kg

### > Electrical Connection

110-230 Vac (L+N+Gnd) 50-60Hz

### > Interconnection Cable

Stainless steel armored ø25mm  
length 3 mt

### > Operating Temperature

15°C – 35°C without condensation



We operate on a global scale, serving over 50 countries.  
We've been designing and manufacturing standard and customised laser marking machines for thirty years, always ensuring continuous support to our clients.

Over the years, we've been standing out for our high-tech products of our research and development departments which include mechanics, automation, hardware and software.

- ▶ Over 30 years of experience in this industry. We have seized all the challenges of the marking industry – from manufacturing laser marking heads to whole turnkey systems – providing standard and customised solutions.
- ▶ We take care of the entire project, developing the marking machine, as well as its design and manufacture, without relying on intermediaries.
- ▶ Our laser marking machines can be integrated into MES–ERP systems or simple management programs, communication software and hardware.
- ▶ Our laser systems can interface with communication protocols, such as PROFIBUS, PROFINET, and In case of integrations, the laser marking unit interfaces with an existing PLC system or a PLC system specifically programmed for this purpose.



#### HEADQUARTER

LASIT - Sistemi e Tecnologie Elettrottriche S.p.A.  
Via Solferino, 4 80058 - Torre Annunziata (NA) Italy  
T. +39 081.536.88.55 / F. +39 081.536.10.99

