

# Engraving

## Engraving of Stainless Steel

The introduction of our redENERGY EP Laser series with its ability to deliver longer pulses has proved to be ideally suited to high quality deep engraving of stainless steel.

Experimental studies have shown that material removal rates can be significantly increased by using a 450ns pulse achieving 5mm<sup>3</sup>/min as compared with a 200ns pulse with only 4mm<sup>3</sup>/min. In some cases increases in removal rates of up to 25% have been achieved.

To achieve a high quality finish, waveforms are used to maintain control of the engraving process. When engraving starts, a less aggressive pulse is initially used in order to avoid a perimeter ridge around the engraved area. Then the waveform can be switched to a long high energy pulse with its higher material removal rate. Throughout this process, a short pulsed waveform is regularly used to clean the engraved area which helps to remove dross and debris. After the engraving process has finished, the surrounding area is Laser cleaned using a short waveform to remove any surface deposits.

Note that there is a trade-off between material removal rate and engraving quality.

Related Product



Visit our website to view the full product datasheet  
**redENERGY G4**



## Application Parameters

Type	G4 20W EP-Z
Power	20W
M <sup>2</sup>	<1.6
Beam Ø	8mm
Scanner/Lens	10mm/160mm F-theta
Energy	WF39 1mJ & WF25 0.16mJ @ 125kHz

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