

# Engraving

## Deep Engraving of Stainless Steel

The image shown is a 3x3mm square area which has been processed to a depth of 1.5mm in 92 seconds, representing a removal rate of 9mm<sup>3</sup>/min.

This high quality result has been achieved through the use of waveforms to maintain control of the engraving process. When engraving starts, waveform 1 is initially used in order to avoid a perimeter ridge around the engraved area. Consequently, once the engraved depth has reached around 0.2mm, waveform 0 is used since the material removal rate is higher than other waveforms.

Throughout this process, waveform 5 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 waveform 5 at 800kHz to remove any surface deposits.

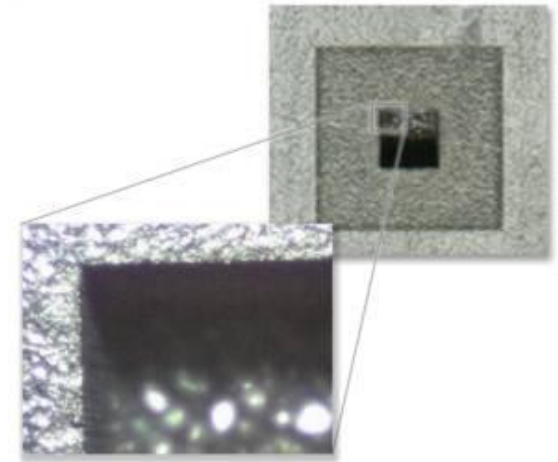
Note that it is possible to use only waveform 0 for engraving without the use of additional cleaning waveforms. In this case the removal rate increases to 14mm<sup>3</sup>/min, however there is a loss in quality.

The workstation used a 75mm BEC which produced an 8.1mm (1/e<sup>2</sup>) diameter beam at the scanner entrance, allowing a 10mm aperture scanner to be used. The scanner was fitted with a 160mm focal length objective lens which gave a 100x100mm field size.

Related Product



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



## Application Parameters

Type	G4 50W HS-S
Power	50W
M <sup>2</sup>	<1.3
Beam Ø	8mm
Scanner/Lens	10mm/160mm F-theta
Energy	WF0 @ 100kHz

Postcard Archive



To browse though SPI's entire library of application postcards, visit the postcard archive:

[spilasers.com/appscards](http://spilasers.com/appscards)

