

# Engraving

## Deep Engraving of Stainless Steel



### The Process of Deep Engraving with Stainless Steel

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

Type	TP-050-A-HS-S-A-Y
Power	50W
M <sup>2</sup>	<1.3
Input Beam Dia	8mm
Scanner/Lens	10mm/160mm F-theta
Energy	WFO @ 100kHz

