

# Marking

## Marking Painted Steel

Our range of redENERGY Pulsed Fiber Lasers can be used to burn through thick painted coatings and expose and deep etch the metal below.

Here a Vehicle Identification Number (VIN) was first burned through the paint and then engraved deeply into the metal. Our redENERGY G4 Z-type 70W Laser first utilised Wave Form 28 at 800kHz to cleanly vaporise away the 100 micron thick paint and leave little surrounding burn or melt. High power WF 36 pulses then etched into the steel over 9 additional follow on passes at different angled, 50 micron wide fill lines. This created an evenly etched bottom that is still rough enough to absorb and hold back fill paint. The entire process shown took 45 seconds to engrave 19 characters.

The process uses a standard 10mm scanhead with a FT163 F-Theta lens and requires no processing gas. The Z-Type beam, combined with standard F75 Beam Expanding Collimator creates a 38 micron spot with sufficient power density to vaporise both the thick paint and steel depending upon Wave Form selection. An optional clean pass can be used to improve the surface finish of the engraved characters but this proved unnecessary for this operation.

Additional depth can be achieved with further passes at WF36 as these parameters produced most of the material removal.

Related Product



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



## Application Parameters

|                |  |
|----------------|--|
| Type           | G4 70W EP-Z                                      |
| Power          | 70W  |
| M <sup>2</sup> | 1.6  |
| Beam Ø         | 8mm  |
| Scanner/Lens   | 15mm / 163mm F- theta                            |
| Energy         | WF36 (520ns) @100kHz etch – WF28 800kHz pre-burn |

Postcard Archive



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

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

