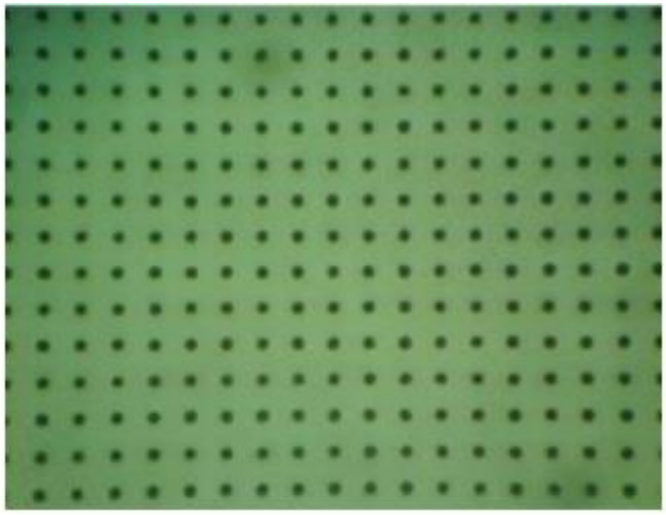
Drilling

Drilling Ceramic-Alumina

Drilling Holes in Ceramic Alumina with TruPulse nano 1003

The range of TRUMPF's TruPulse nano lasers can be used to drill 5 holes per second in 0.38mm alumina. The photo to the right shows the output side that is 75-80 microns in diameter. The input side is less than 100 microns in diameter.



These holes have been made using a beam wobbling technique to control hole diameter and quality. TRUMPF's TruPulse nano 1003 laser is an excellent tool for such drilling because it can perform this task with a range of spot sizes from 15 to 20 microns. The high beam quality gives exceptional depth of field for processing allowing the use of larger marking fields or smaller scan heads to complete the task.

A wobble of 1000Hz at a 40 micron radius was applied to a circular path 0.08mm in diameter. This was repeated 40 times in under 200ms. The TruPulse nano 1003 laser produces 0.65mJ at 45kHz.

Excessive heating was reduced by offsetting the holes by 0.5mm and then returning to fill in the holes at 0.25 mm spacing shown. Smaller holes, with a 20 micron output can be created in this material considerably faster.

Type	TP-030P-A-HS-A-Y
Power	30W
M^2	1.2
Input Beam Dia	11mm
Scanner/Lens	14mm/100mm F-theta
Energy	WF0 0.65mJ @ 45kHz

Patrick Sasso
Product Line Engineer, Laser Optics
E-Mail Trumpf@edmundoptics.com

Edmund optics | worldwide