

Aiming for the ultimate in microfabrication by making full use of femtosecond lasers!

Two and a half years have passed since we introduced a femtosecond laser machine. Now, "How much can femtosecond laser machines have precision and shape?" I have an inquiry with you.

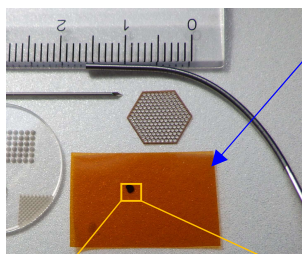
This time, micron micro-machining is carried out, We have observed the shape using a laser microscope and an electron microscope.



■ High-precision processing of femtosecond lasers

[Fine hole machining to film]

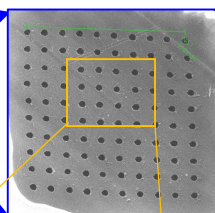
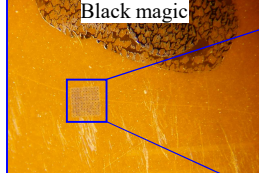
- High-precision machining without burrs with little heat effect is possible. 10μm fine hole processing is possible.
- This is an example of film and small-diameter pipe processing.



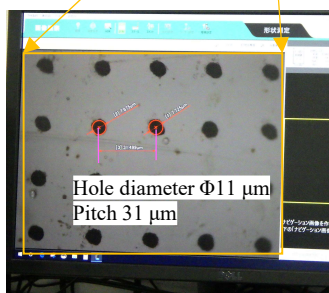
- Polyimide film
- 0.05 mm thick
- Hole diameter : Φ11μm
- Pitch : 31μm
- Number of holes: 100
- External dimensions: □0.28mm

SEM image

Black magic



- Laser microscope magnification



- The machining shape of the femtosecond laser can be checked in situ. We will also respond to changes.
- "Nano" level material surface observation, elemental analysis, and dimension measurement can be performed immediately.

● See "Femtosecond Laser Processing and Electron Microscopy" on Youtube.

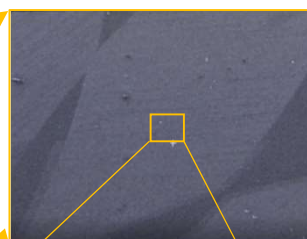
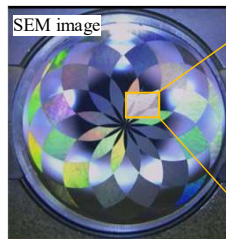


[Fine grooving to SUS]

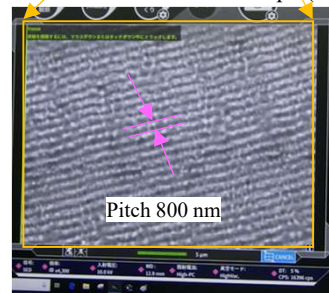
- By using the induced period of the pulsed laser Nanoperiodic structures can be formed on the surface.
- To the disc by changing the groove processing angle Clean rainbow patterns are seen.



- Material O.D. : Φ35mm
- Material: SUS304
- Machining dimensions
Groove width: Approx. 0.5μm
Pitch : Approx. 0.8μm
Number of grooves: Approx. 1250 pcs/mm



- Enlarged observation with an electron microscope (SEM)



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