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Micro Multi Laser Drilling Machine

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Basic specification

Difference of beam profile by gas life.

Basic specification

Characteristic

1. Processing ultra-precise hole.

- Processing -precise hole such as 15 to 50 μ m

2.Ultra-high speed processing of multi hole.

- Processing maximum one million units of holes with maximum 100mm scale by 30 to 500 seconds.

3.High precise processing

- Positioning accuracy $< \pm 0.5 \mu\text{m}$, Diameter accuracy $< \pm 0.5 \mu\text{m}$

4. Long time stable and easy control (few downtime)

- No influence from changing of laser profile.
- Easy control by simple optical system.

Technical instruction.

1. Ultra-precise processing.

Possible for resin processing without heat defect by UV laser.

Laser wave length and photon energy

Sort of laser	Wave length (nm)	Photon energy (kcal/mol)
CO ₂	10600	2.7
YAG	1064	27
SHG-YAG	532	54
THG-YAG	355	81
KrF excimer laser	248	114

Bond dissociation energy of resin material

Sort of bond	Dissociation energy (kcal/mol)
C-C	80
C-H	98
C=C	145
C≡C	198

In case of CO₂ laser, 50 μm diameter is limit because of big limit condensing diameter by long wavelength, and melting and burnt by heat treatment.

UV laser cut directly C-C joint by high photon energy.

2. Ultra-high speed multi holes processing (High through put)

- Possible for processing multi holes collectively by large output excimer laser and multiple array of micro lens.
- Processing maximum one million units of holes with maximum 100mm scale by 30 to 500 seconds by beam scanning on the micro lens.

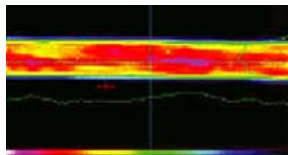
3.High precise processing.

- Accuracy of hole positioning $< \pm 0.5 \mu\text{m}$, by high precise micro lens array.
- Accuracy of hole dimension $< \pm 0.5 \mu\text{m}$, by beam vibration system.
- Equalization of beam profile without optical system and possible for high precise processing.

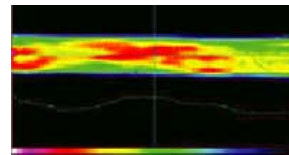
4.Long time stable and easy control (few downtime)

- Easier control than old technologies by simple optical system.
- Possible for long term stable processing without influence of excimer laser beam quality changes by beam vibration system.

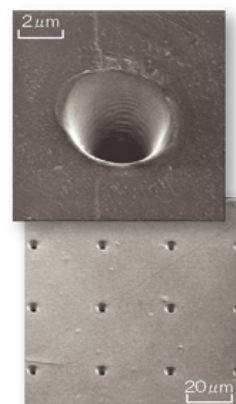
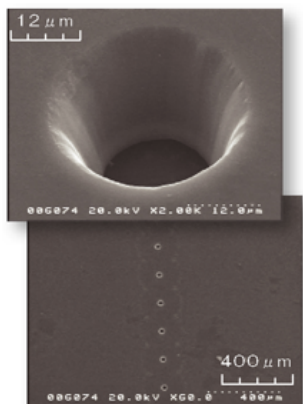
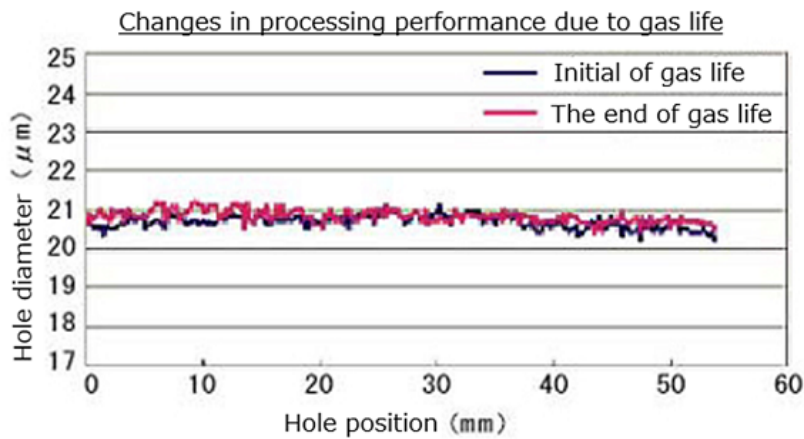
Beam profile differences by gas life.



Beginning of gas life.



End of gas life.



Inquiries about laser business.

ENGINEERING DEPT.1

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