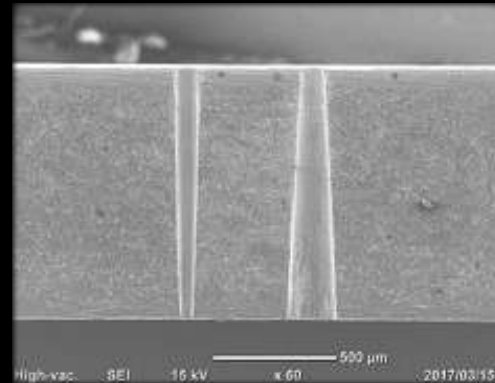
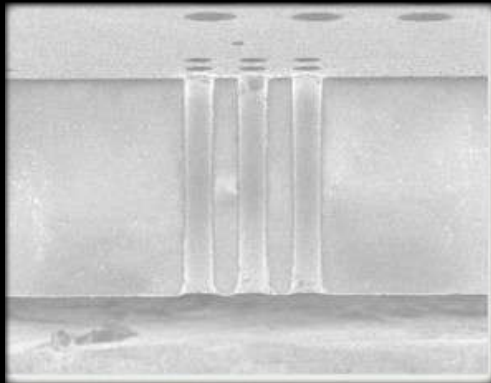


# Straight Micro Hole Processing for High Hardness Materials, Difficult-to-cut Materials and Brittle Materials

- Feature1 Possible to process materials that are difficult to process with other methods
- Feature2 High-quality processing with the thermal impact from the ultra-short pulse laser suppressed to the minimum
- Feature3 Possible to select taper hole, taperless, reverse taper and other shapes



## Hole Processing Examples by Material

### Metals

#### Copper

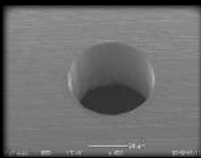


Plate thickness: 0.1 mm  
Hole diameter:  $\Phi 50 \mu\text{m}$

#### Tungsten

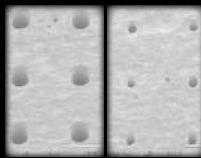


Plate thickness: 0.5 mm  
Hole diameter:  
Left:  $\Phi 100 \mu\text{m}$   
Right:  $\Phi 50 \mu\text{m}$

### Ceramics

#### Alumina

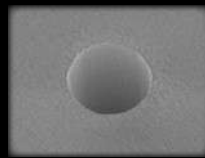


Plate thickness: 0.3 mm  
Hole diameter:  $\Phi 50 \mu\text{m}$

### Resins

#### PET

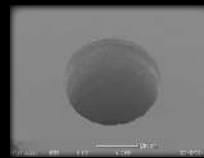


Plate thickness: 0.188 mm  
Hole diameter:  $\Phi 50 \mu\text{m}$

### Glass

#### Synthetic Quartz



Plate thickness: 0.5 mm  
Hole diameter:  $\Phi 90 \mu\text{m}$

### Other

#### Monocrystal Si

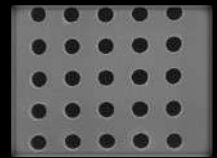


Plate thickness: 0.3 mm  
Hole diameter:  $\Phi 100 \mu\text{m}$

#### Aluminum

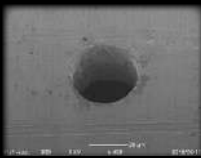


Plate thickness: 0.1 mm  
Hole diameter:  $\Phi 50 \mu\text{m}$

#### Molybdenum

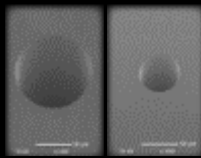


Plate thickness: 0.6 mm  
Hole diameter:  
Left:  $\Phi 100 \mu\text{m}$   
Right:  $\Phi 50 \mu\text{m}$

#### Silicon Nitride



Plate thickness: 0.2 mm  
Hole diameter:  $\Phi 100 \mu\text{m}$

#### PI

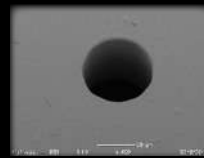


Plate thickness: 0.125 mm  
Hole diameter:  $\Phi 50 \mu\text{m}$

#### Blue Plate Glass

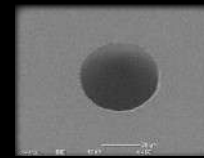


Plate thickness: 0.4 mm  
Hole diameter:  $\Phi 100 \mu\text{m}$

#### CFRP

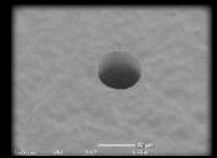


Plate thickness: 0.7 mm  
Hole diameter:  $\Phi 50 \mu\text{m}$

#### SUS304



Plate thickness: 0.05 mm  
Hole diameter:  $\Phi 35 \mu\text{m}$

#### SUS304

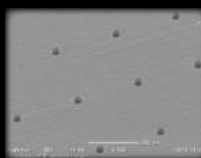


Plate thickness: 0.05 mm  
Hole diameter:  $\Phi 50 \mu\text{m}$

#### Zirconia



Plate thickness: 0.33 mm  
Hole diameter:  $\Phi 110 \mu\text{m}$

#### PC

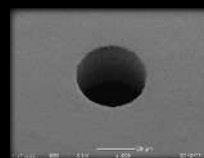


Plate thickness: 0.125 mm  
Hole diameter:  $\Phi 100 \mu\text{m}$

#### Alkali-free Glass

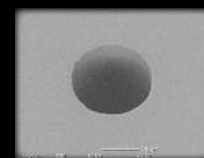


Plate thickness: 0.4 mm  
Hole diameter:  $\Phi 100 \mu\text{m}$

#### Fluorine Rubber



Plate thickness: 0.3 mm  
Hole diameter:  $\Phi 150 \mu\text{m}$



L.P.S. Works Co., Ltd.

409 OTA Techno CORE, 6-4-17 Higashi-Kojiya, Ota-ku, Tokyo, 144-0033

TEL : 03-3745-0330 FAX : 03-3745-0331

URL : <https://www.lps-works.com> E-mail : [sales@lps-works.com](mailto:sales@lps-works.com)