

Products

[for print products_eng.pdf](#)

1. Design and manufacturing precision punching dies.

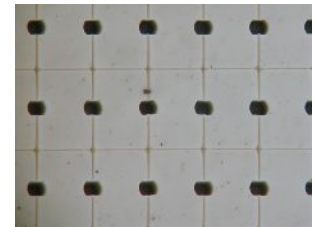
[ref. punching.pdf](#)

a. For ceramic green sheet

【 Dies for trial or mass production 】

$\phi 0.03$ trial punching die.

$\phi 0.10$ 、 $\square 0.24 \times 0.18$ mass production die to punch about 4,000 holes at one time



$\square 0.2 \times 0.25$ holes & snaplines

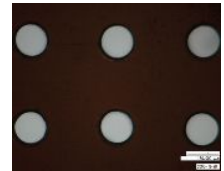
b. For plastic or metal films

【 Dies to punch single foil or laminated film 】

TAB tape for LCD, CSP

PET film, viscous tape, metal foil, paper etc.

PI $\phi 0.15$



2. Design and manufacturing of general parts, precision and fine machining, and press system.

a. Precision and ultra fine pins

[ref. pin.pdf](#)

【 We do either just one piece or thousands of pieces. 】

For punching, injection molding, testing etc.

Material : tungsten carbide, SKH, SUS etc.



$\phi 20 \mu\text{m} \times 14\text{mm}$ length

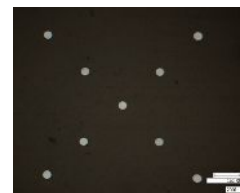
b. Fine via holes

[ref. drilling.pdf](#)

【 Diameter is down to 30 micrometer. 】

Drilling, EDM drilling

Material : tungsten carbide, metal, glass, plastic etc.



$\phi 30 \mu\text{m}$
machinable ceramic

c. Milling

[ref. milling.pdf](#)

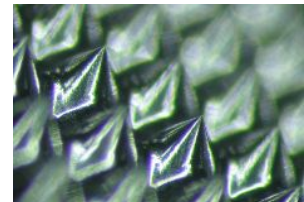
【 Fine milling by high precision and fast machine 】

3D milling, diamond bite milling.

Material : metal, glass, plastic etc.

Cone

0.5mm high



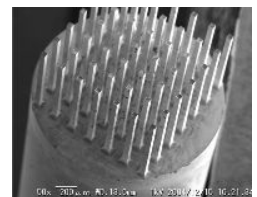
d. Grinding

[ref. grinding.pdf](#)

【 Narrow groove down to 30 micrometer, V shape, blade etc. 】

Groove : tungsten carbide, metal, glass etc.

Blade : tungsten carbide, tempered metal.



$\square 50 \mu\text{m} \times 1\text{mm}$ high

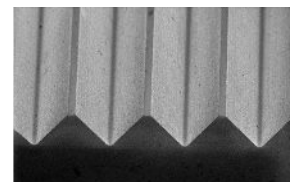
e. Glass

[ref. glass.pdf](#)

【 Quartz glass, pyrex glass etc. 】

Holes, profile : pyramid, round pole, taper hollow

Groove : micro channel with bonded cover



70° V groove $140 \mu\text{m}$ depth
quartz glass

f. Parts

[ref. parts.pdf](#)

Material : tungsten carbide, metal, glass, plastic etc.

g. Equipment

[ref. equipment.pdf](#)

h. Others

[ref. others.pdf](#)