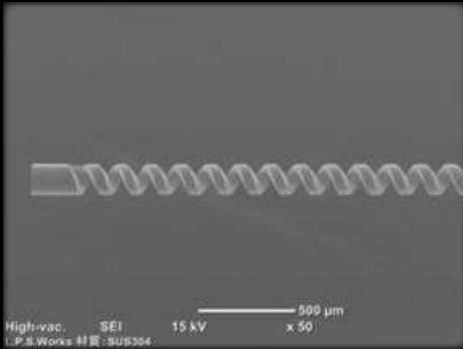


Micro Processing of Ultra-fine Metal Pipes

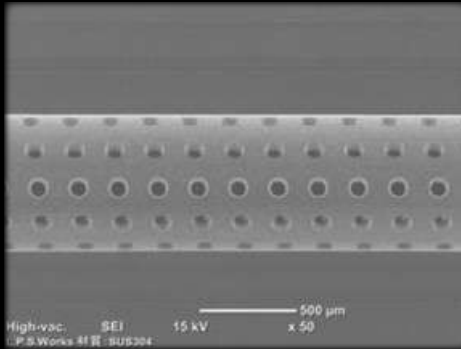
with an Ultra-short Pulse Laser

- Feature1 Possible to micro process ultra-fine pipes with an outer diameter of 1 mm or less
- Feature2 High-quality processing without thermal strain and burr is possible
- Feature3 Possible to process metals regardless of their properties or type

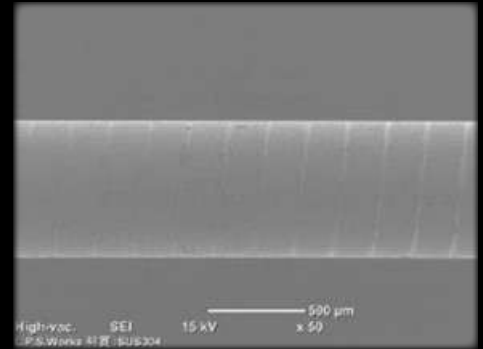
Processing Examples



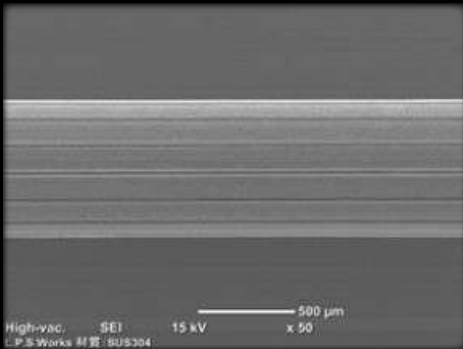
Material: Brass
Outer diameter: $\Phi 160 \mu\text{m}$
Inner diameter: $\Phi 80 \mu\text{m}$
Processing pitch: $150 \mu\text{m}$



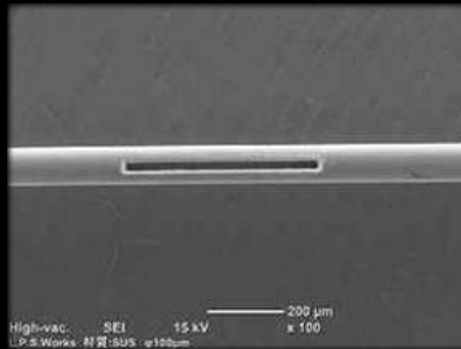
Material: SUS
Outer diameter: $\Phi 700 \mu\text{m}$
Inner diameter: $\Phi 580 \mu\text{m}$
Hole diameter: $\Phi 100 \mu\text{m}$



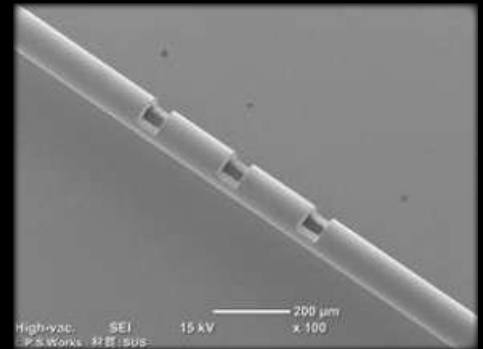
Material: SUS
Outer diameter: $\Phi 700 \mu\text{m}$
Inner diameter: $\Phi 580 \mu\text{m}$
Groove width: $25 \mu\text{m}$
Groove depth: $3 \mu\text{m}$



Material: SUS
Outer diameter: $\Phi 700 \mu\text{m}$
Inner diameter: $\Phi 580 \mu\text{m}$
Groove width: $30 \mu\text{m}$



Material: SUS
Outer diameter: $\Phi 100 \mu\text{m}$
Slit width: $30 \mu\text{m} \times 500 \mu\text{m}$



Material: SUS
Outer diameter: $\Phi 100 \mu\text{m}$
Notch width: $65 \mu\text{m} \times 50 \mu\text{m}$

Cutting Examples

- Apply to medical catheter parts
- Ultra-fine metal stents