

Ceramic Microfabrication for Advanced Medical Treatment

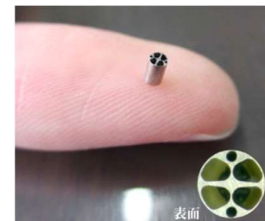
1. The background

Medical devices require smaller and tougher components these days for reducing physical stress caused by a surgical operation, in which, for example, a catheter is now widely used instead of an abdominal operation. Some clients require to use ceramic micro components as well as titanium or Nitinol ones for these devices. Processing ceramics, however, need the high precision machining equipment with a dust-proof measure structure.

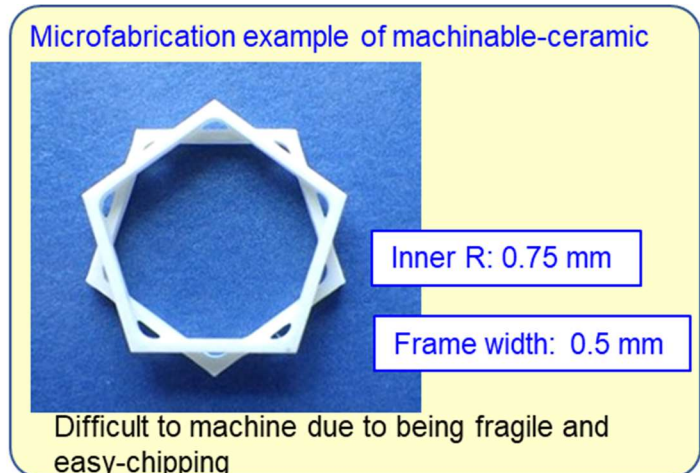
2. Micro components for medical devices

The photo right shows a titanium micro-component made of titanium which has been used for medical devices due to its corrosion resistance and biocompatibility.

Micromachined titanium part



The photos below show a new micro-component made of zirconia, a kind of ceramics, which is used for a newest medical device utilizing its electric insulation property.



3. Specification of the machining center for high-precision microfabrication

- Dust-proof measurement for processing ceramics
- High speed spindle: 40,000 rpm
- Repetitive accuracy in jig replacement: 1 μm in actual value
- Number of installable tools: 20
- Position correction with the optical sensors

The sliding parts are protected from ceramic powder dusts.



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