



SOLUTIONS ENABLING TECHNOLOGIES TO ADVANCE

Precision Ultrasonic Machining of Advanced Technical Ceramics, Glass, Sapphire, Quartz, Alumina and other hard, brittle materials.

WHO WE ARE

For more than 40 years, Bullen Ultrasonics, Inc. has been the industry leader in the ultrasonic machining of hard, brittle materials. This unique and unconventional machining technology has been enabling high technology companies to solve many of their technically challenging problems. Contact Bullen today, for a consultation on how Bullen's ultrasonic machining technology can add value to your application.

SERVING:

- Semiconductor
- MEMS (Sensors, Microfluidics)
- Medical/Biomedical
- Aerospace
- Military/Defense

CAPABILITIES

- Precision micro features down to 250 μm (.010"), smaller possible depending on material and feature tolerances.
- Tolerances to +/- 25 μm (.001") on features size, location and cavity depth,
- State of the art metrology equipment to ensure the exacting requirements of your design are met.

Greg Fitch

Director, Business Development

937-472-2132

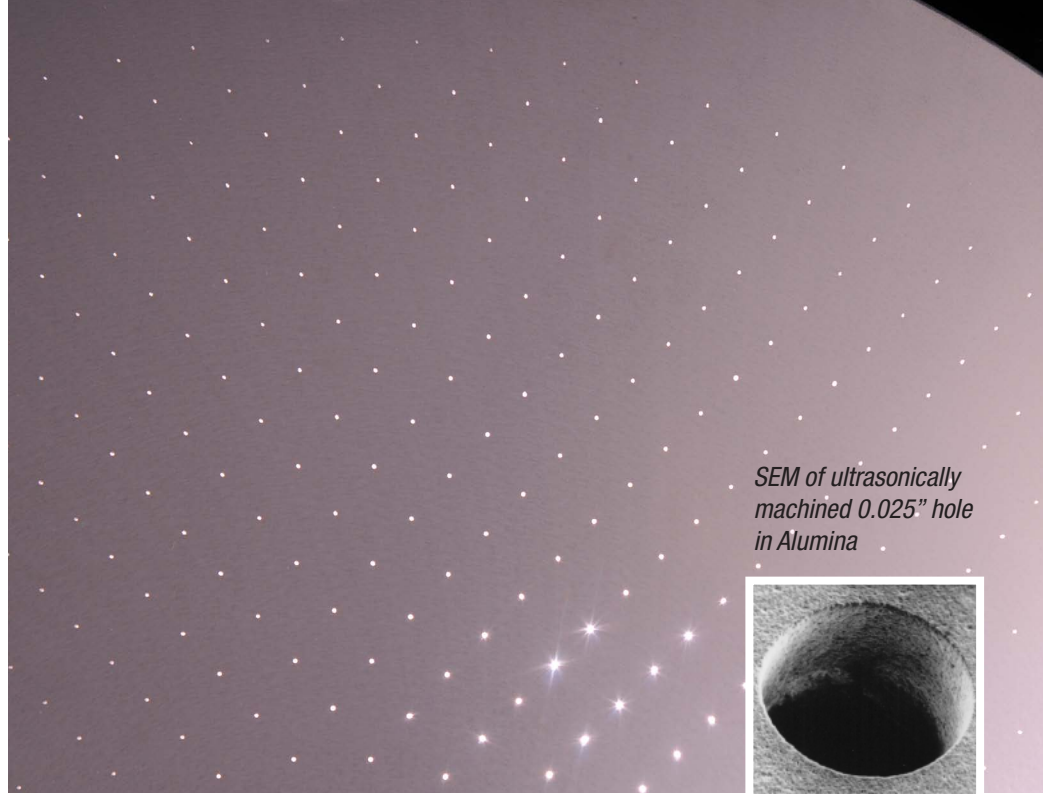
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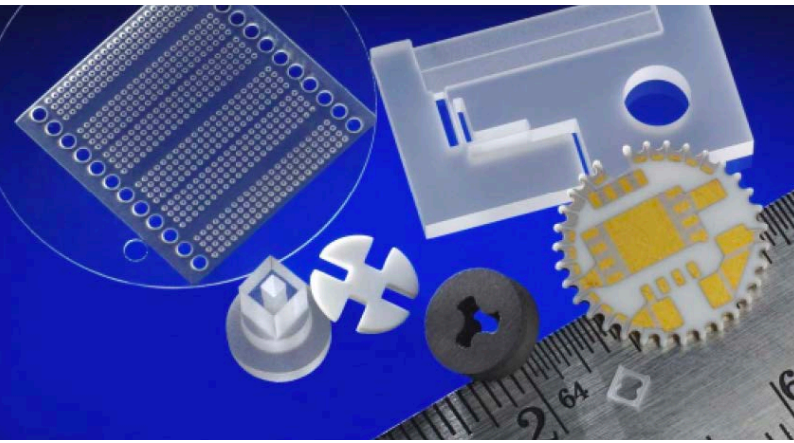
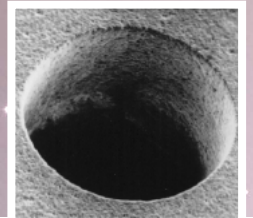
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MATERIALS

- Alumina
- Technical Ceramics
- Glass
- Quartz
- Sapphire
- CMC's
- Aluminum Nitride
- CVD Silicon Carbide
- Silicon
- Silicon Nitride
- Piezoceramics
- Ceramic Matrix Composites

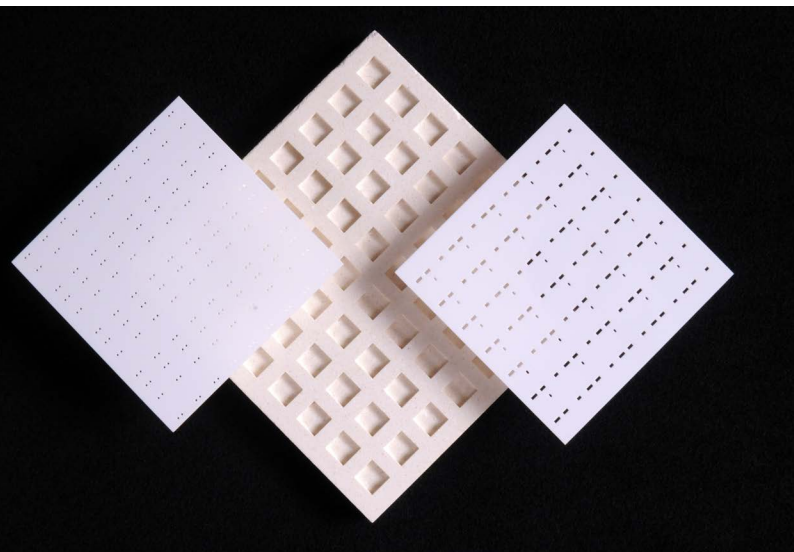


SEM of ultrasonically machined 0.025" hole in Alumina



PRECISION PARTS

- Wide range of features including round, square or odd shaped thru holes and cavities down to 250 μm
- Precision tolerances to $\pm 25 \mu\text{m}$
- Accurate alignment to existing features or metallization
- Able to machine a wide range of part shapes & sizes



BENEFITS

- Non-thermal, non-chemical and non-electrical process leaves the chemical & physical properties of the work-piece unchanged
- Bullen's ability to machine multiple features simultaneously can have a significant impact on the cost of your program
- Superior machining method for high reliability applications
- No Heat Affected Zone, laser or EDM slag

CONTACT US TODAY TO LEARN WHAT BULLEN'S ADVANCED MACHINING CAN DO FOR YOU!

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WWW.BULLENTech.COM