

UltraSonic Cutter



The Model 380 UltraSonic Cutter



The SoniCut™ 380 UltraSonic Cutter is a specialized cutting instrument which utilizes abrasive powders and high speed, vibratory motion to cut discs, holes, cylinders, squares and other shapes from hard, brittle materials. The high speed motion is developed using an ultrasonic transducer oscillating at 26kHz. Boron carbide slurry is applied to the sample and the tool is lowered onto the specimen. The particles under the vibrating tool impact the sample and erode the material in the shape of the tool.

Transducer

Through careful design techniques, the entire transducer has some unique properties which enable the electronic circuitry to recognize the frequency at which mechanical resonance occurs. In the SoniCut™ 380 transducer, the electric voltage and electric current are "in phase" at only a single frequency - the mechanical resonant frequency. In operation, the frequency starts out at a low frequency. The SoniLoc™ circuitry scans the spectrum from the low frequency to higher frequencies until it finds the one frequency which yields "in phase" signals. By design, that frequency is the mechanical resonant frequency and the transducer operates at maximum mechanical amplitude. By using a carefully designed transducer and the SoniLoc™ circuitry, South Bay Technology has produced a transducer of extremely high efficiency.



Model 36001 Alignment Microscope

If very precise alignment is required, it is recommended to use the Model 36001 Alignment Microscope. The Alignment Microscope is initially aligned with the SoniCut™ 380 sample stage. The magnet plate, with the specimen mount attached, is then placed on

the base plate of the Alignment Microscope. The area of interest is aligned with the cross-hairs in the microscope by sliding the specimen mount on the magnet plate. After alignment, the magnet plate is transferred to the sample stage on the SoniCut™ 380. The three locating pins on the Alignment Microscope correspond to the three locating pins on the sample stage to ensure precise positioning during the transfer.

Special Features

- Titanium horn and SoniLoc™ circuitry maximize performance and ensure long term reliability.
- Automatic termination simplifies operation and minimizes operator supervision.
- Separate power and transducer controls allow specimen illumination lamp to be used without activating the transducer.
- A dial indicator with 10 micron graduations continually displays depth of cut.

