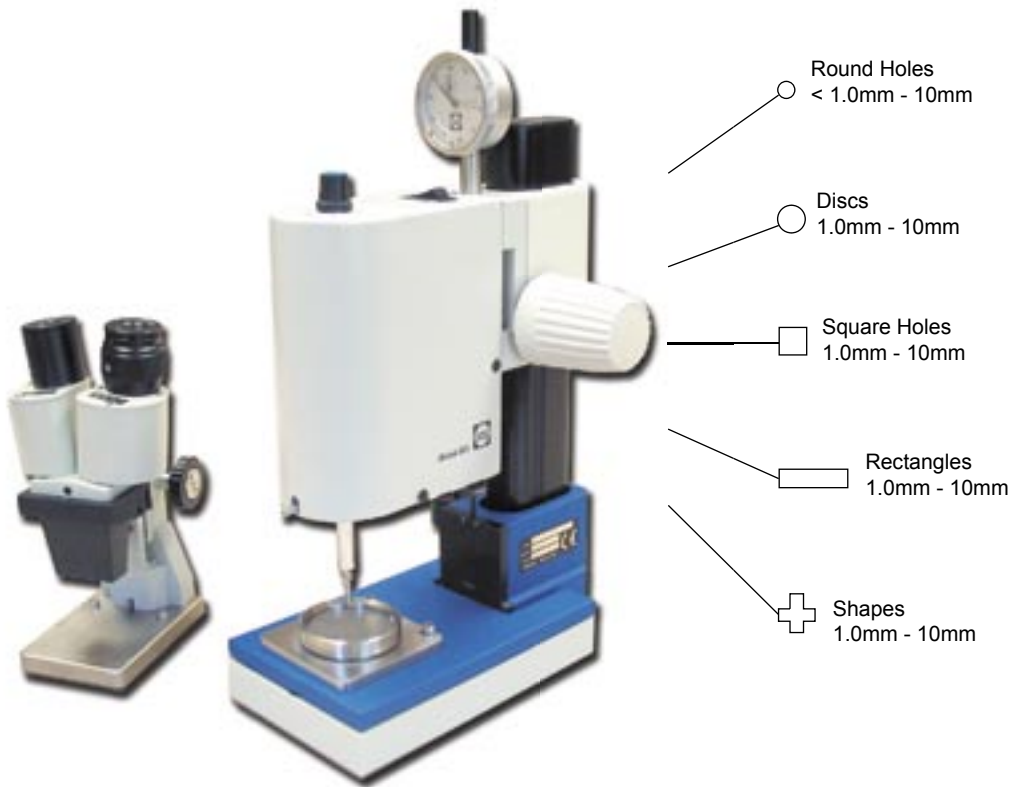


## SPECIMEN PREPARATION

# Model 601 TPC-Tool

**Functional Design**  
**Simple Operation**  
**Manual Tuning**  
**Flexibility**  
**Microscope**  
**X-Y Table**



## Purpose

The most effective method for rapidly cutting brittle materials is through mechanical coupling of a piezo-electric crystal with a shaped tubular cutting tool immersed in a fine grain, boron carbide slurry. This technique allow a user to quickly cut simple holes, unique shapes or TEM discs from hard, brittle materials (semiconductors, ceramics or geological materials).

## Functional Design

Presenting a small footprint (125mm x 225mm) the TCP-Tool requires a minimum of bench space while offering a rigid, stable cutting structure. A tunable frequency driver delivers the ultimate in cutting performance regardless of cutting tool size or shape.

The Model 601 Tuned Piezo Cutting Tool exhibits power, performance and versatility expanding its applications beyond cutting 3mm TEM discs.

The tubular cutting tools are offered in a wide range of tool sizes and can cut through material thickness ranging from  $<40\mu\text{m}$  to 5mm.

A spring loaded platform applies a constant force to advance the table upward parallel to the cutting tool. The sample table is magnetically held in position preventing lateral movement relative to the cutting tool, reducing edge chipping and sample damage. The depth of cut is continually displayed on a dial indicator ( $10\mu\text{m}$  resolution) that is mechanically coupled to the spring platform.

The TPC-Tool operates from a Universal DC power source and the work area is illuminated by 4-LED reducing or eliminating the need to replace filament type lamps.

# SPECIMEN PREPARATION

## Simple Operation

- Attach a cutting tool to the head assembly.
- Use a polymer wax and mount the material being cut to the X-Y table.
- Place the table onto the magnetic base below the cutting tool.
- Lower the tool onto the sample and turn on the power.
- Manually tune the frequency driver to optimize cutting.

## Manual Tuning

The size and shape of each cutting tool imparts an impedance to the oscillating frequency driving the cutting tool. Manual tuning enables the user to match the resonant frequency to the cutting tool. Manually tuning the frequency driver optimizes cutting speed while minimizing mechanical and thermal damage. Tuning offers efficiency, reliability and flexibility. The manual control is easily accessible and adjusted by viewing the rate of cut on the dial indicator

## Standard Features

Model 601 TPC-Tool includes:

- Stereo Microscope with viewing lamp
- X-Y positioning table
- Slurry retaining ring
- 3mm cutting tool
- 8ml of (320) cutting grit
- Wax rods (x5)

## Options

### Model 601.07000 TEM Specimen Preparation Kit

Cross sectional TEM specimens are used extensively to study the microstructure of multilayered materials. The initial preparation of cross sectional discs is greatly facilitated by use of the Disc Cutter and this kit.

### Model 623.4000X Specimen Mounting Hot Plate

Recommended as a safe and reliable means of applying the low melting point wax required to securely attach specimen materials being cut.

## Flexibility

The Model 601 TPC addresses its applications beyond cutting 3mm TEM discs. A broad selection of round, square or rectangular cutting tools is available for those applications requiring special shapes or forms and for standard TEM applications. Refer to the *Spares and Consumables Price List* for a detailed list.

## Microscope and X-Y Table

The 50X binocular microscope projects a true image and contains a built-in illuminator powered from a universal power source. The microscope and table allow accurate locating the cutting tool at a specific site on the material being cut. The magnetic base and the magnetically held table are then easily transferred to the TPC-Tool and are held in place by locating pins on the loading platform. This aligns the cutting tool exactly with the optical axis of the microscope. The magnetic assembly eliminates any movement of the material being cut and ensures that the site of interest remains at the center of the cut area.

## Specifications

**Size** 125mmW x 225mmD x 430mmH  
(5"W x 9"D x 17"H)

**Shipping Weight** 11kg (25 lbs)

### Power Requirements

Universal input  
100VAC - 240VAC – 50/60Hz

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