

# Rotary Disc Cutter



## The Model 360 Rotary Disc Cutter

The Model 360 Rotary Disc Cutter is a precision instrument which is designed to precisely align and cut discs or drill holes from a wide range of materials using either a tube shaped brass tool with an abrasive slurry or a diamond tipped tool. The Model 360's rotating tool is continually lowered onto the specimen using an easily adjustable counterbalancing weight. The most common application for the instrument is to cut 2.3mm and 3.0mm discs for TEM although discs as small as 1.25mm and as large as 50mm have been cut.

### Special Features

- Gentle lapping action cuts virtually all materials - including those which cannot be cut with an ultrasonic cutter.
- High tolerance rotational accuracy prevents cracking and chipping of even extremely delicate materials.
- Transferability of TEM-Prep™ System specimen mount increases throughput and maximizes specimen yield.
- Optional Alignment Microscope insures accurate positioning of feature of interest.
- Constant gravity feed mechanism and automatic termination minimize operator supervision.
- Diamond tools are available for effectively cutting very hard materials.
- Capable of cutting discs from less than 1.25mm to greater than 50mm in diameter.
- Auto-stop switch incorporates a time delay which eliminates the possibility of premature shut-off which otherwise might occur due to uneven tool wear or irregularly mounted specimens.

### Application

Unlike an ultrasonic disc cutter which can cut only brittle materials, the Rotary Disc Cutter can cut virtually any material from soft metals to very hard and brittle ceramics. The gentle lapping action employed by the Model 360 makes it ideal for cutting fragile crystals and delicate cross-sectional specimens for TEM. It is also ideal for cutting materials with both hard and soft phases which simply cannot be cut using an ultrasonic cutter. The Model 360 is generally used to cut discs from materials up to 1cm thick which have been transferred from either an SBT slicing instrument or an SBT polishing fixture. Specimen mounts from these instruments are directly transferable which precludes the need to remount the specimen.

### Specimen Mounting

Two specimen holders are included with the Model 360 which are designed to securely hold an aluminum block onto which a specimen is attached. An optional third specimen holder makes it possible to easily transfer between other SBT TEM preparation products. Both standard holders are held to the baseplate using a magnetic mount and can be moved freely in any direction. One holder accommodates 1" wide mounting blocks and the other accommodates 2" wide mounting blocks. These holders are identical to the ones used on the Model 850 Wire Saw and are completely interchangeable. Specimens are traditionally mounted on the aluminum block using a low melting point wax (SBT QuickStick™ 135) with the aluminum block being secured in the holder utilizing a simple clamping mechanism. When the cut is complete an alarm sounds and the tool rotation automatically stops.

## ACCESSORIES



### Model 36001 Alignment Microscope (optional)

Specimen alignment is a critical concern, particularly in the preparation of a TEM specimen. It is often necessary to position a specific point of interest at the center of the disc to simplify subsequent preparation or to maximize specimen yield. The Model

36001 Alignment Microscope is used to precisely align a specimen under the cutting tool. Once an area of interest is located in the Alignment Microscope, the entire mounting assembly is transferred to the Model 360. This alignment procedure is ideal for locating an interface or other area of interest at the center of a disc which is often desirable when preparing cross-sectional TEM specimens.

The Model 36001 Alignment Microscope is supplied with a 40x magnification which provides a 4mm field of view. Other magnifications are available for special applications. In addition to its use as an alignment microscope, the Model 36001 is also conveniently used to examine back lit specimens which have been dimpled on our Model 515 Precision Dimpling Instrument or as a routine inspection microscope.

### Model 36094 Metric Tool Kit (optional)

Includes 1 of each tool with ID of 2.3mm, 3mm, 4mm, 5mm, 6mm, 7mm, 8mm, 9mm and 10mm. All tools have 1/4" shank and a wall thickness of 0.5mm.

### Model 36095 Standard Tool Kit (optional)

Includes 1 of each tool with ID of 1/8", 3/16", 1/4", 5/16", 3/8" and 7/16". All tools have 1/4" shank and a wall thickness of 1/16".

### Model 36096 Boron Carbide Abrasive Slurry Kit (optional)

Includes 125 grams each of 240, 280, 320, 400, 500 and 600 mesh boron carbide powder, 1 quart of glycerine and 2 plastic dropper bottles.

### Model 36097 Silicon Carbide Abrasive Slurry Kit (optional)

Includes 200 grams each of 240, 280, 320, 400, 500 and 600 mesh silicon carbide powder, 1 quart of glycerine and 2 plastic dropper bottles.

### Model 36098 TEM Starter Kit for Model 360 (optional)

The TEM Starter Kit provides everything necessary to cut 3mm discs for TEM. The kit includes Model 36096 Boron Carbide Abrasive Slurry Kit, Model 36097 Silicon Carbide Abrasive Slurry Kit, 10 3mm ID tools, 1 3mm ID diamond tool, QuickStick™ 135 mounting wax and 2 spare drive belts.

### Model 36099 Starter Kit for Model 360 (optional)

The Starter Kit for the Model 360 provides everything necessary to cut discs or holes up to 1/2" diameter. The kit includes Model 36096 Boron Carbide Abrasive Slurry Kit, Model 36097 Silicon Carbide Abrasive Slurry Kit, Model 36094 Metric Tool Kit, Model 36095 Standard Tool Kit, QuickStick™ 135 mounting wax and 2 spare drive belts.

## Model 360 Specifications

Dimensions:	15" W x 14.5" H x 8" D
Net Weight:	20 Lbs.
Tool Rotation:	0 - 1500 RPM
Counterbalance Weight:	0 - 500 grams
Time Delay:	30 - 90 seconds
Electrical Input:	100 VAC 50/60 Hz 110 VAC 50/60 Hz 220 VAC 50/60 Hz

## Model 36001 Specifications

Dimensions:	5" W x 11" H x 8" D
Net Weight:	6 Lbs.
Magnification:	40x (other magnifications available)



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