

PELCO Precision Wire Saw

AG85000



The PELCO® Precision Wire Saw™ is capable of cutting a variety of materials while minimizing damage from the cutting process using a gentle lapping action. This gentle action combined with high precision and low kerf damage makes the Diamond Wire Saw ideal for slicing samples where minimizing mechanical damage and precise positioning of the cut are critical. This wire saw is an updated version of the South Bay Technology Model 850 Abrasive Slurry Saw / Wire Saw.

The saw can be used either with abrasive slurry or with a Diamond Embedded Wire. It can cut brittle samples, which would otherwise be damaged using Low Speed Diamond Saws. With precision and control, the Diamond Wire Saw can cut materials such as sapphire, silicon, glass and germanium as well as tough materials such as tungsten, aluminum, brass and steel. It is highly useful for cutting fragile crystals, substrates with delicate layers, or any material that might otherwise be damaged using other cutting methods.

A variety of sample holders and fixtures are available for use with the PELCO Precision Wire Saw and enable it to cut virtually any sample geometry without difficulty. Oriented crystals, awkward geometries, or flat samples can all be cut using the various holders available. An inspection microscope attachment is also available, for extra precision and additional ease for alignment of difficult samples. The PELCO Precision Wire Saw can also be used as a string saw to cut water-soluble crystals.

Whatever the application, the Wire Saw can be a valuable tool in the preparation of all sample types. With the addition of precision goniometer fixtures, it is also ideal for working with single crystals and optical components.

The saw comes equipped with a recirculating system for abrasive slurry or coolant. It consists of a peristaltic pump and a continuously mixed reservoir. It allows for continuous recirculation of cutting slurry when using plain stainless wire blades or cutting fluid when using diamond wire blades.

Operation

In general operations, a sample is mounted to an aluminum or graphite sample mount and placed on the worktable. The worktable is mounted on a micrometer-controlled indexing cross-feed to allow precise, parallel slices to be taken. An appropriate load is applied by adjusting the weight on the wire arm. Cooling liquid/abrasive is applied using the supplied recirculating cooling/slurry supply system. Many different worktables are available for different sample types, including everything from the aluminum or graphite mounts for wax mounting; to a simple vise; to a complete 3-axis goniometer with rotation and 2 tilt axes suitable for cutting and shaping single crystals. An optional adjustable attached optical microscope for greater precision when setting up and monitoring cutting is also available.

A continuously mixed recirculation system is used for cutting fluid or abrasive slurry. Slurry flow is controlled by an included peristaltic pump unit.

Cutting Blades

The PELCO Precision Wire Saw uses wire loop blades. Either Diamond-embedded Stainless Steel wire blades or plain Stainless Steel wire blades may be used, depending on whether an abrasive slurry is used for cutting. Blade diameters of 0.010 and 0.015" are available. The wire blades can be easily changed and appropriately tensioned within a few moments.

Specifications

Overall Dimensions: 28" (70cm) x 9" (23cm) x 11" (28cm) L x W x H

Electrical: 100-240 VAC 50/60 Hz Universal Power

Maximum Sample Diameter: 2.5" (63mm)

Wire Speed: 25-250 in/sec (40-475 RPM)

Cross Feed Range: 2" (50mm) maximum

Micrometre Feed: 0-25mm at 0.01mm increments

Features

- ◆ Very gentle, low damage cutting for many types of materials and single crystals
- ◆ Easily replaceable wire blades with adjustable tensioning mechanism
- ◆ Recirculating slurry/coolant system included
- ◆ ETL and CE certified
- ◆ A wide variety of sample holders allow mounting of virtually any sample shape
- ◆ Multi-axis Precision Goniometer available for single crystal cutting and other demanding tasks
- ◆ Optional Inspection Microscope available

Accessories



1" Work Table

Supplied as standard with the PELCO® Precision Wire Saw™, this fixture rotates freely and handles samples that are wax mounted to aluminum or graphite mounting blocks. This solution is widely used for cutting TEM Samples for wedge-polishing.



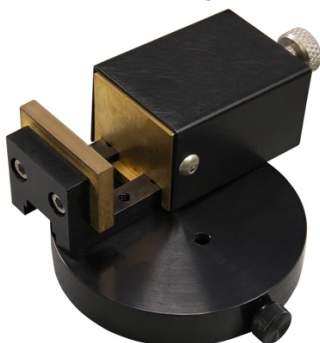
2" Work Table

The 2" Work Table accommodates a larger 2" mounting block for working with larger samples or mounting multiple samples at the same time.



Single Axis Goniometer Work Table

This 2" Work Table incorporates a Precision Goniometer with a Vernier scale, giving rotation accurate to 0.2 degrees for angled cuts.



Vice Work Table

The Vice can be rotated 360 degrees under the cutting arm and has brass jaws accommodating specimens up to 1.3" in diameter.

Accessories (continued)



Work Table Mount

The Work Table Mount is used with the 1", 2", and Vice Work tables. It mounts to the indexing cross-slide, allowing the Work Tables to rotate 360 degrees under the blade.



3-Axis Goniometer

This goniometer allows tilting in two axis up to +/- 60 degrees, and 360 degree rotation around the base. Each axis has a precision vernier scale accurate to 0.2 deg. It mounts to the indexing stage allowing for highly precise control of the cut. Ideal for working with single crystal specimens.



3-Axis Goniometer

Useful for very tall samples and for precise angle control and achieving flat cuts with the AG85030 3-Axis Goniometer, this mount allows the cross-slide to be tilted upwards to remain parallel to the wire blade. This is helpful with tall or awkwardly shaped samples and is required to account for the height of the 3-Axis Goniometer.



Mount for 3-Axis Goniometer

Used to mount the 3-axis Goniometer on the Indexing Cross-feed. Required to fit the Goniometer to the Wire Saw.



Indexing Cross-Feed

The indexing cross-feed uses a micrometer with two inches of cross-travel to allow precise alignment of cuts, as well as to take multiple cuts at measured intervals. This is useful, for instance, for Transmission Electron Microscopy specimens. Metric and Imperial versions are available.

Accessories (continued)



Microscope and Mount

Alignment microscope is mounted on a moveable arm allowing the sample to be aligned for high-precision cuts.