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Lapping and Polishing Fixtures

Shim Controlled Fixtures

Lapping and Polishing



Description

The South Bay Technology Precision Lapping and Polishing Fixtures are designed to accurately produce polished parallel, tapered or critically oriented samples with minimal sub-surface damage. A series of specialized fixtures has been developed for lapping and polishing samples up to 6" in diameter, TEM samples and oriented crystals. In addition to size and shape, the fixtures differ in the type of thickness control techniques they employ. The Lapping and Polishmg Fixtures are designed to be used either by hand or with a lapping machine. Sample Mounting Fixtures are also designed to be used in conjunction with these fxtures to ensure that the sample is mounted parallel to the mounting block and that a thin, uniform layer of wax exists between the mounting block and the sample.

Shim Controlled Fixtures

The shim method for thickness control employs a set of precision shims which serve to create a space between the outside ring assembly and the center slide assembly of the fixture The procedure involves placing shims into the fixture that correspond to the amount of material to remain when lapping or polishing has been completed. Thickness can be adjusted from .0010" to 0400" in .0005" increments. Once the thickness is set, the sample is lapped until it is near its final thickness using the weight of the center slide to gravity feed the sample toward the lapping plate. The load on the sample is variable by adding weights or finger pressure to the top of the fixture. When the desired sample thickness is approached, the fixture is tightened. Lapping or polishing continues until the sample surface is parallel to the tungsten carbide feet and the final thickness has been obtained. The shim controlled fixtures are ideal for ongoing processing of materials where the same sample thickness is required.

Special Features

- Tungsten carbide base resists wear and maintains sample planarity.
- Wear ring is replaceable which extends the life of the fixture.
- Shim control provides a simple means to control sample thickness for repetitive processing.
- Wide base ensures stability thereby minimizing sample damage and edge rounding.
- Can be mounted in the Model 920 Lapping & Polishing Machine for semi-automatic processing.
- Precisely crafted stainless steel construction ensures long life and high precision.

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Model 130 Lapping and Polishing Fixture
The Model 130 uses a threaded rod to accommodate sample mounts up to 1" in diameter for both parallel and small angled samples. Angled blocks up to 5° can be used and are simply mounted in place of standard parallel mounts when tapered sections are desired. The mounting blocks from this fixture are directly transferable from any SBT saw. The Model 130 is a general purpose fixture and is capable of polishing multiple small samples or larger samples up to 1" in diameter.

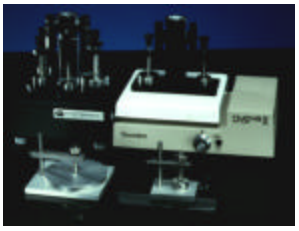
Model 135 Lapping and Polishing Fixture
The Model 135 works the same as the Model 130, but accommodates sample mounts up to 2" in diameter.

Model 141 lapping and Polishing Fixture for TEM Samples
The Model 141 accommodates a 1/2" magnetic sample mount which is directly transferable to the Model 515 Dimpling Instrument's Model 51503 Adjustable Specimen Seat and the Model 51506 Back Lit Adjustable Specimen Seat. The Model 141 is an integral element of the TEM-Prep System as the entire sample slide mechanism of the Model 141 can be transferred to any SBT saw and can be mounted on the Model 360 Disc Cutter. This fixture is most commonly used for preparing TEM samples.

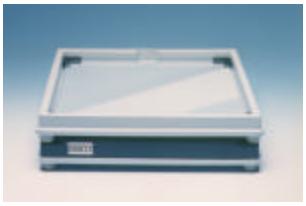
Model 142 Lapping and Polishing Fixture
The Model 142 works the same as the Model 130, but accommodates sample mounts up to 1/2" in diameter.



Model 104 Lapping Fixture
The Model 104 is different from the other micrometer type fixtures in that it uses 3 adjustable tungsten carbide feet rather than an adjustable center slide. The Model 104 can accommodate samples up to 4" in diameter and variations of the fixture are available to accommodate samples up to 6" in diameter. For precision work, the sample can be periodically examined and the feet independently adjusted to achieve a high degree of flatness or to add an angle to a surface.



Sample Mounting Fixtures
The proper mounting of samples is a critical step in the lapping and polishing process. It is imperative that the sample is firmly mounted parallel to the sample mount surface to ensure accurate results. Typically, samples are mounted using a low melting point wax as an adhesive and a Sample Mounting Fixture to apply uniform pressure. Sample Mounting Fixtures are designed to both monitor the temperature of the wax and to provide a uniform



Model 180 Stackable Lapping Tray
The Model 180 consists of a replaceable 12" square glass lapping plate mounted into a cast aluminum tray. The tray is designed to serve as a secure surface for the glass plate while polishing with either abrasive slurries, abrasive papers or abrasive films. The area under the glass plate acts as a reservoir to contain the used slurry or fluids. A plastic cover protects the plate from contamination and is designed to allow stacking of the lapping trays. The stackable lapping trays are ideal to use as lapping or polishing stations with different abrasive grits to avoid cross-contamination.

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