

MODEL 180



XTEM Prep Kit

Produce precise cross-section
TEM (XTEM) specimens

FISCHIONE
INSTRUMENTS





MODEL 180

XTEM Prep Kit

Includes all the components required to produce high-quality cross-section specimens for transmission electron microscopy (TEM).

- **Stacks and holds cross-section specimens**
- **Aligns areas and interface of interest**
- **Produces consistent glue layer thickness**
- **Resulting stacks are readily cut by the Fischione Model 170 Ultrasonic Disk Cutter**
- **Fabricate self-supported 3 mm diameter disk specimens**

CROSS-SECTION TEM

For the study of interfaces by transmission electron microscopy (TEM), it is critical to align the interface of interest parallel to the incident electron beam. One method for preparing such samples is to fabricate cross-section (XTEM) specimens. Widely used cross-section specimens include semiconductor devices (which often have multiple layers and thus multiple interfaces), specimens with thin film layers, and composite materials.

Produce high-quality cross sections

The Model 180 XTEM Prep Kit produces controlled cross-section TEM (XTEM) specimens using rectangular wafers obtained from the area of interest of the bulk material. These wafers are readily cut by the Fischione Model 170 Ultrasonic Disk Cutter.

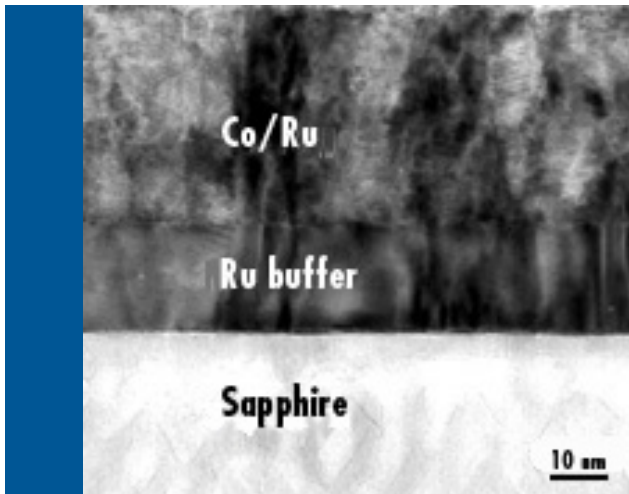
The XTEM Prep Kit makes it easy to stack and bond these wafers together. A small amount of vacuum-compatible epoxy is placed between each wafer. The wafers are then held in place by a vise assembly to produce a consistent epoxy layer thickness.

After the epoxy has cured, the wafer stack is cored with the ultrasonic disk cutter. The core is inserted into brass tubes for subsequent sectioning into self-supported 3 mm diameter disk specimens.

By sectioning the sample and adhering together several layers, each containing an interface of interest, significant amounts of information can be obtained from one specimen.

Included components

- Spring-type vise assembly
- Stack mounting plate assembly
- 2.3 mm diameter titanium cutting tool
- 4 mm x 5 mm titanium cutting tool
- Slice holder, 2 x 3 mm
- Slice holder, 4 x 5 mm
- Mixing dish
- PTFE (polytetrafluoroethylene) mold
- Glue sticks
- Brass tubes



XTEM specimen consisting of Co/Ru multilayers and a Ru buffer layer deposited by CVD on a sapphire substrate. Ion milling was conducted at a voltage of 4 kV, a current of 4 mA, and an incident milling angle of 7°.

Image courtesy of K. Hono and D.H. Ping, National Institute for Materials Science, Japan



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