

# Disc Grinder

## Model 623

The disc grinder is an accurate and dependable tool for mechanically pre-thinning specimens with high quality and uniform thickness. The pre-thinning and polishing procedures reduce the overall time and improve the quality of the final specimen. The disc grinder produces parallel-sided samples quickly and easily and the larger micrometer dial displays the thickness in microns ( $\mu\text{m}$ ).

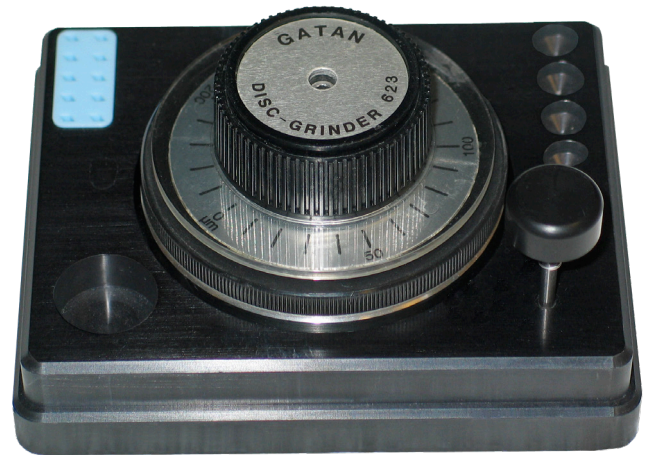
For transmission electron microscopy (TEM), the quality of the initial disc determines the quality of the final specimen. The thinner the starting disc thickness and the higher the uniformity is, the larger the final electron transparent area is. The problems most often encountered in trying to obtain thin discs are tapering of the cross-section, sub-surface specimen damage, and poor control of the final specimen thickness and uniformity.

The disc grinder has been designed specifically to overcome these problems:

- The large diameter of the polishing face and the precise fit of the specimen mount ensure the specimen disc is held parallel to the polishing surface producing uniformly thin specimens
- Ultra-fine thread and pre-loading of the specimen drive screw result in excellent control of the specimen thickness
- By using the weight of the grinder itself to limit the maximum polishing pressure, the operator can reduce specimen damage to a minimum

Parallel sided discs of 50  $\mu\text{m}$  thickness up to 9 mm diameter are obtained quickly, easily, and are reproducible. The robust construction of the disc grinder ensures a long, reliable service.

**Operation:** Following a simple zero-check the specimen mount is removed from the disc grinder and a specimen disc is mounted using the low melting point wax supplied. The specimen mount is placed into the grinder and the control knob is adjusted until the specimen is flush with the polishing surface. Small increments of material, about 10  $\mu\text{m}$  in thickness, are progressively removed. Finer grit polishing compounds are being used in the final steps to obtain a highly polished surface. The specimen mount is then removed, the specimen turned over and remounted. The incremental polishing operation is



repeated until the desired specimen thickness is indicated on the scale of the control knob.

### Benefits

- **Grinder weight limits the maximum polishing pressure:** Reduces specimen damage to a minimum
- **Ultra-fine thread and pre-loading of the specimen drive screw:** Excellent control of the specimen thickness
- **Large diameter polishing face and precise fit of the specimen mount:** Ensures uniformly thin specimens

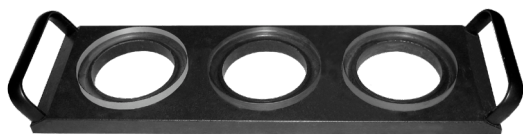
### Applications

- Material science
- Natural resources
- Electronics

### Specifications

Specimen diameter (mm)	≤9
Dimensions (cm)	
Tool (D x H)	7.5 x 4.5
Box (L x W x H)	30.5 x 25.4 x 4.5
Clearances	N/A
Weight (lb)	3
Power requirements	N/A
Warranty (years)	1

Specifications are subject to change.



**Figure 1.** The specimen lapping kit consists of a heavy metal base, 3 flat glass lapping plates, and 60 adhesive lapping discs. The metal base holds the glass plates in place as the disc grinder is moved with a figure-eight action over the lapping discs (40 μm, 15 μm, and 5 μm grit).

### Other products to consider

- PIPS™ II
- PECS™ II
- Solarus® II Plasma Cleaner
- Disc Punch
- Dimple Grinder II
- Ultrasonic Cutter

### Ordering

Model	Description
623.00000	Disc Grinder
601.07000	Cross-Section Kit (TEM)
623.30000	Specimen Lapping Kit
623.51000	Goniometer Disc Mount (1 - 2° angles)

