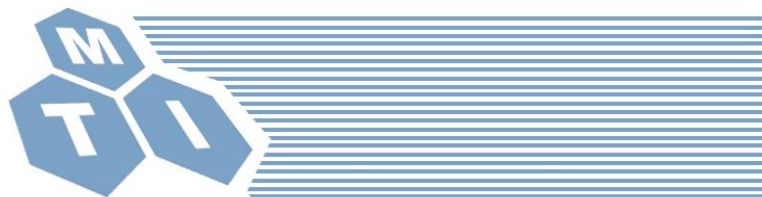


## MTI Polishing Technique

According to different practical applications, the requirements of sample rock slices might be different. For example thickness. But it is mainly required to follow the steps to produce rock slices.

**Cutting – Grinding – Deep Grinding – Polishing – Gluing – Grinding  
– Polishing (Deep Polishing)**



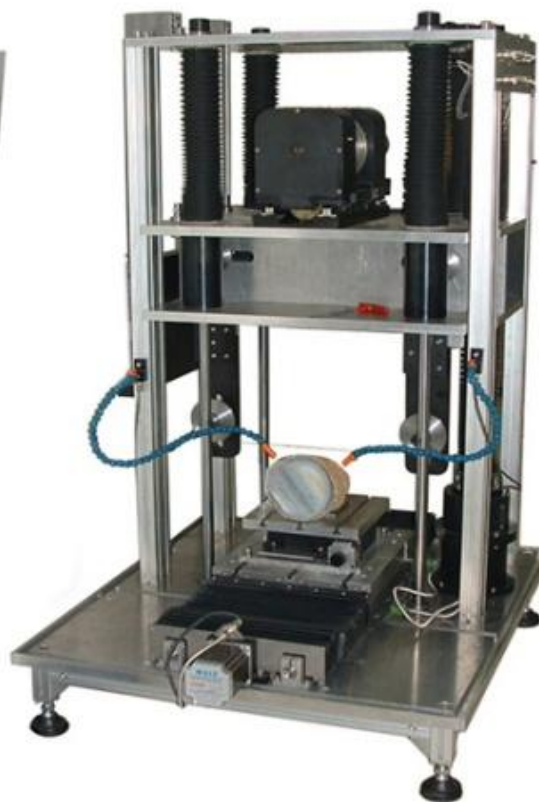
## MTI Polishing Technique

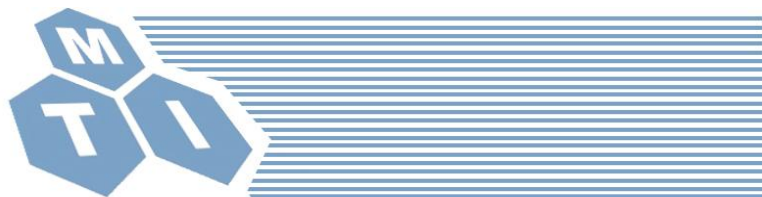
### 1. Cutting

Equipment:

1. For large rock sample

[Precision Wire Saw with Sample Stage and Diamond Wire STX-1202](#)





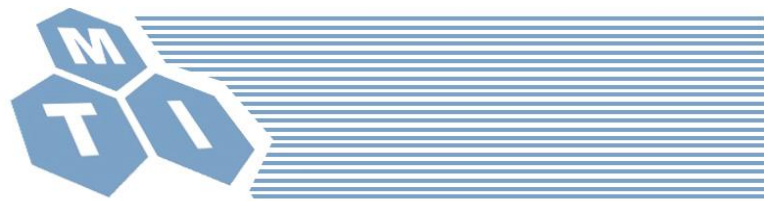
## MTI Polishing Technique

### 1. Cutting

2. For Cross section area < 60x60mm, massive rock sample

[Precision Wire Saw with Sample Stage and Diamond Wire STX-603](#)

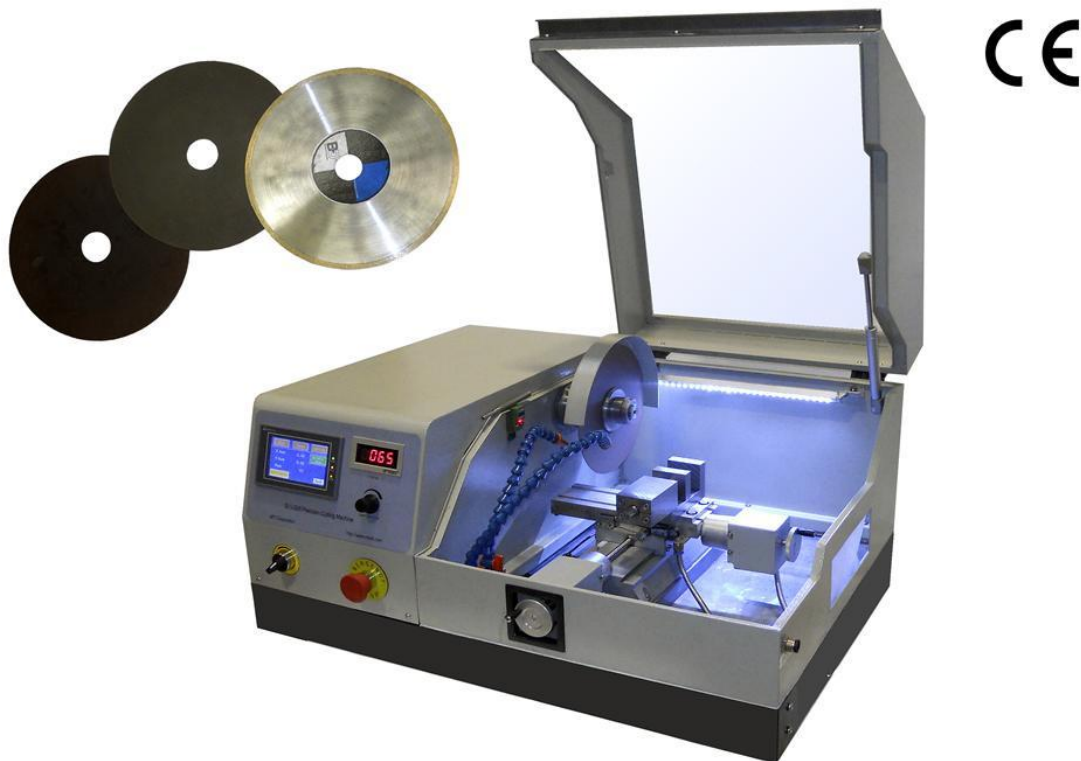


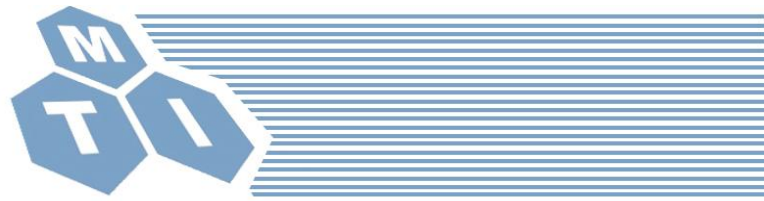


## MTI Polishing Technique

### 1. Cutting

### 3. [Automatic Section Saw 8" with complete accessories SYJ-200](#)





## MTI Polishing Technique

### 1. Cutting

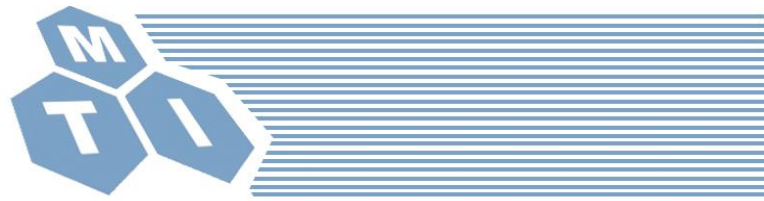
4. For extremely small sample

[Digital Low Speed Diamond Saw with Three 4" Precision Blades & Complete accessories - SYJ-150](#)



[Digital Low Speed Diamond Saw with 6" Diamond Blade & Complete Accessories - SYJ-160](#)



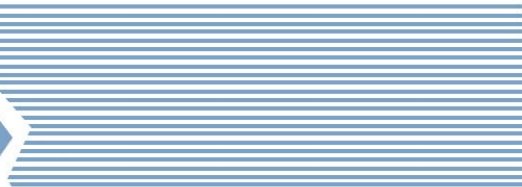


## MTI Polishing Technique

### 1. Cutting

#### Notes:

1. After cutting, both sizes of the slices should be flat.
2. The surface would be less than the glass slice.
3. Without special requests, smaller and thinner samples are better.
4. Use SYJ-200 to cut natural and precious rock sample. SYJ-200 is designed for precision cutting all type of materials up to 3" diameter. The saw is equipped with 8" diameter diamond blade and touch-push panel to achieve automatic control.



## MTI Polishing Technique

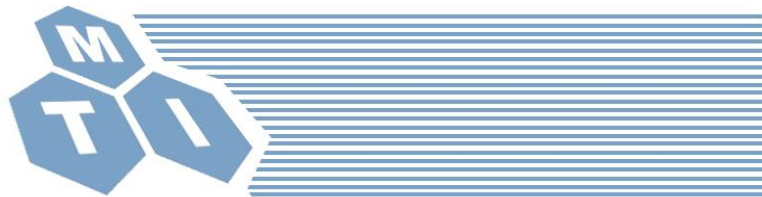
### 2. Grinding

Equipment:

1. [8" Precision Auto Lapping and Polishing Machine with two work stations - EQ-Unipol-802](#)







## MTI Polishing Technique

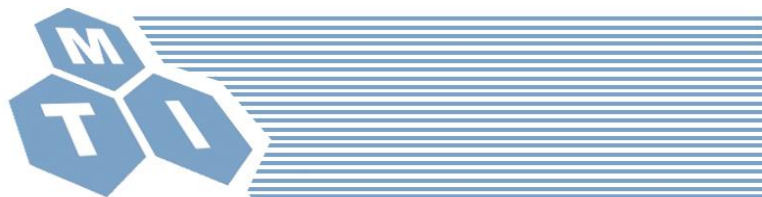
### 2. Grinding

2. For large rock sample

[15" Precision Automatic Lapping / Polishing Machine with Three 4" Work Stations - EQ-Unipol-1502](#)







## MTI Polishing Technique

### 2. Grinding

3. For high hardness sample

[12" Precision Auto Lapping/Polishing Machine with Two 4" Work Stations - EQ-Unipol-1202](#)

CE



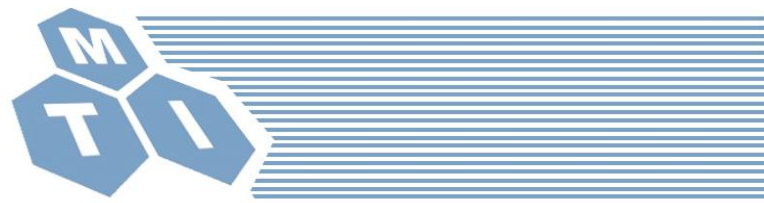


## MTI Polishing Technique

### 2. Grinding

#### [10" Programmable Precision Lapping/Polishing Machine - Unipol-1000S](#)





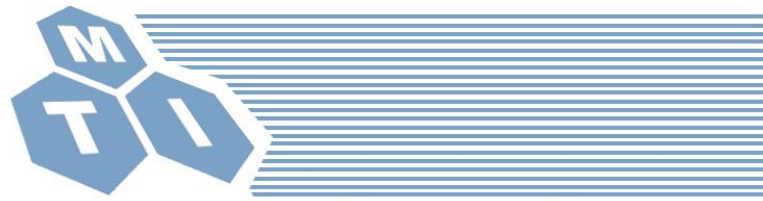
## MTI Polishing Technique

### 2. Grinding

Consumables:

1. [SiC Sand Disc \(PSA\), Waterproof, 8" Diameter 240-2000 grit optional \(10 pcs/item\) - EQ-SD-8PSA](#)
2. [SiC Sand Disc \(PSA\), Waterproof, 12" Diameter 240 -2000 grit optional \(10 pcs/item\) - EQ-SD-12PSA](#)





## MTI Polishing Technique

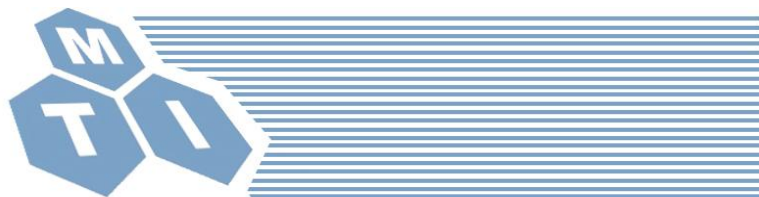
### 2. Grinding

#### Purpose:

To make the surface smooth and remove scratches and mechanical damage on the surface

#### Notes:

1. Polishing is a progressive process. Follow the instructions step by step  
**180 mesh(W40) – 240 mesh (W20) – 320 mesh (W14) – 400 mesh(W10) – 600 mesh(W7)**
2. Rinse the surface after finishing each step
3. Time for each step depends on the actual situation



## MTI Polishing Technique

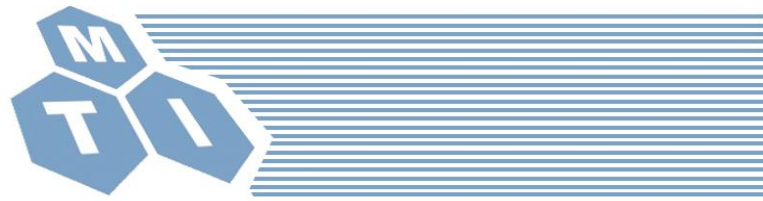
### 3. Deep Grinding

Consumables:

3.0 um Alumina mortar or 1.0 um Alumina powder

Notes:

1. During deep grinding, Alumina mortar/powder requires the corresponding grinding disc.
2. Appropriate mortar/powder, not too much
3. If sample drops into mortar/powder during grinding, stop polishing and change the polluted mortar/powder to get restarted
4. Clean the disc after grinding



## MTI Polishing Technique

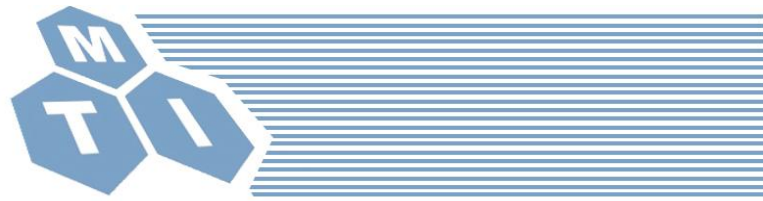
### 4. Polishing

Equipment:

1. [8" Precision Auto Lapping and Polishing Machine with two work stations - EQ-Unipol-802](#)
2. For large rock sample  
[15" Precision Automatic Lapping / Polishing Machine with Three 4" Work Stations - EQ-Unipol-1502](#)

Consumables:

1. 1.0 um and 3.0 um Alumina suspension or mix suspension (alumina and diamond)
2. Polishing cloth (lint)



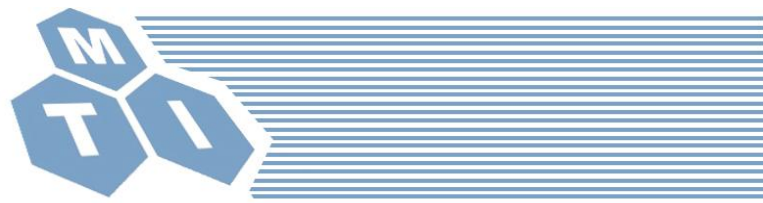
## MTI Polishing Technique

### 4. Polishing

Procedure:

1. Wet the polishing cloth
2. Distribute the suspension evenly over the central of polishing cloth
3. Set up the parameters for EQ-Unipol-802 or EQ-Unipol-1502
4. If there is high surface viscosity, add some water to low viscosity
5. Every 2 minutes check out polishing effects under a microscope; it usually takes less than 5 minutes to observe the effect. Otherwise, sample cannot get better polishing by extending operational time
6. If high polishing required, replace the polishing disk, use 3.0 um Alumina suspension and polish again
7. Do not use water to clean the suspension on the polishing disk, pack it for the usage next time



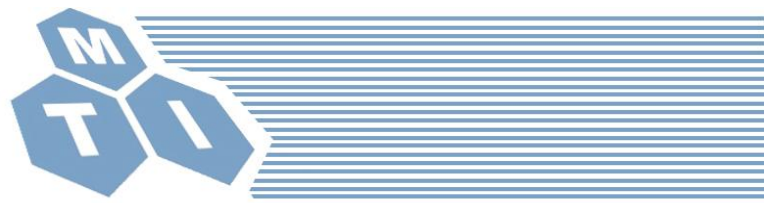


## MTI Polishing Technique

### 4. Polishing

Notes:

1. Take care not to force too much. Too much suspension minor the polishing effect (Slide Effect).
2. Do not distribute different suspensions on the same polishing cloth
3. Try to save polishing cloth and suspension



## MTI Polishing Technique

### 5. Gluing

Equipment:

[280° C Max Precision Hot Plate for Mounting Sample \(15"x11"\) - EQ-HP-3040](#)

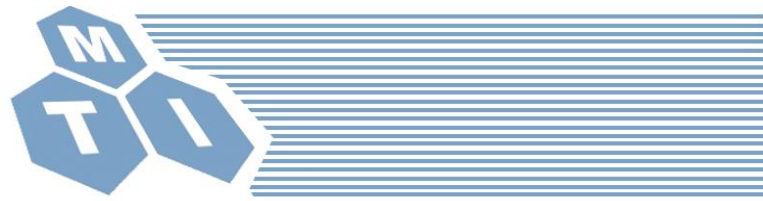


Consumables:

epoxy resin

hot melt adhesive

Glass slide

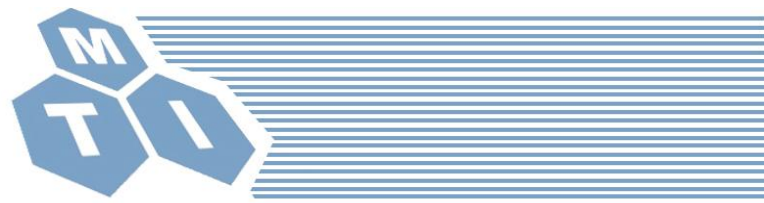


## MTI Polishing Technique

### 5. Gluing

#### Procedure

1. Before gluing, clean the sample slide by water + detergent, or ultrasonic cleaning.
2. Choose different glues based on different applications of sample slide. Usually use epoxy resin. If applied for infrared ray, use hot melt adhesive.
3. Put the sample slide into furnace in order to dry out the water on the surface.
4. Heat up the sample and glass slides on the hot plate EQ-HP-3040.
5. Plaint the glues on the sample and glass slides uniformly.
6. Glue the sample and glass slides together and exclude the bubbles.
7. If using epoxy resin, wait for 12 hours or more



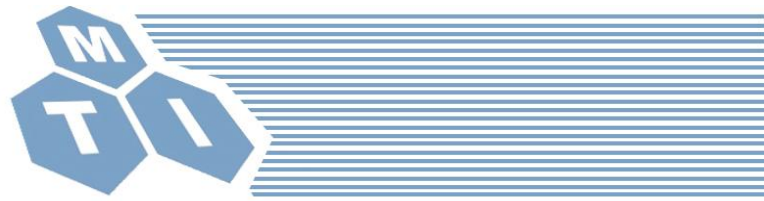
## MTI Polishing Technique

### 5. Gluing

Notes:

1. During gluing, preheat the sample and glass slides
2. Take care not to force too much for gluing and excluding bubbles.

Otherwise there is some glue left around the sample. Crunches or halos might happen after cooling down



## MTI Polishing Technique

### 6. Grinding

This grinding is referred to the sample after gluing. It is similar to the step 2&3.

Equipment:

[Precision Thickness Checker with 0.001 mm Dial Indicator - EQ-SKCH-1](#)



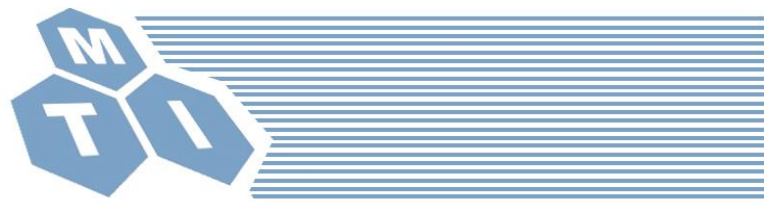


## MTI Polishing Technique

### 6. Grinding

Use SKCH-1 to measure the thickness of sample

SiC Sand Disc	Recommend Sample Thickness
320 mesh(W14)	120-150um
400 mesh(W10)	75-100um
600 mesh(W07)	50-70um



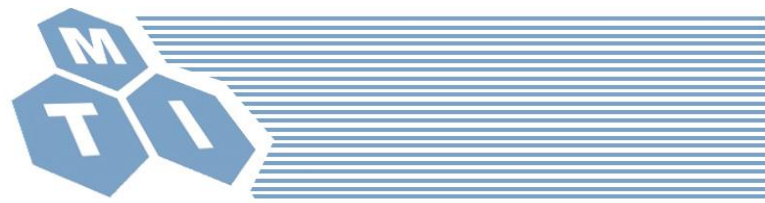
## MTI Polishing Technique

### 6. Grinding

#### Notes:

1. Try to parallel the sample and glass surfaces
2. If applying hot melt adhesive, take care not to force too much. Avoid the sample crunches and fall offs

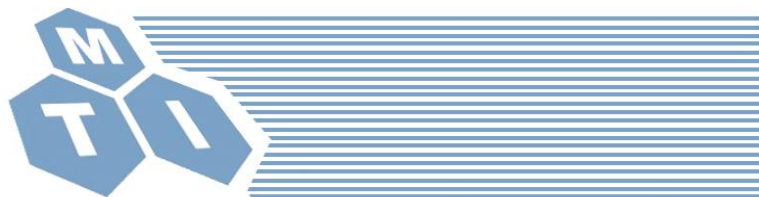




## MTI Polishing Technique

### 7. Polishing

Same as Step 4



## MTI Polishing Technique

### Optional: Deep Polishing

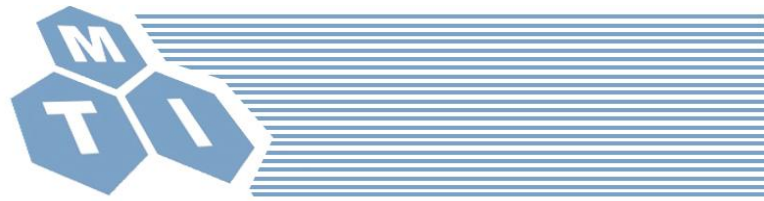
Only for higher level application

Equipment:

1. [8" Precision Auto Lapping and Polishing Machine with two work stations - EQ-Unipol-802](#)
2. For large rock sample  
[15" Precision Automatic Lapping / Polishing Machine with Three 4" Work Stations - EQ-Unipol-1502](#)

Consumables:

1. 0.5 um Alumina or Silicon oxide suspension
2. Polishing cloth (lint)



## MTI Polishing Technique

### Optional: Deep Polishing

Procedure: same as step 4

#### Notes:

1. Usually deep polishing time is 1-2 hours. sample cannot get better polishing by extending operational time
2. See the product instructions of EQ-Unipol-802 and EQ-Unipol-1502 on website [www.mtixtl.com](http://www.mtixtl.com)
3. Try to save polishing cloth and 0.5 um Alumina or Silicon oxide suspension. pack them for the usage next time after polishing