

# Mikrosize®

## iPoli-D Metallographic Manual Grinding Polishing Machine



Video



### Contact us

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## Product Features and Application

- This grinding polishing machine is a single-disc/dual-disc desktop machine, suitable for the preliminary grinding and polishing of metallographic samples.
- It is an essential device for users to prepare metallographic specimens.
- The machine is equipped with a cooling system that allows the sample to be cooled during the grinding process, preventing damage to the metallographic structure due to overheating.
- It is easy to use, safe, and reliable, making it an ideal specimen preparation device for factories, research institutions, and laboratory settings in academic institutions.

### Product Features

- Equipped with two independent grinding and polishing discs, allowing different processes or handling of different samples simultaneously, improving work efficiency.
- The polishing disc has a diameter of 203mm, capable of grinding and polishing most samples available on the market.
- The machine features a water cooling system that cools the samples during grinding and polishing, preventing damage to the metallographic structure due to overheating, thus ensuring the quality and performance of the samples.
- Including stepless and multi-stage speed control, enabling users to select the appropriate speed based on the sample material, process requirements, and the stage of grinding or polishing to achieve optimal results.
- The structure is reasonably designed for easy daily maintenance and upkeep.
- Consumables such as grinding paper and polishing cloth used in the grinding and polishing process are easy to replace.

### Product Application

- Used for the preparation of metallographic samples of various metal materials, such as steel, aluminum alloys, copper alloys, and more.
- Applied in the wafer grinding and polishing processes within chip manufacturing, enhancing chip performance and reliability.
- Used for grinding and polishing the surfaces of rock and mineral specimens to observe internal structures, mineral composition, and other details.
- Applied to the surface treatment of automotive components, improving the wear resistance, sealing properties, and durability of parts.
- Used for teaching demonstrations and scientific research.



## Instrument Details

The equipment includes an external pressure aluminum ring, which can secure polishing cloth without pressure-sensitive adhesive.



The movable spray pipe can control the water flow through the knob on the panel.



The plastic molded water shield can prevent water splashing during the grinding and polishing process.



## Control Interface



**1. Forward Rotation Start**

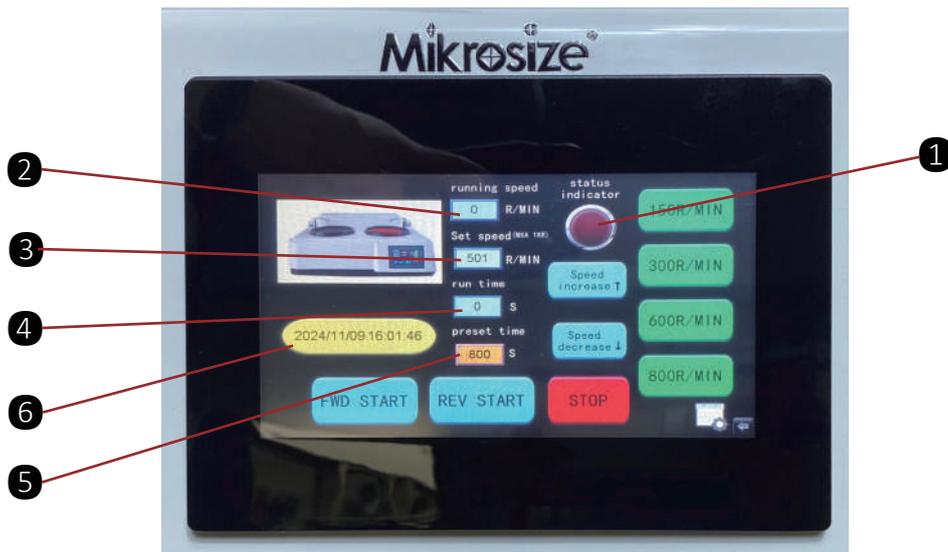
**2. Reverse Rotation Start**

**3. Stop Button**

**4. Multi-Stage Speed Control Button**

**5. Stepless Speed Control Acceleration**

**6. Stepless Speed Control Deceleration**



**1. Status Indicator**

**2. Real-Time Running Speed**

**3. Set Speed**

**4. Running Time**

**5. Set Time**

**6. Time Display**

## Control Interface

### Time Setting



### Set Running Time (0-1000s)



## Ordering Information



**iPoli-1D-200M(203mm Diameter) Single Disc Manual Grinding Polishing Machine**  
**iPoli-1D-230M (230mm Diameter)Single Disc Manual Grinding Polishing Machine**  
**iPoli-1D-250M (250mm Diameter)Single Disc Manual Grinding Polishing Machine**



**iPoli-2D-200M(203mm Diameter) Dual Discs Manual Grinding Polishing Machine**  
**iPoli-2D-230M (230mm Diameter)Dual Discs Manual Grinding Polishing Machine**  
**iPoli-2D-250M (250mm Diameter)Dual Discs Manual Grinding Polishing Machine**



# Technical Specification

<b>Product Name</b>	Metallographic Manual Grinding Polishing Machine	
<b>Model</b>	iPoli-1D-200M	iPoli-2D-200M
<b>Disc Type</b>	Single Disc	Dual Discs
<b>Polishing Disc Diameter</b>	Φ203mm (Customized Φ230mm, Φ250mm)	
<b>Polishing Disc Rotation Speed</b>	50-1000 rpm stepless speed	Regulation 150/300/600/800 rpm four constant speed
<b>Control Method</b>	Single disc/Single control	Dual disc/Single control
<b>Voltage Supply</b>	220V 50HZ	
<b>Power Supply</b>	550W	
<b>Motor</b>	YSS7124,550W	
<b>Machine Dimension</b>	500*910*475mm	860*660*355mm
<b>Net Weight</b>	41kg	70Kg
<b>Gross Weight</b>	47kg	84kg

## Standard Delivery

Name	Qty	
Machine Mainframe	iPoli-1D-200M	
	iPoli-2D-200M	
Water Shield	1	
Velvet Polishing Cloth Φ 203mm(Non-adhesive)	2	
Abrasive Paper Φ203mm	2	
Plastic Cover	iPoli-1D-200M: 1 pc /iPoli-2D-200M: 2 pcs	
Inlet Pipe	1	
Outlet Pipe	1	
Ground Screw	2	
Aluminum Buckle Ring Φ203mm	iPoli-1D-200M: 1 pc /iPoli-2D-200M: 2 pcs	
Polishing Disc Φ203mm	iPoli-1D-200M: 1 pc /iPoli-2D-200M: 2 pcs	
Instruction Manual, Product Certificate, Warranty Card	1 copy ea.	

## Optional Delivery

### Abrasive Paper

#### SC Silicon Carbide Abrasive Paper/ SC-A Silicon Carbide Abrasive Paper

**Introduction:** The metallographic special abrasive paper is made of selected silicon carbide abrasive with uniform particle size and excellent grinding effect, and the water-resistant metallographic abrasive paper is manufactured by electrostatic sanding process, which is characterized by uniform distribution of abrasive grains, sharpness of grinding and durability. Thus, the sample can be removed quickly and the deformation layer is shallow, and the effect is especially obvious for high hard or harder materials. All rough and fine grinding processes can be water-abrasive.

**Features:** It can be used both wet and dry, and is especially suitable for precision polishing and grinding of painted surfaces, precision instruments, metals, composite materials, automobile manufacturing and repair, and electronic devices.

**Application:** Suitable for grinding hard materials such as ceramics, glass and cemented carbide.



#### Technical Specification

Bond: Latex Paper

Adhesive: No/Yes

Grinding Material: Black Silicon Carbide

Abrasive Grade: P60, P80, P120, P180, P220, P240, P320, P400, P500, P600, P800, P1000, P1200, P1500, P2000, P2500, P3000, P4000

Diameter(mm):  $\Phi$ 200/230/250/300mm

Package: 50PCS/Wrap(For P60,P80,P120), 100PCS/Wrap

#### GSC-Green Silicon Carbide Abrasive Paper

**Application:** Widely used in the grinding process of PCB/PCBA, semiconductor, metal and material analysis, the sanding and polishing of crafts, using high-fine nano-process sandpaper, can be sanded to a mirror surface for samples.

**Features:** Super fine green silicon carbide abrasive, from imported sand planting technology and special bonding resin, soft texture, wet and dry, wear-resistant, not easy to fall off the sand.



#### Technical Specification

Bond: Latex Paper

Adhesive: No/Yes

Grinding Material: Green Silicon Carbide

Abrasive Grade: 120#, 180#, 240#, 320#, 400#, 600#, 800#, 1000#, 1200#, 1500#, 2000#, 2500#, 3000#, 4000#, 5000#, 7000#

Diameter(mm):  $\Phi$ 200/220/230/250/300mm

Package: 100PCS/Wrap

## Optional Delivery

### Abrasive Paper

#### AO-W Aluminum Oxide Abrasive Paper

**Features:** Good waterproof, durable long lasting life.

**Application:** Suitable for grinding soft materials such as wood and metal, and has advantages for surface processing that requires smoother surface processing, such as optical lenses and coatings.



#### Technical Specification

Bond: Latex Paper

Adhesive: No/Yes Waterproof: Yes

Material: Aluminum Oxide

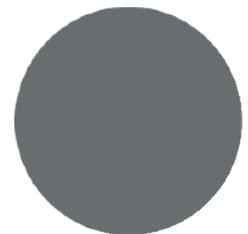
Abrasive Grade: 180#, 240#, 320#, 400#, 600#, 800#, 1000#, 1200#

Diameter(mm):  $\Phi$ 200mm/ $\Phi$ 230mm

Package: 100PCS/Wrap

#### AO-D Aluminum Oxide Dry Abrasive Paper

**Application:** Suitable for grinding soft materials such as wood and metal, and has advantages for surface processing that requires smoother surface processing, such as optical lenses and coatings.



#### Technical Specification

Bond: Latex Paper

Adhesive: No/Yes Waterproof: No

Material: Aluminum Oxide

Abrasive Grade: W50(1), W40(0), W28(01), W20(02), W14(03), W10(04), W7(05), W5(06), W3.5(07)

Diameter(mm):  $\Phi$ 200mm/ $\Phi$ 230mm

Package: 100PCS/Wrap

## Optional Delivery

### Polishing Cloth

#### Polishing Cloth

**Introduction:** A series of metallographic polishing fabrics developed and produced specifically for rough and fine polishing during metallographic sample preparation. Suitable for various models and Specifications of metallographic polishing machines both domestically and internationally, especially for semi-automatic or fully automatic metallographic polishing machines.

The metallographic polishing fabric series consists of multiple layers such as polishing layer, storage abrasive layer, and protective layer, among which the most important layer is the polishing fabric layer that is truly used for polishing. This layer is made of high-quality fabrics with high strength, different pile lengths and textures, suitable for metallographic polishing. Thus, this polishing fabric has excellent polishing effect and a long service life.



#### Product Description:



Velvet: Long fluff silk, for stainless steel high precision material or aluminum, copper, magnesium soft material, for Diamond suspension: 0.5~5 $\mu$ m.



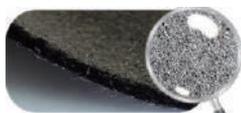
Flocked: Short fluff cotton, for stainless steel, electronic circuit board, soft metal, for Diamond suspension: 1~3 $\mu$ m.



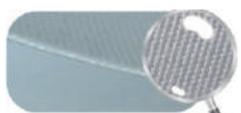
Canvas: Without fluff cotton, for stainless steel rough polishing, for Diamond suspension: 5~14 $\mu$ m.



Silk: Without fluff, for structures such as graphite or inclusions, for Diamond suspension: 0.5~3.5 $\mu$ m.



Woolen: Thickened navy fabric, woolen pressed products, used for steel materials, for Diamond suspension: 3~5 $\mu$ m.



Nylon: Chemical fiber products, rough polishing of steel materials, for Diamond suspension: 7~20 $\mu$ m.

#### Technical Specification

Material: Velvet, Flocked, Silk, Woolen, Canvas, Nylon

Diameter(mm):  $\Phi$ 200/220/230/250/300mm

Packing: 10PCS/Wrap

Adhesive: No/Yes

## Optional Delivery

### Polishing Cloth

#### Product Description:



Synthetic fiber: Long nap, for all materials rough polishing, with 2.5~10µm Diamond or Aluminum Oxide .



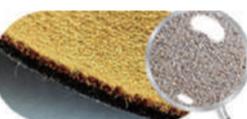
Synthetic fiber(flocked): For all materials rough polishing and Ceramics, crystals and other materials, with 1~3.5µm Diamond Suspension or Aluminum Oxide Suspension



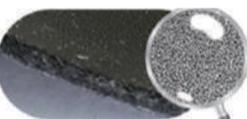
Woolen(pressing product): For all materials rough polishing, with 1~5um Diamond Suspension or Aluminum Oxide Suspension



Cotton(with short fluff): For all materials rough polishing, with 1~3.5µm Diamond Suspension or Aluminum Oxide Suspension



Chamois: Applied to non-ferrous metals, glass, silicon and other materials, with 0.05~3µm Diamond Suspension or Aluminum Oxide Suspension or Silicon Suspension



High Precision Chemical Fiber Material: (Damping Fabric) Suitable for non-ferrous metals, glass, silicon, with 0.05~3µm Diamond Suspension or Aluminum Oxide Suspension or Silicon Suspension



Cashmere: Suitable for iron, copper, magnesium and zinc, with 0.5~3.5µm Diamond Suspension or Aluminum Oxide Suspension



Imported polished velvet: Suitable for non-ferrous metals, glass, silicon, with 0.05~3µm Diamond Suspension or Aluminum Oxide Suspension or Silicon Suspension



Leather: Suitable for non-ferrous metals, glass, silicon, with 0.05~3µm Diamond Suspension or Aluminum Oxide Suspension or Silicon Suspension

#### Technical Specification

Diameter(mm):Φ200/220/230/250/300mm(Can be customized, 3-1040mm)

Packing: 10PCS/Wrap

Adhesive: No/Yes

### Synthetic Polymer Adhesive Polishing Cloth

#### Product Description:

No-fluff, multi-void, used with Diamond, Alumina Oxide, Silicon dioxide suspensions(0.02~1µm), suitable for the final fine polishing (especially for simultaneous mechanical-chemical polishing) of a wide range of materials (especially very soft materials such as titanium, copper, silver, other non-ferrous metals, glass, silicon and other materials.)



#### Technical Specification

Material: Synthetic Polymer

Diameter(mm):Φ200/220/230/250/300mm

Packing: 10PCS/Wrap

Adhesive: No/Yes

## Optional Delivery

### Polishing Agent

#### DSM Monomorph Diamond Suspension

##### Product Features:

- Raw materials comply with environmental protection requirements.
- Non-toxic, non-flammable water-based materials.
- Does not contain harmful components to the human body.
- Rapid removal rate.
- Long-lasting durability.
- Excellent lubricity.

**Application:** Suitable for various materials.



#### Technical Specification

Material: Diamond+Water

Abrasive Grade: 0.05µm, 0.25µm, 0.5µm, 1µm, 1.5µm, 2.5µm, 3µm, 3.5µm, 5µm, 6µm, 7µm, 9µm, 10µm, 14µm, 15µm, 20µm, 28µm, 40µm

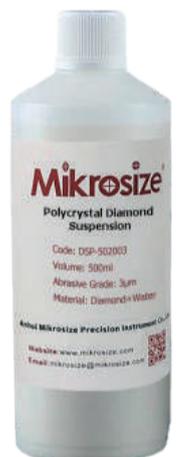
Packing: 500ml/Bottle, 4000ml/Bottle

#### DSP Polycrystal Diamond Suspension

##### Product Features:

- High removal rate and toughness with self-sharpening properties;
- Less likely to cause surface scratches compared to Monomorph diamond;
- Better suited for grinding surfaces made of materials with varying hardness;
- Fast removal rate;
- Long-lasting wear resistance;
- Excellent lubrication;
- Diamond suspension makes sample preparation better, faster, and more economical;
- All raw materials meet environmental protection requirements, are non-toxic, water-based, non-flammable, and free of harmful substances to humans

**Application:** Water based polycrystalline diamond polishing Suspension can provide better polishing surface and improve polishing efficiency at the same particle size, especially suitable for polishing special metal materials such as aluminum, aluminum magnesium alloys, titanium alloys, etc.



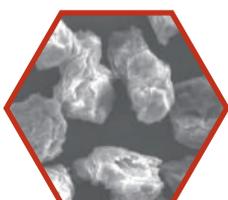
#### Technical Specification

Material: Diamond+Water

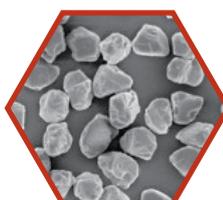
Abrasive Grade: 0.1µm, 0.25µm, 0.5µm, 1µm, 1.5µm, 2.5µm, 3µm, 3.5µm, 5µm, 6µm, 7µm, 9µm, 10µm, 14µm, 15µm, 20µm

Packing: 500ml/Bottle, 4000ml/Bottle

**Composed of spherical microcrystal aggregates, with microcrystal sizes ranging from 3 to 10 µm.**



Polycrystal Diamond



Monomorph Diamond

## Optional Delivery

### Polishing Agent

#### DPP Diamond Polishing Paste

**Application:** Suitable for manual precision polishing or low hardness samples.



#### Technical Specification

Material: Diamond

Abrasive Grade: 0.5 $\mu$ m, 1 $\mu$ m, 1.5 $\mu$ m, 2.5 $\mu$ m, 3 $\mu$ m, 3.5 $\mu$ m, 5 $\mu$ m, 6 $\mu$ m, 7 $\mu$ m, 9 $\mu$ m, 10 $\mu$ m, 14 $\mu$ m, 15 $\mu$ m, 20 $\mu$ m, 28 $\mu$ m, 40 $\mu$ m

Packing: 5g/PC

#### DPM Monomorph Diamond Polishing Powder

**Application:** It is suitable for metallographic and petrographic grinding and polishing, as well as for grinding and precision polishing of high gloss surfaces of various ferrous and non-ferrous metals, ceramics, composite materials, as well as gemstones, instruments, optical glass and other products.



#### Technical Specification

Material: Monomorph Diamond

Abrasive Grade: 0.25 $\mu$ m, 0.5 $\mu$ m, 1 $\mu$ m, 1.5 $\mu$ m, 2.5 $\mu$ m, 3 $\mu$ m, 3.5 $\mu$ m, 6 $\mu$ m, 7 $\mu$ m, 10 $\mu$ m, 14 $\mu$ m, 20 $\mu$ m, 28 $\mu$ m, 40 $\mu$ m

Packing: 100Karat/Wrap

#### DPP Polycrystal Diamond Polishing Powder

**Application:** It is suitable for metallographic and petrographic grinding and polishing, as well as for grinding and precision polishing of high gloss surfaces of various ferrous and non-ferrous metals, ceramics, composite materials, as well as gemstones, instruments, optical glass and other products.



#### Technical Specification

Material: Polycrystal Diamond

Abrasive Grade: 0.25 $\mu$ m, 0.5 $\mu$ m, 1 $\mu$ m, 1.5 $\mu$ m, 2.5 $\mu$ m, 3 $\mu$ m, 3.5 $\mu$ m, 6 $\mu$ m, 7 $\mu$ m, 9 $\mu$ m, 10 $\mu$ m, 14 $\mu$ m, 15 $\mu$ m, 20 $\mu$ m

Packing: 100Karat/Wrap

## Optional Delivery

### Polishing Agent

#### AOP Aluminum Oxide Polishing Powder

**Application:** Grinding and Polishing of soft materials, such as stainless steel and aluminum alloy etc.



#### Technical Specification

Material: Aluminum Oxide Powder

Abrasive Grade: 0.05 $\mu$ m, 0.5 $\mu$ m, 0.3 $\mu$ m, 1 $\mu$ m, 1.5 $\mu$ m, 2.5 $\mu$ m, 3.5 $\mu$ m, 7 $\mu$ m, 10 $\mu$ m, 14 $\mu$ m, 20 $\mu$ m, 28 $\mu$ m, 40 $\mu$ m

Packing: 500g/Bottle

#### AOS Aluminum Oxide Suspension

**Application:** Suitable for metallographic and lithological grinding and polishing, and high smoothness surfaces of various black and non-ferrous metals, ceramics, composite materials, as well as gemstones, instruments, optical glass and other products. Ultra fine abrasives can achieve the desired ultra precision polishing surface.



#### Technical Specification

Material: Aluminum Oxide Particle+Water

Abrasive Grade: 0.05 $\mu$ m, 0.3 $\mu$ m, 0.5 $\mu$ m, 1 $\mu$ m, 1.5 $\mu$ m, 2.5 $\mu$ m, 3.5 $\mu$ m, 7 $\mu$ m, 10 $\mu$ m, 14 $\mu$ m, 20 $\mu$ m, 28 $\mu$ m, 40 $\mu$ m

Packing: 500ml/Bottle, 1000ml/Bottle, 4000ml/Bottle

#### SOP Silicon Oxide Suspension

**Application:** Suitable for final Precision Polishing of samples, mainly used for high purity metals and alloys, minerals, ceramics, polymers and other soft and tough specimens.



#### Technical Specification

Material: Silicon Particle+Water

Abrasive Grade: 0.02 $\mu$ m, 0.04 $\mu$ m, 0.05 $\mu$ m

Packing: 500ml/Bottle, 1000ml/Bottle, 4000ml/Bottle

## Optional Delivery

### Polishing Agent

#### Cerium Oxide Suspension

**Application:** For fine polishing of glass, silicon wafers, crystals and optical accessories.



#### Technical Specification

Material: Cerium Oxide Particle

Abrasive Grade: 0.5µm, 1µm, 3µm, 6µm, 9µm

Packing: 500ml/Bottle, 1000ml/Bottle, 5000ml/Bottle

#### Chromium Oxide Suspension

**Application:** For precision polishing of steel, aluminium, copper, etc.



#### Technical Specification

Material: Chromium Oxide Particle

Abrasive Grade: 0.5µm, 1µm, 3µm, 6µm, 9µm

Packing: 500ml/Bottle, 1000ml/Bottle, 5000ml/Bottle

#### Silicon Carbide Suspension

**Application:** For fine polishing of steel, semiconductors and crystals.



#### Technical Specification

Material: Silicon Carbide Particle

Abrasive Grade: 0.5µm, 1µm, 3µm, 6µm, 9µm

Packing: 500ml/Bottle, 1000ml/Bottle, 5000ml/Bottle

#### Boron Nitride Suspension

**Application:** For fine polishing of glass, silicon wafers, crystals and optical accessories.



#### Technical Specification

Material: Boron Nitride Particle

Abrasive Grade: 0.25µm, 0.5µm, 1µm, 3µm, 6µm, 9µm

Packing: 500ml/Bottle, 1000ml/Bottle, 5000ml/Bottle

## Optional Delivery

### Polishing Lubricants

#### Reference for the Selection of Common Sample Materials and Abrasive Grain Sizes

Material	Rough Polishing	Fine Polishing
Ceramics, Zirconia, Alumina	Velvet with 3.5µm	Velvet with 1.5µm
Hard metals, Synthetic Materials	Woolen or Velvet with 5µm	Velvet with 3.5µm
Soft Steel, Austenitic stainless Steel, Ferritic Steel	Woolen or Velvet 3.5µm	Velvet with 1.5µm
Nonferrous Metals, Cast Aluminum	Velvet with 3.5µm	Velvet or Silk with 1µm
Titanium Alloy	Woolen or Canvas with 3.5µm	Velvet with 1µm or 0.5µm (0.3µm or 0.05µm silicon)
Magnesium Alloy	Velvet with 3.5µm	Silk with 1µm Synthetic Polymer with 0.05µm
Cast iron, Ductile Iron, Gray Cast Iron	Canvas with 5µm	Silk with 2.5µm
Hard and Medium Hard Steel	Woolen or Canvas with 5µm	Velvet with 2.5µm
Porous Ceramics	Velvet with 2.5µm	Silk with 1µm or 0.5µm
Stainless Steel	Woolen or Velvet with 5µm	Velvet with 1µm
Aluminium Alloy	Velvet with 2.5µm	Silk with 1µm or 0.5µm(0.3µm or 0.05µm alumina)

\*'Velvet with 3.5µm' Means Velvet polishing cloth with 3.5µm polishing agent.

## Optional Delivery

### Polishing Lubricants & Storage Cabinet

#### Introduction:

- The metallographic polishing lubricant is specifically designed for lubrication and cooling during the fine grinding and polishing stages of metallographic sample preparation. It boasts excellent lubrication and cooling properties, particularly effective for grinding and polishing non-ferrous metals and softer ferrous metals.
- When used in conjunction with our company's metallographic-specific polishing series products, such as the diamond grinding and polishing series and metallographic polishing fabrics, samples polished with this lubricant exhibit clean surfaces and minimized deformation of the metallographic structure. This significantly reduces interference with the true metallographic structure during sample preparation.
- It is suitable for various models and Specifications of metallographic polishers, both domestic and international. It is especially effective for semi-automatic or fully automatic metallographic polishing machines. Compared to similar products from abroad, its performance is fully equivalent.

### PL-B/R Polishing Lubricants

**Application:** Polishing Lubricant is used to enhance polishing performance of diamond suspensions, compounds, sprays and films.

It reduces friction and increase the life of polishing clothes. It can be applied manually or used with automatic dispenser. Suitable for precision grinding and polishing processes of all materials.

#### Usage Instructions:

- 1.For Semi-Automatic or Fully Automatic Metallographic Polishing Machine:  
Pour the liquid into the designated bottle in the polisher. Then, follow the operating instructions of the polishing machine for proper use.
- 2.For Manual Polishing Machine:  
It is recommended to pour the liquid into a soft plastic bottle with a nozzle, such as a wash bottle.  
During polishing, start the polishing machine and gently squeeze the soft plastic bottle to spray the lubricant onto the polishing cloth. Ensure the entire effective polishing cloth surface is wetted before beginning the polishing process.
- 3.When Increased Polishing Resistance is Felt:  
Add an appropriate amount of lubricant as needed.



**Application:**  
Suitable for precision grinding and polishing processes of all materials.

**Application:**  
Suitable for grinding and polishing processes of soft materials.

### Technical Specification

Color: Blue,Red

Package: 1L/bottle, 4L/bottle