



iPoli-SC-250A

Auto Metallographic Grinding Polishing Machine



Video



Contact us

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Product Features and Application

Product Features

- The rotation direction of the polishing disc can be chosen freely.
- Three levels of fixed speeds (adjustable as needed).
- The polishing disc can be quickly replaced.
- Stepless speed adjustment is available for both the polishing disc and the polishing head.
- The polishing head supports both single-point loading and central loading.
- Sample preparation pressure is adjusted by an electronic proportional valve for precise accuracy.
- Two types of clamping plates to accommodate various specimen shapes.
- Equipped with a water cooling system to prevent overheating, preserving the metallographic structure.
- Come with an automated control system for achieving automated and intelligent control of the polishing process.

Product Application

● Materials Science Research

Used for preparing samples of various materials such as metals, ceramics, glass, minerals, and silicates, facilitating analysis of their microstructure and properties.

● Engineering Quality Inspection

Reveals internal structures and defects of materials, providing essential insights for engineering quality assessment. It can also be used for surface treatment and quality inspection of critical components like weld joints, castings, and forgings.

● Manufacturing Industry

Suitable for precise polishing of parts to improve surface quality and accuracy.



iPoli-1SC-250A



iPoli-2SC-250A

Instrument Details



1. Polishing Machine Buttons

2. Bottom Display Screen

3. Cooling Water Nozzle: Allows rinsing of the sample during polishing; can be turned on, off, or adjusted as needed

5. Polishing Head Display Screen

4. Polishing Head Buttons

6. Specimen Clamp

7. Water Guard Ring: Prevents water from splashing during polishing

8. Polishing Disc



1. Speed Increase Button

2. Forward/Reverse Rotation Toggle Button

3. Speed Decrease Button

4. Start Button

5. Stop Button

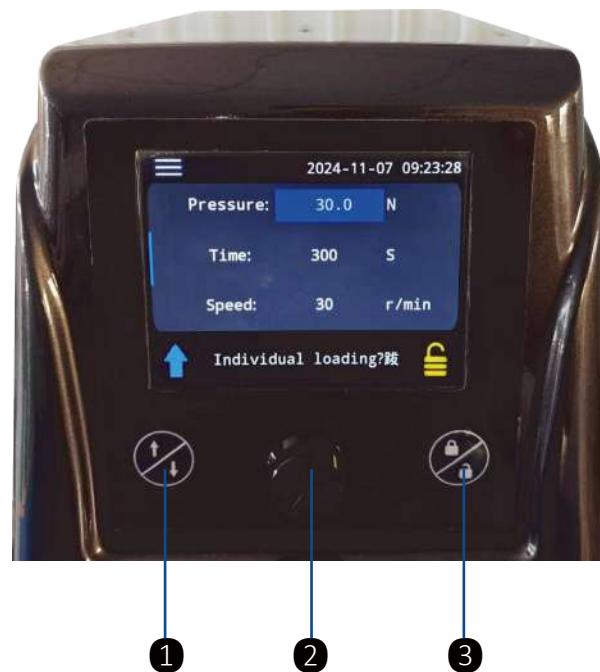
6. Level 1 Fixed Speed Button: Default 300 RPM, adjustable

7. Level 2 Fixed Speed Button: Default 600 RPM, adjustable

8. Level 3 Fixed Speed Button: Default 900 RPM, adjustable

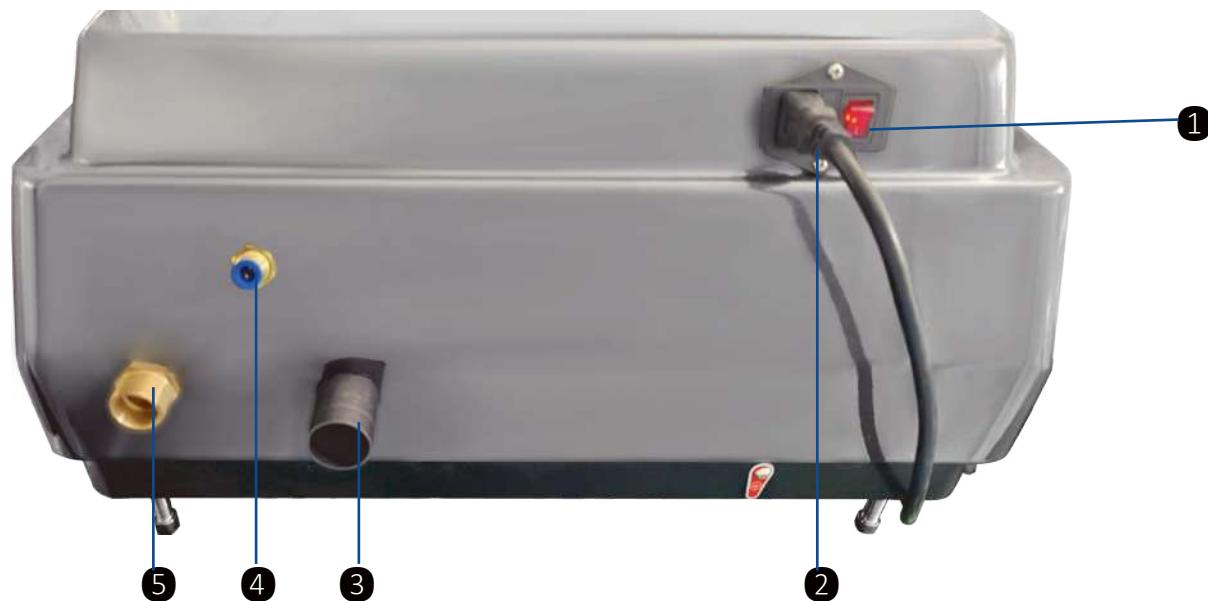
9. Display Screen: Shows the current real-time speed; speed cannot be adjusted on this screen, but fixed speeds for the three levels can be adjusted here

Instrument Details



Grinding Head

1. Polishing Head Up/Down Button
2. Electronic Proportional Valve: Used to adjust screen parameters
3. Polishing Head Lock/Release Button: When in the release position, the polishing machine will not operate; be sure to lock the polishing head before



Machine Back

1. Power Switch: Main switch for the device; after connecting to a power source, turn on this switch to use the equipment	2. Power Cable Port	3. Water Outlet
4. Air Valve: Connects to an external air source		5. Water Inlet

Instrument Details



Sample Holder

- This machine is equipped with two types of holders: a single-point force holder and a central force holder, each used to hold samples in different ways. The machine can hold up to six samples at once; for single or fewer samples, single-point pressure can be applied as an option.



Central Sample Holder



Single Sample Holder

- Here are two types of holders, with the central force holder capable of clamping irregularly shaped samples.

Screen Functions



Grinding Head

- Pressure: Sample Preparation Pressure

The pressure can be adjusted directly by touch; tap the screen to input the desired pressure value, or use the electronic proportional valve below. Press inward once and rotate the valve to adjust the value, with a minimum adjustment unit of 0.1N. The pressure range for single-point mode is 20-70N, and for central pressure mode, it is 150-300N.

- Time: Sample Preparation Time

The adjustment method is the same as for pressure, with both touch control and the electronic proportional valve available. The adjustable range for preparation time is 0-3000 seconds.

- Speed: Grinding/Polishing Head Speed

This also has two adjustment methods. The speed range for the grinding/polishing head is 5-150 rpm, allowing for stepless adjustment within this range.

Screen Functions

Adjust the values directly by entering the desired numbers on the touchscreen.



This interface allows selection of the pressure mode for the grinding/polishing head and the language.

The device offers two pressure modes: **Individual Loading** and **Central Loading**.

It supports two languages: **Chinese** and **English**.



Ordering Information



iPoli-1SC-250A Auto Metallographic Grinding Polishing Machine

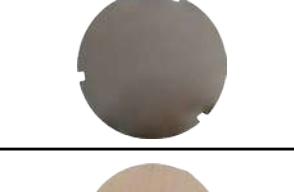
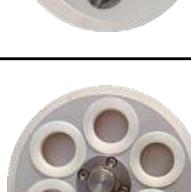


iPoli-2SC-250A Auto Metallographic Grinding Polishing Machine

Technical Specification

Model	iPoli-1SC-250A	iPoli-2SC-250A
Product Name	Auto Metallographic Grinding Polishing Machine	
Disc Type	Single	Dual
Grinding Disc Diameter	Φ250mm(customizable to Φ230mm、Φ300mm)	
Grinding Disc Speed	50-1000r/min(stepless adjustment) and 300/600/900r/min(3 fixed speeds)	
Grinding Disc Rotation Direction	Adjustable Clockwisely or Counterclockwisely	
Grinding Head Speed	5-150 r/min(stepless adjustment)	
Number of Samples	6 pcs	
Air Supply Input	0.4-0.7Mpa	
Sample Preparation Time	0-3000 S	
Sample Preparation Pressure	Single-point: 20-70N, Central: 150-300N	
Sample Diameter	Standard Φ30mm (customized diameter Φ22-Φ45mm)	
Control Method	Single Disc/single Control	Dual Discs/single Control
Input Voltage	Single-phase AC 220V, 50Hz	
Input Power	1.1KW	
Packing Dimension	550*760*640mm	735*570*590mm
Net Weight	60KG	100KG
Gross Weight	82KG	122KG

Standard Delivery

Name	Qty	
Machine Mainframe	1 set	
Polishing Cloth Φ250mm	2 pcs	
Abrasive Paper Φ250mm	4 pcs	
Grinding Disc Φ250mm	1 pc	
Aluminum Retaining Ring Φ250mm	1 pc	
Outlet Pipe	1 pc	
Inlet Pipe	1 pc	
Pressure-Resistant Hose Φ8*3000mm	1 pc	
Oil-Water Separator	1 pc	
Magnetic Disc	1 pc	
Anti-Adhesion Disc	3 pcs	
Leveling Feet	4 pcs	
Power Cable	1 pc	
Anti-dust Cover	1 pc	
Water Shield	1 pc	
Central Sample Holder	1 pc	
Single Sample Holder	1 pc	
Plastic Cover	1 pc	
Central Clamping Device	1 pc	
Instruction Manual	1 copy	
Product Certificate	1 copy	
Warranty Card	1 copy	

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): $\Phi 200/230/250/300\text{mm}$

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): $\Phi 200/220/230/250/300\text{mm}$

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

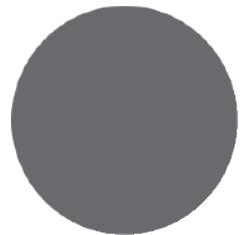
Abrasive Grade: 180#, 240#, 320#, 400#, 600#, 800#, 1000#, 1200#

Diameter(mm): Φ200mm/Φ230mm

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): Φ200mm/Φ230mm

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: 0.5~5μm.



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



Canvas: Without fluff cotton, for stainless steel rough polishing, for Diamond suspension: 5~14μm.



Silk: Without fluff, for structures such as graphite or inclusions, for Diamond suspension: 0.5~3.5μm.



Woolen: Thickened navy fabric, woolen pressed products, used for steel materials, for Diamond suspension: 3~5μm.



Nylon: Chemical fiber products, rough polishing of steel materials, for Diamond suspension: 7~20μm.

Technical Specification

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

Diameter(mm): Φ200/220/230/250/300mm

Packing: 10PCS/Wrap

Adhesive: No/Yes

Optional Delivery

Polishing Cloth

Product Description:



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



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



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



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



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



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



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



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



Leather: Suitable for non-ferrous metals, glass, silicon, with 0.05~3 μm 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(0.02~1 μm), 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.



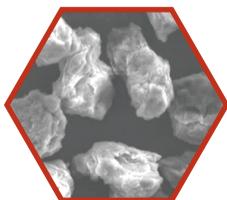
Technical Specification

Material: Diamond+Water

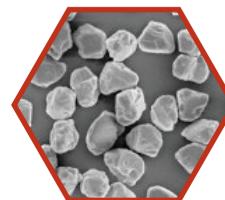
Abrasive Grade: 0.1μm, 0.25μm, 0.5μm, 1μm, 1.5μm, 2.5μm, 3μm, 3.5μm, 5μm, 6μm, 7μm, 9μm, 10μm, 14μm, 15μm, 20μm

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

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: 0.25μm, 0.5μm, 1μm, 1.5μm, 2.5μm, 3μm, 3.5μm, 6μm, 7μm, 10μm, 14μm, 20μm, 28μm, 40μm

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

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: 0.05μm, 0.5μm, 0.3μm, 1μm, 1.5μm, 2.5μm, 3.5μm, 7μm, 10μm, 14μm, 20μm, 28μm, 40μm

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: 0.05μm, 0.3μm, 0.5μm, 1μm, 1.5μm, 2.5μm, 3.5μm, 7μm, 10μm, 14μm, 20μm, 28μm, 40μm

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: 0.02μm, 0.04μm, 0.05μm

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	Woolen or Velvet 3.5µm	Velvet with 1.5µm
Steel, Ferritic Steel		
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