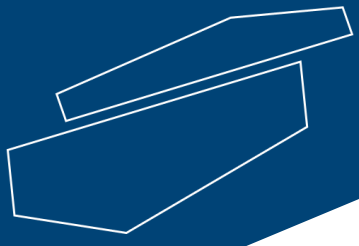
LYNX MICROSCOPES

PETROGRAPHIC MICROSCOPE, VISION+

Please read the User Manual carefully before use, and follow all operating and safety instructions!



user manual

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User Manual

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PETROGRAPHIC MICROSCOPE, VISION+

Preface

Users should read this Manual carefully, follow the instructions and procedures, and beware of all the cautions when using this instrument.

Service

If help is needed, you can always contact your dealer or Labbox via www.labbox.com (declare an incident). Please, provide the customer service representative with the following information:

- Serial number
- Description of the problem
- Your contact information

Warranty

This instrument is guaranteed to be free from defects in materials and workmanship under normal use and service, for a period of 24 months from the date of invoice. The warranty is extended only to the original purchaser. It shall not apply to any product or parts which have been damaged on account of improper installation, improper connections, misuse, accident or abnormal conditions of operation.

For claim under the warranty, please contact your supplier.

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A) Application of Microscope

As the science and technology develops day and day, the technology applied in microscope is also increasingly perfect. The application scope of the microscope is also continuing to expand.

BM33P series is a simple polarizing microscope with advanced multifunction. It can observe mineral crystal figure, colour and interference colour and identify its optical performance. It is a good microscope used in geology, petroleum, coal, Chemical fibre, medical treatment and physic inspection. It is also widely used in academic demonstration and research.

λ Slip (first class red), and 1/4λ Slip make the microscope more perfect.

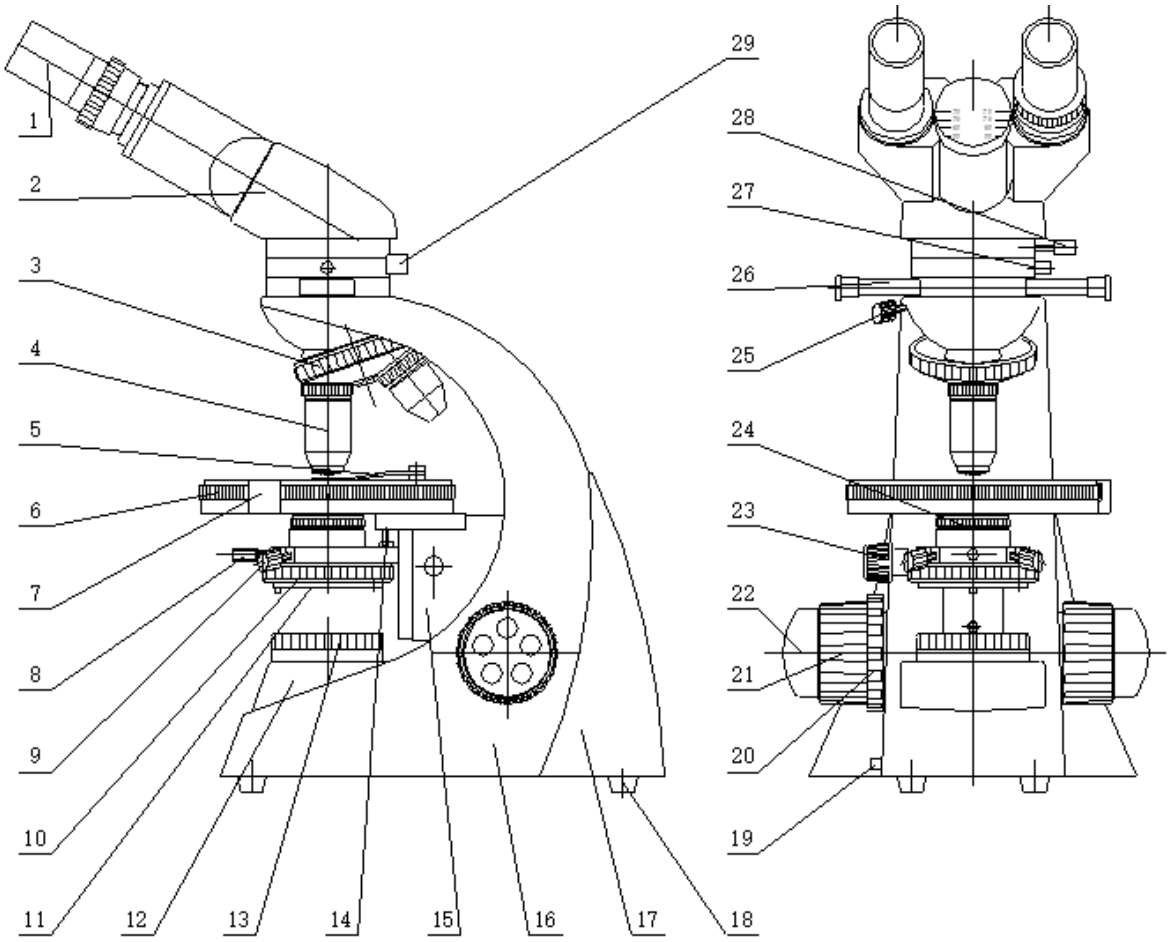
B) Structure and Specification of Microscope

1.Picture of Microscope

Fig.1 Vision+ Binocular Polarizing Microscope

Fig.2 Monocular
(Vision+ Monocular)

2. Structure Diagram of Microscope



1. Eyepiece	**2. Viewing Head**	**3. Nosepiece**
4. Objective	**5. Clips**	**6. Round Stage**
7. Vernier Scale for Stage	**8. Fix Screw for Condenser**	**9. Centring Screw**
10. Plate for Numerical Aperture	**11. Filter Frame**	**12. Light Collector**
13. Polarizer Plate	**14. Screws for Stopping**	**15. Support for Stage**
16. Body	**17. Plastic Cover**	**18. Rubber Foot**
19. Brightness Adjusting Plate	**20. Focusing Tension Knob**	**21. Coarse Focusing Knob**
22.Fine Focusing Knob	**23. Knob for Condenser Up/Down**	**24. ABBE Condenser**
25. Lock Screw	**26. Compensator (λ, λ/4)**	**27. Rod for Analyzer**
28. Lock Screw for Head	**29. Analyzer**	

Fig. 3 Structure Diagram of Microscope Vision+

3. Functions and Specifications of Parts

1) Micro-camera Components (Option Accessories, Only for Trinocular Head)

If need, you may order from us：CCD Camera， or 1.3/3 million electronic eyepieces.

It is used to put in micro-camera components or eyepiece. Its height is adjustable.

2) Eyepiece (1)

Type	Magnification	Diameter of Viewing Field (mm)	Quantity
Wide Field Eyepiece	10	18	2
Wide Field Eyepiece	16	13	(Optional)

3) Viewing Head (2)

It is a monocular, or dual, or binocular or trinocular head. Binocular or trinocular head is separated from the microscope body for transport safety. It is only fixed on the analyser part with screw (28) before using. It is 30° /45° inclined and 360° rotatable. Its interpupillary distance can be adjusted from 55mm to 75mm to suit for the different viewers. There is a rod for prism transition in the trinocular head. It is used to change the distribution of light. a) **In:** Light is totally transmitted in binocular tube, to ensure enough brightness when viewing. b) **Out:** The Spectroscope built-in divides the light into two parts. This moment, you may use the device in the vertical tube, such as CCD camera, electronic eyepiece, etc.

4) Analyzer Part

It is comprised of analyser and compensator. It is separated from the microscope body for transport safety. It is only fixed on the microscope body (16) with screw (25) before using.

When the microscope is only used for biological microscopy observation, put the compensator (26) on the middle position, and move the analyser (27) out.

Insert the analyser (27) in and drive the analyser around the optical axis. Scale on the graduated ring and the vernier will tell you the angle analyser turned.

You may select λ Slip (first class red) or 1/4λ Slip to finish your special task.

5) Objective (4)

Normally， the objectives in this microscope are non-stress achromatic objectives:

Magnification	Numerical Aperture (N.A.)	Thickness of Cover Glass(mm)	Quantity
4	0.10		1
10	0.25		1
40	0.65	0.17	1
100	1.25	0.17	1

Total magnification after grouping eyepieces and objectives：

Objective / Total Magnification / Eyepiece	4	10	40	100
WF10X	40	100	400	1000
WF16X	64	160	640	1600

6) Round Stage (6)

It is a revolving round stage, its diameter is 120mm, and it can 360^0 rotate freely. It is graduated in 360^0 area with 1^0 minimum increments. When vernier scale (7) is used, the revolving angle precision of the stage is 0.1^0.

Usually, the sample is put on the stage under the clips (5).

7) Condenser (24)

Revolve the knob (23), the gear-rack mechanism makes the condenser up or down to suit for the different objectives.

8) Plate for Numerical Aperture (10)

The numerical aperture of the iris diaphragm built-in can be adjusted from Ø2mm to Ø30mm by turning the plate (10). When the diameter of iris diaphragm is 70-80% of the objective's numerical aperture, the image observed is sharp in contrast. This moment, investigate the tube without eyepiece, and you can see the image of iris diaphragm. The centre of the diaphragm can be adjusted by rotating the black-head screws (9) without any tools as following steps:

a) Turn the 4X or 10X objective in working.

b) Turn the plate (10) to small the diaphragm diameter.

c) Lower the diaphragm to make its image sharp by rotating the knob (23).

d) Rotate the screws (9) to concentre the image of the diaphragm with the eyepiece viewing field.

Usually, it is adjusted coaxial before the microscope is finished.

9) Polarizer Plate (13)

The position of the polarizer in microscope is fixed. Turn the plate (13), the deflexion angle of the polarizer will change. Scale on the graduated ring will tell you the angle the polarizer turned.

10) Illumination System

The input voltage for the microscope may be 220V/50Hz, or 110V/60Hz. So you should make sure which voltage is used during purchasing. At same time you should tell us the plug type of the electrical wire.

The illuminator is normally 6V/20W halogen lamp. If you need, we also provide you 3.5V/1W high brightness LED lamp.

Caution

- *Before change a bulb, ensure that the microscope has been disconnected with the power source.*
- *The bulb must be the same specifications as the old one.*
- *When the illuminator is halogen lamp, the body near the lighting source may be very hot. Don't worry, but it is necessary to take the combustible material (such as gasoline, paper, plastic and cloth) far away from the microscope. When change it, wait until it is cool enough. Otherwise, the hot bulb will burn your fingers.*
- *Don't leave any dust and fingerprints on the bulb. Otherwise, it may affect its life and illuminating efficiency.*

11) Focusing System

It is coaxial coarse and fine focusing system with rack and pinion mechanism. Its focusing range is 15mm. Decelerate through the multistage precision gear box, its precision of fine focusing is 0.01mm/scale.

Rotate the coarse focusing knob (21) to raise the stage (6) up/down quickly. Rotate the fine focusing knob (22) to raise the stage (6) up/down slowly. The knob (20) is used to adjust the coarse focusing moment. It will avoid the stage dropping automatically because of its deadweight and provide comfortable operating.

C) Standard Outfit of Microscope:

No.	Item	Quantity	Remark
1	Main body of Vision+ transmission polarizing microscopes	1Set	
2	Viewing head	1Set	
3	Analyzer part	1Set	
4	Polarizer Plate	1Set	
4	Objective		
	4X/0.10	1Pcs	
	10X/0.25	1Pcs	
	40X/0.65 Spring	1Pcs	
	100X/1.25 Spring	1Pcs	
6	Wide field Eyepiece		
	WF10X/18 Wide field Eyepiece	2Pcs	
	WF16X/13 Wide field Eyepiece	Optional	
7	λ Slip (first class red)	1Pcs	
8	1/4λ Slip	1Pcs	
9	Blue filter	1Pcs	
10	Fuse	1Pcs	
11	Dust cover	1Pcs	

D) How to Use and Assemble:

1. Working surroundings requirements:

1) Room temperature: 0°C-40°C, The highest relative humidity: 85%

2) High temperature and humidity can cause mildew and damage the instrument.

3) Keep the microscope away from dust. When it's not used, put the dust cover over it.

4) keep the microscope away from vibration.

2. Unpack the microscope and its parts carefully, check and sort out all parts according to the packing list. Finally install the analyser part, viewing head, objectives and eyepiece to the main body as the structure diagram of Microscope.

3. Connect the microscope to the power source according to its input requirement. Turn on the switch,

Caution:

If the power supply voltage is not fitted to the microscope, it will damage the circuit and bulb, even leads to insecurity.

4. Focusing：

Put the sample on the stage and place a lower objective (4X) into position. Raise the stage close to the sample by rotating the coarse focusing knob (21) in the anticlockwise direction. Then rotate the coarse knob (21) slowly in the clockwise direction, until the image appears in the eyepiece. At last, use the fine focusing knob (22) to make the image in focus. Rotate the nosepiece (3) to other objectives and focus. Since the optical system in the microscope is par-focal and par-centred, only slightly turn the fine focusing knob (22) to make the image in focus.

5. How to adjust the centre of the Numerical Aperture:

Place the lower objective (4X) into position and insert an eyepiece with crosshairs. Turn the plate (10) to small the diameter of the diaphragm and rotate the knob (23) to move the diaphragm up or down until the diaphragm in focus. Adjust the black-head screw (9) to concentre the image with the centre of the eyepiece viewing field.

6. How to observe in orthogonal polarizing condition:

1) Make the analyser is orthogonal with the polarizer. The analyser is in south-north, and the polarizer is in east-west.

2) The condenser is usually in lower position when 4X or 10X objectives is used; and higher position when 40X, or 100X objective is used.

3) Select λ Slip (first class red), or 1/4λ Slip,

E) Maintenance and Care of Microscope:

1. Unpack the microscope carefully to prevent the accessories such as lens from falling and damaging.

2. All lenses are calibrated, don’t try to dismantle then apart by yourself.

3. Nosepiece and focusing system are advanced and precise in construction. Don’t try to dismantle them apart by yourself. Please connect with an authorized technician when they are in trouble.

4. Keep the mechanical parts from dust and add a few no-corrosiveness lubricating grease into the sliding sections at regular intervals. Keep the optical elements clean when wipe the microscope.

5. Keep the microscope in dry and cool place. Disconnect it with the power source and put the dust cover over it after using. If it will be not used for a longer time, it is the best way to screw the objectives out and place them into the lens-bottles, and screw the dust covers on the nosepiece.

Nota importante para los aparatos electrónicos vendidos en España

Instrucciones sobre la protección del medio ambiente y la eliminación de aparatos electrónicos:

Los aparatos eléctricos y electrónicos marcados con este símbolo no pueden ser eliminados en forma de residuos urbanos.

De conformidad con la Directiva 2012/19/UE, los usuarios de la Unión Europea de aparatos eléctricos y electrónicos, tienen la posibilidad de devolver sus RAEE para su eliminación al distribuidor o fabricante del equipo después de la compra de uno nuevo. La eliminación ilegal de aparatos eléctricos y electrónicos es castigada con multa administrativa.

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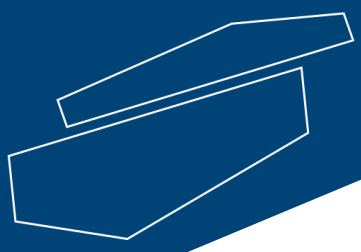
Les appareils électriques et électroniques portant ce symbole ne peuvent pas être jetés dans les décharges.
En réponse à la règlementation, Labbox remplit ses obligations relatives à la fin de vie des équipements électriques de laboratoire qu'il met sur le marché en finançant la filière de recyclage de ecosystem dédiée aux DEEE Pro qui les reprend gratuitement (plus d'informations sur www.ecosystem.eco).
L'élimination illégale d'appareils électriques et électroniques est punie d'amende administrative.

Nota importante per le apparecchiature elettroniche vendute in Italia

Istruzioni sulla protezione ambientale e sullo smaltimento dei dispositivi elettronici:

Le apparecchiature elettriche ed elettroniche contrassegnate con questo simbolo non possono essere smaltite come rifiuti urbani.
In conformità con la Direttiva 2012/19 / UE, gli utenti dell'Unione Europea di apparecchiature elettriche ed elettroniche hanno la possibilità di restituire i propri RAEE per lo smaltimento al distributore o al produttore di apparecchiature dopo averne acquistato uno nuovo. La rimozione illegale di apparecchiature elettriche ed elettroniche è punibile con una sanzione amministrativa.



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