Nikon

ECLIPSE E200

Instructions

Thank you for purchasing the Nikon products.
This instruction manual is written for the users of the Nikon's microscope "ECLIPSE E200" and describes the basic operations of the microscope.
To ensure correct usage, read this manual carefully before operating the instrument.

- It is prohibited to reproduce or transmit this manual in part or whole without Nikon's expressed permission.
- The contents of this manual are subject to change without notice.
- Although every effort has been made to ensure the accuracy of this manual, if you note any points that are unclear or incorrect, contact your nearest Nikon representative.
- Some of the products described in this manual may not be included in the set you have purchased.
- Be sure to read the instruction manual for any other products used in combination with the microscope.

Contents

Safety Precautions

Warning / Caution symbols used in this manual

Although Nikon products are designed to provide you with the utmost safety during use, incorrect usage or disregard of the instructions can cause personal injury or property damage and will lead to the forfeiture of all claims against warranty. For your safety, read the instruction manual carefully and thoroughly before using the instrument. Do not discard this manual but keep it near the product for easy reference.
In this manual, safety instructions are indicated with the symbols shown below. Be sure to follow the instructions indicated with these symbols to ensure correct and safe operation.

Symbol	Meaning
 **WARNING**	Disregarding instructions marked with this symbol may lead to death or serious injury.
 **CAUTION**	Disregarding instructions marked with this symbol may lead to injury or property damage.

Meaning of symbols used on the equipment

The symbol appearing on the product indicates the need for caution at all times during use.
Always refer to the instruction manual and read the relevant instructions before manipulating any part to which the symbol has been affixed.

Symbol	Meaning
	**Caution! Biohazard** This symbol label attached on the stand reminds you of the following: • WARNING: Contact of a sample to the microscope, presents a biohazard risk. • To avoid biohazard contamination, do not touch the contaminated portion with your bare hands. • Decontaminate the contaminated portion according to the standard procedure for your laboratory.
	**Caution for heat** This symbol label attached near the field lens unit (the lamp is set underneath the field lens unit) reminds you of the following: • Lamp and its surrounding areas (including the field lens unit) become very hot during and immediately after illumination. • Risk of burns. Do not touch the lamp or surrounding areas during and immediately after illumination. • Make sure the lamp and its surrounding areas has cooled sufficiently before attempting to replace the lamp.
	**Caution** This symbol label attached near the AC inlet reminds you of the following: • Check the input voltage before turning on the microscope. (The input voltage is given on the "nameplate" and above the AC inlet.) • If the input voltage shown differs from the local voltage level, do not turn on the microscope. Do the following instead: Different voltage on the nameplate — Contact your nearest Nikon representative. Different voltage above the AC inlet — Change the input voltage setting; refer to P.68.

WARNING

1. Intended use of the equipment

This microscope is intended mainly for use in microscopic observation of cells and tissue fixed on the slide using diascopic (transmitted) and episcopic (reflected) illumination.
It is designed for the main purposes of experimentation and observation, in hospitals or other laboratories, of such cells and tissue within the fields of pathology, cytology.

2. Do not disassemble.

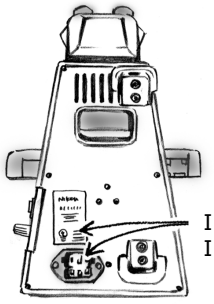
Disassembly may cause malfunction and/or electrical shock, and will lead to the forfeiture of all claims against warranty. Do not disassemble any part other than those described in this manual. If you experience any problem with the microscope, notify your nearest Nikon representative.

3. Check the Input Voltage.

The input voltage is indicated in two places at the rear of the microscope: on the nameplate and above the AC inlet. Confirm that these input voltage indications correspond to the voltage provided in your region. If not, follow one of the instructions below. The use of microscopes with the different input voltage indications will cause overcurrent and overheating, which may result in fire or severe damage to the microscope.

- **If the voltage indication on the nameplate differs:**
  ➔ Do not plug in the microscope. Contact your nearest Nikon representative.
- **If the voltage indication above the AC inlet differs:**
  ➔ Refer to p. 68 and change the input voltage setting before turning on the power switch.

  For the microscope with the nameplate showing [100/110/120 V ~]:
  The voltage can be set to: AC 100 V, 110 V or 120 V.
  For the microscope with the nameplate showing [220/230/240 V ~]:
  The voltage can be set to: AC 220 V, 230 V or 240 V.



Input Voltage Indications

4. Use the Specified Lamp, Fuse, and Power Cord.

Use the specified lamp and fuse. Use the power cord provided. Using an incorrect lamp, fuse, or power cord may damage the instrument or cause a fire. (Also see p. 85 on power cord.)
If using an extension cord, only use a cord that includes a protective earth (PE) wire.

- **Specified Lamp**
  Halogen lamp 6V-20W (PHILIPS 7388 or OSRAM HLX64250) or
  Halogen lamp 6V-30W (PHILIPS 5761)
- **Specified Fuse**
  250 V, 1A, time-lag low-breaking type, 5×20 miniature fuse ×2

WARNING

5. Heat at the Light Source

The lamp becomes hot during use. Do not remove the field lens unit while the lamp is on, and be sure the lamp has been off for 30 minutes before touching it.

- When changing the lamp bulb, make sure that the lamp is cool enough to touch (the light should be off at least 30 minutes).
- Do not touch the lamp while it is on or until the lamp has been off for 30 minutes, as doing so could result in burns.
- Never bring cloth, paper or flammable volatile substances such as gasoline, petroleum benzine, acetone, thinner, or alcohol near a hot lamp, as a fire could result.

6. Hazardous Sample

This microscope is mainly for use in microscopic observation of cells and tissue fixed on the slide.
When handling a sample, check to determine whether the sample is hazardous.
Handle hazardous samples according to the standard procedure for your laboratory.
If the sample is of an infectious nature, wear rubber gloves to avoid infection, and be careful not to touch a sample. In the event of contact of a sample to the microscope, decontaminate the contaminated portion according to the standard procedure for your laboratory.

CAUTION

1. Turn Off Power Switch before Assembling the Microscope, Replacing the Lamp or Fuse, and Plugging in or Unplugging the Power Cord.

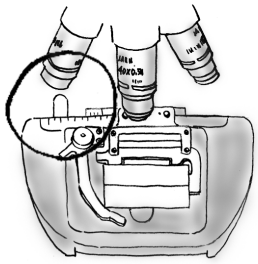
Turn off the power switch before you plug or unplug the power cord to prevent electrical shock or fire. Also turn off the power switch and then unplug the power cord before assembling the microscope, and before changing the lamp or fuse. To turn off the power, turn the power switch to ○.

2. Keep the Microscope Free of Moisture and Foreign Matter.

Keep the microscope free of moisture to prevent short circuiting that could result in overheating or other malfunctions. If water splashes on the microscope, immediately turn off the power switch (turn the switch to ○) and unplug the power cord. Then, wipe off the water with a dry cloth. Short circuiting can also result when foreign matter is trapped inside the microscope. If foreign matter or water has entered the microscope, do not use the microscope and contact your nearest Nikon representative.

3. Stage Rack

The rack for the stage protrudes during use.
Be careful not to hit the rack with your hand or other parts of your body when handling the microscope as you may get hurt by an edge of the rack.

Rack 

4. Disposal of the Microscope

To avoid biohazard risk, dispose of the microscope as the contaminated equipment according to the standard procedure for your laboratory.

Sicherheitsmaßnahmen

In dieser Anleitung verwendete Warn/Vorsicht-Symbole

Obwohl die Nikon Produkte dazu entworfen wurden, Ihnen eine maximale Sicherheit beim Gebrauch zu bieten, kann falscher Gebrauch oder Missachtung der Anleitungen zu Personen- oder Sachschäden führen und resultiert im Verlust aller Garantieansprüche. Lesen Sie diese Anleitungen im Sinne Ihrer eigenen Sicherheit gründlich durch, bevor Sie das Instrument einsetzen. Diese Anleitung nicht wegwerfen, sondern aus Sicherheitsgründen stets in der Nähe des Produktes aufbewahren, um bei Bedarf schnell darin nachschlagen zu können.
In dieser Anleitung werden Sicherheitshinweise mit den folgenden Symbolen gekennzeichnet. Achten Sie darauf, die mit diesen Symbolen gekennzeichneten Anleitungen zu berücksichtigen, um einen ordnungsgemäßen und sicheren Gebrauch zu gewährleisten.

Symbol	Bedeutung
WARNUNG	Missachtung von mit diesem Symbol gekennzeichneten Anleitungen kann zu tödlichen Unfällen oder schweren Verletzungen führen.
VORSICHT	Missachtung von mit diesem Symbol gekennzeichneten Anleitungen kann zu Verletzungen oder Sachschäden führen.

Bedeutung der auf dem Gerät verwendeten Symbole

Die auf den Gerät erscheinenden Symbole weisen darauf hin, dass bei dessen Gebrauch stets Vorsicht geboten ist. Beziehen Sie sich immer erst auf die entsprechenden Abschnitte in der Bedienungsanleitung, bevor Sie mit diesen Symbolen gekennzeichnete Teile manipulieren.

Symbol	Bedeutung
	**Vorsicht! Biogefährdung** Dieses am Stativ angebrachte Symbol weist Sie auf folgendes hin: • WARNUNG: Das mit Proben in Berührung kommende Mikroskop stellen eine Biogefährdung dar. • Die kontaminierten Abschnitte nicht mit den bloßen Händen berühren, um eine biogefährliche Kontaminierung zu vermeiden. • Entseuchen Sie die kontaminierten Abschnitte entsprechend der Standardprozedur in Ihrem Labor.
	**Vorsicht Heiß** Der in der Nähe der Kollektivlinseneinheit angebrachte Aufkleber (die Lampe ist unterhalb der Kollektivlinseneinheit angebracht), macht Sie auf folgendes aufmerksam: • Die Lampe und deren Umgebung (einschließlich der Kollektivlinseneinheit) werden während und unmittelbar nach der Beleuchtung sehr heiß. • Verbrennungsgefahr. Die Lampe und deren Umgebung nicht während oder unmittelbar nach der Beleuchtung berühren. • Achten Sie darauf, dass sich die Lampe und deren Umgebung ausreichend abgekühlt hat, bevor Sie versuchen, die Lampe ersetzen.
	**Vorsicht** Dieser in der Nähe des Netzanschlusses angebrachte Symbolaufkleber macht Sie auf folgendes aufmerksam: • Prüfen Sie vor Einschalten des Mikroskops die Eingangsspannung. (Die Eingangsspannung wird auf dem Typenschild und über dem Netzanschluss angegeben.) • Das Mikroskop nicht einschalten, wenn sich die Eingangsspannung von der lokalen Netzspannung unterscheidet. Machen Sie statt dessen folgendes. Bei Angabe einer anderen Spannung auf dem Typenschild: Setzen Sie sich mit Ihrer nächsten Nikon Vertretung in Verbindung. Andere Spannung über dem Netzanschluss: Ändern Sie die Einstellung für die Eingangsspannung; siehe Seite 68.

⚠ WARNUNG

1. Verwendungszweck

Dieses Mikroskop ist hauptsächlich für mikroskopische Beobachtungen von Zellen und fixierten Gewebeproben mit Hilfe diaskopischer (durchscheinender) und episkopischer (reflektierter) Beleuchtung konzipiert.
Es ist hauptsächlich für Experimente und Beobachtungen derartiger Zellen oder Gewebeproben in Krankenhäusern oder anderen Laboratorien in den Bereichen Pathologie und Zytologie gedacht.

2. Nicht auseinanderbauen

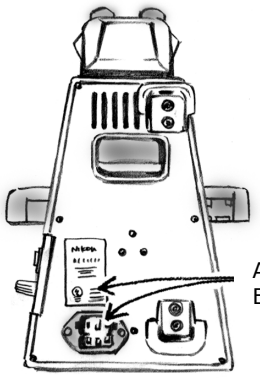
Auseinanderbauen kann zu Störungen und/oder elektrischen Schlägen führen und resultiert darüber hinaus im Verfall aller Garantieansprüche. Keine anderen als die in der vorliegenden Anleitung beschriebenen Teile auseinanderbauen. Wenn Sie Schwierigkeiten mit dem Mikroskop haben, wenden Sie sich bitte an Ihren nächsten Nikon Händler.

3. Eingangsspannung prüfen

Die Eingangsspannung ist an zwei Stellen an der Rückseite des Mikroskops angegeben: dem Typenschild und über dem Netzanschluss. Achten Sie darauf, dass die angegebene Eingangsspannung der Spannung der regionalen Stromversorgung entspricht. Wenn dies nicht der Fall ist, befolgen Sie bitte die nachstehenden Anleitungen. Der Gebrauch des Mikroskops mit falscher Eingangsspannung kann zu Überströmen und Überhitzung führen, was wiederum zu Feuerentwicklung oder auch einer Beschädigung des Mikroskops führen könnte.

- **Bei Angabe einer anderen Spannung auf dem Typenschild:**
  ➔ Das Mikroskop nicht anschließen. Setzen Sie sich mit der nächsten Nikon Vertretung in Verbindung.
- **Andere Spannung über dem Netzanschluss:**
  ➔ Beziehen Sie sich auf Seite 68 betreffs Änderung der Einstellung der Eingangsspannung bevor Sie den Strom einschalten.

  Bei Mikroskopen, bei denen das Typenschild [100/110/120 V ~] anzeigt:
  Die Spannung kann auf 100 V, 110 V oder 120 V Wechselstrom eingestellt werden.
  Bei Mikroskopen, bei denen das Typenschild [220/230/240 V ~] anzeigt:
  Die Spannung kann auf 220 V, 230 V oder 240 V Wechselstrom eingestellt werden.



Angabe der Eingangsspannung

4. Vorgeschriebenen Lampen, Sicherungen und Netzkabel verwenden

Verwenden Sie die vorgeschriebenen Lampen und Sicherungen und das mitgelieferte Netzkabel. Bei Verwendung falscher Lampen, Sicherungen und Netzkabel kann es zur Beschädigung des Instruments oder Feuerentwicklung kommen. (Beziehen Sie sich hinsichtlich des Netzkabels auch auf Seite 85.)
Bei Verwendung eines Verlängerungskabels nur Kabel mit Schutzerdung verwenden.

- **Vorgeschriebene Lampe**
  Halogenlampe 6 V 20 W (PHILIPS 7388 oder OSRAM HLX64250) oder Halogenlampe 6 V 30 W (PHILIPS 5761)
- **Vorgeschriebene Sicherung**
  250 V 1 A träge Sicherung, 5x20 Miniatursicherungen x 2

WARNUNG

5. Hitzeentwicklung der Lichtquelle

Die Lampe wird im Betrieb sehr heiß. Die Kollektivlinseneinheit nicht entfernen, während die Lampe eingeschaltet ist und vor deren Berührung darauf achten, dass diese für mindestens 30 Minuten ausgeschaltet ist.

- Achten Sie bei Ersatz der Lampe darauf, dass diese zum Anfassen ausreichend weit abgekühlt ist (die Beleuchtung sollte für mindestens 30 Minuten ausgeschaltet sein).
- Die Lampe nicht berühren, wenn diese eingeschaltet ist, oder für mindestens 30 Minuten ausgeschaltet ist, da es sonst zu Verbrennungen kommen kann.
- Niemals Stoff, Papier oder brennbare, flüchtige Substanzen wie Benzin, Petroleumbenzin, Aceton, Verdünner oder Alkohol in die Nähe einer heißen Lampe bringen, da dies zur Feuerentwicklung führen könnte.

6. Gefährliche Proben

Dieses Mikroskop ist hauptsächlich für mikroskopische Beobachtungen von auf Objektträgern fixierten Zellen und Gewebeproben gedacht. Prüfen Sie beim Umgang mit den Proben, ob diese gefährlich sind. Gefährliche Proben entsprechend der Standardprozeduren in Ihrem Labor behandeln. Wenn es sich bei der Probe um infektiöses Material handelt, Gummihandschuhe tragen, um Infektionen zu vermeiden und sorgfältig darauf achten, die Probe nicht zu berühren. Wenn Proben mit dem Mikroskop in Berührung kommen, die kontaminierten Abschnitte entsprechend der Standardprozedur in Ihrem Labor entseuchen.

VORSICHT

1. Vor Zusammenbau, Ersatz von Lampe oder Sicherung, sowie Anschließen oder Lösen des Netzkabels den Netzschalter ausschalten

Vor Anschließen oder Lösen des Netzkabels den Netzschalter ausschalten, um elektrische Schläge und Feuerentwicklung zu vermeiden. Vor Zusammenbau des Mikroskops oder Ersatz von Lampe oder Sicherung ebenfalls den Netzschalter ausschalten und den Stecker aus der Steckdose ziehen. Den Netzschalter in die "O" Stellung drücken, um den Strom auszuschalten.

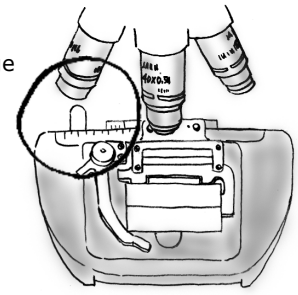
2. Das Mikroskop vor Feuchtigkeit und Fremdkörpern schützen

Schützen Sie das Mikroskop vor Feuchtigkeit, um Kurzschlüsse zu vermeiden, die durch Überhitzung oder andere Störungen hervorgerufen werden könnten. Wenn Wasser auf dem Mikroskop verschüttet wird, sofort den Strom ausschalten (den Netzschalter in die "O" Stellung bringen) und den Stecker aus der Steckdose ziehen. Anschließend das Wasser mit einem Stück trockenen Tuch abwischen. Kurzschlüsse können auch durch in das Mikroskop eingedrungene Fremdkörper hervorgerufen werden. Wenn Wasser oder Fremdkörper in das Mikroskop eingedrungen sind, benutzen sie dieses nicht mehr und setzen sich mit Ihrer nächsten Nikon Vertretung in Verbindung.

3. Zahnstange für den Objekttisch

Beim Gebrauch tritt die Zahnstange für den Objekttisch über diesen hinaus. Achten Sie darauf, beim Umgang mit dem Mikroskop nicht mit der Hand oder anderen Körperteilen dagegenzustoßen, da Sie sich sonst an den Kanten der Zahnstange verletzen könnten.

Zahnstange



4. Entsorgen des Mikroskops

Entsorgen Sie das Mikroskop als kontaminiertes Gerät entsprechend der Standardprozeduren in Ihrem Labor, um biologische Gefahren zu vermeiden.

Règles de sécurité

Symboles Avertissement/Attention utilisés dans ce manuel

Bien que les produits Nikon soient conçus pour une sécurité extrême pendant l'emploi, un emploi incorrect ou la négligence des instructions peut provoquer des blessures ou dégâts matériels, ce qui se traduira par la perte par déchéance de tout droit sous garantie. Pour votre sécurité, lisez attentivement et entièrement ce mode d'emploi avant l'utilisation de l'appareil. Ne le jetez pas, conservez-le à proximité du produit pour toute référence ultérieure.
Dans ce mode d'emploi, les instructions concernant la sécurité sont indiquées par les symboles ci-dessous. Suivez bien les instructions marquées par ces symboles pour assurer un fonctionnement correct et sûr.

Symbole	Signification
AVERTISSEMENT	La négligence des instructions marquées de ce symbole peut entraîner le décès ou des blessures graves.
ATTENTION	La négligence des instructions marquées de ce symbole peut entraîner des blessures ou des dégâts matériels.

Signification des symboles utilisés pour cet appareil

Le symbole apparaissant sur le produit indique le besoin de précautions à tout moment pendant l'utilisation.
Reportez-vous toujours au mode d'emploi et lisez les instructions pertinentes avant de manipuler toute partie à laquelle le symbole est attaché.

Symbole	Signification
	**Attention! Risque biologique** Cette étiquette de symbole attachée sur le socle vous rappelle ce qui suit: • AVERTISSEMENT: Le contact d'un échantillon et du microscope peut présenter un risque biologique. • Pour éviter la contamination biologique, ne touchez pas la partie contaminée les mains nues. • Décontaminez la partie contaminée conformément à la procédure standard appliquée dans votre laboratoire.
	**Attention à la chaleur** Cette étiquette de symbole placée près de la lentille de champ (la lampe est placée sous la lentille de champ) vous rappelle ce qui suit: • La lampe et ses environs (lentille de champ y compris) deviennent très chauds pendant et immédiatement après l'illumination. • Risque de brûlures. Ne touchez pas la lampe ou ses environs pendant et immédiatement après l'illumination. • Vérifiez que la lampe et ses environs sont suffisamment refroidis avant d'essayer de remplacer l'ampoule.
	**Attention** Cette étiquette de symbole placée près de l'entrée CA vous rappelle ce qui suit: • Vérifiez la tension d'entrée avant de mettre le microscope sous tension. (La tension d'entrée est indiquée sur la "plaque du fabricant" et au-dessus de l'entrée CA.) • Si la tension d'entrée indiquée diffère du niveau de tension local, ne mettez pas le microscope sous tension. Procédez comme suit à la place: Tension différente sur la plaque du fabricant — Contactez l'agent Nikon le plus proche. Tension différente au-dessus de l'entrée CA — Modifiez le réglage de tension d'entrée; voir la page 68.

AVERTISSEMENT

1. Emploi prévu pour le produit

Ce microscope est principalement prévu pour l'observation microscopique de cellules et tissus fixés sur une lame porte-objet par illumination diascopique (transmise) et épiscopique (réfléchie).
Il est conçu essentiellement pour l'expérimentation et l'observation, dans les hôpitaux ou laboratoires, de telles cellules et tissus dans les domaines de la pathologie et de la cytologie.

2. Ne le démontez pas.

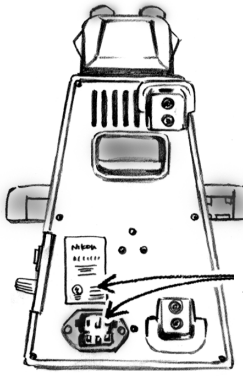
Le démontage peut provoquer un dysfonctionnement et/ou une décharge électrique, et conduira à la perte par déchéance de tout droit sous garantie. Ne démontez aucune pièce autre que celles indiquées dans ce mode d'emploi. En cas de problème avec le microscope, adressez-vous à l'agent Nikon le plus proche.

3. Vérifiez la tension d'entrée.

La tension d'entrée est indiquée à deux emplacements à l'arrière du microscope: sur la plaque du fabricant et au-dessus de l'entrée CA. Confirmez que ces indications de tension correspondent à la tension fournie dans votre région. Si ce n'est pas le cas, suivez les instructions ci-dessous. L'emploi d'un microscope à indication de tension d'entrée différente provoquera une surtension ou la surchauffe, ce qui pourra entraîner un incendie ou des dommages graves pour le microscope.

- **Si l'indication de tension sur la plaque du fabricant diffère**
  ➔ Ne branchez pas le microscope. Contactez l'agent Nikon le plus proche.
- **Si l'indication de tension au-dessus de l'entrée CA diffère:**
  ➔ Consultez la page 68 pour modifier le réglage de tension d'entrée avant de mettre sous tension.

  Pour un microscope à plaque du fabricant indiquant [100/110/120 V ~]:
  La tension est réglable à 100 V, 110 V ou 120 V CA.
  Pour un microscope à plaque du fabricant indiquant [220/230/240 V ~]:
  La tension est réglable à 220 V, 230 V ou 240 V CA.



Indications de tension d'entrée

4. Emploi de l'ampoule, du fusible et du cordon secteur spécifiés

Utilisez l'ampoule et le fusible spécifiés. Utilisez le cordon secteur fourni. L'emploi d'une ampoule, d'un fusible ou d'un cordon d'alimentation incorrects peut endommager l'instrument ou provoquer un incendie. (Rapportez-vous aussi à la page 85 pour le cordon secteur.)
Si vous utilisez une rallonge, utilisez seulement un cordon avec fil de mise à la terre de protection (PE).

- **Ampoule spécifiée**
  Ampoule halogène 6 V-20 W (PHILIPS 7388 ou OSRAM HLX64250) ou
  Ampoule halogène 6 V-30 W (PHILIPS 5761)
- **Fusible spécifié**
  250 V, 1 A, type à action retardée à coupure basse, fusible miniature 5x20 x2

AVERTISSEMENT

5. Chaleur émise par la source lumineuse

La lampe devient très chaude pendant l'emploi. Ne retirez pas la lentille de champ quand la lampe est allumée, et vérifiez que la lampe est éteinte depuis 30 minutes avant de la toucher.

- Au remplacement de l'ampoule, vérifiez que la lampe est suffisamment refroidie pour la toucher (la lumière doit être éteinte depuis au moins 30 minutes).
- Ne touchez pas la lampe quand elle est allumée ou avant qu'elle ne soit restée éteinte pendant 30 minutes, sinon des brûlures sont possibles.
- N'approchez jamais du tissu, du papier ou des matériaux volatils inflammables tels que l'essence, benzine, acétone, diluant ou alcool de la lampe chaude, sinon un incendie est possible.

6. Echantillons dangereux

Ce microscope est essentiellement destiné à l'observation microscopique de cellules et tissus fixés sur des lames porte-objet.
A la manipulation d'un échantillon, déterminez s'il est dangereux.
Manipulez les échantillons dangereux conformément à la procédure standard de votre laboratoire.
Si l'échantillon est de type infectieux, portez des gants en caoutchouc pour éviter l'infection, et prenez garde de ne pas le toucher. En cas de contact de l'échantillon avec le microscope, décontaminez la partie contaminée conformément à la procédure standard de votre laboratoire.

ATTENTION

1. Mettez hors tension avant l'assemblage du microscope, le remplacement de l'ampoule ou du fusible, et le branchement/débranchement du cordon secteur.

Mettez hors tension avant de brancher ou débrancher le cordon secteur pour éviter toute décharge électrique ou incendie. Mettez aussi hors tension, puis débranchez le cordon secteur avant d'assembler le microscope, et avant de remplacer l'ampoule ou le fusible. Pour mettre hors tension, basculez l'interrupteur sur ○.

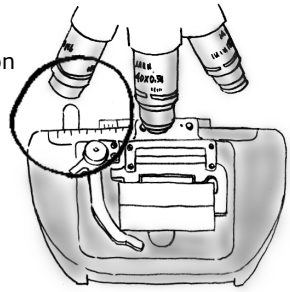
2. Maintenez le microscope exempt d'humidité et de matières étrangères.

Maintenez le microscope exempt d'humidité pour éviter tout court-circuit pouvant résulter en surchauffe ou un autre dysfonctionnement. Si le microscope est éclaboussé d'eau, mettez immédiatement hors tension (basculez l'interrupteur sur ○) et débranchez le cordon secteur. Puis, éliminez l'eau avec un chiffon sec. Un court-circuit peut aussi survenir de matières étrangères piégées dans le microscope. Si des matières étrangères ou de l'eau ont pénétré dans le microscope, ne l'utilisez pas et contactez l'agent Nikon le plus proche.

3. Pignon de la platine

Le pignon de platine saillit pendant l'emploi.
Prenez garde de ne pas heurter le pignon de la main ou avec une autre partie du corps pendant la manipulation du microscope, car vous pourriez vous blesser sur son extrémité.

Pignon



4. Mise au rebut du microscope

Pour éviter tout risque biologique, jetez le microscope en tant qu'appareil contaminé conformément à la procédure standard de votre laboratoire.

Precauciones de Seguridad

Símbolos de Advertencia / Precaución de este manual

Pese a que los productos Nikon están diseñados para garantizar la máxima seguridad durante su uso, el uso incorrecto o al no respetarse las precauciones, puede causar lesiones personales o daños materiales. Las averías y los daños debidos a estos actos pueden quedar excluidos del derecho a todos los reclamos contra la garantía. Para su seguridad, lea cuidadosa y enteramente el manual de instrucciones antes de usar el instrumento. Se ruega no descartar este manual sino guardarlo cerca del producto para que pueda consultarse en cualquier momento.
Las instrucciones de seguridad de este manual están marcadas con los símbolos que se indican a continuación. Se ruega respetar las instrucciones indicadas con estos símbolos para asegurar la operación correcta y segura.

Símbolo	Significado
ADVERTENCIA	Al no respetar las instrucciones indicadas con este símbolo, puede causar la muerte o lesiones serias.
PRECAUCIÓN	Al no respetar las instrucciones indicadas con este símbolo, puede causar lesiones o daños materiales.

Significado de los símbolos utilizados en este equipo

Los símbolos que aparecen en el producto indican la necesidad de tomar las debidas precauciones en todo momento durante su uso.
Consulte siempre el manual de instrucciones y lea las indicaciones antes de manipular cualquier parte donde estén adheridos los símbolos.

Símbolo	Significado
	**Precaución contra el peligro biológico** El rótulo con este símbolo adherido en el soporte le recuerda lo siguiente: • ADVERTENCIA: El contacto entre la muestra y el microscopio, puede constituir un riesgo biológico. • Para evitar la contaminación del peligro biológico, no toque las partes contaminadas con sus manos descubiertas. • Descontamine la parte contaminada según los procedimientos normales de su laboratorio.
	**Precaución contra el calor** El rótulo con este símbolo adherido cerca de la unidad de la lente de campo (la lámpara está debajo de la unidad de la lente de campo) le recuerda lo siguiente: • La lámpara y sus alrededores (incluyendo la unidad de la lente de campo) se tornan muy calientes durante e inmediatamente después de la iluminación. • Existe el riesgo de quemaduras. No toque la lámpara ni sus alrededores durante e inmediatamente después de la iluminación. • Asegúrese que la lámpara y sus alrededores se hayan enfriado lo suficiente antes de intentar el reemplazo de la lámpara.
	**Precaución** El rótulo con este símbolo adherido cerca de la entrada de CA le recuerda lo siguiente: • Verifique la tensión de entrada antes de conectar el microscopio. (La tensión de entrada está indicada en la "plaqueta de características" y sobre la entrada de CA.) • Si la tensión de entrada indicada difiere del nivel de la tensión local, no conecte el microscopio. En ese caso, proceda como sigue: Tensión que difiere de la plaqueta de características Tome contacto con el representante Nikon más próximo. Tensión que difiere de la indicación de la entrada de CA Cambie el ajuste de la tensión de entrada: Vea la Pág. 68.

ADVERTENCIA

1. Objeto del uso del equipo

Este microscopio tiene como uso principal la observación microscópica de células y tejidos fijados en el portaobjetos, utilizando la iluminación diascópica (transmitida) y episcópica (reflejada).
Está diseñado para el objeto principal de experimentación y observación de células y tejidos del área de la patología y citología en los hospitales u otros laboratorios.

2. No lo desarme

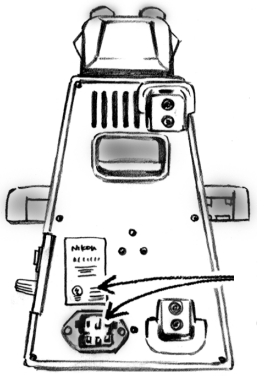
El desarme puede causar desperfectos y/o descargas eléctricas y quedar excluido del derecho a todos los reclamos contra la garantía. No desarme ninguna parte fuera de lo que se describe en este manual. En el caso de encontrar algún problema en su microscopio, se ruega notificar al representante de Nikon más próximo.

3. Verifique la tensión de entrada

La tensión de entrada está indicada en dos lugares de la parte trasera del microscopio: en la plaqueta de características y sobre la entrada de CA. Confirme que estas indicaciones de la tensión de entrada correspondan a la tensión suministrada en su región. En el caso contrario, siga una de las siguientes instrucciones. El uso del microscopio con tensiones de entrada diferentes a las indicadas, puede producir la sobrecorriente y el sobrecalentamiento que pueden causar el incendio o daños severos al microscopio.

- **Cuando difiere la tensión de la indicación de la plaqueta de características:**
  ➔ No conecte el microscopio. Tome contacto con el representante Nikon más próximo.
- **Cuando difiere la tensión de la indicación de tensión sobr**
  ➔ Vea la Pág. 68 y cambie el ajuste de la tensión de entrada antes de conectar la llave de energía.

  Para el microscopio con la plaqueta de características que indique [100/110/120V ~]:
  La tensión puede ajustarse a: 100V, 110V o 120V CA.
  Para el microscopio con la plaqueta de características que indique [220/230/240V ~]:
  La tensión puede ajustarse a: 220V, 230V o 240V CA.



Indicaciones de la tensión de entrada

4. Use la lámpara, fusible y cable de energía especificados

Use la lámpara y fusible especificados. Use el cable de energía especificado. El uso de la lámpara, fusible o cable de energía incorrectos, puede dañar el instrumento o causar el incendio. (Vea también la página 85 sobre el cable de energía.)
En el caso de utilizar el cable de extensión, utilice solamente el cable que incluya el conductor a tierra de protección (PE).

- **Lámpara especificada**
  Lámpara halógena de 6V-20W (PHILIPS 7388 u OSRAM HLX64250) o
  Lámpara halógena de 6V-30W (PHILIPS 5761)
- **Fusible especificado**
  250V, 1A, tipo de fusión retardada con baja capacidad de interrupción, fusible en miniatura 5×20 ×2

⚠ ADVERTENCIA

5. Calor de la fuente de iluminación

La lámpara adquiere calor durante el uso. No desmonte la unidad de la lente de campo cuando la lámpara esté encendida y asegure que la lámpara haya quedado apagada durante 30 minutos antes de tocarla.

- Al cambiar la lámpara, asegúrese de que la lámpara esté lo suficientemente fría para tocar (la lámpara deberá quedar apagada por lo menos 30 minutos).
- No toque la lámpara cuando esté encendida o hasta que la lámpara haya quedado apagada por 30 minutos, ya que de lo contrario puede causar quemaduras.
- Jamás deberá acercarse la ropa, papel o sustancias volátiles inflamables como la gasolina, bencina de petróleo, acetona, solvente o alcohol cerca de la lámpara caliente, debido a que puede causar el incendio.

6. Muestra peligrosa

Este microscopio se utiliza principalmente para la observación microscópica de células y tejidos fijados en el portaobjetos. Durante la manipulación de una muestra, verifique si la muestra es peligrosa. Las muestras peligrosas deben manipularse según los procedimientos normales de su laboratorio. Cuando la muestra sea de una naturaleza infecciosa, utilice los guantes de goma para evitar la infección y tome las precauciones para no tocar la muestra. En el caso de producirse el contacto de la muestra con el microscopio, descontamine la porción contaminada según los procedimientos normales de su laboratorio.

⚠ PRECAUCIÓN

1. Desconecte la energía antes de ensamblar el microscopio, reemplazar la lámpara o fusible y enchufar o desenchufar el cable de energía.

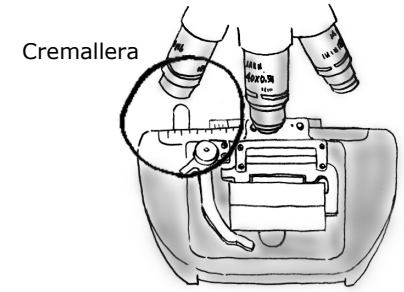
Desconecte la llave de energía antes de enchufar o desenchufar el cable de energía, para prevenir la descarga eléctrica o el incendio. Desconecte también la llave de energía y luego desenchufe el cable de energía antes del ensamblado del microscopio y antes del cambio de la lámpara o del fusible. Para desconectar la energía, ponga la llave de energía en posición ○.

2. Mantenga el microscopio libre de humedad y materias extrañas

Mantenga el microscopio libre de humedad para prevenir el cortocircuito que puede causar el recalentamiento u otros desperfectos. En el caso de salpicar el agua en el microscopio, desconecte inmediatamente la llave de energía (fijando el interruptor en posición ○) y desenchufe el cable de energía. Luego limpie el agua con paño seco. El cortocircuito puede producirse al penetrar una materia extraña dentro del microscopio. En el caso de entrar el agua o materia extraña dentro del microscopio, no utilice el microscopio y tome contacto con el representante Nikon más próximo.

3. Cremallera de la platina

La cremallera de la platina sobresale durante el uso. Tome la precaución de no golpear la cremallera con sus manos u otras partes de su cuerpo durante la manipulación del microscopio, para evitar las lesiones con el borde de la cremallera.



4. Disposición del microscopio

Para evitar el riesgo biológico, el microscopio deberá disponerse como equipo contaminado de acuerdo con el procedimiento normal de su laboratorio.

Precauzioni per la sicurezza

Simboli di Avvertenza/Attenzione utilizzati in questo manuale

Sebbene i prodotti Nikon siano progettati per garantire all'utente il massimo della sicurezza durante l'uso, l'utilizzo non corretto o la mancata osservanza delle istruzioni possono causare ferite personali o danni materiali e rendono nulli tutti i reclami relativi alla garanzia. Per la sicurezza personale, prima di utilizzare l'apparecchio, leggere con attenzione e completamente il manuale di istruzioni. Non gettare questo manuale ma tenerlo vicino al prodotto per comodità di riferimento.
In questo manuale, le istruzioni per la sicurezza sono indicate tramite i simboli riportati qui sotto. Si raccomanda di seguire le istruzioni indicate accanto a questi simboli, per garantire un uso corretto e sicuro.

Simbolo	Significato
AVVERTENZA	La mancata osservanza delle istruzioni contrassegnate da questo simbolo può portare alla morte o a gravi ferite.
ATTENZIONE	La mancata osservanza delle istruzioni contrassegnate da questo simbolo può portare a ferite o a danni materiali.

Significato dei simboli utilizzati sull'apparecchio

I simboli che compaiono sull'apparecchio indicano il bisogno di attenzione nei vari momenti dell'uso. Prima di manipolare qualsiasi parte sulla quale è attaccato uno dei simboli, consultare sempre il manuale di istruzioni e leggere le istruzioni relative

Simbolo	Significato
	**Attenzione! Pericoli biologici** Questa etichetta simbolica attaccata sul supporto serve per ricordare quanto segue. • AVVERTENZA: Il contatto tra il campione e il microscopio può causare pericoli biologici. • Per evitare la contaminazione con rischio biologico, non toccare la porzione contaminata con le mani nude. • Decontaminare la parte contaminata in base alle procedure standard del proprio laboratorio.
	**Attenzione al calore** Questa etichetta simbolica, attaccata accanto all'unità lente di campo (la lampada è installata sotto all'unità lente di campo), serve per ricordare quanto segue: • La lampada e le aree circostanti (compresa l'unità lente di campo) diventano molto calde durante e immediatamente dopo l'accensione. • Rischio di scottature. Non toccare la lampada o le aree circostanti durante e immediatamente dopo l'accensione. • Prima di tentare di sostituire la lampada, verificare che la lampada e le aree circostanti si siano raffreddate a sufficienza.
	**Attenzione** Questa etichetta simbolica, attaccata accanto all'ingresso in c.a., serve per ricordare quanto segue. • Prima di accendere il microscopio, controllare la tensione in ingresso. (La tensione in ingresso è indicata sulla "targhetta con la sigla" e sopra l'ingresso in c.a.) • Se la tensione in ingresso indicata è diversa dal livello di tensione locale, non accendere il microscopio. Invece, eseguire le azioni seguenti: Tensione diversa sulla targhetta con la sigla — Contattare il rappresentante Nikon più vicino. Tensione diversa sopra l'ingresso in c.a. — Cambiare l'impostazione della tensione in ingresso; vedere a p. 68.

⚠ AVVERTENZA

1. Uso specifico dell'apparecchio

Il microscopio è stato progettato soprattutto per l'uso in osservazioni microscopiche di cellule e tessuti fissati su vetrini, tramite l'ausilio di illuminazione diascopica (trasmessa) ed episcopica (riflessa).
Esso è stato progettato per gli scopi principali della sperimentazione e dell'osservazione, negli ospedali o in altri laboratori, di cellule e tessuti che rientrano nei campi della patologia e della citologia.

2. Non smontare il microscopio.

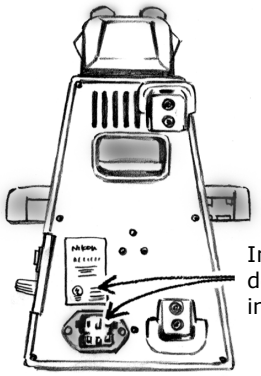
Lo smontaggio può causare malfunzionamenti e / o folgorazioni e rende nulli tutti i reclami relativi alla garanzia. Non smontare nessuna parte diversa da quelle descritte in questo manuale. Se si riscontra un problema con il microscopio, segnalarlo al rappresentante Nikon più vicino.

3. Controllare la tensione in ingresso.

La tensione in ingresso è indicata sul retro del microscopio, in due punti: sulla targhetta con la sigla e sopra l'ingresso in c.a. Controllare che le indicazioni della tensione in ingresso corrispondano alla tensione disponibile nella propria area geografica. In caso contrario, seguire una delle istruzioni indicate qui sotto. L'uso del microscopio con tensione in ingresso diversa dalle indicazioni causa sovracorrente e surriscaldamento, che possono a loro volta provocare incendi o gravi danni al microscopio stesso.

- **Se l'indicazione della tensione sulla targhetta con la sigla è diversa:**
  ➔ Non collegare il microscopio alla presa di rete. Contattare il rappresentante Nikon più vicino.
- **Se l'indicazione della tensione sopra l'ingresso in c.a. è diversa:**
  ➔ Prima di accendere l'interruttore dell'alimentazione, vedere a p. 68 e cambiare l'impostazione della tensione in ingresso.

  Per il microscopio con la targhetta della sigla che indica [100/110/120 V ~]:
  È possibile impostare la tensione a: 100 o 120 V in c.a.
  Per il microscopio con la targhetta della sigla che indica [220/230/240 V ~]:
  È possibile impostare la tensione a: 220, 230 o 240 V in c.a.



Indicazioni della tensione in ingresso

4. Utilizzare la lampada, il fusibile e il cavo di alimentazione specificati

Utilizzare la lampada e il fusibile specificati. Utilizzare il cavo di alimentazione in dotazione. L'uso di una lampada, di un fusibile o di un cavo di alimentazione non corretti può danneggiare lo strumento o provocare incendi. (Per quanto riguarda il cavo di alimentazione, vedere anche a p. 85).
Se si utilizza una prolunga, utilizzare solo un cavo che include un filo protettivo di messa a terra (PE).

- **Lampada specificata**
  Lampada alogena da 6 V - 20 W (7388 PHILIPS o HLX64250 OSRAM) o
  Lampada alogena da 6 V - 30 W (5761 PHILIPS)
- **Fusibile specificato**
  250 V, 1 A, tipo con ritardo temporale a basso grado di rottura, 2 fusibili miniaturizzati da 5 x 20

⚠ AVVERTENZA

5. Calore proveniente dalla sorgente luminosa

Durante l'uso, la lampada si riscalda. Quando la lampada è accesa, non rimuovere la lente di campo e, prima di toccare la lampada, verificare che sia stata spenta almeno per 30 minuti.

- Quando si sostituisce la lampadina della lampada, verificare che la lampada si sia raffreddata abbastanza da poter essere toccata (la luce deve essere spenta almeno per 30 minuti).
- Non toccare la lampada mentre è accesa o prima che sia stata spenta almeno per 30 minuti, in caso contrario si può incorrere in ustioni.
- Non avvicinare mai alla lampada calda vestiti, carta o sostanze volatili infiammabili come benzina, petrolio, acetone, diluente o alcool, perché si potrebbe provocare incendi.

6. Campioni pericolosi

Questo microscopio è riservato soprattutto all'uso nell'osservazione microscopica di cellule e tessuti fissati su vetrino.
Quando si maneggia un campione, controllarlo per sapere se è pericoloso.
Maneggiare i campioni pericolosi in conformità alla procedura standard del proprio laboratorio.
Se il campione è di natura infettiva, indossare guanti di gomma per evitare l'infezione, e fare attenzione a non toccare il campione stesso. Nel caso di contatto con un campione posto sul microscopio, decontaminare la porzione contaminata in conformità alla procedura standard del proprio laboratorio.

⚠ ATTENZIONE

1. Spegnere l'interruttore dell'alimentazione prima di assemblare il microscopio, sostituire la lampada o il fusibile e inserire il cavo di alimentazione nella presa di rete o disinserirlo da essa.

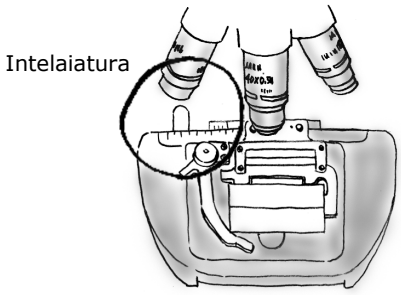
Prima di inserire il cavo di alimentazione nella presa di rete o di disinserirlo da essa, spegnere l'interruttore di alimentazione per prevenire folgorazioni o incendi. Inoltre, spegnere l'interruttore dell'alimentazione e poi disinserire il cavo di alimentazione prima di assemblare il microscopio e prima di sostituire la lampada o il fusibile. Per spegnere l'alimentazione, impostare l'interruttore dell'alimentazione su ○.

2. Mantenere il microscopio libero da umidità e da oggetti estranei

Mantenere il microscopio libero da umidità per prevenire cortocircuiti che potrebbero provocare surriscaldamento o altri malfunzionamenti. Se si versa dell'acqua sul microscopio, spegnere immediatamente l'interruttore dell'alimentazione (impostare l'interruttore su ○) e disinserire il cavo di alimentazione dalla presa di rete. Quindi, togliere l'acqua con un panno asciutto. Si può verificare un cortocircuito anche quando materiale estraneo rimane intrappolato all'interno del microscopio. Se nel microscopio è penetrato materiale estraneo oppure è entrata dell'acqua, non utilizzare l'apparecchio e contattare subito il rappresentante Nikon più vicino.

3. Intelaiatura del piatto portaoggetti

Durante l'uso, l'intelaiatura del piatto portaoggetti sporge. Quando si maneggia il microscopio, fare attenzione a non colpire l'intelaiatura con le mani o con altre parti del corpo, perché è possibile ferirsi a causa di un bordo dell'intelaiatura.



4. Smaltimento del microscopio

Per evitare rischi biologici, smaltire il microscopio come apparecchio contaminato, in base alla procedura standard del proprio laboratorio.

Veiligheidsmaatregelen

In deze handleiding gebruikte symbolen

Hoewel de producten van Nikon ontworpen zijn om u de hoogste mate van veiligheid tijdens gebruik te garanderen, kan bij onjuist of oneigenlijk gebruik persoonlijk letsel of schade aan het apparaat ontstaan en in dergelijke gevallen zullen alle garantieclaims afgewezen worden. Lees, voor uw eigen veiligheid, aandachtig de handleiding voordat u het instrument gaat gebruiken. Bewaar deze handleiding zorgvuldig zodat u deze later in voorkomende gevallen opnieuw kunt nalezen.
De veiligheidsinstructies in deze handleiding zijn gemarkeerd met onderstaande symbolen. Volg de onderstaande aanwijzingen nauwgezet op zodat u het instrument correct en veilig kunt gebruiken.

Symbool	Betekenis
⚠ **WAARSCHUWING**	Waarschuwt voor een potentieel gevaarlijke situatie die de dood of ernstig persoonlijk letsel tot gevolg kan hebben.
⚠ **LET OP**	Waarschuwt voor een potentieel gevaarlijke situatie die ernstig persoonlijk letsel of schade aan het instrument tot gevolg kan hebben.

Betekenis van de symbolen op het instrument

De symbolen op het instrument maken u attent dat u tijdens gebruik altijd de nodige voorzichtigheid in acht moet nemen.
Raadpleeg altijd de handleiding en lees de betreffende aanwijzingen voor u een onderdeel monteert of demonteert waarop het symbool is aangebracht.

Symbool	Betekenis
	**Let op! Gevaar voor biologische besmetting** Dit symboollabel dat op de brug is bevestigd, maakt u attent op het volgende: • WAARSCHUWING: Door contact tussen het preparaat en de microscoop kan gevaar voor biologische besmetting ontstaan. • Raak het verontreinigde deel niet met blote handen aan, om verspreiding van de biologische besmetting te voorkomen. • Reinig het verontreinigde deel volgens de standaardprocedure van uw laboratorium.
	**Pas op: heet** Dit symbool vindt u op de lensunit (de lamp zit onder de lensunit) en maakt u attent op het volgende: • De lamp en de omgeving van de lamp (inclusief de lensunit) worden erg heet wanneer de lamp ingeschakeld is en blijven dat nog enige tijd nadat de lamp uitgeschakeld is. • Gevaar voor brandwonden. Raak de lamp en de omgeving ervan niet aan wanneer de lamp brandt of wanneer deze net uitgeschakeld is. • Controleer of de lamp en de omgeving ervan voldoende afgekoeld is voordat u probeert de lamp te vervangen.
	**Let op** Dit symbool vindt u op de wisselstroomsluiting en maakt u attent op het volgende: • Controleer de ingangsspanning voordat u de microscoop inschakelt. (De ingangsspanning is vermeld op het 'typeplaatje' en boven de wisselspanningsaansluiting.) • Schakel de microscoop niet in als de ingangsspanning afwijkt van de netspanning ter plaatse. Ga in dat geval als volgt te werk: De netspanning komt niet overeen met de ingangsspanning op het typeplaatje Neem contact op met de dichtstbijzijnde Nikon-vertegenwoordiging. De netspanning wijkt af van de ingangsspanning die vermeld is boven de wisselspanningsaansluiting Wijzig de instelling voor de ingangsspanning; zie pag. 68.

⚠ WAARSCHUWING

1. Bedoeld gebruik van de apparatuur

Deze microscoop is voornamelijk bedoeld voor gebruik in microscopische onderzoek van celmateriaal en weefsel tussen glasplaatjes is voorzien van directe en gereflecteerde verlichting.
Hij is ontworpen voor toepassing bij experimenten en waarnemingen in ziekenhuizen en andere laboratoria, van cellen en weefsel binnen het werkveld van de pathologie en de cytologie.

2. Demonteer het apparaat niet.

Wanneer het apparaat gedemonteerd wordt kunnen storingen en/of gevaar voor elektrische schokken ontstaan, en zullen alle garantieclaims als gevolg daarvan afgewezen worden. Demonteer geen andere componenten anders dan die beschreven zijn in deze handleiding. Neem, wanneer u onregelmatigheden aan de microscoop bemerkt, contact op met de dichtstbijzijnde Nikon-leverancier.

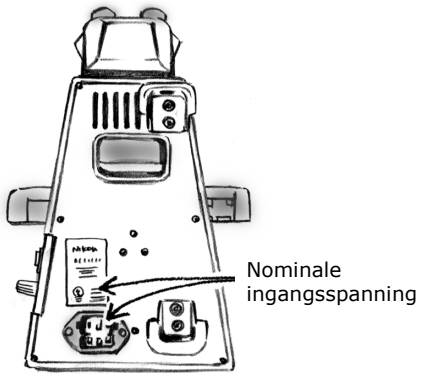
3. Controleer de ingangsspanning.

De ingangsspanning is op twee plaatsen aan de achterzijde van de microscoop vermeld: op het typeplaatje en boven de wisselspanningsaansluiting. Controleer of deze ingangsspanning overeenkomen met de netspanning ter plaatse. Raadpleeg de onderstaande instructies wanneer dat niet het geval is. Door het gebruik van de microscoop met een afwijkende ingangsspanning zal het apparaat oververhit worden, waardoor brand of ernstige schade aan de microscoop kan ontstaan.

- **Als de werkspanning op het typeplaatje afwijkt:**
  ➔ Steek de stekker van de microscoop niet in het stopcontact. Neem contact op met de dichtstbijzijnde Nikon-vertegenwoordiging.

- **Als de werkspanning boven de wisselspanningsaansluiting afwijkt:**
  ➔ Raadpleeg pag. 68 en wijzig de ingangsspanninginstelling voordat u de netvoedingscahelaar inschakelt.

  Voor de microscoop met op het typeplaatje de waarden [100/110/120 V ~]:
  De werkspanning kan worden ingesteld op: AC 100 V, 110 V of 120 V.
  Voor de microscoop met op het typeplaatje de waarden [220/230/240 V ~]:
  De werkspanning kan worden ingesteld op: AC 220 V, 230 V of 240 V.



4. Gebruik de voorgeschreven lamp, zekering en netsnoer.

Gebruik de voorgeschreven lamp en zekering. Gebruik het meegeleverde netsnoer. Door gebruik van een verkeerde lamp, zekering of netsnoer kan het instrument beschadigen of brand ontstaan. (zie ook pag. 85 over het netsnoer.)
Gebruik, wanneer een verlengsnoer wordt toegepast, uitsluitend een verlengsnoer met randaarde.

- **Voorgeschreven lamp**
  Halogeenlamp 6V-20W (PHILIPS 7388 of OSRAM HLX64250) of
  Halogeenlamp 6V-30W (PHILIPS 5761)
- **Voorgeschreven zekering**
  250 V, 1A, trage zekering, 5x20 minizekeringx2

WAARSCHUWING

5. Warmte van de lichtbron

De lamp wordt heet tijdens gebruik. Verwijder de lensunit nooit terwijl de lamp ingeschakeld is en raak de lamp pas aan nadat deze gedurende 30 minuten uitgeschakeld is.

- Zorg er bij het vervangen van de lamp voor dat deze genoeg afgekoeld is zodat u deze kunt aanraken (wacht tenminste 30 minuten nadat de lamp uitgeschakeld werd).
- Raak, om brandwonden te voorkomen, de lamp niet aan wanneer deze ingeschakeld is of minder dan 30 minuten geleden uitgeschakeld werd.
- Plaats, om brandgevaar te voorkomen, geen textiel, papier of licht ontvlambare producten zoals benzine, aceton, thinner of alcohol in de buurt van de ingeschakelde lamp.

6. Gevaarlijke preparaten

Deze microscoop is voornamelijk bedoeld voor gebruik in microscopische onderzoek van levende celmateriaal en weefsel.
Controleer bij het verwerken van een preparaat, altijd of het gevaarlijk is of niet.
Behandel gevaarlijke preparaten volgens de standaardprocedure voor uw laboratorium.
Draag, als het preparaat infectiegevaarlijk is, altijd rubber handschoenen om infectie te voorkomen en raak het preparaat zelf nooit aan. Reinig, wanneer het preparaat onverhoopt toch op de microscoop terechtkomt, het verontreinigde deel volgens de standaardprocedure van uw laboratorium.

LET OP

1. Schakel het apparaat uit voordat u de microscoop demonteert, de lamp of de zekering gaat vervangen, of de stekker van het netsnoer in het stopcontact steekt of daaruit verwijdert.

Schakel, om elektrische schokken of brand te voorkomen, altijd de microscoop uit voordat u de stekker uit het stopcontact haalt. Schakel ook eerst de microscoop uit en haal de stekker uit het stopcontact voordat u de microscoop monteert of de lamp of de zekering gaat vervangen. Zet de netvoedingsschakelaar in de stand O om het apparaat uit te schakelen.

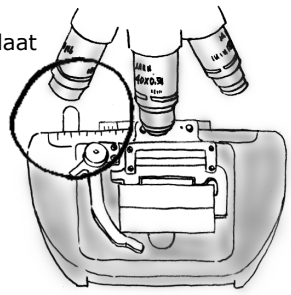
2. Zorg ervoor dat er geen vocht of voorwerpen in de microscoop terecht kunnen komen.

Voorkom dat vocht in de microscoop terecht kan komen waardoor kortsluiting zou kunnen ontstaan en oververhitting of andere storingen zouden kunnen ontstaan. Schakel, wanneer er onverhoopt vloeistof in het instrument terechtkomt, onmiddellijk de netvoedingschakelaar in de stand O en haal de stekker uit het stopcontact. Dep het oppervlak vervolgens op met een droge doek. Kortsluiting kan ook ontstaan doordat er voorwerpen in de microscoop terechtkomen. Gebruik de microscoop niet als er vaste stof of vloeistof in de microscoop terechtgekomen is en neem contact op met de dichtstbijzijnde Nikon-vertegenwoordiging.

3. Preparaatbevestingsplaat

Tijdens gebruik steekt de preparaatbevestingsplaat uit. Voorkom dat u bij het gebruik van de microscoop de preparaatbevestingsplaat aanstoot met uw hand of een ander lichaamsdeel, omdat u zich daarbij zou kunnen verwonden.

Bevestingsplaat



4. Afvoeren van de microscoop

Voer de microscoop, om biologische besmetting te voorkomen, af als verontreinigde apparatuur volgens de standaardprocedure van uw laboratorium.

Sikkerhedsforanstaltninger

Advarsels- og forsigtighedssymboler anvendt i denne manual

Selv om Nikon produkter er fremstillet, således at de yder dig den maksimale sikkerhed under anvendelsen, kan forkert anvendelse eller tilsidesættelse af instruktionerne forårsage personskade eller materiel skade og vil medføre fortabelse af alle garantirettigheder. For din sikkerheds skyld bør du læse instruktionsmanualen omhyggeligt og grundigt, før instrumentet anvendes. Smid ikke denne manual væk, men opbevar den i nærheden af produktet, så den nemt kan konsulteres.
I denne manual er sikkerhedsinstruktionerne angivet med de herunder viste symboler. Sørg for at overholde instruktionerne, der er angivet med disse symboler, for at garantere korrekt og sikker operation.

Symbol	Betydning
ADVARSEL	Tilsidesættelse af instruktioner, der er angivet med dette symbol, kan resultere i død eller alvorlig tilskadekomst.
FORSIGTIG	Tilsidesættelse af instruktioner, der er angivet med dette symbol, kan resultere i tilskadekomst eller materiel skade.

Betydning af symboler brugt på udstyret

Symbolet, der vises på instrumentet kræver altid forsigtighed under brug.
Se altid i brugsanvisningen, og læs de relevante instruktioner, før der manipuleres med dele, der har et symbol påsat.

Symbol	Betydning
	**Forsigtig! Biologisk risiko** Denne symboletikette, der sidder på standeren, betyder følgende: • ADVARSEL: Kontakt mellem prøven og mikroskopet kan udgøre en biologisk risiko. • For at undgå kontaminering af biologisk risiko, skal man ikke berøre den forurenede del med de bare hænder. • Dekontaminer den kontaminerede del i overensstemmelse med standardprocedure i dit laboratorium.
	**Advarsel om varme** Symboletiketten, der sidder nær ved feltlinseenheden (pæren er placeret under feltlinseenheden), skal minde dig på følgende: • Pæren og dens omgivelser (inklusive feltlinseenheden) bliver meget varme under og lige efter brug. • Risiko for forbrænding. Berør ikke pæren eller omgivelserne under og lige efter, at lamperne har været i brug. • Kontroller, at pæren og dens omgivelser er tilstrækkeligt afkølet, før man forsøger at udskifte pæren.
	**Forsigtig!** Denne symboletikette, der sidder tæt ved strømindtaget, skal minde dig om følgende: • Kontroller indgangsspændingen, før mikroskopet tændes. (Indgangsspændingen er opgivet på "navnepladen" og over AC strømindtaget.) • Hvis indgangsspændingen, der er vist, er forskellig fra det lokale strømniveau, må mikroskopet ikke tændes. Gør i stedet følgende: Spændingen på navnepladen afviger — Kontakt din nærmeste Nikon repræsentant. Spændingen over AC strømindtaget afviger — Ændr indstillingen for spændingen; se side 68.

ADVARSEL

1. Hensigtsmæssig brug af udstyret

Dette mikroskop er fremstillet hovedsagligt til brug for mikroskopisk observation af celler og stof fastgjort på slæden ved hjælp at diaskopi (transmitteret) og episkopi (reflekteret) belysning.
Som hovedformål er det designet til eksperimenter og observation på hospitaler og andre laboratorier, af sådanne celler og stof inden for patologiske og cytologiske områder.

2. Må ikke adskilles.

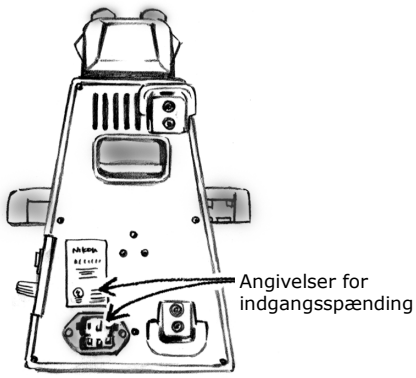
Adskillelse kan medføre dårlig funktion og/eller elektrisk stød, og indebærer ophævelse af alle garantier. Adskil ikke andre dele, end dem der er beskrevet i denne vejledning. Hvis du oplever problemer med mikroskopet, kontaktes nærmeste Nikon repræsentant.

3. Kontrol af indgangsspændingen

Indgangsspændingen er angivet på to steder bag på mikroskopet. på "navnepladen" og over AC strømindgangen. Kontroller, at disse angivelser af indgangsspændingen, svarer til den spænding, der leveres i dit område Hvis ikke, følges instruktionerne nedenfor. Brug af mikroskopet med forskellig angivelse af indgangsspænding vil forårsage overstrøm og overophedning, hvilket kan resultere i ild eller alvorlig skade på mikroskopet.

- **Hvis spændingsangivelsen på navnepladen afviger:**
  ➔ Tilslut ikke mikroskopet. Kontakt din nærmeste Nikon repræsentant.
- **Hvis spændingsangivelsen over el-indgangen afviger:**
  ➔ Gå til side 68, og ændr indstillingen for indgangsspændingen, før der tændes for strømmen.

  For mikroskopet, hvis navneplade viser [100/110/120 V ~]:
  Spændingen kan indstilles til: AC 100 V, 110 V or 120 V.
  For mikroskopet, hvis navneplade viser [220/230/240 V ~]:
  Spændingen kan indstilles til: AC 220 V, 230 V or 240 V**.**



4. Benyt de angivne pærer, sikringer og strømforsyningsledninger.

Benyt de angivne pærer og sikringer. Brug den medfølgende strømforsyningsledning. Brug af forkerte pærer, sikringer eller strømforsyningsledninger kan beskadige instrumentet eller resultere i brand. (Se også s. 85 om strømforsyningsledninger.)
Hvis der bruges forlængerledning, anvendes kun en ledning, der har en beskyttende jordforbindelse (PE)

- **Specificerede pærer**
  Halogenpære 6V-20W (PHILIPS 7388 eller OSRAM HLX64250) eller
  Halogenpære 6V-30W (PHILIPS 5761)
- **Specificerede sikringer**
  250 V, 1A, forsinkelses lavt-afbrydende type, 5×20 miniature sikring ×2

⚠ ADVARSEL

5. Varme ved lyskilden

Pæren bliver varm under brug. Fjern ikke feltlinseenheden, når pæren er tændt, og vær sikker på, at pæren har været slukket i 30 minutter, før den berøres.

- Når der skiftes pære, skal man sørge for at pæren er tilstrækkeligt afkølet til at berøre (lyset skal været slukket i mindst 30 minutter).
- Rør ikke pæren, mens der er tændt, eller før pæren har været slukket i 30 minutter, da det kan føre til forbrændinger.
- Sæt aldrig pæren i nærheden af stof, papir eller brandbare luftige væsker så som benzin. petroleum benzin, acetone, fortynder eller alkohol, da det kan resultere i brand.

6. Farlig prøve

Dette mikroskop er fremstillet hovedsagligt til brug for mikroskopisk observation af celler og stof fastgjort på slæden.
Når en prøve håndteres, kontrolleres det om prøven er farlig.
Håndter farlige prøver i overensstemmelse med standardprocedure i dit laboratorium.
Hvis prøven er af smittefarlig natur, bæres gummihandsker for at undgå infektion, og der udvises forsigtighed for ikke at berøre en eneste af prøverne I tilfælde af kontakt mellem en prøve og mikroskopet, dekontamineres den forurenede del i overensstemmelse med standardprocedure i dit laboratorium.

⚠ FORSIGTIG

1. Sluk på kontakten før mikroskopet samles, Udskiftning af pære eller sikringer, og Tilslutning og afbrydelse af strømforsyningsledning

Sluk for strømafbryderen, før strømforsyningsledningen sættes i stikket eller tages ud, for at forhindre elektrisk stød eller brand. Afbryd også strømmen, og tag derefter stikket ud, før samling af mikroskopet, og før udskiftning af pærer og sikringer. Sluk for strømmen, sæt strømafbryderen på ○.

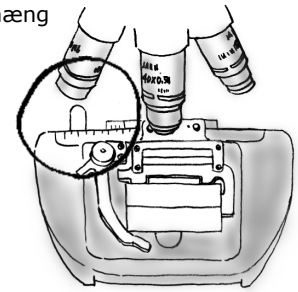
2. Hold mikroskopet fri for fugt og fremmedlegemer

Hold mikroskopet fri for fugt for at forhindre kortslutning, der kan resultere i overophedning eller andre funktionsødelæggelser. Hvis der stænkes vand på mikroskopet, slukkes straks for strømmes (sæt afbryderen på ○) og stikket tages ud kontakten. Derefter tørres vandet af med en tør klud.
Kortslutning kan også være resultatet, når fremmedlegemer sidder fast inden i mikroskopet. Hvis der er kommet fremmedlegemer eller vand ind i mikroskopet, bruges mikroskopet ikke og nærmeste Nikon repræsentant kontaktes.

3. Ophæng til objektbord

Ophænget til objektbordet stikker frem under brug.
Vær forsigtig ikke at ramme ophænget med hånden eller andre dele af kroppen, når mikroskopet betjenes, da du kan blive slået af ophængets kant.

Ophæng



4. Bortskaffelse af mikroskopet

For at undgå biologisk risiko, bortskaffes mikroskopet ligesom det kontaminerede udstyr i overensstemmelse med standard procedure i dit laboratorium.

Precauções de segurança

Símbolos de aviso / precaução utilizados neste manual

Apesar dos produtos Nikon serem concebidos para lhe fornecer a maior segurança durante a sua utilização, a utilização incorrecta ou o não cumprimento das instruções pode causar lesões pessoais ou danos no equipamento invalidando quaisquer reclamações da garantia. Para sua segurança, leia atentamente o manual de instruções antes de utilizar o instrumento. Não deite fora este manual, guarde-o perto do produto para fácil consulta.
Neste manual, as instruções de segurança estão indicadas pelos símbolos abaixo indicados. Siga as instruções indicadas nestes símbolos para assegurar um funcionamento correcto e seguro.

Símbolo	Significado
AVISO	O não cumprimento das instruções assinaladas com este símbolo pode causar morte ou lesões graves.
PRECAUÇÃO	O não cumprimento das instruções assinaladas com este símbolo pode causar lesões ou danos no equipamento.

Significado dos símbolos utilizados no equipamento

O símbolo que aparece no produto indica a necessidade de ter sempre cuidado durante a utilização. Consulte sempre o manual de instruções e leia as instruções pertinentes antes de usar qualquer parte a que o símbolo foi aposto.

Símbolo	Significado
	**Precaução! Risco biológico** Esta etiqueta de símbolo aposta na base chama a atenção para o seguinte: • AVISO: O contacto entre a amostra e o microscópio pode constituir um risco biológico. • Para evitar a contaminação do risco biológico, não toque na parte contaminada com as mãos nus. • Descontamine a parte contaminada de acordo com o procedimento padrão do laboratório.
	**Cuidado com as altas temperaturas** Este símbolo aposto perto da unidade de lente de campo (a lâmpada está instalada sob a unidade de lente de campo) chama a atenção do seguinte: • A lâmpada e as suas áreas circundantes (incluindo a unidade de lente de campo) ficam muito quentes durante e imediatamente depois da iluminação. • Risco de queimaduras. Não toque na lâmpada ou áreas circundantes durante e imediatamente depois da iluminação. • Certifique-se de que a lâmpada e as suas áreas circundantes arrefeceram suficientemente antes de tentar substituir a lâmpada.
	**Precauções** Esta etiqueta de símbolo aposta perto da entrada de corrente alterna chama a atenção para o seguinte: • Antes de ligar o microscópio, verifique a tensão de entrada. (A tensão de entrada encontra-se na placa de tipo e acima da entrada de AC.) • Se a tensão de entrada for diferente do nível de tensão local, não ligue o microscópio. Em vez disso, faça o seguinte: Tensão diferente na placa de tipo — Contacte o representante da Nikon mais próximo. Tensão diferente em cima da entrada de AC — Altere a definição da tensão de entrada; consulte a pág. 68.

⚠ AVISO

1. Utilização projectada do equipamento

O presente microscópio destina-se principalmente à observação microscópica da células e tecido apostos no slide utilizando iluminação diascópica (transmitida) e (episcópica) reflectida.
A sua principal finalidade é a experimentação e a observação, em hospitais ou outros laboratórios, de tais células e tecidos nos campos da patologia e citologia.

2. Não desmontar.

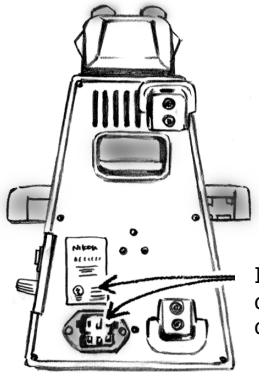
A desmontagem pode provocar avarias e/ou choques eléctricos, resultando na anulação de todas as reclamações ao abrigo da respectiva garantia. Não desmonte nenhuma peça, salvo as descritas no presente manual. Se experimentar algum problema com o microscópio, participe o facto ao representante mais próximo da Nikon.

3. Verifique a tensão de entrada

A tensão de entrada está indicada em dois locais na parte posterior do microscópio: na placa de tipo e acima da entrada de AC. Confirme se estas indicações da tensão de entrada correspondem à tensão da região em que se encontra. Caso contrário, siga uma das seguintes instruções. A utilização de microscópios com indicações de tensão de entrada diferentes provocará sobretensões e sobreaquecimentos, resultando daí incêndios e danos graves aos referidos microscópios.

- **Se a indicação de tensão na placa de tipo for diferente:**
  ➔ Não ligue o microscópio. Contacte o representante da Nikon mais próximo.
- **Se a indicação de tensão acima da entrada AC for diferente:**
  ➔ Consulte a pág. 68 e altere a definição da tensão de entrada antes de ligar o interruptor.

  Se o microscópio apresentar uma placa de tipo com a indicação [100/110/120 V ~]:
  É possível definir a tensão para: AC 100 V, 110 V ou 120 V.
  Se o microscópio apresentar uma placa de tipo com a indicação [220/230/240 V ~]:
  É possível definir a tensão para: AC 220 V, 230 V ou 240 V.



Indicações de tensão de entrada

4. Use a lâmpada, o fusível e o cabo eléctrico especificados

Utilize a lâmpada e o fusível especificados. Utilize o cabo eléctrico fornecido. Se utilizar uma lâmpada, fusível ou cabo eléctrico incorrecto, isso pode danificar o instrumento ou provocar um incêndio. (Consulte igualmente a pág. 85 sobre o cabo eléctrico.)
Se utilizar uma extensão eléctrica, utilize somente um cabo com um fio de terra de protecção.

- **Lâmpada especificada**
  Lâmpada de halogéneo de 6V-20W (PHILIPS 7388 ou OSRAM HLX64250) ou lâmpada de halogéneo 6V-30W (PHILIPS 5761)
- **Fusível especificado**
  2 fusíveis miniatura de 250 V, 1A, de temporização e de quebra reduzida, 5×20

AVISO

5. Aquecimento da fonte eléctrica

Durante o funcionamento, a lâmpada fica quente. Não retire a unidade da lente de campo se a lâmpada estiver ligada e espere, no mínimo, 30 minutos até poder tocar nela.

- Ao substituir a lâmpada, certifique-se de que a lâmpada arrefeceu o suficiente para poder tocar nela (a luz deve estar desligada há, pelo menos, 30 minutos).
- Não toque na lâmpada se estiver ligada ou espere, no mínimo, 30 minutos, caso contrário pode provocar queimaduras.
- Nunca aproxime pano, papel ou substâncias voláteis inflamáveis como gasolina, benzina, acetona, diluente ou álcool de uma lâmpada quente porque pode provocar incêndios.

6. Amostra perigosa

O presente microscópio destina-se principalmente à observação microscópica da células e tecido apostos no slide.
Ao manusear uma amostra, verifique se a referida amostra é perigosa.
Manuseie as amostras perigosas de acordo com o procedimento padrão do laboratório.
Se a amostra tiver uma natureza infecciosa, calce luvas de borracha para evitar infecções e tenha cuidado para não tocar na amostra. No caso de contacto de uma amostra com o microscópio, descontamine a parte contaminada de acordo com o procedimento padrão do laboratório.

PRECAUÇÃO

1. Desligue a energia antes de montar o microscópio, substituir a lâmpada ou o fusível, e de ligar e desligar o cabo eléctrico

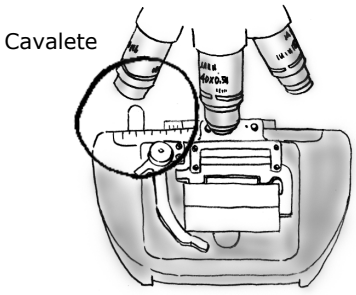
Desligue o interruptor antes de ligar ou desligar o cabo eléctrico para impedir choques eléctricos ou incêndios. Desligue também o interruptor e, depois, desligue o cabo eléctrico antes de montar o microscópio e antes de substituir a lâmpada ou o fusível. Para desligar a energia, coloque o interruptor em ○.

2. Mantenha o microscópio sem humidade e matérias estranhas

Mantenha o microscópio sem humidade para impedir curto-circuitos que podem provocar o sobreaquecimento ou outras anomalias. Se o microscópio receber salpicos de água, desligue imediatamente o interruptor (coloque o interruptor em ○) e desligue o cabo eléctrico. Depois, limpe a água com um pano seco. Os curto-circuitos podem ocorrer se houver matérias estranhas presas no interior do microscópio. Se matérias estranhas ou água ingressarem no microscópio, não o utilize e contacte o representante da Nikon mais próximo.

3. Cavalete

Durante a utilização, o cavalete sobressai.
Tenha cuidado para não atingir o cavalete com a mão ou outras partes do corpo ao manusear o microscópio porque pode ferir-se por uma das arestas do cavalete.



4. Descarte do microscópio

Para evitar o risco biológico, descarte-se do microscópio como equipamento contaminado, de acordo com o procedimento padrão do laboratório.

Turvallisuusohjeet

Tässä käsikirjassa käytetyt varoitus / varotoimet -symbolit

Vaikka Nikon tuotteet on suunniteltu mahdollisimman turvallisiksi käyttää, voi väärä käyttö tai näiden ohjeiden huomioimattomuus johtaa loukkaantumiseen tai omaisuusvahinkoihin, ja siitä seuraa kaikkien takuuseen liittyvien oikeuksien menetys. Turvallisuuden vuoksi lue käyttöohjeet huolellisesti ja perusteellisesti ennen laitteen käyttöä. Älä hävitä tätä käsikirjaa, vaan pidä se tuotteen läheisyydessä voidaksesi helposti tarkistaa ohjeita.
Ohjekäsikirjassa turvallisuusohjeet on osoitettu alla olevilla symboleilla. Noudata näiden symbolien osoittamia ohjeita varmistaaksesi oikean ja turvallisen käytön.

Symboli	Merkitys
VAROITUS	Tällä symbolilla merkittyjen ohjeiden huomiotta jättäminen voi johtaa kuolemaan tai vakavaan loukkaantumiseen.
VAROTOIMET	Tällä symbolilla merkittyjen ohjeiden huomiotta jättäminen voi johtaa loukkaantumiseen tai omaisuusvahinkoon.

Laitteistossa käytettyjen symbolien merkitys

Tuotteessa näkyvät symbolit ilmaisevat tarvetta varotoimiin käytön kaikissa vaiheissa.
Tarkista aina käsikirjasta ja lue asiaankuuluvat ohjeet ennen kuin käsittelet osaa, johon symbolit on oheistettu.

Symboli	Merkitys
	**Varoitus! Biologinen vaaratekijä** Tämä symbolietiketti kiinnitettynä telineeseen muistuttaa sinua seuraavasta: • VAROITUS: Näytteen ja mikroskoopin kontakti voi aiheuttaa biologisen vaaratekijän. • Välttääksesi biologisesti vaarallisen kontaminaation älä kosketa kontaminoitunutta aluetta paljain käsin. • Dekontaminoi kontaminoitunut osa laboratorion normaalien menettelytapojen mukaisesti.
	**Varoitus kuumuudesta** Tämä symboli kiinnitettynä lähelle kenttälinssiyksikköä (lamppu on sijoitettu kenttälinssiyksikön alle) muistuttaa sinua seuraavasta: • Lamppu ja sitä ympäröivä alue (mukaan lukien kenttälinssiyksikkö) kuumenee hyvin kuumaksi käytön aikana ja heti käytön jälkeen. • Palovammojen vaara. Älä kosketa lamppua tai ympäröiviä alueita käytön aikana tai heti käytön jälkeen. • Varmista että lamppu ja sitä ympäröivä alue on jäähtynyt riittävästi ennen kuin yrität lampun vaihtoa.
	**Varotoimet** Tämä symbolietiketti kiinnitettynä lähelle vaihtovirtapistoketta muistuttaa sinua seuraavasta: • Tarkista tulojännite ennen kuin laitat mikroskoopin päälle. (Tulojännite annetaan "nimikilvessä" ja vaihtovirtapistokkeen yläpuolella. • Jos näytetty tulojännite eroaa paikallisesta jännitetasosta, älä laita mikroskooppia päälle. Tee sen sijaan seuraavat toimenpiteet: Eri jännite nimikilvessä. — Ota yhteys lähimpään Nikonin edustajaan. Eri jännite vaihtovirtapistokkeen yläpuolella — Vaihda tulojännitteen asetusta; katso sivu 68.

⚠ VAROITUS

1. Laitteen käyttötarkoitus

Tämä mikroskooppi on tarkoitettu pääasiassa mikroskoopilla tehtävien solujen ja kudoksen havaintojen tekoon näytelevyiltä käyttäen diaskooppista valoa (lähetettyä valoa) ja pintavalaisua (heijastettua valoa).
Se on suunniteltu pääasiassa käytettäväksi koetoimintaan ja havainnointiin sairaaloissa tai muissa laboratorioissa sellaisten solujen ja kudosten tutkimiseen, joita patologia ja sytologia tutkivat.

2. Ei saa purkaa.

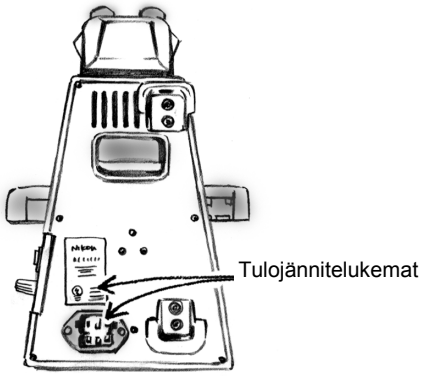
Purkaminen saattaa aiheuttaa toimintahäiriön ja/tai sähköiskun ja johtaa kaikkien takuuoikeuksien menetykseen. Älä pura mitään muuta osaa kuin niitä, jotka on kuvattu tässä ohjekirjassa. Mikäli mikroskoopin kanssa esiintyy ongelmia, ota yhteys lähimpään Nikonin edustajaan.

3. Tarkista tulojännite

Tulojännite osoitetaan kahdessa paikassa mikroskoopin takana: Nimikilvessä ja vaihtovirtapistokkeen yläpuolella. Varmista että nämä tulojännitemerkinnät vastaavat alueesi käyttämää jännitettä. Mikäli ei, noudata yhtä alla olevista ohjeista. Mikroskoopin käyttö eri tulojännitemerkinnällä voi aiheuttaa ylivirtaa ja ylikuumenemista, mikä voi johtaa tulipaloon ja mikroskoopin pahaan vaurioitumiseen.

- **Jos jännitemerkintä nimikilvessä on eri:**
  ➔ Älä liitä mikroskooppia verkkovirtaan. Ota yhteys lähimpään Nikonin edustajaan.
- **Jos jännitemerkintä vaihtovirtapistokkeen yläpuolella on eri:**
  ➔ Katso sivulta 68 ja vaihda tulojänniteasetus ennen kuin käännät virtakytkimen päälle.

  Mikroskoopille jonka nimikilpi osoittaa [100/110/120 V ~]:
  Jännite voidaan asettaa: AC 100 V, 110 V tai 120 V.
  Mikroskoopille jonka nimikilpi osoittaa [220/230/240 V ~]:
  Jännite voidaan asettaa: AC 220 V, 230 V tai 240 V.



4. Käytä määriteltyä lamppua, sulaketta ja verkkojohtoa

Käytä määriteltyä lamppua ja sulaketta. Käytä mukana tullutta verkkojohtoa. Väärän lampun, sulakkeen tai verkkojohdon käyttö voi vahingoittaa instrumenttia tai aiheuttaa tulipalon. (Katso myös s. 85 verkkojohdosta.)
Jos käytät jatkojohtoa käytä vain johtoa jossa on suojamaadoitusjohdin.

- **Määritelty lamppu**
  Halogeenilamppu 6V-20W (PHILIPS 7388 tai OSRAM HLX64250) tai
  Halogeenilamppu 6V-30W (PHILIPS 5761)
- **Määritelty sulake**
  250 V, 1A, tyyppiä aikaviive alhainen virrankatkaisu, 5x20 pienoissulaketta x 2

⚠ VAROITUS

5. Valolähteen aiheuttama kuumuus.

Lamppu kuumenee käytön aikana. Älä irrota kenttälinssiyksikköä, kun lamppu on päällä, ja varmista että lamppu on ollut pois päältä 30 minuuttia ennen kuin kosket sitä.

- Kun vaihdat lamppua, varmista että lamppu on riittävän jäähtynyt, jotta sitä voi koskettaa (valon pitää olla pois päältä ainakin 30 minuuttia).
- Älä kosketa lamppua, kun se on päällä tai ennen kuin se on ollut pois päältä 30 minuuttia, sillä se voi johtaa palovammoihin.
- Älä tuo kangasta, paperia tai herkästi syttyvää ainetta kuten bensiiniä, öljyä, asetonia, tinneriä tai alkoholia kuumanlampun lähelle sillä se voi aiheuttaa tulipalon.

6. Vaarallinen näyte

Tämä mikroskooppi on tarkoitettu pääasiassa mikroskoopilla tehtävien solujen ja kudoksen havaintojen tekoon näytelevyiltä.
Kun käsittelet näytettä, tarkista onko se vaarallinen.
Käsittele vaarallisia näytteitä laboratorion normaalien menettelytapojen mukaisesti.
Mikäli näyte on luonteeltaan tarttuvaa käytä kumihansikkaita välttääksesi tartunnan ja varo ettet kosketa näytettä. Mikäli näyte joutuu kosketuksiin mikroskoopin kanssa, dekontaminoi kontaminoitunut alue laboratorion normaalien menettelytapojen mukaisesti.

⚠ VAROTOIMET

1. Kytke virtakytkin pois päältä ennen kuin kokoat mikroskoopin tai vaihdat lampun tai sulakkeen, ja laita verkkojohto paikoilleen tai irrota se

Käännä virtakytkin pois päältä ennen kuin liität tai irrotat verkkojohdon sähköiskun tai tulipalon estämiseksi. Käännä virtakytkin pois päältä ja irrota verkkojohto myös ennen kuin kokoat mikroskoopin ja ennen kuin vaihdat lampun tai sulakkeen. Virran pois kytkemiseksi aseta virtakytkin asentoon "O".

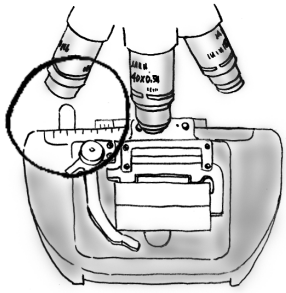
2. Pidä mikroskooppi vapaana kosteudesta ja vieraista esineistä

Pidä mikroskooppi vapaana kosteudesta estääksesi oikosulun joka voi johtaa ylikuumenemiseen tai muihin toimintahäiriöihin. Mikäli vahingossa läikytät vettä mikroskoopille, käännä välittömästi virtakytkin pois päältä (käännä asentoon "O"), ja irrota verkkojohto. Pyyhi sitten vesi pois kuivalla liinalla. Oikosulku voi tapahtua myös jos mikroskoopin sisälle jää vieras esine. Jos mikroskooppiin on joutunut vieras esine tai vettä älä käytä mikroskooppia ja ota yhteys lähimpään Nikonin edustajaan.

3. Objektipöydän teline

Objektipöydän teline työntyy esiin käytön aikana.
Ole varovainen, ettet osu telineeseen käsivarrella tai muulla ruumiin osalla, kun käsittelet mikroskooppia, sillä voit loukata itsesi telineen kulmaan.

Teline



4. Mikroskoopin hävittäminen

Välttääksesi biologisen vaaran hävitä mikroskooppi kuten kontaminoitunut laite laboratorion normaalien menettelytapojen mukaisesti.

Προφυλάξεις Ασφαλείας

Σύμβολα Προειδοποίησης / Προφύλαξης που χρησιμοποιούνται στο παρόν εγχειρίδιο

Παρά το γεγονός ότι τα προϊόντα Nikon έχουν σχεδιαστεί για να σας παρέχουν απόλυτη ασφάλεια κατά τη χρήση, τυχόν λανθασμένη χρήση ή αμέλεια των οδηγιών ενδέχεται να προκαλέσουν προσωπικό τραυματισμό ή ζημία και θα οδηγήσουν στην απώλεια κάθε αξίωσης από την εγγύηση. Για τη δική σας ασφάλεια, διαβάστε τις οδηγίες χρήσης με ιδιαίτερη προσοχή πριν από τη χρήση του οργάνου. Μην πετάξετε το παρόν εγχειρίδιο αλλά φυλάξτε το κοντά στο προϊόν για να το συμβουλεύεστε εύκολα.
Στο παρόν εγχειρίδιο, οι οδηγίες ασφαλείας παρουσιάζονται με τα σύμβολα που φαίνονται παρακάτω. Φροντίστε να τηρήσετε τις οδηγίες που παρουσιάζονται με αυτά τα σύμβολα για να εξασφαλίσετε την ορθή και ασφαλή λειτουργία.

Σύμβολο	Ερμηνεία
ΠΡΟΕΙΔΟΠΟΙΗΣΗ	Η αμέλεια των οδηγιών που σημειώνονται με αυτό το σύμβολο ενδέχεται να οδηγήσει σε θάνατο ή σοβαρό τραυματισμό.
ΠΡΟΣΟΧΗ	Η αμέλεια των οδηγιών που σημειώνονται με αυτό το σύμβολο ενδέχεται να οδηγήσει σε τραυματισμό ή ζημία.

Ερμηνεία των συμβόλων που χρησιμοποιούνται στον εξοπλισμό

Το σύμβολο που εμφανίζεται στο προϊόν δείχνει την ανάγκη για προφύλαξη ανά πάσα στιγμή κατά τη χρήση.
Πάντα να συμβουλεύεστε τις εγχειρίδιο οδηγιών και να διαβάζετε τις σχετικές οδηγίες προτού να χειριστείτε οποιοδήποτε από τα τμήματα στα οποία έχει τοποθετηθεί το σύμβολο.

Σύμβολο	Ερμηνεία
	**Προσοχή! Βιολογικός κίνδυνος** Αυτή η ετικέτα σύμβολο που έχει αναρτηθεί στη βάση σας υπενθυμίζει τα εξής: • ΠΡΟΕΙΔΟΠΟΙΗΣΗ: Επαφή μεταξύ του δείγματος και του μικροσκοπίου ενδέχεται να συνιστά βιολογικό κίνδυνο. • Για την αποφυγή μόλυνσης από υλικό βιολογικά επισφαλές, μην εγγίζετε το μολυσμένο τμήμα με γυμνά χέρια. • Απολυμάνετε το μολυσμένο τμήμα σύμφωνα με τη συνήθη διαδικασία για το εργαστήριο σας.
	**Προφύλαξη για θερμότητα** Αυτή η ετικέτα σύμβολο που έχει αναρτηθεί κοντά στη μονάδα του φακού πεδίου (ο λαμπτήρας έχει τοποθετηθεί κάτω από τη μονάδα του φακού πεδίου) σας υπενθυμίζει τα εξής: • Ο λαμπτήρας και οι περιβάλλουσες περιοχές αυτού (μαζί με τη μονάδα του φακού πεδίου) θερμαίνονται ιδιαίτερα κατά και αμέσως μετά το φωτισμό. • Μην εγγίζετε το λαμπτήρα ή τις περιβάλλουσες περιοχές κατά ή αμέσως μετά το φωτισμό. • Φροντίστε ο λαμπτήρας και οι περιβάλλουσες περιοχές να έχουν ψυχραθεί επαρκώς προτού δοκιμάσετε να αντικαταστήσετε το λαμπτήρα.
	**Προφύλαξη** Αυτή η ετικέτα σύμβολο που έχει αναρτηθεί κοντά στη δίοδο εισόδου AC σας υπενθυμίζει τα εξής: • Ελέγξτε την τάση εισόδου πριν ενεργοποιήσετε το μικροσκόπιο (Η τάση εισόδου δίνεται στην «πινακίδα τεχνικών στοιχείων» και πάνω από τη δίοδο εισόδου AC.) • Αν η ενδεικνυόμενη τάση εισόδου διαφέρει από το τοπικό επίπεδο τάσης, μην ενεργοποιήσετε το μικροσκόπιο. Αντί αυτού προβείτε στις εξής ενέργειες: Διαφορετική τάση στην πινακίδα τεχνικών στοιχείων Αποταθείτε στον πλησιέστερο αντιπρόσωπο της Nikon. Διαφορετική τάση πάνω από τη δίοδο εισόδου AC Αλλάξτε τη ρύθμιση της τάσης εισόδου. Δείτε τη σελ.68.

⚠ ΠΡΟΕΙΔΟΠΟΙΗΣΗ

1. Προοριζόμενη χρήση του εξοπλισμού

Το παρόν μικροσκόπιο προορίζεται κυρίως για χρήση σε μικροσκοπική παρατήρηση κυττάρων και ιστού στερεωμένων στη διαφάνεια με τη χρήση διασκοπικού (μεταδιδόμενου) και επισκοπικού (ανακλώμενου) φωτισμού.
Είναι σχεδιασμένο για τους βασικούς σκοπούς του πειραματισμού και της παρατήρησης παρόμοιων κυττάρων και ιστού, σε νοσοκομεία ή άλλα εργαστήρια, στα πλαίσια της παθολογίας, της κυτταρολογίας.

2. Μην αποσυναρμολογείτε.

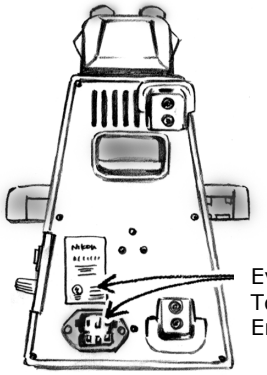
Η αποσυναρμολόγηση ενδέχεται να προκαλέσει δυσλειτουργία και / ή ηλεκτροπληξία, και θα οδηγήσει σε απώλεια όλων των αξιώσεων από την εγγύηση. Μην αποσυναρμολογείτε κανένα άλλο τμήμα εκτός από αυτά που περιγράφονται στο παρόν εγχειρίδιο. Σε περίπτωση οποιουδήποτε προβλήματος με το μικροσκόπιο, ειδοποιήστε τον πλησιέστερο αντιπρόσωπο της Nikon.

3. Ελέγξτε την Τάση Εισόδου

Η τάση εισόδου αναγράφεται σε δύο σημεία στο οπίσθιο τμήμα του μικροσκοπίου: στην πινακίδα τεχνικών στοιχείων και πάνω από τη δίοδο εισόδου AC. Βεβαιωθείτε ότι αυτές οι αναγραφές της τάσης εισόδου αντιστοιχούν στην παρεχόμενη τάση της περιοχής σας. Αν όχι, ακολουθήστε μια από τις παρακάτω οδηγίες. Η χρήση μικροσκοπίων με διαφορετικές αναγραφές τάσης εισόδου θα προκαλέσει υπέρταση και υπερθέρμανση, που ενδέχεται να προκαλέσουν πυρκαγιά ή σοβαρή βλάβη στο μικροσκόπιο.

- **Αν η αναγραφόμενη τάση στην πινακίδα τεχνικών στοιχείων διαφέρει:**
  ➔ Μη βάζετε το μικροσκόπιο στην πρίζα. Αποταθείτε στον πλησιέστερο αντιπρόσωπο της Nikon.
- **Αν η αναγραφόμενη τάση πάνω από τη δίοδο εισόδου AC διαφ**
  ➔ Δείτε τη σ.68 και αλλάξτε τη ρύθμιση τάσης εισόδου προτού ανοίξετε το διακόπτη ισχύος.

  Για το μικροσκόπιο που στην πινακίδα τεχνικών στοιχείων αναγράφονται [100/110/120 V ~]:
  Η τάση μπορεί να ρυθμιστεί σε: AC 100 V, 110 V ή 120 V.
  Για το μικροσκόπιο που στην πινακίδα τεχνικών στοιχείων αναγράφονται [220/230/240 V ~]:
  Η τάση μπορεί να ρυθμιστεί σε: AC 220 V, 230 V ή 240 V.



Ενδείξεις Τάσης Εισόδου

4. Χρησιμοποιήστε τον Προκαθορισμένο Λαμπτήρα, Ασφάλεια και Καλώδιο Ισχύος

Χρησιμοποιήστε τον προκαθορισμένο λαμπτήρα και ασφάλεια. Χρησιμοποιήστε το συνοδευτικό καλώδιο ισχύος. Η χρήση λανθασμένου λαμπτήρα, ασφαλείας ή καλωδίου ισχύος ενδέχεται να προκαλέσει βλάβη στο όργανο ή πυρκαγιά. (Δείτε επίσης τη σ. 85 για το καλώδιο ισχύος.)
Σε περίπτωση προέκτασης καλωδίου, χρησιμοποιείστε μόνο αυτή που περιλαμβάνει καλώδιο προστατευτικής γείωσης (PE).

- **Προκαθορισμένος λαμπτήρας**
  Λαμπτήρας αλογόνου 6V-20W (PHILIPS 7388 ή OSRAM HLX64250) ή
  Λαμπτήρας αλογόνου 6V-30W (PHILIPS 5761)
- **Προκαθορισμένη Ασφάλεια**
  250 V, 1A, τύπου χαμηλής θραύσης με χρονική καθυστέρηση, 2× μίνι ασφάλεια 5×20

⚠ ΠΡΟΕΙΔΟΠΟΙΗΣΗ

5. Θερμότητα στη Φωτεινή Πηγή

Ο λαμπτήρας θερμαίνεται ιδιαίτερα κατά τη χρήση. Μην αφαιρείτε τη μονάδα φακού πεδίου όση ώρα λειτουργεί ο λαμπτήρας, και βεβαιωθείτε ότι ο λαμπτήρας έχει σβηστεί για τουλάχιστον 30 λεπτά προτού τον αγγίξετε.

- Όταν αλλάζετε το λαμπτήρα, φροντίστε αυτός να έχει ψυχθεί επαρκώς για να τον αγγίξετε (ο φωτισμός θα πρέπει να έχει διακοπεί για τουλάχιστον 30 λεπτά).
- Μην αγγίζετε το λαμπτήρα όση ώρα λειτουργεί ή μέχρις ότου ο λαμπτήρας έχει σβηστεί για 30 λεπτά, καθώς ενδέχεται να προκληθούν εγκαύματα.
- Μη φέρνετε ποτέ κοντά σε ζεστό λαμπτήρα, ύφασμα, χαρτί ή εύφλεκτες πτητικές ουσίες όπως βενζίνη, ακετόνη, νέφτι, ή οινόπνευμα, καθώς ενδέχεται να προκληθεί πυρκαγιά.

6. Επικίνδυνο Δείγμα

Το παρόν μικροσκόπιο είναι κυρίως για χρήση σε μικροσκοπική παρατήρηση κυττάρων και ιστού στερεωμένων στη διαφάνεια.
Κατά το χειρισμό κάποιου δείγματος, ελέγξτε για να καθορίσετε αν το δείγμα είναι επικίνδυνο.
Χειριστείτε τα επικίνδυνα δείγματα σύμφωνα με τη συνήθη διαδικασία για το εργαστήριο σας.
Αν το δείγμα είναι μολυσματικής φύσης, φορέστε ελαστικά γάντια για να αποφύγετε τη μόλυνση, και προσέξτε να μην αγγίξετε το δείγμα. Σε περίπτωση επαφής του δείγματος με το μικροσκόπιο, απολυμάνετε το μολυσμένο τμήμα σύμφωνα με τη συνήθη διαδικασία για το εργαστήριο σας.

⚠ CAUTION

1. Απενεργοποιήστε το Διακόπτη Ισχύος πριν από τη Συναρμολόγηση του Μικροσκοπίου, την Αντικατάσταση του Λαμπτήρα ή της Ασφάλειας, και την Τοποθέτηση ή την Αφαίρεση του Κορδονιού Ισχύος

Απενεργοποιήστε το διακόπτη ισχύος πριν την τοποθέτηση ή την αφαίρεση του κορδονιού ισχύος για να αποτρέψετε την ηλεκτροπληξία ή την πυρκαγιά. Επίσης απενεργοποιήστε το διακόπτη ισχύος και μετά αφαιρέστε το κορδόνι ισχύος πριν τη συναρμολόγηση του μικροσκοπίου, και πριν την αλλαγή του λαμπτήρα ή της ασφάλειας. Για την απενεργοποίηση της ισχύος, στρέψτε το διακόπτη ισχύος στη θέση ○.

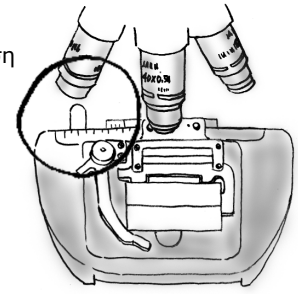
2. Προστατεύστε το Μικροσκόπιο από Υγρασία και Ξένα Στοιχεία

Προστατεύστε το μικροσκόπιο από υγρασία για να αποτρέψετε το βραχυκύκλωμα που θα μπορούσε να προκαλέσει υπερθέρμανση ή άλλες δυσλειτουργίες. Αν πέσει νερό πάνω στο μικροσκόπιο, απενεργοποιήστε αμέσως το διακόπτη ισχύος (στρέψτε το διακόπτη στη θέση ○) και αφαιρέστε το βύσμα του κορδονιού ισχύος. Μετά, σκουπίστε το νερό με ένα στεγνό πανί. Σε περίπτωση εγκλωβισμού ξένων στοιχείων στο εσωτερικό του μικροσκοπίου μπορεί να προκληθεί επίσης βραχυκύκλωμα. Αν παρεισφρήσουν ξένα στοιχεία ή νερό στο μικροσκόπιο, μη χρησιμοποιήσετε το μικροσκόπιο και αποταθείτε στον πλησιέστερο αντιπρόσωπο της Nikon.

3. Βάση Πλάκας

Η βάση της πλάκας προεξέχει κατά τη χρήση.
Προσέξτε να μη χτυπήσετε τη βάση με το χέρι σας ή με άλλο μέρος του σώματός σας κατά το χειρισμό του μικροσκοπίου καθώς ενδέχεται να τραυματιστείτε από την άκρη της βάσης.

Βάση



4. Βάση Πλάκας

Η βάση της πλάκας προεξέχει κατά τη χρήση.
Προσέξτε να μη χτυπήσετε τη βάση με το χέρι σας ή με άλλο μέρος του σώματός σας κατά το χειρισμό του μικροσκοπίου καθώς ενδέχεται να τραυματιστείτε από την άκρη της βάσης.

Notes on Handling the System

(1) Installation

This microscope is a precision instrument. Using the microscope in an unfavorable environment could result in malfunctions or degraded performance. Consider the following conditions when choosing the installation location.

- Observation conditions are better if light from windows and bright room light can be avoided.
- Install the microscope in a location with a room temperature of 0° to 40°C and with a maximum relative humidity of 85%. High temperature and humidity are to be avoided because they promote mold growth and condensation, which may damage the microscope.
- Dirt and dust degrade optical performance and are to be avoided.
- Vibrations in the environment will degrade the image. Install the microscope in a location free of vibrations.
- Install the microscope on a solid table and keep the microscope level.
- Select a layout that allows easy detachment of the power cord from the AC inlet of this microscope in the event of emergency.
- This microscope emits a feeble electromagnetic wave. Do not place a precision electronic device near the microscope as precision could be degraded. Also, avoid placing a radio or TV near the microscope as reception of sound and images may be hampered.

(2) Carrying the Microscope

This microscope is a precision instrument. Handle it gently. Strong shocks and forcible operation will damage the instrument. Shocks to the objectives, especially, could degrade image precision.

- When carrying the microscope, hold it at its upper rear and lower front ends.
- Do not hold the focus knobs, the eyepiece tube, or the stage. These parts could easily come off and could result in malfunctions.

(3) Handling the Lamps

Do not touch the glass part of the lamp with bare hands. Wear gloves or use a cloth when handling the lamp so as not to leave fingerprints on the surface. Wipe off any fingerprints or stains using a clean cloth moistened with alcohol. Fingerprints will etch into the hot surface of the lamp and reduce the brightness, damage the lamp or reduce its service life.

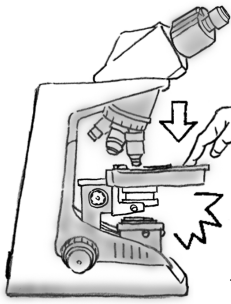
Handle the lamp gently. Shocks and vibrations will damage the lamp or reduce its service life.

When changing the lamp, be sure that the contact is not damaged. If the contact is damaged, the lamp may not light up or may overheat. Insert the lamp's contact pins fully into the socket holes. If the pins are loose, the lamp could come off or result in a contact failure, which will cause overheating or smoke. Also, make sure that the field lens unit is securely attached.

Do not break the used lamps ; instead dispose of them as special industrial waste or according to the laws applicable to your municipal waste system.

(4) Refocusing

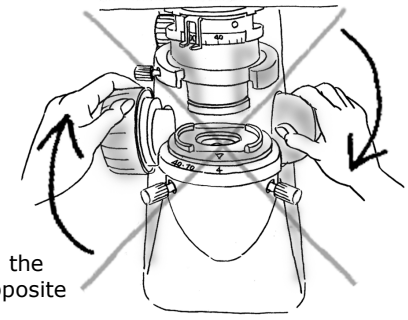
When changing specimens using the refocusing mechanism, gently lower the stage by hand taking care not to hit the field lens with the condenser holder (p. 60).



Make sure not to hit the field lens.

(5) Focus Knobs

Do not turn the right and left focus knobs simultaneously in opposite directions. Do not turn the coarse focus knob any further after the stage has been moved up or down to its limit. These operations will damage the focusing mechanism.
(The coarse focus knob has a protection device. The knob turns freely for a while after it has reached its upper limit.)



Do not turn the knobs in opposite directions.

(6) Oil-Immersion Observation

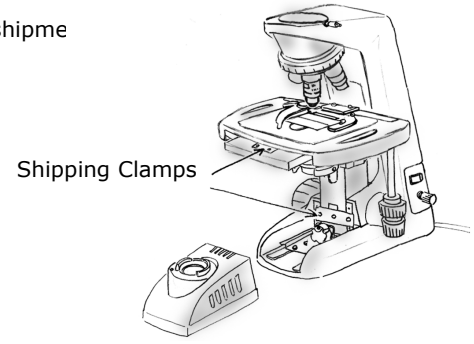
Use only a minimum quantity of oil. If too much oil is applied, surplus oil could flow out to the stage and the condenser which could lead to degraded performance.

WARNING

When using petroleum benzine or absolute alcohol to wipe off immersion oil or to clean the lenses, follow the instructions provided by their manufacturers. Absolute alcohol and petroleum benzine are inflammable. Take great care when handling them.

(7) Shipping Clamps

The microscope is held tightly by the clamps during shipme
before use. For details, see p. 69.



Shipping Clamps

1 Nomenclature of Each Part

The microscope is made up of the following components.

(1) Basic unit

(2) Eyepieces
Screwed on to the eyepiece tube.

(3) Eyepiece Tube
This is a binocular eyepiece tube. A trinocular eyepiece tube is available for photomicrography and TV microscopy.

(4) Objectives
Objectives with various magnifying powers are available.

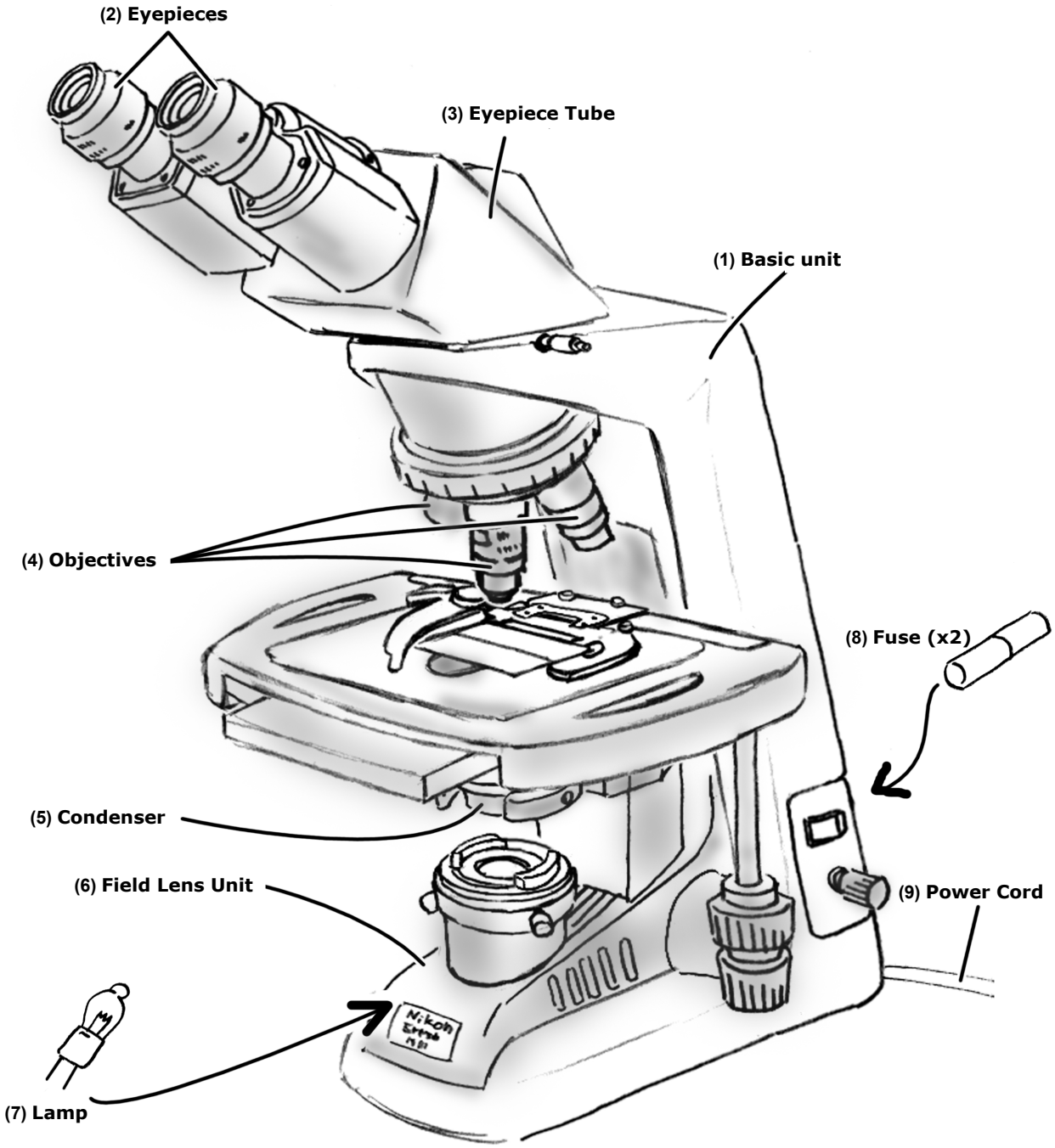
(5) Condenser
Used for condensing light.
The condenser should be positioned slightly lower than its upper limit.
Adjust the aperture diaphragm lever according to the objective.

(6) Field Lens Unit
Draw out the field lens unit when changing lamp.
The microscope may have a field diaphragm. A field diaphragm is used to control the illumination range and should be adjusted according to the objective. (Note that there are two types of microscopes; the one with the field diaphragm, and the one without.)

(7) Lamp
Halogen lamp 6 V-20 W or 6 V-30 W is used.

(8) Fuse
Two 250 V 1A time-lag low-breaking type fuses are used.

(9) Power Cord
Use the power cord provided.


(2) Eyepieces
(3) Eyepiece Tube
(1) Basic unit
(4) Objectives
(8) Fuse (x2)
(5) Condenser
(6) Field Lens Unit
(9) Power Cord
(7) Lamp

2 Switches and Controls

(1) Diopter Ring
Adjust the diopter ring to compensate for the difference between your right and left eyesight. (p. 57)

(2) Revolving nosepiece
Can hold up to four objectives.。

(3) Stage

(4) Specimen holder
Put your finger at the root or the tip tilt of the claw to open the claw. (p. 55, 71)

(5) Condenser aperture diaphragm lever
Set the lever to match the magnifying power of the objective. (p. 59)

(6) Condenser Clamp Screw

(7) Auxiliary lens for the condenser
Screw on to the bottom of the condenser.

(8) Blue filter and the filter holder

(9) Longitudinal stage motion (Y Axis) knob

(10) Lateral stage motion (X Axis) knob
These knobs are located either to the right or the left of the stage.

(11) Field diaphragm ring
Set the ring to match the magnifying power of the objective. (p. 60)
This ring is equipped only on the microscope with a field diaphragm.

(12) Field diaphragm centering screws
Used to center the field diaphragm image. (p. 57)
These screws are equipped only on the microscope with a field diaphragm.

(13) Fine focus knob
Used for focusing. There is no coarse focus knob on the side with the stage motion knobs.

(14) Power switch
When turned to |, power is turned on and the lamp lights.
When turned to "O", power is turned off and the lamp goes off.

(15) Brightness control dial
When turned clockwise, the lamp voltage increases and the viewfield becomes brighter.
When turned counterclockwise, the lamp voltage decreases and the viewfield becomes darker.

(16) Condenser focus knob
Use this knob when focusing the field diaphragm image on the specimen. (p. 57)
The condenser focus knob is located on the opposite side of the stage motion knobs.

(17) Fine focus knob

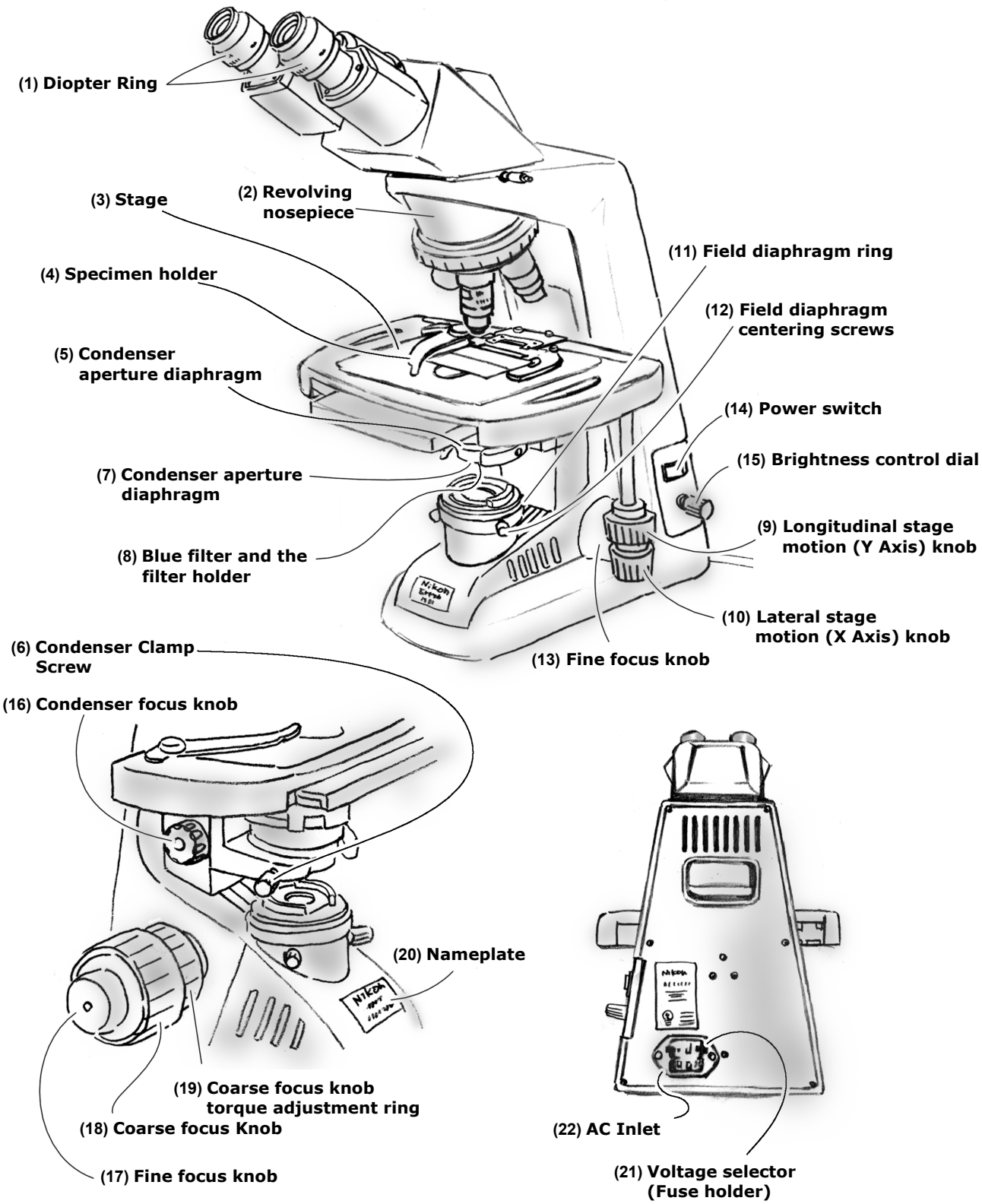
(18) Coarse focus Knob
There are both coarse and fine focus knobs on the opposite side of the stage motion knobs.

(19) Coarse focus knob torque adjustment ring
Used to adjust the tension (torque) of the coarse focus knob. (p. 64)

(20) Nameplate
Indicates the input voltage.

(21) Voltage selector (Fuse holder)
Use this selector to match the input voltage of the microscope to the voltage provided in your region. (p. 68)

(22) AC Inlet
Plug the power cord into this inlet. Make sure that the power switch is off (turned to "O") before plugging the cord in.

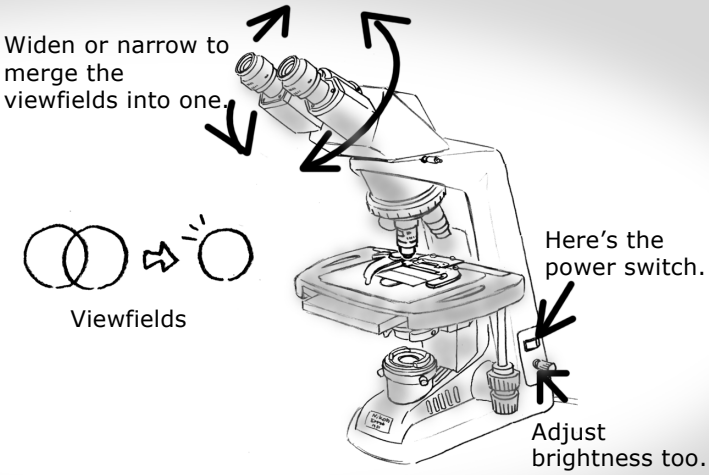

(1) Diopter Ring
(2) Revolving nosepiece
(3) Stage
(4) Specimen holder
(5) Condenser aperture diaphragm
(6) Condenser Clamp Screw
(7) Condenser aperture diaphragm
(8) Blue filter and the filter holder
(9) Longitudinal stage motion (Y Axis) knob
(10) Lateral stage motion (X Axis) knob
(11) Field diaphragm ring
(12) Field diaphragm centering screws
(13) Fine focus knob
(14) Power switch
(15) Brightness control dial
(16) Condenser focus knob
(17) Fine focus knob
(18) Coarse focus Knob
(19) Coarse focus knob torque adjustment ring
(20) Nameplate
(21) Voltage selector (Fuse holder)
(22) AC Inlet

3 A Quick Microscopic Procedure

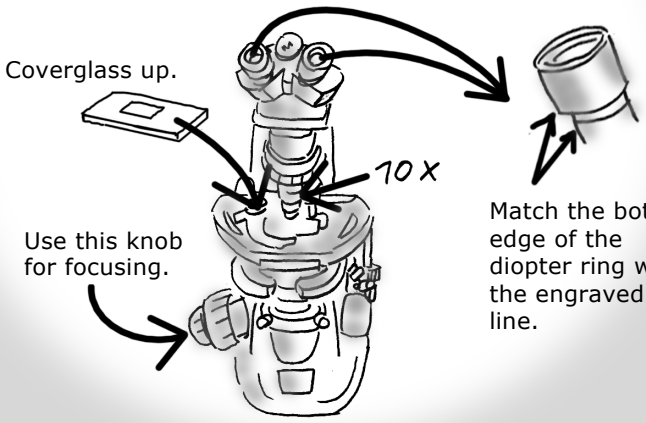
Part 1 For microscopes without a field diaphragm

Start

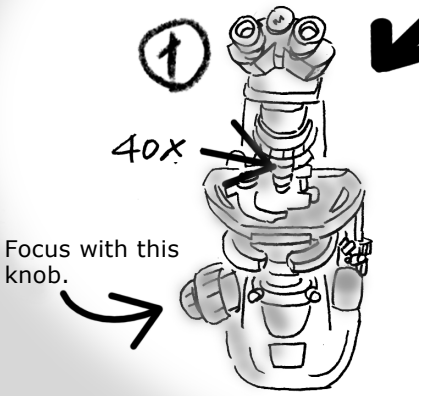
Turn on the lamp and adjust interpupillary distance.



Focus with 10x objective.



Adjust the diopter.



End

Turn off the power.

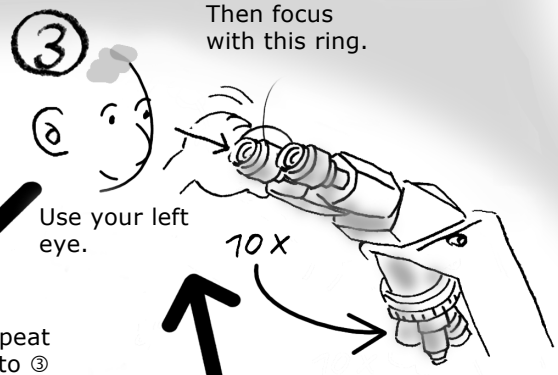
Wait till the microscope cools down before storing.

Check the magnifying power.

Move the lever to the magnifying power of the objective.

Magnify the image and observe!

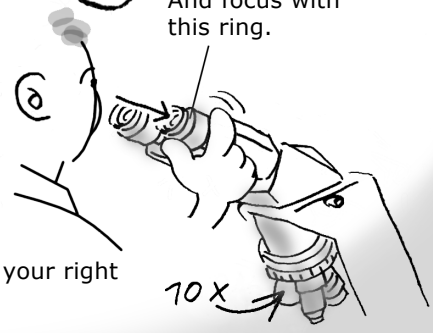
Then focus with this ring.



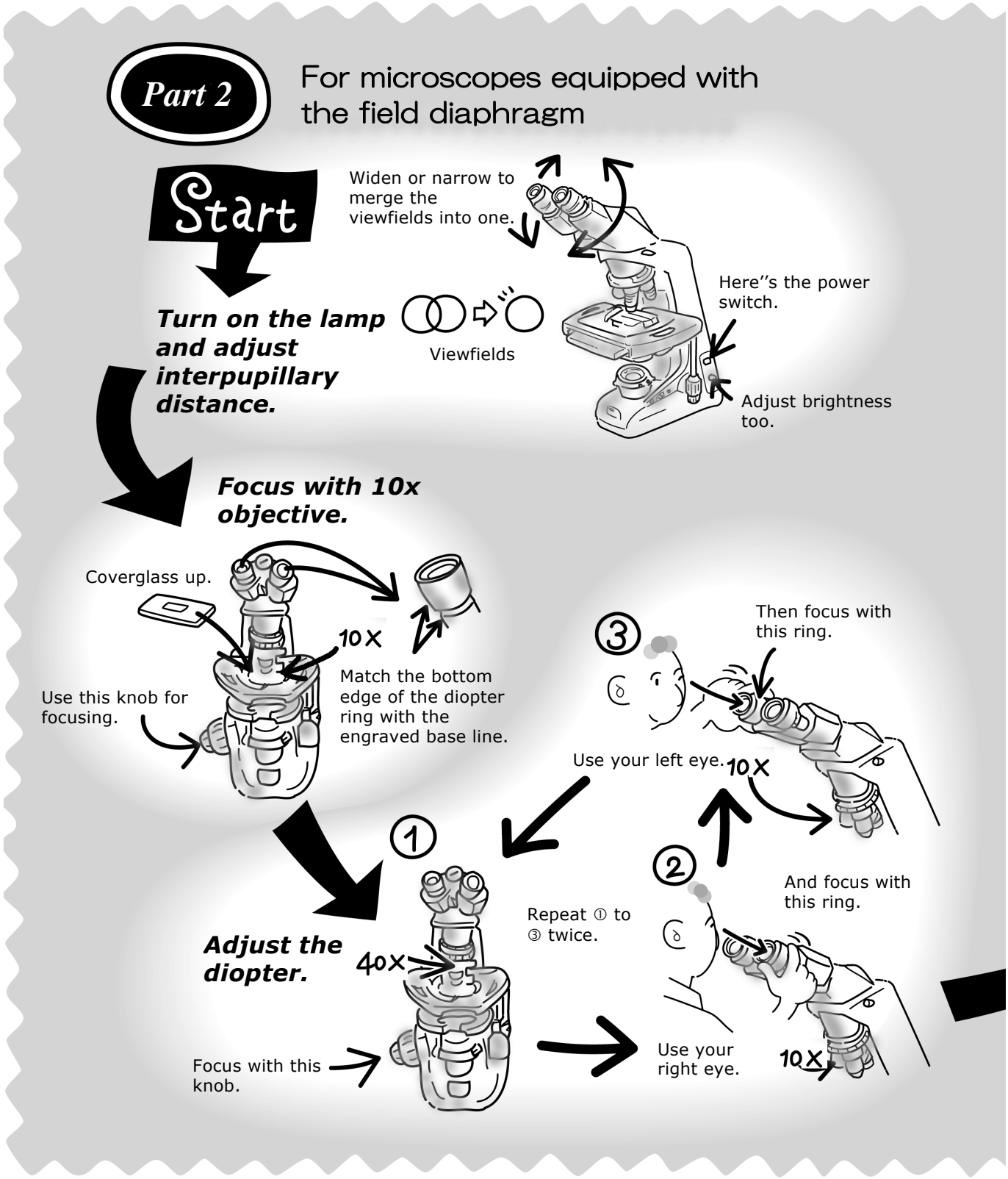
Use your left eye.

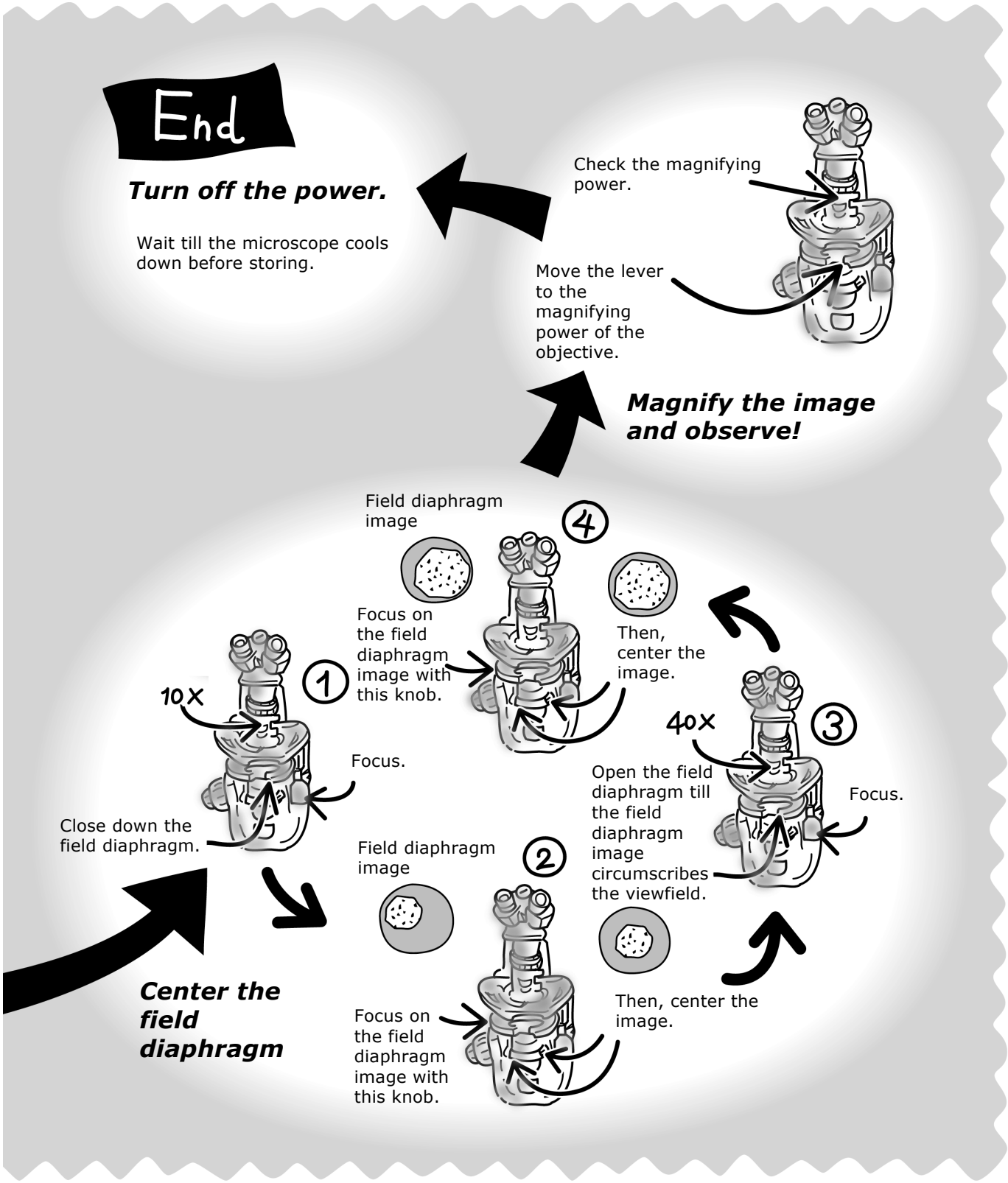
Repeat ① to ③ twice.

And focus with this ring.



Use your right eye.

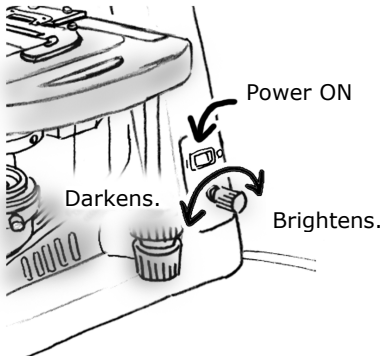

Part 2
For microscopes equipped with the field diaphragm
Start
Widen or narrow to merge the viewfields into one.
Here''s the power switch.
Adjust brightness too.
Viewfields
Turn on the lamp and adjust interpupillary distance.
Focus with 10x objective.
Coverglass up.
10X
Match the bottom edge of the diopter ring with the engraved base line.
Use this knob for focusing.
Then focus with this ring.
Use your left eye.
Repeat ① to ③ twice.
And focus with this ring.
Adjust the diopter.
40X
Focus with this knob.
Use your right eye.


End
Turn off the power.
Wait till the microscope cools down before storing.
Check the magnifying power.
Move the lever to the magnifying power of the objective.
Magnify the image and observe!
Field diaphragm image
4
Focus on the field diaphragm image with this knob.
Then, center the image.
10X
1
Focus.
40X
3
Open the field diaphragm till the field diaphragm image circumscribes the viewfield.
Focus.
Close down the field diaphragm.
Field diaphragm image
2
Center the field diaphragm
Focus on the field diaphragm image with this knob.
Then, center the image.

4 Microscopy (Detailed Procedure)

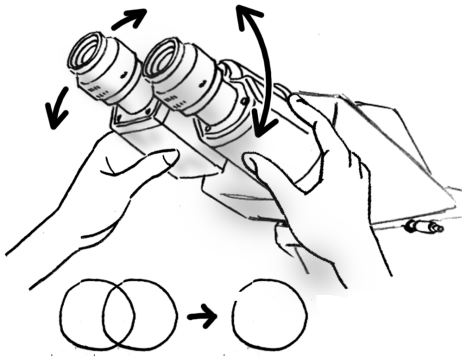
1 Lamp Illumination

Turn on the power switch (turn to |) and the lamp will come on. Turn the brightness control dial to adjust the brightness of the viewfield. (Turning the dial clockwise increases the brightness; turning the dial counterclockwise decreases it.)



2 Interpupillary Distance Adjustment

Adjust the distance between the eyepieces to merge the right and left viewfields into one. (This is an adjustment to match the distance between eyepieces with the distance between your eyes).



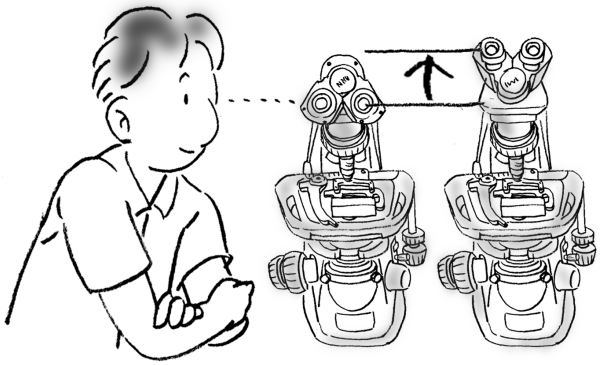
Merge the right and left viewfields into one.

Try !!

Changing the Eye Level

Turn the binocular part of your microscope 180 degrees, and you will get the microscope with higher eye level. *1
If you feel uncomfortable in observing the image due to its size, you may find this convenient.
There is one condition, however, that should be met. Before returning the microscope in the cabinet, put back the binocular part to its original low position. Since left high, the tip of the eyepiece will become the highest point of the microscope and may be damaged easily when bumped against the shelf. In addition, the microscope may be higher than the shelf.
The eye level can be raised even higher (till 50 mm) if an "Eye level raiser (optional)" is installed between the basic unit and the eyepiece tube. See p. 65 for details on the eye level raiser.

*1: When the interpupillary distance is 64 mm, the eye level is raised about 30 mm.



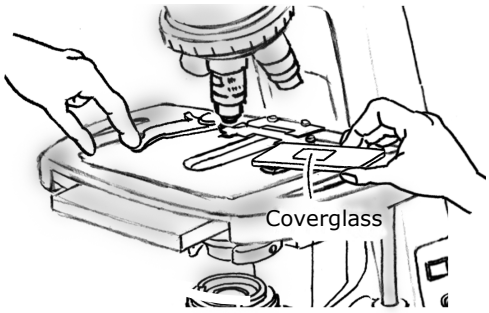
3 Align the Diopter Ring with the Engraved Base Line

Turn the diopter ring on the right eyepiece to align its bottom edge with the engraved base line. Turn and align the diopter ring on the left eyepiece in the same way.

Match the bottom edge of the diopter ring with the engraved base line.

4 Specimen Mounting

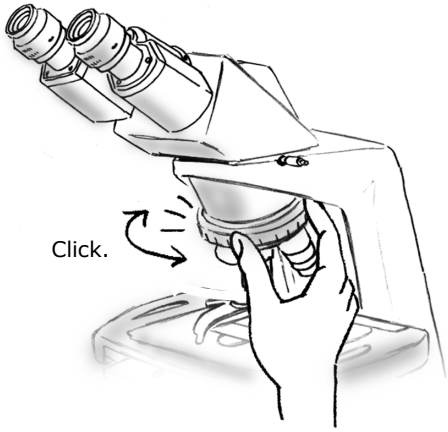
Place specimen slide on the stage with the coverglass facing upward. Open the claw of the specimen holder with your finger at the root or the tip tilt and fix the specimen slide with the claw.

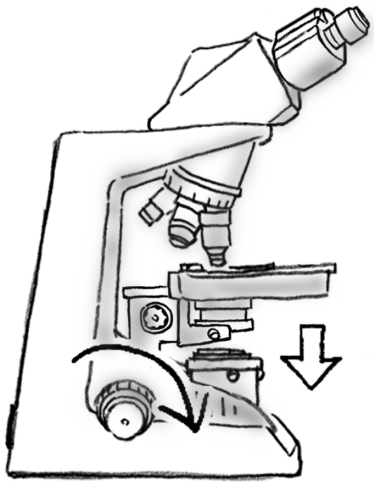


5 Focus with the 10x Objective

Rotate the revolving nosepiece to bring the 10x objective into the optical path. (The objective will click into place when rotated into position.)
Bring the specimen image into focus by turning the coarse focus and then fine focus knob.

- Direction of stage movement relative to focus knob rotation is shown in the figure.
- There is no coarse focus knob on the side with the stage motion knobs. There are both coarse and fine focus knobs on the opposite side of the stage motion knobs.
- Do not turn the right and left focus knobs simultaneously in the opposite directions. Do not turn the coarse focus knob further after the stage has reached its lower or upper limit. These operations could result in a malfunction.





Try !!

Focusing

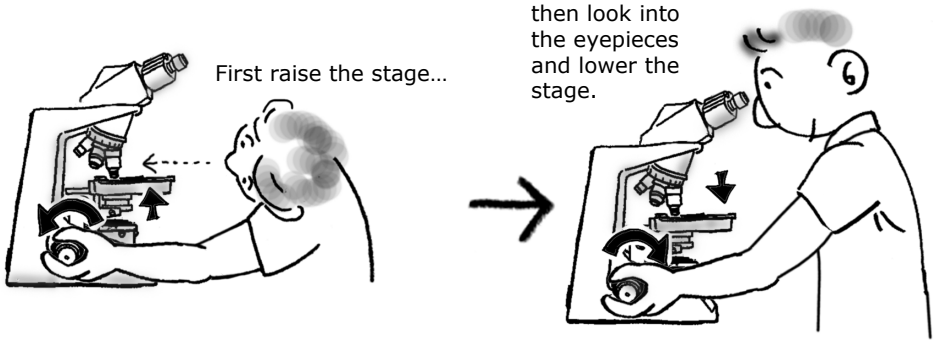
Turning the focus knobs recklessly is a long and hard way to focus on the image. If you are using a high power objective, you may even damage the specimen by pressing it against the objective. Before breaking the coverglasses or damaging the objectives, read the following and find the correct way to focus on the specimen.

(1) Put the 10x (or 4x) objective in the optical path.

(2) Turn the coarse focus knob to raise the stage to its upper limit. *1

(3) Looking into the eyepieces, slowly rotate the coarse focus knob to lower the stage. When the specimen image appears, stop rotating the knob.

(4) Rotate the fine focus knob and precisely focus on the image.
When you want to observe the image with a high power objective, first focus on the image using a 10x (or 4x) objective. Then change to a high power objective and rotate the fine focus knob for precise focusing.



Hints

1. **When rotating the coarse focus knob while looking into the eyepieces, be sure to turn it only in the direction that lowers the stage.**
2. **When raising the stage using the coarse focus knob, take your eyes off the eyepieces and look at the gap between the upper surface of the specimen and the front of the objective from the side.**
3. **First focus with a low power objective. Then change to a high power objective.**

*1: Since the working distances of 10x and 4x objectives are large (p. 75), these objectives do not touch the specimen even when the stage is raised to its upper limit provided that the slide and coverglasses of a standard thickness are used. (The standard thickness for slides is 1.2 mm and that for coverglass is 0.17 mm.)

6 Eyepiece Diopter Adjustments

Adjust the diopter ring on the eyepieces according to the difference between your left and right eyesight. This adjustment enables the user to take full advantage of the high-quality objectives, including their parfocality.

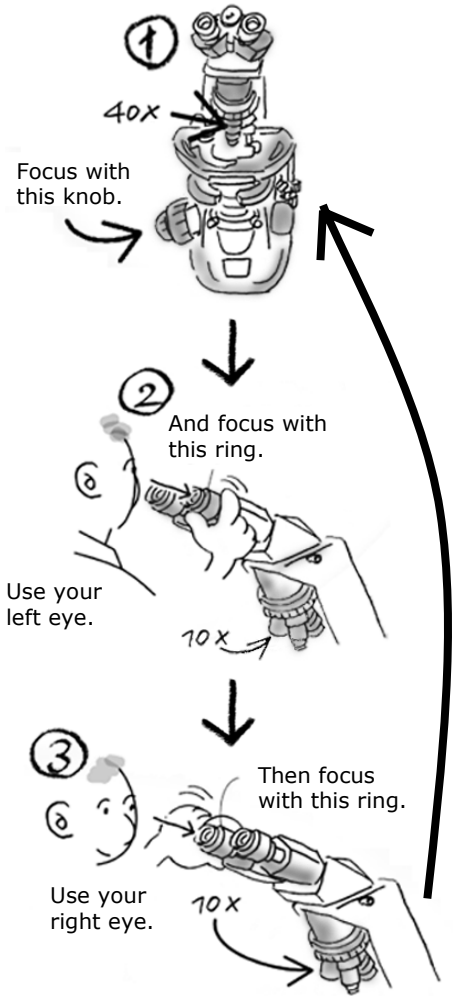
(1) Swing the 40x objective in the optical path. Rotate the coarse and then fine focus knobs to bring the specimen in focus.

(2) Switch back to the 10x (or 4x) objective. While looking into the right eyepiece with your right eye, focus on the specimen by rotating the right diopter ring and not using the focus knob.

(3) While looking into the left eyepiece with your left eye, focus on the specimen by rotating the left diopter ring and not using the focus knob.

(4) Repeat the steps ① to ③.

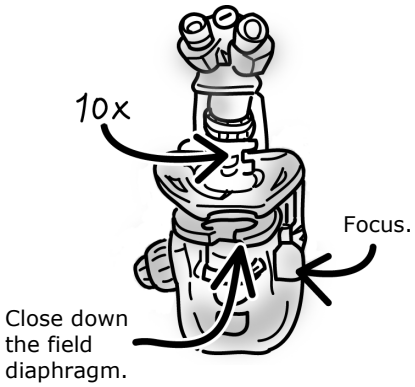
* The next procedure is for microscopes equipped with field diaphragm. If the microscope does not have a field diaphragm, confirm the position of the condenser and skip to procedure 8. (The condenser should be a little lower than its highest position.)



7 Field Diaphragm Centering and Focusing (for microscopes with the field diaphragm)

The field diaphragm is used to limit the specimen's illuminated area to the size of the viewfield. If off-centered, its image will also be off-centered in the viewfield especially when closed down. Follow the steps below to match the centers of the viewfield and the field diaphragm image.

(1) Swing the 10x (or 4x) objective in the optical path. Close the field diaphragm to its minimum aperture by rotating the field diaphragm ring.



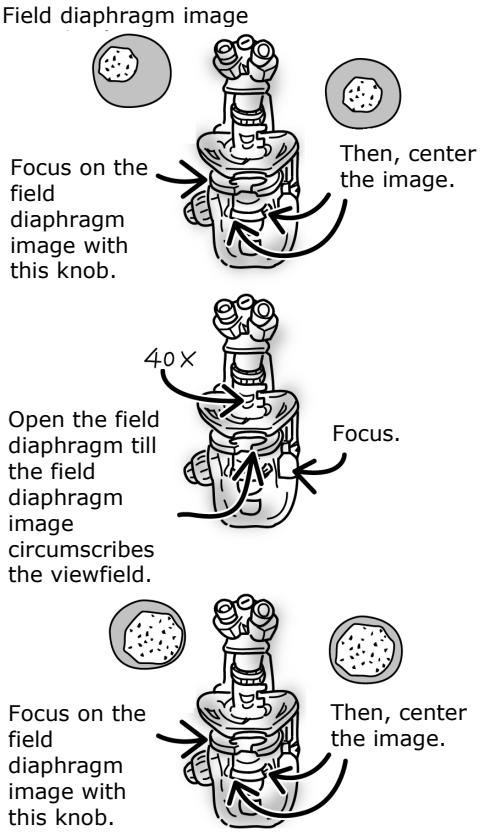
(Continued on the following page)

(2) While looking into the eyepieces, rotate the condenser focus knob to focus the field diaphragm image on the specimen surface. (Focus on the edge of the diaphragm image.)

(3) Rotate the field diaphragm centering screws until the field diaphragm image comes to the center of the viewfield.

(4) Switch to the 40x objective and rotate the field diaphragm ring so that the field diaphragm image becomes about the same size as the viewfield.

(5) If the field diaphragm image is not centered, use the centering screws again.

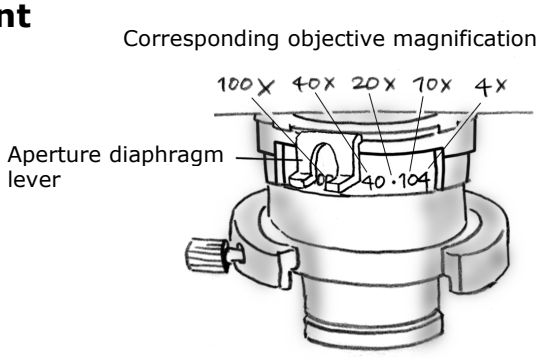


8 Objective Selection

Rotate the revolving nosepiece to the desired objective magnification. (The objective will click into place when rotated into position.)
Adjust the aperture diaphragm lever according to the selected objective. If the microscope is equipped with a field diaphragm, also adjust the size field diaphragm (see the procedures 9 and 10).

9 Aperture Diaphragm Adjustment

Set the condenser aperture diaphragm lever to the same figure as the magnification of the objective in the optical path.



Try !!

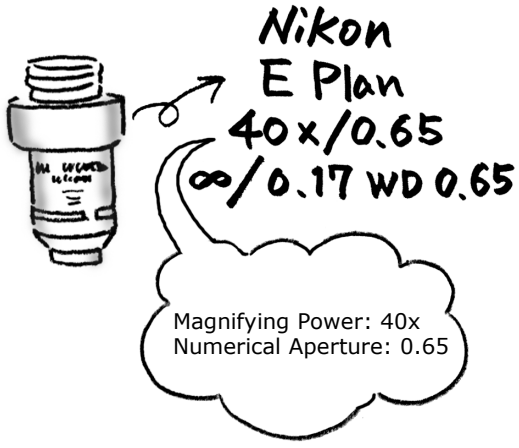
Adjusting the Aperture Diaphragm

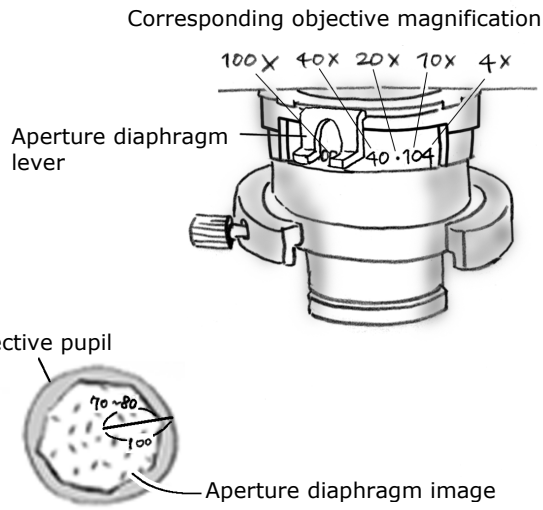
The aperture size is increased or decreased by rotating the condenser aperture diaphragm lever. If the aperture diaphragm is closed, the brightness and resolution are decreased but the contrast and range of focus are increased. If the aperture diaphragm is opened, the brightness and resolution are increased but the contrast and range of focus are decreased.

Generally, a good image of sufficient contrast can be achieved with the aperture diaphragm closed to approximately 70% - 80% of the objective's numerical aperture. Since the image resolution will be degraded when the aperture diaphragm is closed too much, do not close the aperture diaphragm to less than 60% of the objective's numerical aperture except when observing a specimen with low contrast, such as a near-transparent specimen.

The aperture diaphragm controls the numerical aperture of the illumination. Do not use it to control brightness. Use the brightness control dial to control the brightness.

- **The objective's numerical aperture is indicated on the side of the objective. 40x / 0.65 = magnifying power 40x, numerical aperture 0.65**
- **To observe the diaphragm image, remove the eyepiece and look down the open tube. (The eyepiece is fastened to the eyepiece tube. Loosen the screw before removing the eyepiece.)**
- **The figures on the condenser show the approximate positions of the aperture diaphragm lever corresponding to each objective magnification. (When the aperture diaphragm lever is moved to that position, the size of the aperture diaphragm will be 70% - 80% of the objective's numerical aperture.) Each time you switch the objective, align the aperture diaphragm lever to the same figure as the magnifying power of the objective to get a good image with sufficient contrast.**





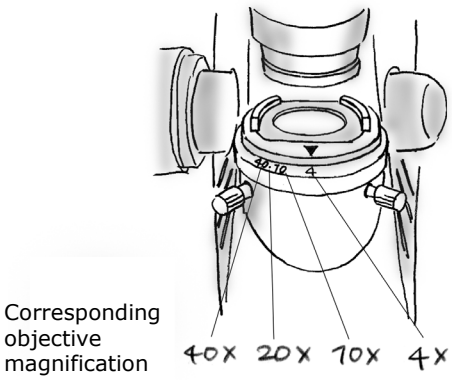
The appropriate size of the aperture diaphragm

* The next procedure 10 is for the microscopes with field diaphragms. If the microscope does not have a field diaphragm, skip to procedure 11.

10 Field Diaphragm Adjustment (for microscopes with the field diaphragm)

The field diaphragm is used to control the specimen's illuminated area relative to the microscope's viewfield. If it is opened to a larger aperture than necessary, extraneous light will enter the viewfield, which may reduce the image contrast. Every time you change the objective magnifications, rotate the field diaphragm ring until the diaphragm just leaves the viewfield.

- The figures around the field diaphragm show the approximate positions for field diaphragm ring corresponding to each objective magnification when 10x eyepieces are used.
- For 100x objectives, the field diaphragm cannot be closed enough.



Try!!

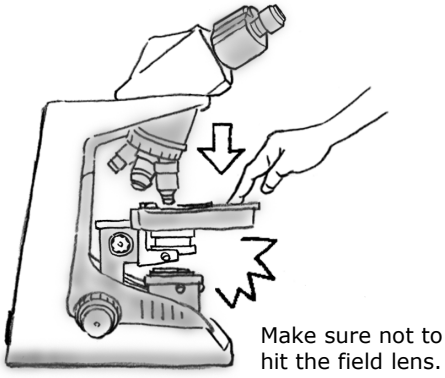
Replacing a Specimen Using the Refocusing Mechanism

Try focusing on the specimen with 40x or higher magnification objective. You will find the specimen is brought very near to the objective.[*1] It will be very difficult to change the specimen without moving the focus knob. In a case like this, use the refocusing mechanism for easy specimen replacement.

(1) Use one hand to gently press down the stage.[*2]

(2) While holding the stage at that position, change the specimen.

(3) Gradually release the stage so that it rises slowly. The stage will return to the focal position.



*1 : The distance between the front of the objective and the specimen when the specimen is in focus is called the "working distance" of the objective. For details, see p. 74.

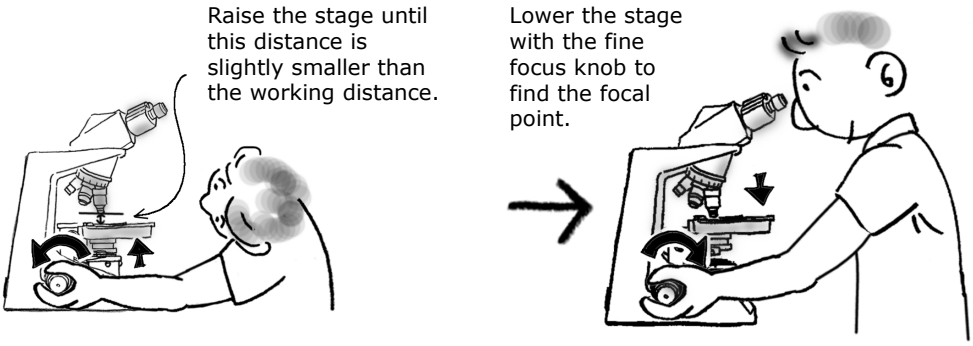
*2 : When lowering the stage, take great care not to hit the field lens with the condenser and the parts under the condenser

Try!!

Using the Working Distance for Focusing

Each objective has its working distance indicated on its side. The working distance is the distance between the front of the objective and the specimen when the specimen image is in focus. If you have difficulties in focusing with the standard procedure described on p. 56, try one of the following methods using the working distance for focusing.

Method 1:
While looking at the microscope from the side, rotate the coarse focus knob to bring the specimen close to the objective. When the distance between the specimen and the front of the objective becomes slightly smaller than the working distance, take your hands off the coarse focus knob. The specimen is now almost in focus. Look into the eyepieces and rotate the fine focus knob in the direction that lowers the stage.



Method 2:
Swing the 40x objective into the optical path. While looking at the microscope from the side, rotate the coarse focus knob until the specimen almost touches the objective (about 0.5 mm apart from the front of the objective). The specimen is now almost in focus. Switch to the 10x objective, look into the eyepieces, and rotate the fine focus knob slightly to find the focal point. Be careful not to hit the objective with the specimen.

11 Turning Off the Lamp

Turning off the power switch (turn to "O") switches off the lamp.
When storing the microscope:

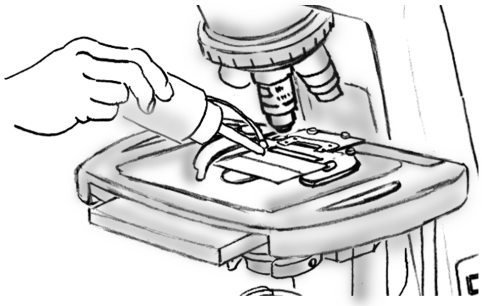
- Unplug the power cord.
- Wait until the field lens unit is cool enough to touch.
- Return the binocular part to its lowest position.
- Cover the microscope with the vinyl dust cover. (Before covering the microscope, make sure that the field lens unit is cool enough to touch.)
- When carrying the microscope, hold it at its upper rear and lower front ends.

5 Miscellaneous Operations

1 Oil-Immersion Observation

The "Oil" mark on the side of an objective indicates that it is an oil-immersion type objective. (The oil-immersion objective also has a black band around the barrel end.) An oil-immersion objective is used with the immersion oil applied between the front of the objective and the coverglass. For an oil-immersion objective with a numerical aperture of 1.0 or more, use of an oil-immersion type condenser is required to take full advantage of its performance. An oil-immersion type condenser, like an oil-immersion type objective, needs immersion oil to be applied between the front of the condenser and the coverglass.
The abbe condenser included in the bright viewfield set can be used for oil immersion observation. The condenser has an oil receptacle around its front lens.

● Example of Oil-Immersion



Condenser:
Move the specimen toward the back and lower the condenser slightly. Add a drop of oil on the front of the condenser from the long hole on the stage. Bring the specimen back over the condenser and slowly raise the condenser.

Objective:
Rotate the revolving nosepiece to move the objective out of position. Add a drop of oil to the specimen. Slowly rotate the revolving nosepiece to bring the objective back into position.

● Eliminate Air Bubbles

Make sure that air bubbles are not trapped during oil application. Air bubbles degrade the image. To see if any air bubbles are trapped in the oil, remove one eyepiece and fully open the aperture diaphragm (and field diaphragm, if the microscope has the field diaphragm). Look into the eyepiece tube and check the objective pupil (a bright round part). If you cannot see it well, replace one of the eyepieces with the adapter and the centering telescope (both optional) and look through the eyepieces of the centering telescope while rotating the eyepiece part of the centering telescope.
Do any of the following to eliminate air bubbles:

- Rotate the revolving nosepiece to move the objective back and forth.
- Gently rotate the condenser focus knob to move the condenser up and down.
- Add another drop of oil.
- Wipe off the oil and apply again.

● Handling of the Immersion Oil

Use a minimum quantity of oil. If too much oil is applied, surplus oil could flow out onto the stage and the condenser and degrade performance.
After completing oil-immersion observation, be sure to clean the objective, condenser, and any other parts that may be stained by oil. Any oil residue left on the lenses of oil-immersion type objectives or adhesion of oils on the front lens of dry type objectives will degrade image quality.
Use petroleum benzine to wipe off oil and finish with absolute alcohol (ethyl or methyl alcohol). If petroleum benzine is not available, use methyl alcohol instead. In that case, wipe off the oil several times (generally 3 or 4 times) as the detergency of methyl alcohol is weaker than petroleum benzine.

WARNING

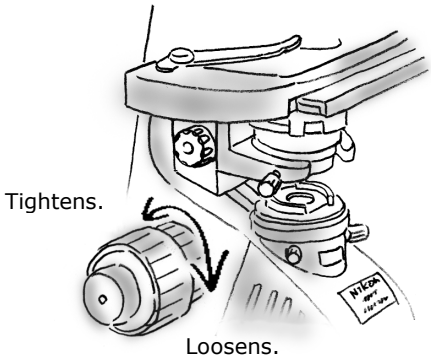
When handling petroleum benzine and absolute alcohol, be sure to follow the instructions provided by the manufacturers. Since they are highly flammable take great care when handling them.

● Cautions on Handling the Immersion Oil

- Close the container cap tightly after use. Make sure that the cap is closed tight after refilling the container. Check the cap periodically to make sure it has not come loose, allowing oil to leak out.
- Do not press the container hard. Oil could splash out.
- If you find an oil drips around the container, wipe them off.
- Avoid contact of immersion oil with eyes or skin. In the event of contact with eyes or skin, take one of the following measures although Nikon immersion oil does not contain any toxic ingredients.
  - ◊ **Contact with skin: Rinse your skin thoroughly with soap and water.**
  - ◊ **Contact with eye: Rinse your eye thoroughly with water (more than 15 minutes) and see a doctor.**
- Do not leave immersion oil in the sun (ultraviolet rays can damage it).

2 Adjusting the Torque of the Coarse Focus Knob

The tension (torque) of the coarse focus knob rotation can be adjusted. To increase the tension, turn the coarse focus knob torque adjustment ring counterclockwise. The torque adjustment ring is located at the back of the coarse focus knob. To decrease the tension, turn the ring clockwise. Do not decrease the tension too much. If it is too loose, the stage will fall under its own weight.



3 Upper Limit Bolt

The upper limit bolt is used to prevent the specimen touching the objective when a 40x or larger-power objective (objectives with a small working distance) is used. Using the upper limit bolt, the stage does not move up from a certain position. Attach the bolt as follows.

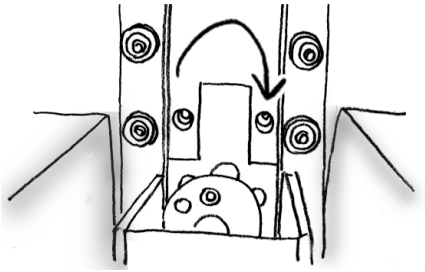
(1) Bring an objective with 40x or larger power into the optical path. Focus on the specimen.

(2) Lower the stage to slightly below the position set in step (1).

(3) Remove the field lens unit.

(4) A hexagonal socket head bolt is located in the left hole at the lower part of the focusing mechanism. Remove the bolt using a supplied hexagonal wrench and screw it into the right hole.

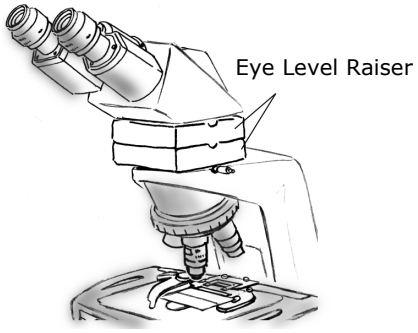
Move the bolt from the left to the right hole.



Note: The upper limit bolt may not work well depending on the thickness of the specimen or the microscope itself. The specimen may touch the 40x objective or the stage may be stopped by the limit before the specimen image is in focus. Check that the bolt works before relying on it.

4 Eye Level Raiser

The eye level raiser (optional) adjusts the height of the eyepiece tube according to the eye level of the user. Install the eye level raiser between the basic unit and the eyepiece tube. One eye level raiser is 25 mm high. You can use up to two raisers – this raises the eyepiece tube by 50 mm. Use a hexagonal wrench (nominal size 2) for M4 set screws to install the raisers.

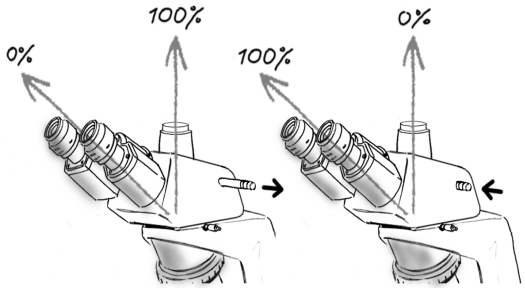


5 Photomicrography and TV Microscopy

The microscope ECLIPSE E200 can be used for photomicrography and TV microscopy.
For those observations, trinocular eyepiece tube, photomicrographic equipment, TV vertical tube, and C-mount CCTV camera (optional) are available. Read the manuals provided with these devices for installation and operating conditions.
Eyepiece tubes and relay lenses come in various types. For details, ask your nearest Nikon representative.

● Trinocular Eyepiece Tube

Push or pull the optical-path selection lever to adjust the amount of light sent to the binocular part and the vertical tube.
The eyepiece tubes for the ECLIPSE E400 and E600 can be also used for the E200.



Distribution of Light for
Trinocular Eyepiece Tube (Example)

● Vertical Tube Adapters

When installing the photomicrographic equipment and TV camera on the vertical tube of the trinocular eyepiece tube, vertical tube adapters are required in-between. For details, ask your nearest Nikon representative. Typical combinations are shown below.

- Photomicrographic equipment: Use the TV vertical tube and the photomicrographic vertical tube adapter.
- C-mount CCTV camera: Use the TV vertical tube and the direct C-mount adapter. The relay magnification is 1x.
- Digital still camera: Use the TV vertical tube and the direct C-mount adapter. Use the relay lens for the C-mount adapter, as necessary.

● TV Relay Lenses

For the C-mount CCTV camera, 0.6x, 0.45x and 0.35x relay lenses are available. Select the magnification of the relay lens according to the size of the photographic element. When a 3CCD TV camera is used with some relay lenses, the colors of the video image may blur. For details, ask your nearest Nikon representative.

● Color Tone

The color tone of the light from the lamp varies with the position of the brightness control dial. If the dial is turned clockwise and the voltage is increased, the light has a bluish tone. If the voltage is reduced, the light has a reddish tone.
Attach the provided blue filter to the bottom of the condenser and check the color tone of the specimen.

● Uneven Viewfield Brightness

When a 4x objective is used for the photomicrographic equipment or digital still camera, the viewfield may look partially dark. Make the brightness of the viewfield uniform using one of the following methods.

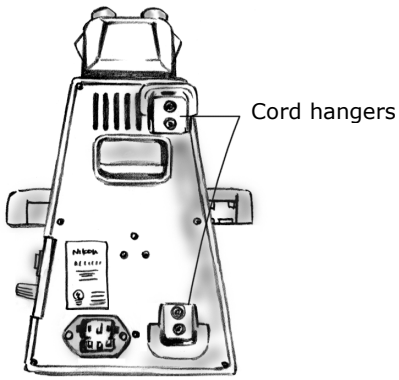
- **Lower the condenser.**
  Slightly lower the condenser to take more space between the specimen and the condenser. If the microscope is equipped with a field diaphragm, the field diaphragm image may blur slightly.
- **Use a phase-contrast condenser and diffuser slider (both optional).**
  Attach the phase-contrast condenser and the diffuser to the microscope. When the diffuser is inserted into the optical path, the amount of light will drop to about 60% of its initial value. Also, you will not be able to see the field diaphragm in the viewfield.

6 ND Filter for the Objective

When observing the specimen with 10x and 40x objectives in turns, placing an ND3 filter (specially designed for objectives; optional) to the rear end of the 10x objective will facilitate the observation. With the ND filter attached, you will have the same brightness and color tones for both 10x and 40x objectives without adjusting the brightness control dial.

7 Cord Hangers

Push the cord hangers (optional) into the holes on the rear of the microscope. The hangers can be used for winding the power cord around when the microscope is not in use. To remove the hangers, use a screwdriver.



6 Assembly

Read the " Safety Precautions" in this manual before assembling the microscope. Be sure to follow the instructions written therein. Also, make sure that the power switch is off (turned to "○") before assembly to prevent electrical shock.

Tools Required for Assembly

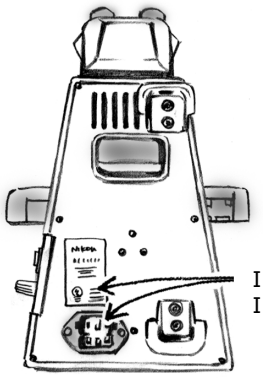
Hexagonal wrench (one hexagonal wrench is provided with the microscope), flatblade screwdriver

1 Assembly of Standard Set

1 Input Voltage Check

The input voltage is indicated in two places at the rear of the microscope: on the nameplate and above the AC inlet. Confirm that these input voltage indications correspond to the voltage provided in your region. If not, follow one of the instructions below. The use of microscopes with the different input voltage indications will cause overcurrent and overheating, which may result in fire or severe damage to the microscope.

- **If the voltage indication on the nameplate differs:**
  Do not plug in the microscope. Contact your nearest Nikon representative.
- **If the voltage indication above the AC inlet differs:**
  Change the input voltage setting before turning on the power switch.
  - For the microscope with the nameplate showing [100/110/120 V ~]:
    The voltage can be set to: AC 100 V, 110 V or 120 V.
  - For the microscope with the nameplate showing [220/230/240 V ~]:
    The voltage can be set to: AC 220 V, 230 V or 240 V.



- **Changing the Voltage Setting**

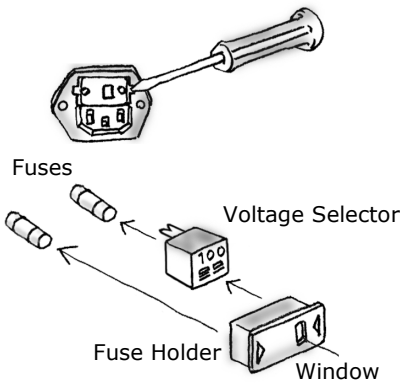
  (1) Turn off the power switch (turn to "○") and unplug the power cord.

  (2) Remove the fuse holder using the flatblade screwdriver.

  (3) Remove two fuses and the voltage selector from the fuse holder.

  (4) Attach the voltage selector to the fuse holder so that the indication of the voltage provided in your region appears in the window of the fuse holder.

  (5) Put the fuses and the fuse holder back in place.



2 Removal of Shipping Clamps

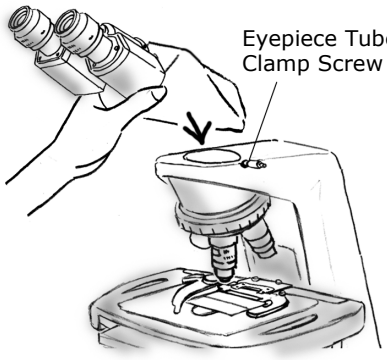
The stage top plate and focusing mechanism are clamped for protection against vibration and shocks during transportation. Remove these shipping clamps with the hexagonal wrench provided.

- **Stage Top Plate:**
  The top plate of the stage is retained in the Y-axis direction by a plate fastened with two bolts. Remove the bolts and the plate.

- **Focusing Mechanism:**
  Remove the field lens unit to expose a plate retaining the vertical movement of the focusing mechanism. The plate is fastened with 3 bolts. Remove the bolts and the plate.

3 Installing the Eyepiece Tube

Loosen the eyepiece tube clamp screw by hand and place the eyepiece tube on the circular dovetail mount. Tighten up the eyepiece tube clamp screw by hand.



4 Connecting the Power Cord

Turn off the power switch of the microscope (turn to "○"). Connect one end (socket) of the supplied power cord to the AC inlet on the rear of the microscope. Connect the other end (plug) to an AC line receptacle with the ground conductor (earth conductor). Make sure that the power cord is securely connected.

- Note that the microscope should be installed near the AC line receptacle and the AC line receptacle should be placed within your reach.
- Use the power cord provided. The use of other cords may damage the instrument or cause a fire hazard.
- If using an extension cord, use only a cord that includes a protective earth (PE) wire.

This completes the assembly of the microscope standard set.

2 Assembly of Additional Components

1 Condenser

The condenser is attached to the microscope before shipment.
When removing or replacing the condenser, follow the procedure below.

(1) Lower the condenser holder to its full limit by rotating the condenser focus knob.

(2) Screw in the auxiliary lens to the bottom of the condenser.

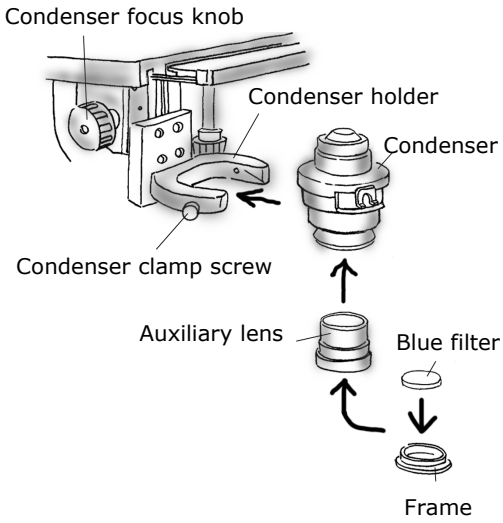
(3) Slide the condenser into the condenser holder.

(4) Position the condenser with its nameplate facing front. Tighten the condenser clamp screw located to the left.

(5) Raise the condenser holder to its full limit by rotating the condenser focus knob.

(6) Place the blue filter in the frame provided and insert them into the bottom of the condenser.

(7) Focus the condenser so that light passing through the condenser focus the image on the correct position of the specimen (center of the optical path).



- **Microscopes without the field diaphragm**
  Rotate the condenser focus knob to raise the condenser to its full limit and then slightly lower it to the position where the diffuser image can no longer be seen in the viewfield.

- **Microscope with the field diaphragm**
  (7-1) Focus on the specimen with the 10x objective.

  (7-2) Close the field diaphragm to its minimum aperture by rotating the field diaphragm ring.

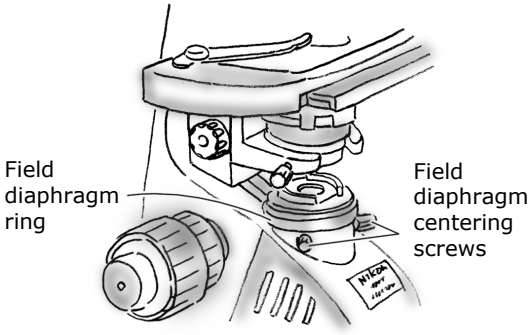
  (7-3) Focus the field diaphragm image on the specimen surface by rotating the condenser focus knob.

  (7-4) Center the field diaphragm image in the viewfield of the eyepiece by manipulating the centering screws.

  (7-5) Change to the 40x objective and focus on the specimen by rotating the fine focus knob.

  (7-6) Focus the field diaphragm image on the specimen surface by rotating the condenser focus knob.

(7-7) Center the field diaphragm image in the viewfield of the eyepiece by manipulating the centering screws. Centering is easier to perform if the size of the field diaphragm image is adjusted so that it is slightly smaller than the viewfield.



2 Objectives

Objectives are attached to the microscope before shipment.
When replacing an objective, remove the specimen from the stage and lower the stage. Remove the objective holding it with both hands. Be careful not to drop the objective.
Screw a new objective into the revolving nosepiece. Set the objectives in such an order that the objective magnification increases as the revolving nosepiece is turned clockwise (as viewed from the top of the microscope).

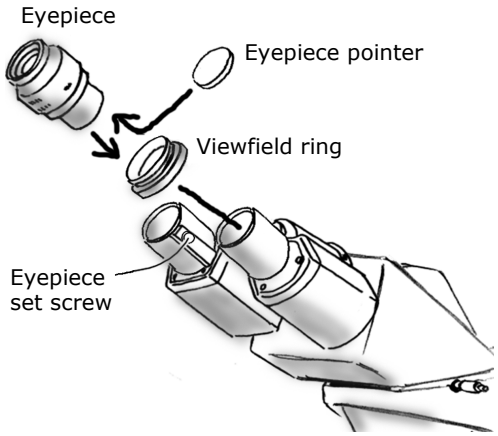
3 Specimen Holder

The specimen holder is attached to the stage before shipment.
When removing the holder, loosen the two hexagonal socket head bolts furthermost from the specimen using the hexagonal wrench provided.

4 Eyepiece and Eyepiece Pointer

The 10x eyepieces are attached to the eyepiece tube before shipment. When removing an eyepiece, loosen the eyepiece set screws using the hexagonal wrench provided and then remove the eyepiece. When attaching an eyepiece, push the eyepiece down to its full limit and tighten up the set screw. Be careful not to tighten too hard.
When changing to a 15x eyepiece (optional), be sure to change both the right and left eyepieces together. The right and left eyepieces should be of the same magnification.

The eyepiece pointer (optional) serves as a reference for pointing out the specimen. Attach the pointer to one of the eyepieces. Rotate and remove the viewfield ring from the eyepiece end. Attach the eyepiece pointer to the eyepiece and then put back the viewfield ring.



5 Other Accessories

For installation of other accessories such as the photomicrographic equipment, see the manual provided for each product.

3 Replacement of Consumable Materials

1 Replacing the Lamp

WARNING

- **To avoid electrical shock or damage to the instrument, turn off the power switch (turn to "O") and unplug the power cord before lamp replacement.**
- **Use the specified lamp. Using a different kind of lamp may damage the instrument or cause a fire hazard.**

  Specified Lamp: Halogen lamp 6V-20W (PHILIPS 7388 or OSRAM HLX 64250) or Halogen lamp 6V-30W (PHILIPS 5761)

CAUTION

- **The lamp is hot when in use. To avoid burn injury, turn off the microscope and wait at least 30 minutes (until the lamp is cool enough to touch) before attempting to change the lamp.**
- **Make sure that the contacts of the lamp and socket are not damaged before installing a new lamp. If the contacts are damaged, they may cause poor illumination or overheating.**
- **Insert the lamp's contact pins fully into the socket holes. If the pins are loose, the lamp could come loose or result in a contact failure, which will cause overheating or smoke.**
- **Be sure to put the field lens unit back in place after replacing the lamp. Never turn on the lamp without the field lens unit.**
- **Do not touch the glass part of the lamp using your bare hands. Wear gloves or use a cloth when handling the lamp to protect the surface from fingerprints. Wipe off any fingerprints or stains using a clean cloth moistened with alcohol. Fingerprints will etch into the hot surface of the lamp and reduce the brightness, damage the lamp or reduce its service life.**
- **Handle the lamp gently. Shocks and vibrations will damage the lamp or reduce its service life.**
- **Do not break the used lamps ; instead dispose of them as special industrial waste or according to the laws applicable to your municipal waste system.**

3 Replacement of Consumable Materials

(1) Turn off the power switch (turn to "○") and unplug the power cord.

(2) Wait about 30 minutes until the lamp and its surroundings are cool enough to touch.

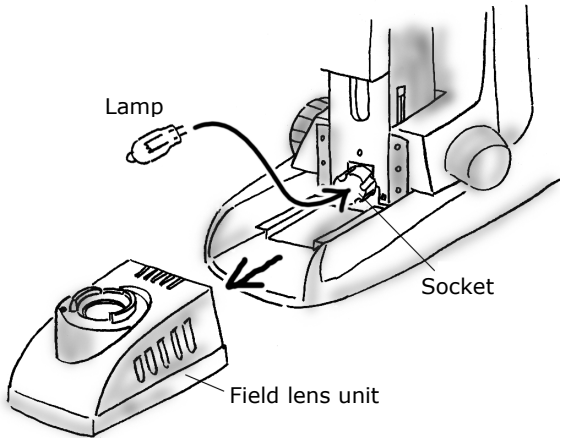
(3) Hold the field lens unit at the vertical grooves on both sides and pull it toward you to remove it.

(4) Remove the old lamp.

(5) Hold a new lamp wearing gloves or using a cloth. Insert the lamp's contact pins fully into the socket holes straight and securely.

(6) Put the field lens unit back in place.

(7) Plug the power cord.



2 Replacing the Fuse

WARNING

- **To avoid electrical shock or damage to the instrument, turn off the power switch (turn to "O") and unplug the power cord before replacing the fuse.**
- **Use the specified fuse. Using a different fuse may damage the instrument or cause a fire hazard.**

  Specified Fuse: 250V 1A, time-lag, low-breaking type, 5x20 miniature fuse x2

CAUTION

- **Make sure that the contact of the fuse is not damaged before installing a new fuse. If the contact is damaged, a malfunction or overheating may result.**
- **Attach the fuse to the fuse holder securely. If not, the fuse may come loose or a contact failure may occur, resulting in overheating or smoke.**
- **Put back the fuse holder securely to its original position.**

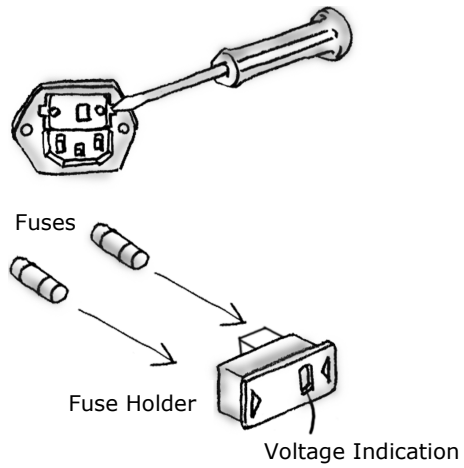
(1) Turn off the power switch (turn to "O") and unplug the power cord.

(2) Remove the fuse holder using a flatblade screwdriver.

(3) Remove the fuses and attach new fuses.

(4) Make sure that the voltage indication shown in the window of the fuse holder corresponds to the voltage provided in your region. If not, change the voltage setting by relocating the voltage selector. For details, see P.68.

(5) Put the fuse holder back in place.



7 Optical Characteristics

1 Combinations of 10x (Field No. 20) Eyepiece with E-Plan Objectives

Objective Magnification	Total Magnification	Numerical Aperture	Real Viewfield	Depth of Focus	Resolving Power	Working Distance
4×	40×	0.1	5 mm	63.2 μm	2.8 μm	30 mm
10×	100×	0.25	2 mm	10.1 μm	1.1 μm	7 mm
40×	400×	0.65	0.5 mm	1.2 μm	0.4 μm	0.65 mm
100×	1000×	1.25	0.2 mm	0.4 μm	0.2 μm	0.23 mm

2 Microscope Terminology

(1) Total Magnification

The total magnification of a microscope is the individual magnifying power of the objective multiplied by that of the eyepiece.

(2) Numerical aperture (N.A.)

The numerical aperture is an important factor in determining the efficiency of the condenser and objective. It is represented by the formula:

$$\text{N.A.} = n \sin \alpha$$

where n is the refractive index of the medium (air, immersion oil, etc.) between the objectivelens and the specimen or condenser, and α is half of the maximum angle at which light enters or leaves the lens from or to a focused object point on the optical axis.

The larger the numerical aperture the brighter the image and the higher the resolution.

(3) Resolving Power

The ability of an optical system to discriminate between two discrete objects separated by a minute distance. The more minute the distance, the higher the resolving power of the optical system. In relation to the numerical aperture, the resolving power is represented by the following formula:

$$\text{Resolving power} = \frac{\lambda}{2 \times \text{N.A.}}$$

where λ is the used wavelength of light. (The resolving power in the above table is indicated for $\lambda = 0.55\mu$m.)

(4) Working Distance (W.D.)

The clearance between the front of the objective and the upper surface of the coverglass, when a specimen image is sharply focused. Generally, the higher the magnifying power of the objective, the shorter the working distance.

(5) Field Number of the Eyepiece

The diameter of the opening of the fieldstop inside the eyepiece measured in mm. When an eyepiece has an indication of "10x / 20", it means that the magnification is 10x and the field number is 20 for that eyepiece.

(6) Real Viewfield

The diameter in mm of the field of view observable through the eyepiece.
Real viewfield = field number of eyepiece / magnification of objective

(7) Depth of Focus

The depth (thickness) of the specimen image in focus, extending above and below the focused image plane. The larger the N.A. of the objective, the shallower the depth of focus.

$$\text{Depth of focus } (\mu\text{m}) = \frac{n\lambda}{2 \times \text{N.A.}^2} + \frac{n}{7 \times M \times \text{N.A.}} \times 1000$$

Above is an approximation assuming the resolving power of an eye as 2 minutes. λ is the wavelength of light used. (The depth of focus in the table on P.75 is indicated for λ = 0.55μm.)
n is the refractive index of a medium between the objective lens and the specimen or condenser. (n = 1, when the medium is air, and n = about 1.5 when the medium is oil.)
M is the total magnification (= the individual magnifying power of the objective x that of the eyepiece).

8 Troubleshooting Tables

If difficulties should be encountered in the course of operation, please recheck the symptoms, referring to the tables below, before contacting your nearest Nikon representative.

1 Optical

Darkness at the periphery, no viewfield seen, or uneven viewfield brightness.

Causes	Corrective Measures
Revolving nosepiece not in click-stop position (objective not centered in the optical path).	Revolve to click-stop position (swing the objective correctly into the optical path).
Condenser position too low.	If the microscope is equipped with a field diaphragm, correct positioning so that the field diaphragm image is focused on the specimen surface. (P.57) If the microscope is not equipped with a field diaphragm, position the condenser slightly lower than the upper limit.
Condenser not installed correctly.	Install correctly. (P.70)
Field diaphragm not centered (if the microscope is equipped with a field diaphragm).	Center the field diaphragm. (P.57)
Field diaphragm closed too far (if the microscope is equipped with a field diaphragm).	Open properly. (P.60)
Field lens unit not installed correctly.	Install correctly. (P.72)
Lamp not installed correctly.	Install correctly. (P.72)
Dirt or dust on the lens (condenser, objective, field lens, eyepiece, specimen)	Clean the lens. (P.84)

1 Optical

Dirt or dust in the viewfield.

Causes	Corrective Measures
Condenser position too low.	If the microscope is equipped with a field diaphragm, correct positioning so that the field diaphragm image is focused on the specimen surface. (P.57) If the microscope is not equipped with a field diaphragm, position the condenser slightly lower than the upper limit.
Aperture diaphragm closed too far.	Open properly. (P.59)
Dirt or dust on the lens (condenser, objective, field lens, eyepiece, specimen).	Clean the lens. (P.84)

Poor image quality (low resolution, contrast too low or too high)

Causes	Corrective Measures
Condenser position too low.	If the microscope is equipped with a field diaphragm, correct positioning so that the fie ld diaphragm image is focused on the specimen surface. (P.57) If the microscope is not equipped with a field diaphragm, position the condenser slightly lower than the upper limit.
Cover glass too thick or thin.	Use a cover glass of the specified thickness (0.17 mm).
Slide upside down.	Turn over the slide so that the cover glass faces up.
No cover glass attached to the slide.	Attach a cover glass 0.17 mm thick.
No immersion oil used on the front lens of the oil-immersion objective.	Apply Nikon immersion oil to the objective. (P.62)
Nikon immersion oil is not used for oil-immersion observation.	Use Nikon immersion oil. (P.62)
Air bubbles in immersion oil.	Remove bubbles. (P.62)

1 Optical

Immersion oil found on dry type objective (especially 40x objective).	→	Clean the objective. (P.63)
Aperture diaphragm and field diaphragm opened or closed too far.	→	Close or open properly. (P.59, 60)

Image dark on one side.

Causes		Corrective Measures
Revolving nosepiece not in click-stop position.	→	Revolve to click-stop position.
Specimen rises from stage surface.	→	Stabilize it using the holder.

Image shifts during focus.

Causes		Corrective Measures
Revolving nosepiece not in click-stop position.	→	Revolve to click-stop position.
Specimen rises from stage surface.	→	Stabilize it using the holder.
Field diaphragm not centered (if the microscope is equipped with a field diaphragm)	→	Center the field diaphragm. (P.57)
Field lens unit not installed correctly.	→	Install correctly. (P.72)

1 Optical

Image tinged yellow.

Causes	Corrective Measures
Blue filter not used.	Use blue filter. (P.70)
Lamp voltage too low.	Adjust the voltage by rotating the brightness control dial. (P.54)

Image too bright.

Causes	Corrective Measures
Lamp voltage too high.	Adjust the voltage by rotating the brightness control dial. (P.54)

Insufficient brightness.

Causes	Corrective Measures
Lamp voltage too low.	Adjust the voltage by rotating the brightness control dial. (P.54)
Aperture diaphragm closed too far.	Open properly. (P.59)
Condenser position too low.	If the microscope is equipped with a field diaphragm, correct positioning so that the field diaphragm image is focused on the specimen surface. (P.57) If the microscope is not equipped with a field diaphragm, position the condenser slightly lower than the upper limit.
Incorrect input voltage.	Using the voltage selector, select the voltage that corresponds to the voltage provided in your region. (P.68)

(Also see the causes and corrective measures for electrical problems.)

2 Mechanical Problems

Image cannot be focused with high-power objectives.

Causes	Corrective Measures
Slide upside down.	Turn over the slide so that the cover glass faces up.
Cover glass too thick.	Use a cover glass of the specified thickness (0.17 mm).

High-power objective contacts slide when changed over from low power.

Causes	Corrective Measures
Slide upside down.	Turn over the slide so that the cover glass faces up.
Cover glass too thick.	Use a cover glass of the specified thickness (0.17 mm).
Diopter not adjusted correctly.	Adjust. (P.57)

Difference in focal point too large when switching from one objective to another.

Causes	Corrective Measures
Diopter not adjusted correctly.	Adjust. (P.57)

Specimen image jumps when specimen is moved by the stage.

Causes	Corrective Measures
Specimen holder not securely fastened to the stage.	Fasten securely. (P.71)

Binocular images not integrated.

Causes	Corrective Measures
Interpupillary distance not adjusted correctly.	Adjust. (P.54)
Diopter not adjusted correctly.	Adjust. (P.57)

Excessive eye fatigue.

Causes	Corrective Measures
Interpupillary distance not adjusted correctly.	Adjust. (P.54)
Diopter not adjusted correctly.	Adjust. (P.57)
Inadequate brightness or illumination.	Adjust brightness using the control dial. (P.54)

3 Electrical Problems

Lamp does not light when switched on.

Causes	Corrective Measures
No electrical power.	Check power cord connection. (P.69)
Lamp bulb not inserted.	Insert correctly. (P.72)
Lamp bulb burnt out.	Replace bulb. (P.72)
Incorrect lamp used.	Use the specified lamp. (P.72)
Fuse blown out.	Replace fuse. (P.73)

Flickering or unstable lamp brightness.

Causes	Corrective Measures
Lamp bulb about to fail.	Replace bulb. (P.72)
Power cord not correctly connected.	Connect correctly.
Bulb not correctly inserted into socket.	Insert correctly. (P.72)

Sudden lamp failure.

Causes	Corrective Measures
Incorrect lamp used.	Use the specified lamp. (P.72)
Incorrect input voltage.	Select the voltage that corresponds to the voltage provided in your region using the voltage selector. (P.68)

9 Care and Maintenance

1 Cleaning the Lenses

- Dust is best removed using a soft brush or gauze.
- More persistent dirt, such as fingerprints, grease and oil, may be removed with lens tissue (or soft cotton, gauze) lightly moistened with absolute alcohol (anhydrous ethyl alcohol or methyl alcohol; do not use rubbing alcohol).
- To clean immersion oil off the oil-immersion type objective, use lens tissue, soft cotton or gauze lightly moistened with petroleum benzine. If petroleum benzine is not available, use methyl alcohol. In this case, you need to wipe three or four times because the detergency of the methyl alcohol is somewhat weak.
- Absolute alcohol and petroleum benzine are quite inflammable. Take great care when handling them and when turning the power switch on and off. Be very careful with fire.

2 Cleaning the Microscope

- We recommend that you use a silicon cloth to clean the microscope.
- For persistent dirt, dampen a piece of gauze with neutral detergent and wipe lightly.
- Using organic solvent could result in discoloration of the plastic parts.

3 Disinfecting the Microscope

- We recommend that you use 70% medical alcohol for normal disinfection of the microscope.
- In case of contact of a sample to the microscope , determine whether the sample is hazardous. If the sample is hazardous, follow the standard procedure of your laboratory.
- Using organic solvent could result in discoloration of the plastic parts.

4 When Not in Use

- When the microscope is not in use, cover with the vinyl dust cover, and store it in a dry place where mold is not likely to form.
- Make sure that the power switch is off (turned to "○") and the lamp is cool enough to touch before covering with the vinyl dust cover.
- We especially recommend that the objectives and eyepieces be kept in a container (such as a desiccator) with desiccant in it.

5 Periodical Inspections

- To maintain the performance of the microscope, periodical inspections and maintenance are recommended.
- For details, contact your nearest Nikon representative.

10 Technical Specifications

(1) Model Name: ECLIPSE E200 (Microscope basic unit)

(2) Dimension and Weight: 227(W) ×382(D) ×415(H)mm, 10Kg

(3) Optical System:
CF infinity corrected optical system
Second objective focal length f = 200 mm
Built-in diascopic illumination system (Simplified Kohler's illumination system)

(4) Focusing Mechanism:

Fine focus knob graduation:	2μm/graduation
Fine focus knob travel:	0.2 mm up or down / revolution
Coarse focus knob travel:	about 37.7 mm up or down / revolution
Stage vertical movable range:	1.5 mm upward and 25 mm downward from the focal plane.

(5) Stage: Stroke: X axis: 77 mm
Y axis: 53 mm

(6) Revolving Nosepiece: 4-hole fixed type

(7) Electrical Specifications

- **Lamp Rating:** Halogen lamp 6V-20W (PHILIPS 7388 or OSRAM HLX 64250) or Halogen lamp 6V-30W (PHILIPS 5761)
- **Average lamp lifetime :** Halogen lamp 6V-20W : 100hrs.
  Halogen lamp 6V-30W : 100hrs.
- **Output Rating:** 6V 5A max.
- **Input Rating:** **Model for 100, 110, and 120 V Areas**
  - Input voltage: Select from 100 V, 110 V or 120 V AC by relocating the fuse holer in the AC inlet.
  - Frequency: 50/60 Hz
  - Voltage fluctuation: ±10%
  - Rated current: 0.8 A max.
  - Fuse rating: 250 V, 1A, time-lag low-breaking type, 5×20 miniature fuse ×2
  - Power Cord: Use only the following power supply cord. Using the wrong power cord could result in danger or fire.
    The protection Class I equipment should be connected to PE (protective earth) terminal.
    - UL listed detachable power cord set. 3-conductor grounding type SVT, No.18 AWG, 3 m long maximum, rated at 125 V AC minimum.

Model for 220, 230, 240 V Areas

- Input voltage: Select from 220 V, 230 V or 240 V AC by relocating the fuse holder in the AC inlet.
- Frequency: 50/60 Hz
- Voltage fluctuation: ±10%
- Rated current: 0.4 A max.
- Fuse rating: 250 V, 1A, time-lag low-breaking type, 5×20 miniature fuse ×2
- Power Cord: Use only the following power supply cord. Using the wrong power cord could result in danger or fire.
  The protection Class I equipment should be connected to PE (protective earth) terminal.
  - Approved according to EU/EN standards, 3 conductor grounding Type H05VV-F, 3 m long maximum, rated at 250 V AC minimum.

- **Protection Class:** Class I

(8) Operating Environment

- Room Temperature: 0° to 40°C
- Relative Humidity: 85% Max. No condensation should form.
- Altitude: 2000 m Max.
- Pollution: Degree 2
- Installation Category (Overvoltage Category): Category 2
- For indoor use only.

(9) Storage and Transport Environmental Conditions

- Temperature: -20° to +60°C
- Humidity: max. 90%RH (non-condensing)

(10) Conforming Standards

- The model for 100, 110 and 120 V areas is a UL-listed product.
- The model for 220,230 and 240 V areas satisfies the EU IVD Directive (In vitro diagnostic medical device directive).
  (GM approved product : In vitro diagnostic medical device)
- The model for 220, 230 and 240 V areas satisfies the EU LV Directive (Low Voltage Directive).
- The model for 220, 230 and 240 V areas satisfies the EU EMC Directive. (EN 61326)

(The model for 100, 110 and 120 V areas is not covered by the FCC.)