

polarization with transmitted light



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Introduction

Thank you for purchasing the Euromex Delphi-X Observer polarization

The Delphi-X Observer series has been designed with all kind of Sciences applications and great durability in mind. This resulted in a modern, robust and high level microscope for advanced use, equipped with the best optical and mechanical components. An ideal microscope for daily cytology and anatomic pathology use. The 25 mm field of view of the eyepieces and the plan apochromatic objectives enable observations with perfect color rendering at high resolving powers. Specific attention to production methods resulted also in an excellent price/performance ratio.

Please read this manual carefully before using this product to ensure correct and safe use

- The contents of this manual are subject to change without notice
- The appearance of the actual product can differ from the models described in this manual
- Not all equipment mentioned in this manual has to be part of the set you have purchased
- All optics are anti-fungus treated and anti-reflection coated for maximum light throughput

General safety instructions

Intended use: a non-medical device

This microscope is intended for general observation of cells and tissues, with transmitted/reflected illumination and with the specimen fixed on a slide

Suffocation hazard

The packaging can contain protective plastic bags without perforations, as well as dust protection bags that could be pulled over the head of a child. To avoid danger of suffocation:

- Keep the bags away from babies and children
- Tie a knot in plastic bags before throwing them out
- Plastic bags should be stored out of reach of children
- The installation and use of this product must always be supervised by a qualified adult

Dangers associated with the operation

- Improper use could result in injury, malfunction or damage to property. It must be ensured that the operator informs every user of existing hazards
- Danger of electrocution. Disconnect the power to the entire lighting system before installing, adding or changing any component
- Not to be used in corrosive or explosive environments
- Avoid direct exposure of eyes to the collimated light beam or direct light from the light guides or fibres
- To avoid a hazard to children, account for all parts and keep all packing materials in a safe place

Photobiological safety Halogen bulb, important safety instructions:

- Avoid direct eye exposure to any Halogen bulb light source while switched on
- Before looking through the eyepieces of the microscope, lower the intensity of the Halogen bulb illumination
- Avoid long and high-intensity exposure to Halogen bulb light because this may cause acute damage to the retina of the eye

Prevention of biological and infectious hazards

Infectious, bacterial or viral biohazard substances under observation may be a risk to the health of humans and other living organisms. Special precautions should be taken during in vitro medical procedures:

- Biological hazards: keep a logbook of all the biological substances or pathogenic microorganisms that were under observation with the microscope and show it to everybody before they use the microscope or before they do some maintenance work on the microscope! Agents can be bacterial, spores, enveloped or non-enveloped virus particles, fungi or protozoa

Contamination hazard:

- A sample that is properly enclosed with a cover glass never comes in direct contact with the microscope parts. In that case prevention of contamination lies in the handling of the slides; as long as the slides are decontaminated before use and are undamaged and treated normally, there is virtually zero risk of contamination
- A sample that is mounted on a slide without cover glass, can come in contact with components of the microscope and may be a hazard to humans and/or the environment. Therefore, check the microscope and accessories on possible contaminations. Clean the microscope surfaces and its components as thoroughly as possible. Should you identify a possible contamination, inform the local responsible person in your organisation
- Microscope operators could be contaminated from other activities and cross-contaminate components of the microscope. Therefore, check the microscope and accessories on possible contaminations. Clean the microscope surfaces and its components as thoroughly as possible. Should you identify a possible contamination, inform the local responsible person in your organisation. It is recommended to wear sterile gloves when preparing the slides and handling the microscope in order to reduce contamination by the operator

Infection hazard:

- Direct contact with the focusing knobs, stage adjustments, stage and eyepieces/tubes of the microscope can be a potential source of bacterial and/or viral infections. The risk can be limited by using personal eyeshades or eyepieces. You can also use personal protections such as operation gloves and/or safety goggles, which should be changed frequently to minimize the risk

Disinfectant hazards:

- Before cleaning or disinfecting, check if the room is adequately ventilated. If not, wear respiratory protective gear. Exposure to chemicals and aerosols can harm human eyes, skin and respiratory system. Do not inhale vapours. During disinfection, do not eat, drink or smoke. Used disinfectants must be disposed of according to local or national regulations for health and safety

Before returning a microscope for repair or maintenance through a Euromex dealer, an RMA (Return Merchandise Authorization) form together with a decontamination statement must be filled in. This document - available from Euromex for any reseller- must be shipped together with the microscope at all times

Disinfection and decontamination:

- Exterior casing and mechanical surfaces must be wiped with a clean cloth, dampened with a disinfectant
- Soft plastic parts and rubber surfaces can be cleaned by gently wiping a clean cloth, dampened with a disinfectant. Discoloration can occur if alcohol is used
- The front lens of eyepieces and objectives are sensitive to chemicals. We recommend not to use aggressive disinfectants but to use lens paper or a soft fibre-free tissue, damped in cleaning solution. Cotton swabs may also be used. We recommend you use personal eyepieces without eyeshades in order to minimize risk
- Never immerse or dip the eyepiece or objective into a disinfectant liquid! This will damage the component
- Never use abrasive compounds or cleaners that may damage and scratch optical coatings
- Properly clean and disinfect all possible contaminated surfaces of the microscope or contaminated accessories before storing for future use. Disinfection procedures must be effective and appropriate
- Leave the disinfectant on the surface for the required exposure time, as specified by the manufacturer. If the disinfectant evaporates before the full exposure time, reapply disinfectant on the surface
- For disinfection against bacteria, use a 70% aqueous solution of isopropanol (isopropyl alcohol) and apply for at least 30 seconds. Against viruses, we recommend to refer to specific alcohol or non-alcohol based disinfection products for laboratories

Handle with care

- This product is a high quality optical instrument. Delicate handling is required
- Avoid subjecting it to sudden shocks and impacts
- Impacts, even small ones, can affect the precision of the instrument

Handling the halogen bulb

Note: Always disconnect the power cord from your microscope before handling the halogen bulb and power unit and allow the system to cool down approximately 35 minutes to avoid burns

- Never touch the halogen bulb with your bare hands
- Dirt or fingerprints will reduce the life span and can result in uneven illumination, lowering the optical performance
- Use only original Euromex replacement halogen bulbs
- The use of other products may cause malfunctions and will void warranty
- During use of the microscope the power unit will get hot; never touch it while in operation and allow the system to cool down approximately 35 minutes to avoid burns

Dirt on the lenses

- Dirt on or inside the optical components, such as eyepieces, lenses, etc., affects the image quality of your system negatively
- Always try to prevent your microscope from getting dirty by using the dust cover, prevent leaving fingerprints on the lenses and clean the outer surface of the lens regularly
- Cleaning optical components is a delicate matter. Please, read the cleaning instructions further on in this manual

Environment, storage and use

- This product is a precision instrument and it should be used in a proper environment for optimal use
- Install your product indoors on a stable, vibration free and level surface in order to prevent this instrument to fall thereby harming the operator
- Do not place the product in direct sunlight
- The ambient temperature should be between 5 to +40°C and humidity should be within 80% and 50%
- Although the system is anti-mold treated, installing this product in a hot, humid location may still result in the formation of mold or condensation on lenses, impairing performance or causing malfunctions
- Never turn the right and left focus knobs in opposite directions at the same time or turn the coarse focus knob past its farthest point as this will damage this product
- Never use undue force when turning the knobs
- Make sure that the microscope system can dissipate its heat (fire hazard)
- Keep the microscope away from walls and obstructions for at least approximately 15 cm
- Never turn the microscope on when the dust cover is in place or when items are placed on the microscope
- Keep flammable liquids and fabrics, etc. well out of the way

Disconnect power

Always disconnect your microscope from power before doing any maintenance, cleaning, assembling or replacing bulbs to prevent electric shocks

Prevent contact with water and other fluids

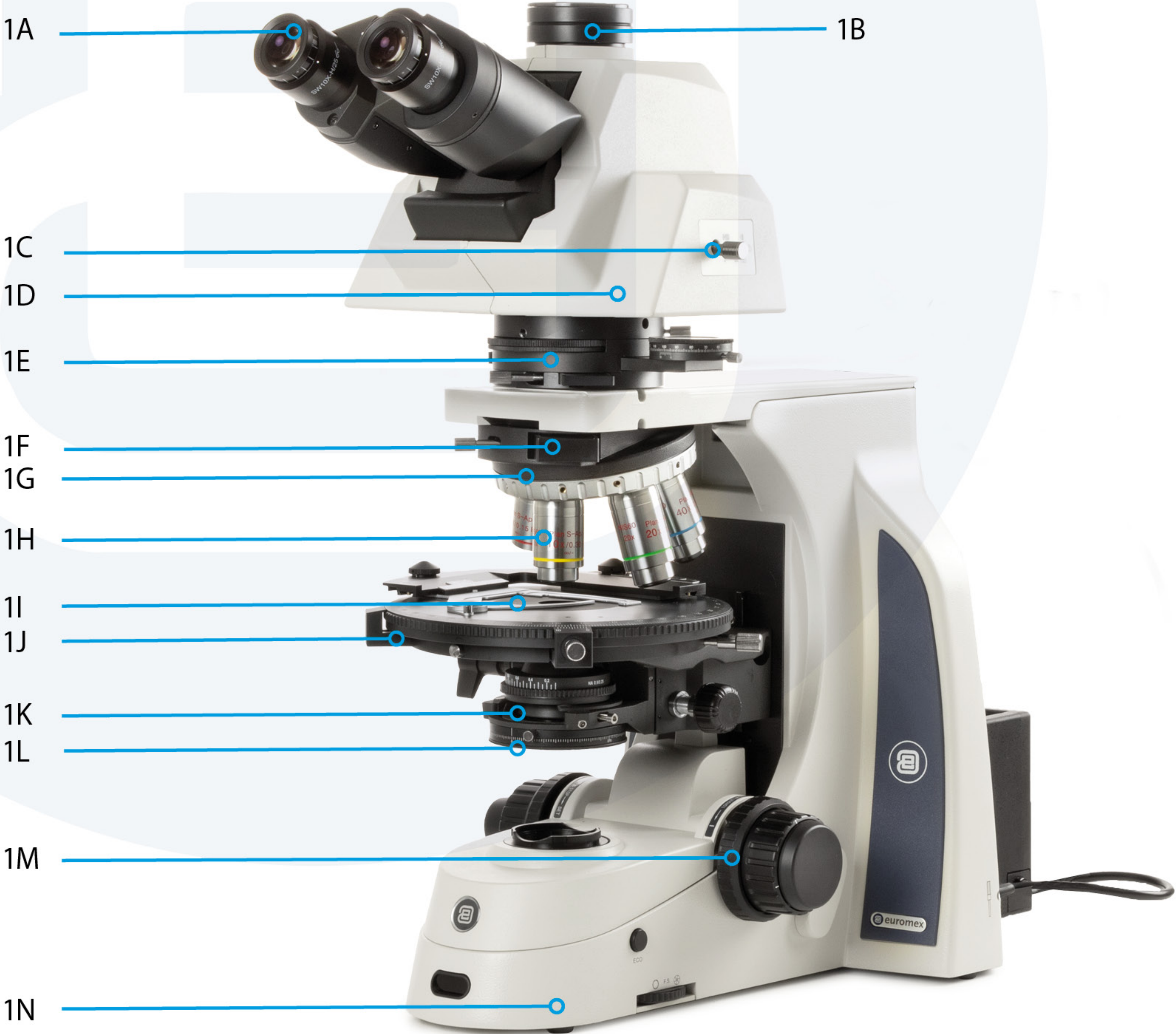
Never allow water or other fluids to come in contact with your microscope, this can cause short circuiting your device, causing malfunction and damage to your system

Moving and assembling

- This microscope is a relatively heavy system, consider this when moving and installing the system
- Always lift the microscope by holding the main body and base of the microscope
- Never lift or move the microscope by its focusing knobs, stage or head
- When needed, move the microscope with two persons instead of one

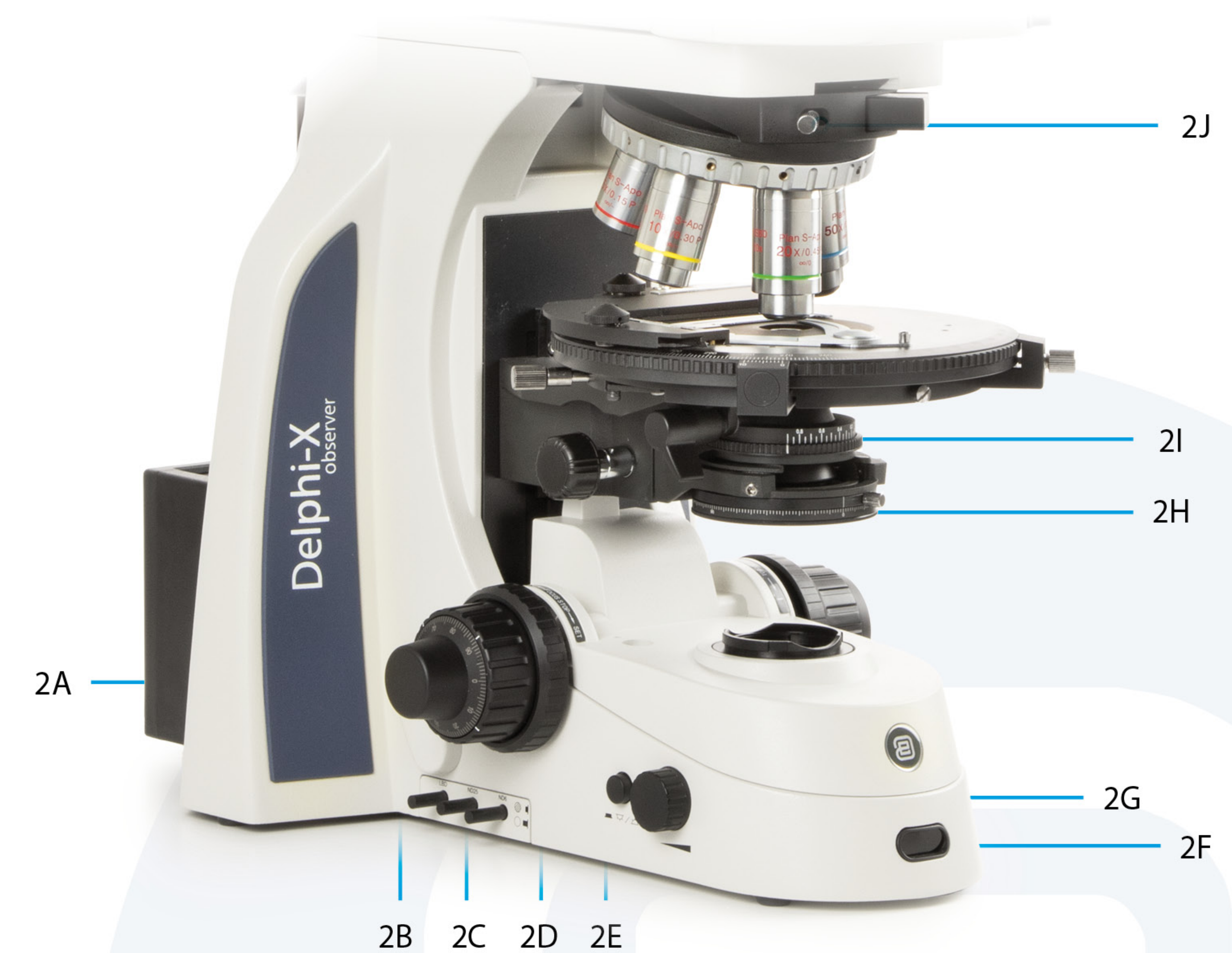
Configuration, construction and controls

This chapter describes the main parts and functions of the Delphi-X Observer polarization



1A	Eyepieces	1H	Objectives
1B	Photo port	1I	X/Y stage controls
1C	Optical light path selector	1J	Stage/polarizing platform
1D	Ergonomical tilting head	1K	Condenser
1E	Bertrand lens unit	1L	Polarisation filter
1F	Slot for polariser	1M	Coarse and fine focusing knob
1G	Revolving nosepiece	1N	Microscope body

Configuration, construction and controls



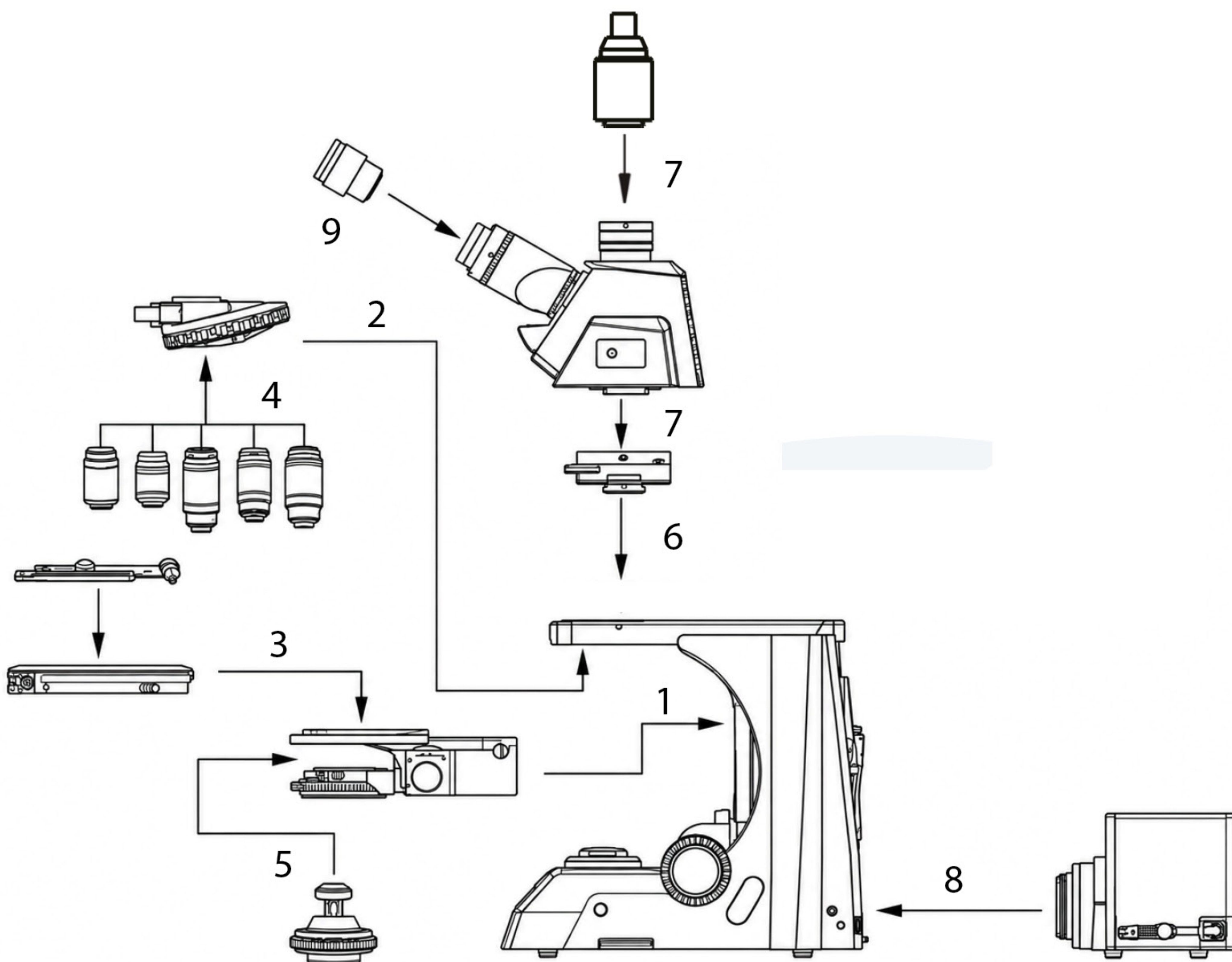
2A	Fine focus knob	2F	iCare sensor
2B	Filter switch levers	2G	Light intensity control knob
2C	Coarse focus knob	2H	Polarisation filter
2D	Condenser height control	2I	Condenser
2E	Upper and lower lighting switch	2J	Slider fastening screw

Configuration, construction and controls



3A	Condenser fastening screw	3H	Lamp house unit
3B	Condenser height control	3I	USB interface (future feature, not in use now)
3C	iCare button	3J	Universal tool
3D	Field aperture control (for transmitted light mode)	3K	Fuse compartment
3E	Lamp house fastening screw	3L	Power socket
3F	Light source plug	3M	Power switch
3G	Earthing connection screw		

Assembling Delphi-X Observer



Step 1	Attaching the focus cassette	Step 6	Attaching the Bertrand lens unit
Step 2	Attaching the nosepiece	Step 7	Attaching the viewing head and phototube
Step 3	Attaching the stage	Step 8	Installing the lamp unit
Step 4	Installing the objectives	Step 9	Placing the eyepieces
Step 5	Installing the condenser		

Step 1 | Attaching the focus cassette



Attach the focusing cassette to the stage holder as shown



Align the dovetail slot with the slot on the focusing cassette



Slide the focusing cassette down until it reaches the locking pin



Use the hex wrench to tighten the screw shown

Step 2 | Attaching Nosepiece



Slide the nosepiece into the designated slot



Make sure the nosepiece is correctly positioned



Secure the nosepiece by tightening the screw

Step 3 | Attaching the stage



Move the stage holder to its lowest position



Before attaching the stage, note the position of the spring-loaded screw and where it should be placed



Attach the stage in the correct position



Secure the stage in place

Step 4 | Placing the objectives



Note the indicated position (indentation) where the 5× objective should be installed



Remove the objective thread dust caps



Screw the 5× objective into place



*Turn the nosepiece to the left to access the next position
Install the 10×, 20×, and 50× objectives in the same way*

Step 5 | After all objectives are mounted, place the condenser



Turn the stage holder up and the condenser holder down

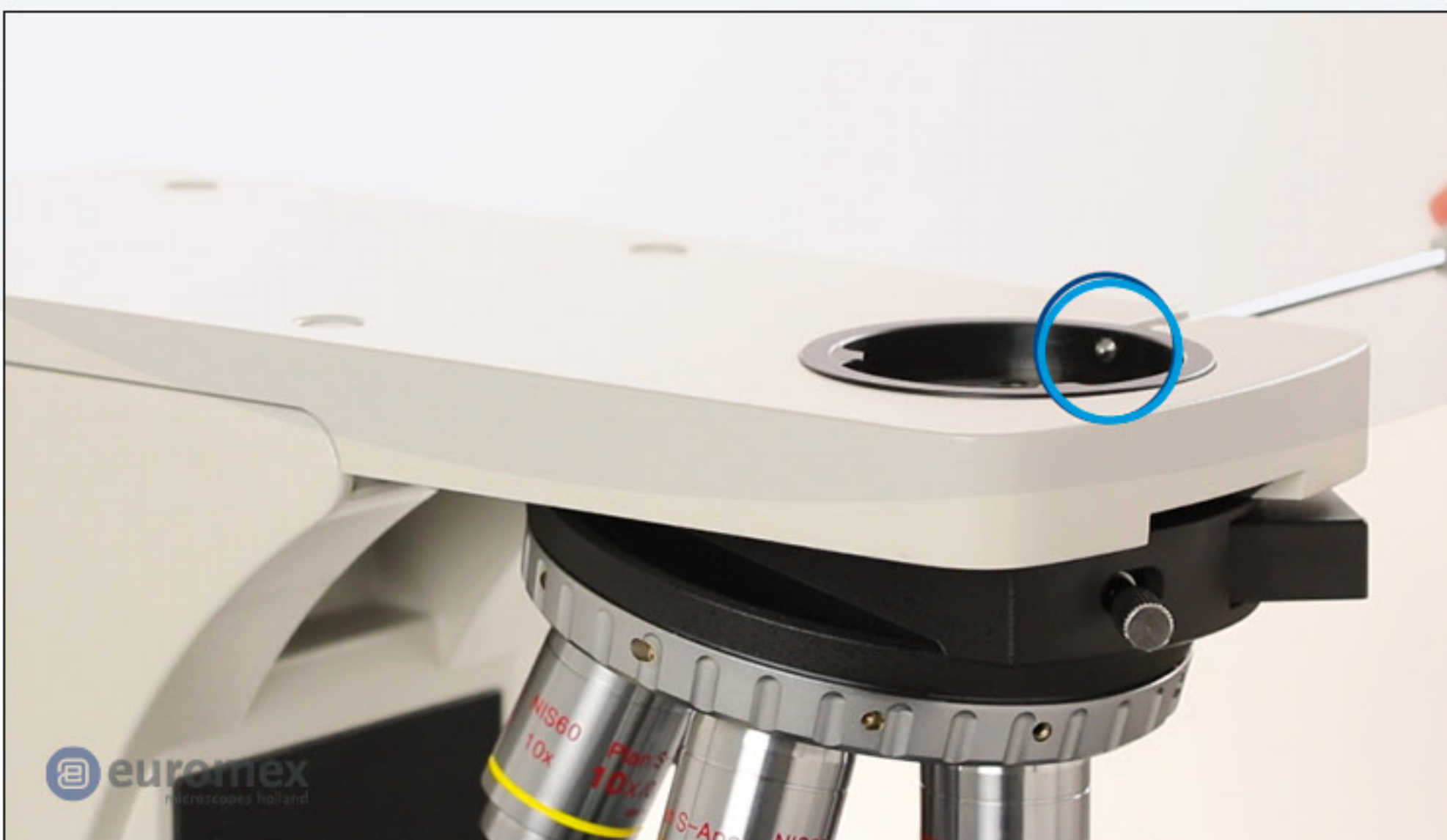


Insert the condenser into the condenser holder



Secure the condenser in place by tightening the screw

Step 6 | Attach the Bertrand unit, head and phototube according to the steps below



Remove the dustcover plate. Make sure that the screw does not block the installation of the component



Secure by tightening the screw



Remove the dustcover plate and place the component, secure by tightening the screw

Step 7 | placing the head and phototube



Remove the dustcover and attaching the head, secure by tightening the screw



Remove the dustcover and attaching the photo tube



Secure by tightening the screw

Step 8 | To place the lampunit according below steps



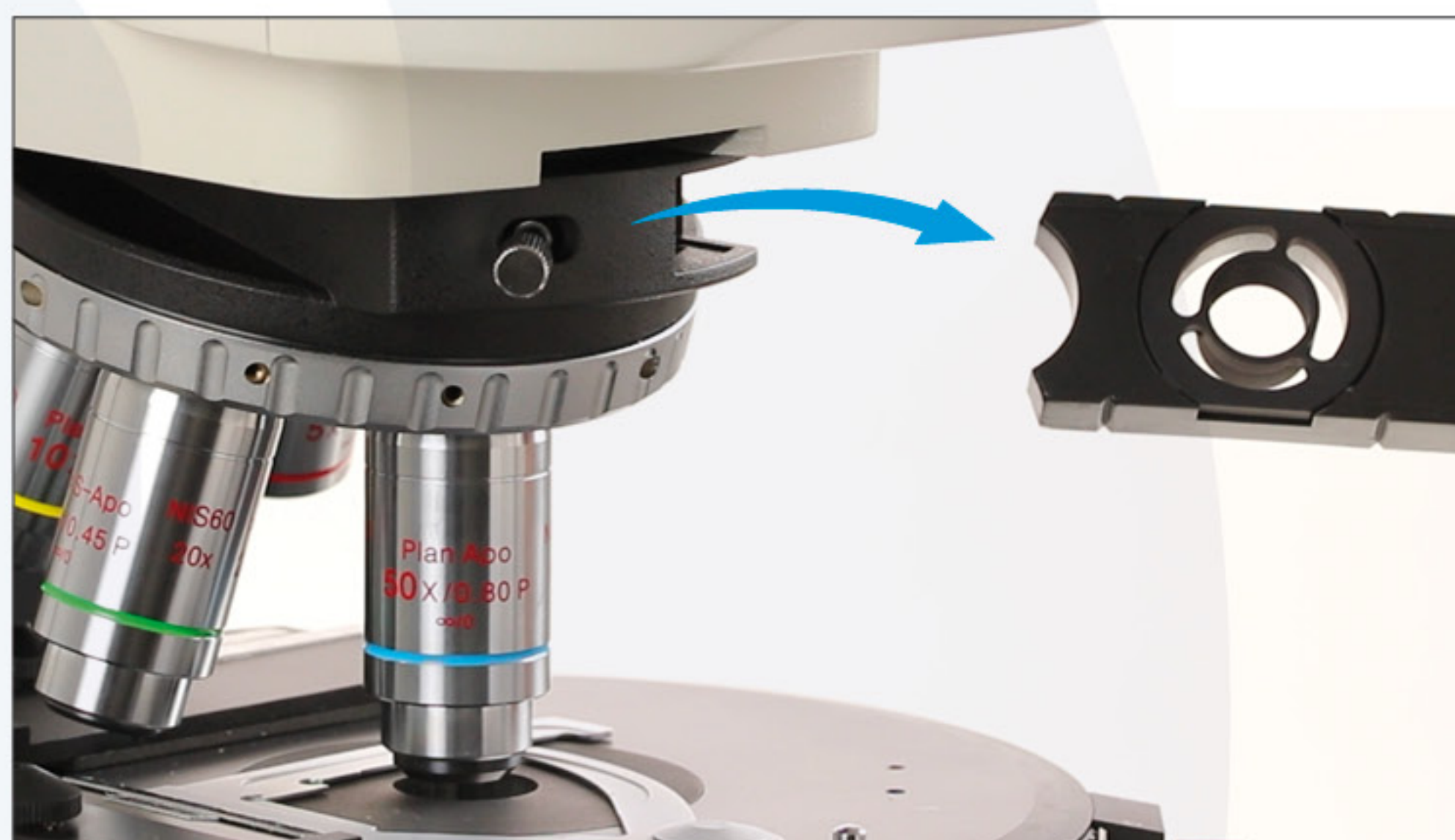
Connect the power cable of the lamp



Step 9 | Placing filters and polarisers



Remove the dust protection



To use the supplied compensation plates, first remove the dust protection



To insert the analyzer, first remove the dust protection



Insert the analyzer

Placing the sample

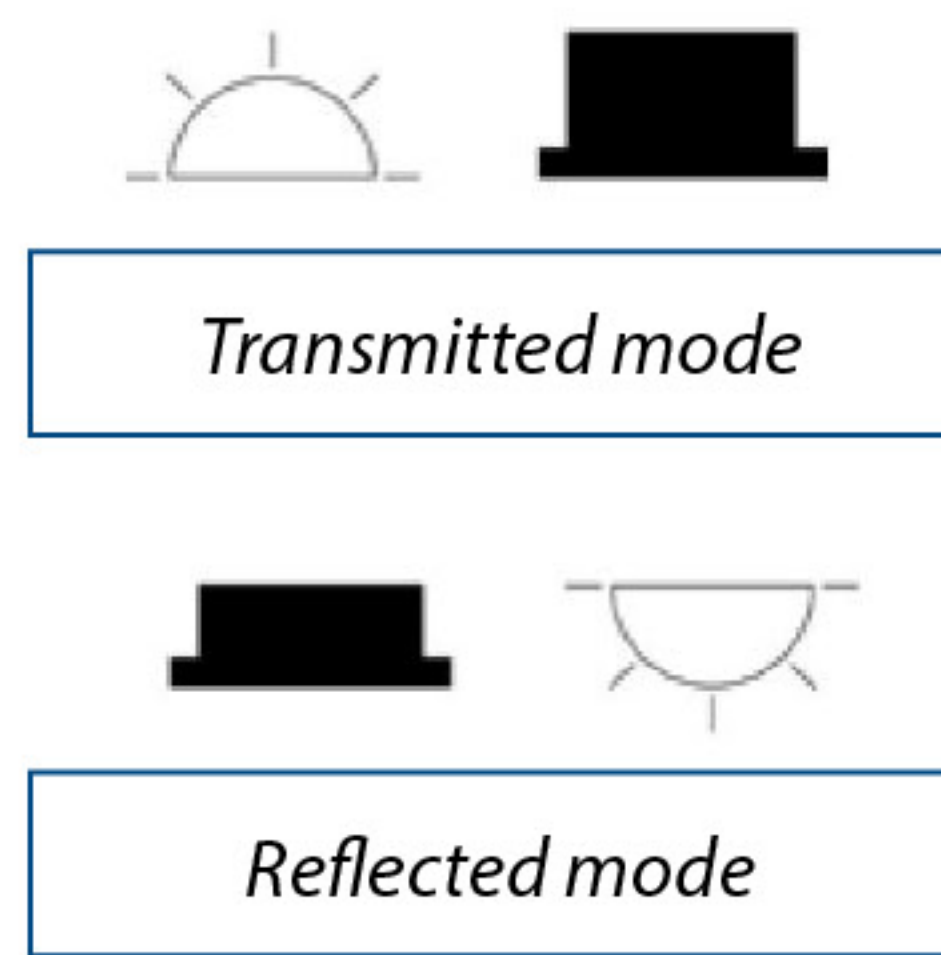
- Lower the stage to make room for the sample
- Bring the 4x objective (or lowest objective in your configuration) into the optical path by rotating the nosepiece until the right objective clicks into position
- Gently place the sample into position and make sure it will not damage the objective
- Use the X and Y axis control knobs of the mechanical stage to move to area of interest of the sample into the optical path



Switching between light sources

Next to the intensity controller there is a button for switching between transmitted and reflected illumination. The standard brightfield configuration used for this manual does not have this option

- When the button is pushed in, the light is set to reflected mode
- When the button is pushed out, the light is set to transmitted mode (standard)



Getting the specimen in focus

- Use the coarse control knobs to adjust the focus quickly and roughly
- Get the specimen into sight through the eyepieces
- Then use the fine focus control knob to adjust the focus in detail



Getting the specimen in focus

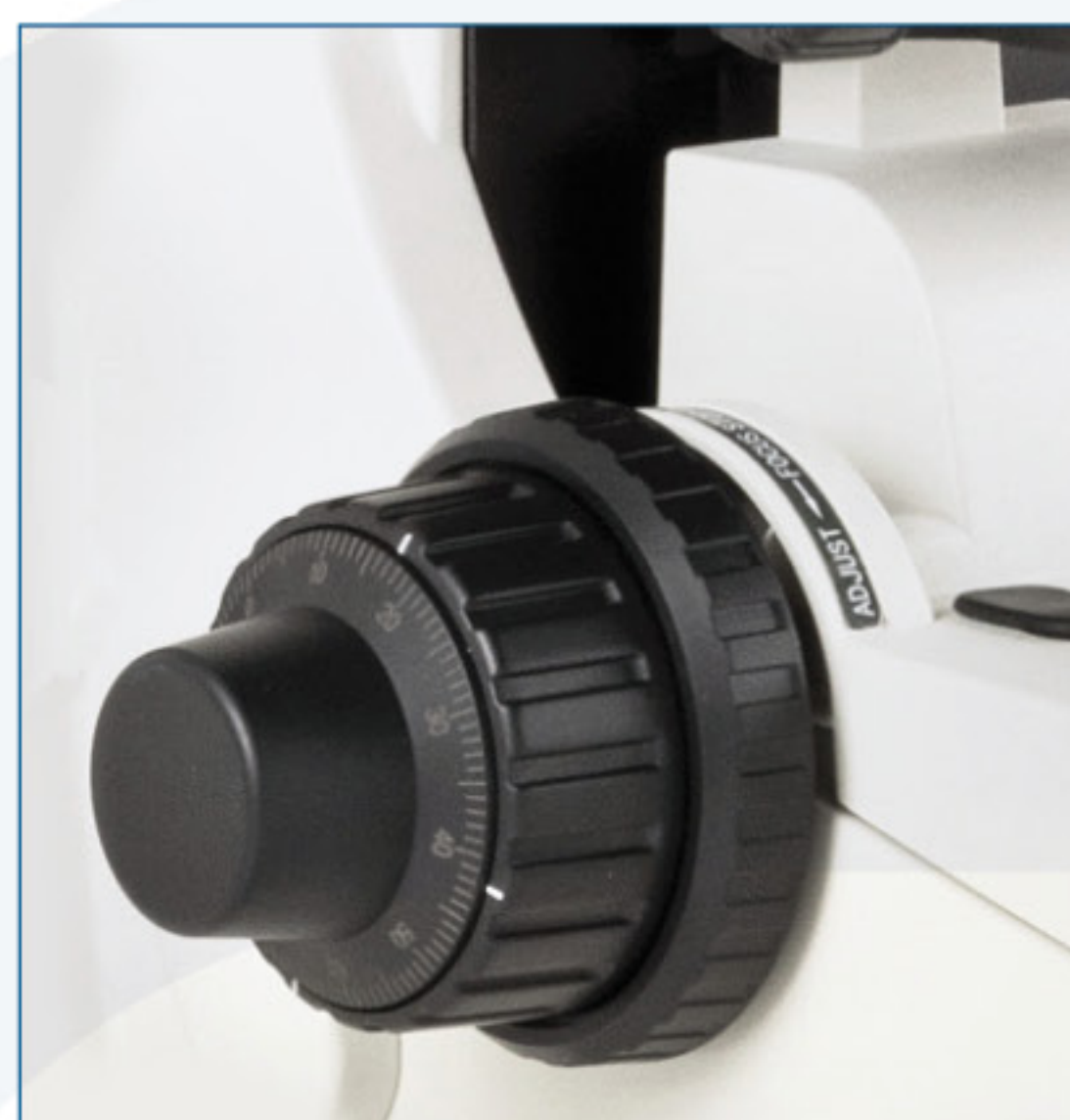
Switching the fine focus knobs

The fine focus knobs can be switched from left to right to meet user preference

- Pull the knobs with moderate force to release the magnet which is holding the knobs onto the stand
- Attach the magnets onto the holder and let it grab the knobs again to mount them onto the holder

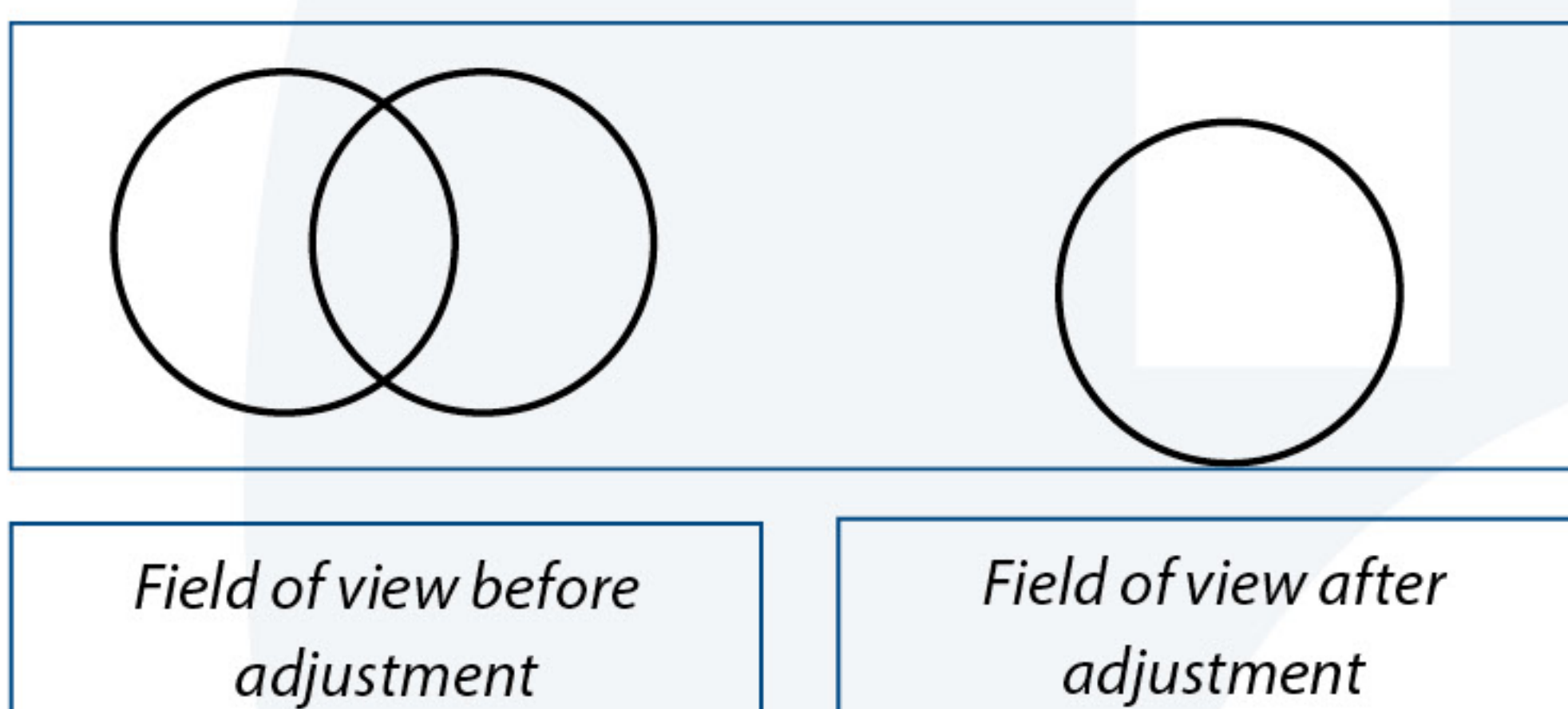


Switching the fine focus knobs



Adjust interpupillary distance

The Delphi-X Observer has an interpupillary distance range of 47 to 78 mm. The correct interpupillary distance is reached when one round image is seen in the field of view



This distance can be set by either pulling the tubes towards each other or pulling them from each other. This distance is different for each observer and this should be set individually. When more users are working with the microscope it is recommended to remember your interpupillary distance for a quick setup during new microscopy sessions

Adjust diopter of the eyepieces

In order to compensate for human eye differences, distortion, thickness differences in cover glasses and tune for the best parfocality between objectives, one can use the diopter to do so. Take a good prepared slide for your reference:

- Set (both) the diopter adjustments of the eyepieces to "0"
- Select the 10x objective, look for an interesting area on the specimen and focus on this area
- Select the 40x objective and focus on the specimen

Warning: don't change the coarse and fine adjustment anymore

- With your dominant eye open (close your other eye), rotate the diopter adjustment from "+" to "-" until the selected area get as sharp as possible
- If during this operation the image becomes unsharp, take your eyes from the eyepieces and turn the diopter adjustment, without looking into the eyepieces, a few divisions back from "-" to "+" .
- Look into the eyepiece again and turn the diopter adjustment from '+' to '-' until the selected area on your specimen gets the optimal sharpness
- Repeat for your non-dominant eye, and with the second diopter

Verification:

- Take your eyes from the eyepieces and look for 2 seconds to a far point in the room in order to "reset" your eyes
- Look again into the eyepieces. If the adjustment is not good, repeat the operation till you reach the same sharpness for the 10x and 40x objective without touching the coarse and micrometric adjustments



Adjustments of dioptré of a compound microscope



The correct eye point

The correct eye point

The eye point is the distance from the eyepiece to the user's pupil. To obtain the correct eye point, move the eyes towards the eyepieces until a sharp image is reached at a full field of view

Select eyepiece and camera light throughput

The Delphi-X Observer gives users the option to select out of three output types, giving large flexibility when using cameras. The push/pull rod on the side of the microscope head can be set to 3 positions:

Position 1 | The optical light path is sent to the eyepieces only. Ideal for when no camera is used

Position 2 | The optical light path is sent to the eyepieces for 20% only. Ideal standard setting for when a camera is used

Position 3 | The optical light path is sent to the camera only. Ideal for when camera is used at low light imaging



Icon	Action	Eyepiece/camera
	Push rod in completely	100 / 0
	Pull rod towards the middle	20 / 80
	Pull rod out completely	0 / 100

Centering the condenser

(figure 1)

- Move the condenser to the top position **(1)**
- Focus on a specimen using the smallest objective (f.e. 4x or 10x objective)
- Close the field diaphragm **(2)***
- Use screws **(figure 2)** to move the field diaphragm into to view center
- Open the field diaphragm carefully to the outside of the field of view to ensure the field diaphragm is in the center and so the condenser has been centered properly

* The iris can only be closed in brightfield position, in the phase or DIC position the iris is blocked from closing for best image quality

Using the aperture diaphragm

The aperture diaphragm **(figure 3/3)** should be used to adjust the numerical aperture, not to adjust image brightness. When the aperture diaphragm is opened to the 70 ~ 80% of objective aperture the ideal position is reached

The simplest way to do this is to use the markings on the condenser



figure 1



figure 2



figure 2

Using HALOGEN WITH LBD, ND 6 and ND25 filters

(figure 1)

The halogen version has three filter options:

1. LBD is a filter for increasing color temperature
2. ND25 is a filter with 25% light transmittance
3. ND6 is a filter with 6% light transmittance

iCare sensor

(figure 2)

The unique iCare Sensor is developed to avoid unnecessary loss of energy. The illumination of the microscope automatically switches off shortly after the user steps away from his or her position

- Pushing the iCare button will reactivate the lightThe iCare function is turned on by default
- To turn off the iCare function push the iCare button for 4 seconds
- The function will be deactivated and the bright HALOGEN BULB will dim to indicate the function has be turned off
- Repeating this step will turn the function back on



figure 1



figure 2

Replacing the fuse

(figure 3)

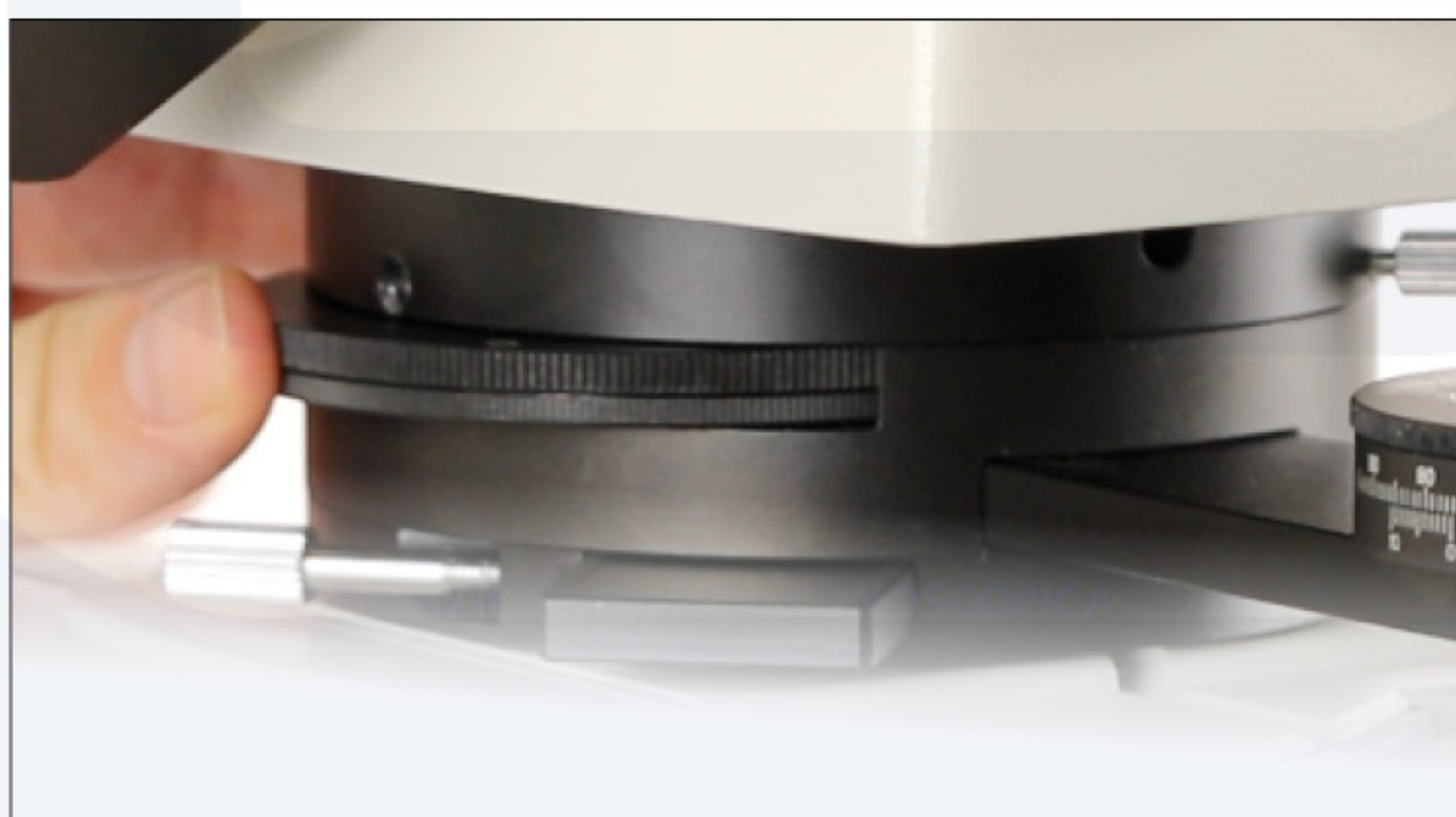
The fuse is placed in a drawer

- To open it push the drawer aside with a screwdriver
- Take out the drawer and replace the fuse gently



figure 3

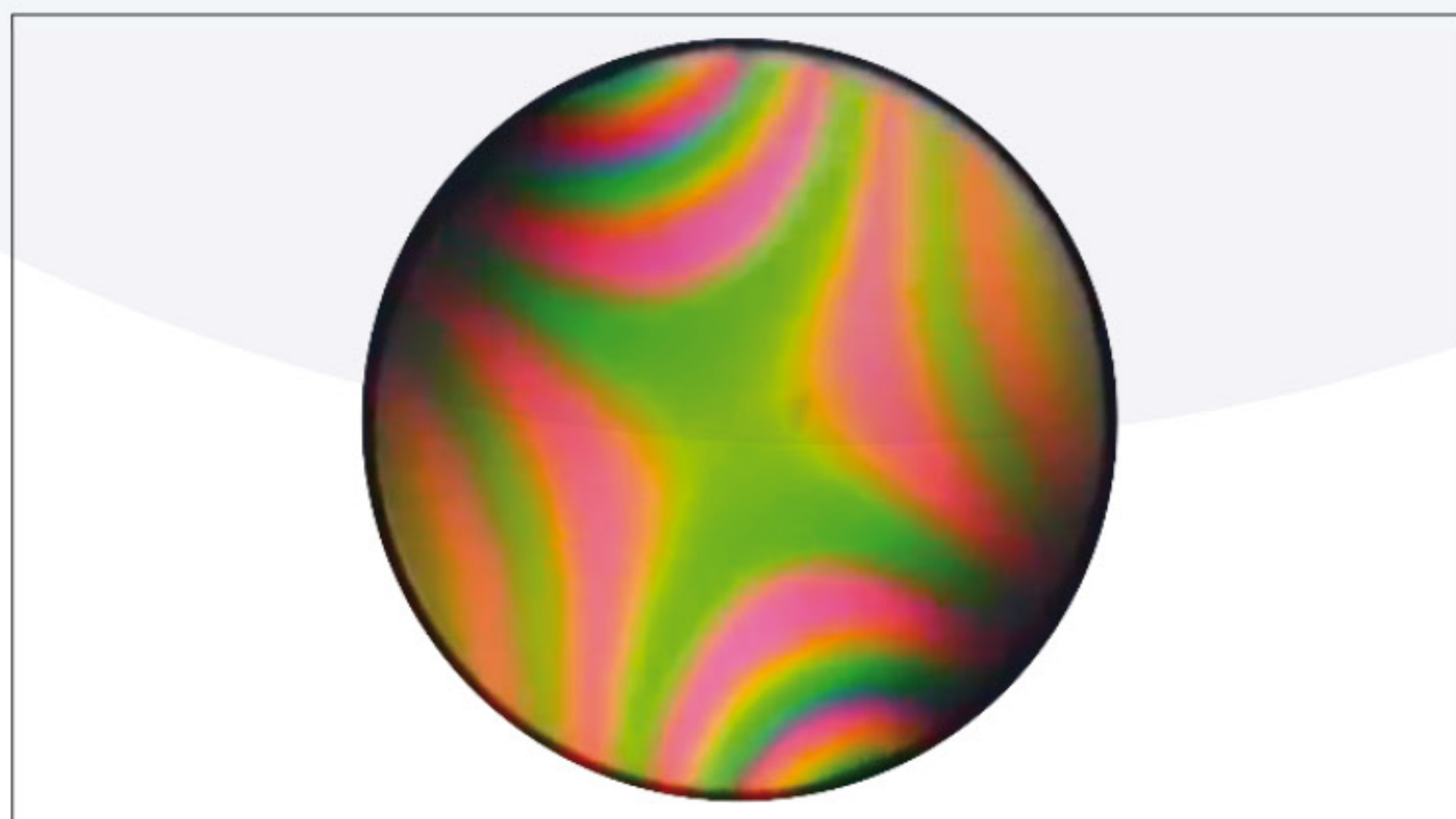
Observation in conoscopic view, using the Bertrand lens



Engage Bertrand lens



Set to B position



Focus on the image formed by interference
Observation in conoscopic view

Cleaning optics

How to keep the optics clean?

Dust and dirt particles have a negative effect on image quality. Keeping the optical system of your microscope clean is essential for the best image quality and overall lifetime of your microscope. Dust and dirt on optical elements such as lenses, prisms and filters that are left unattended can become difficult - or even impossible - to remove and may cause mold

FIGURE A |

- Place your objective or eyepiece on a secure location
- Objectives can be screwed into the cover of an objective case
- Eyepieces can be placed in the microscope box
- Condensers and collector lenses can remain in place in the microscope

FIGURE B |

- To prevent scratches on coatings and optical glass try to remove dirt and dust that sticks to the optical surface first with an air-blower or with pressurized dry air (oil-free and under moderate pressure version only)

FIGURE C |

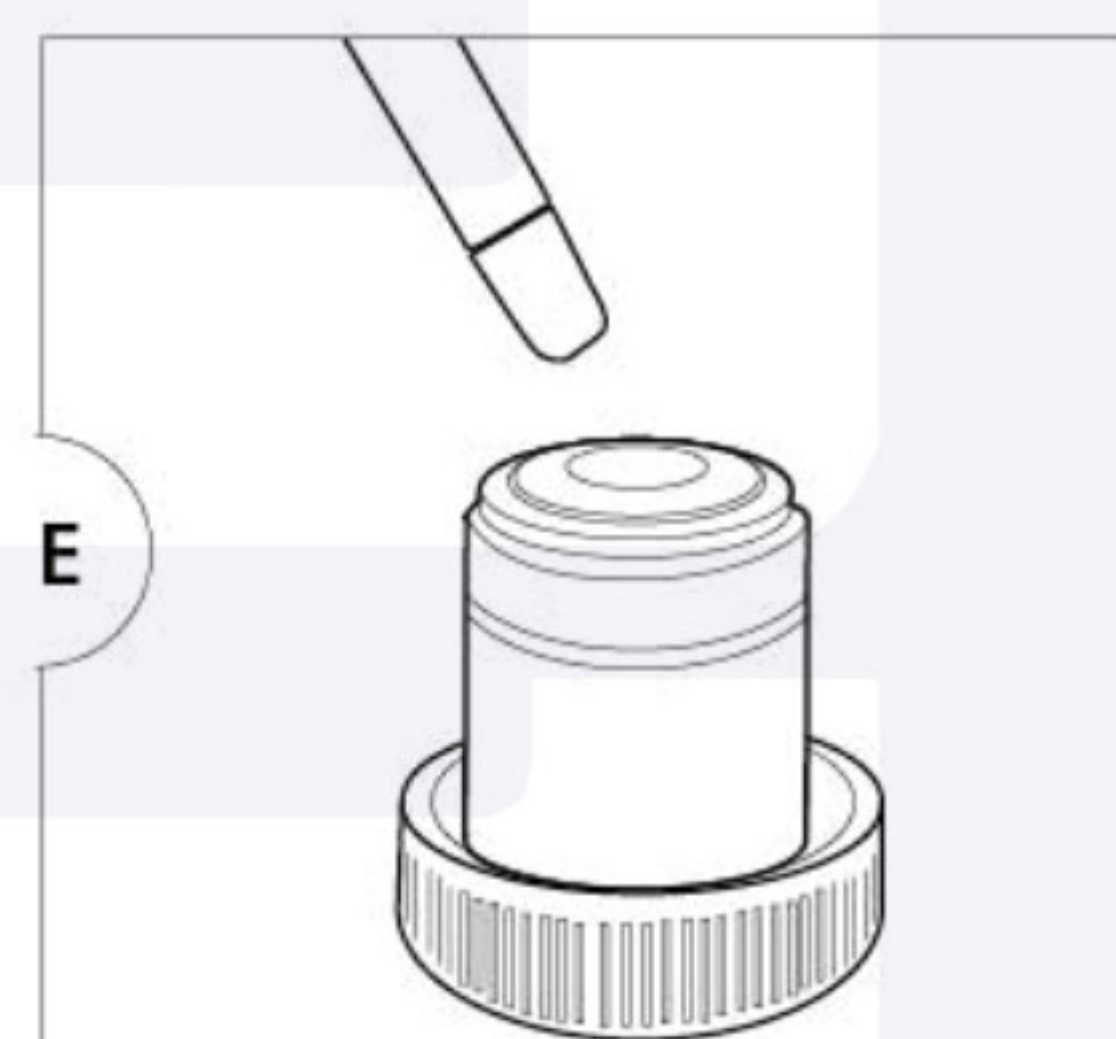
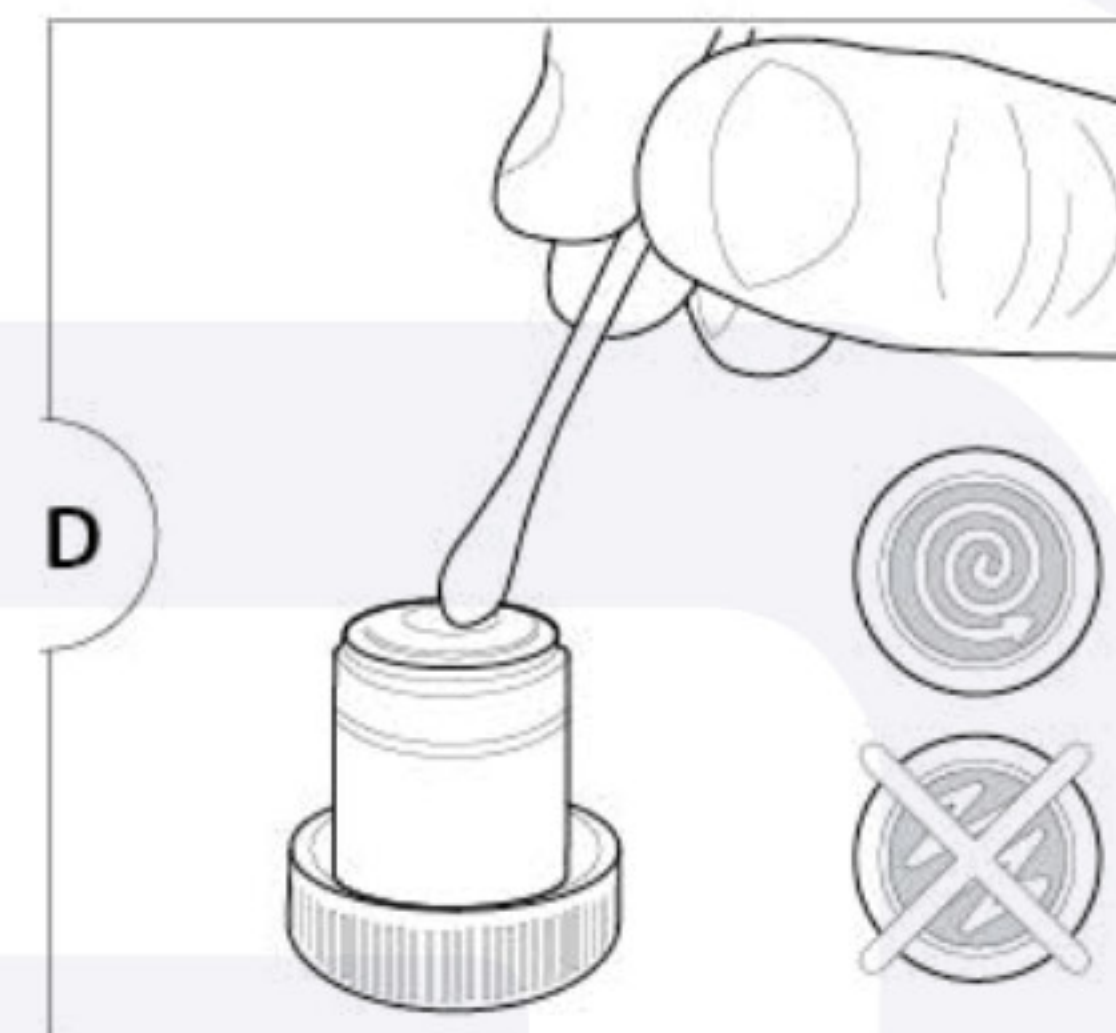
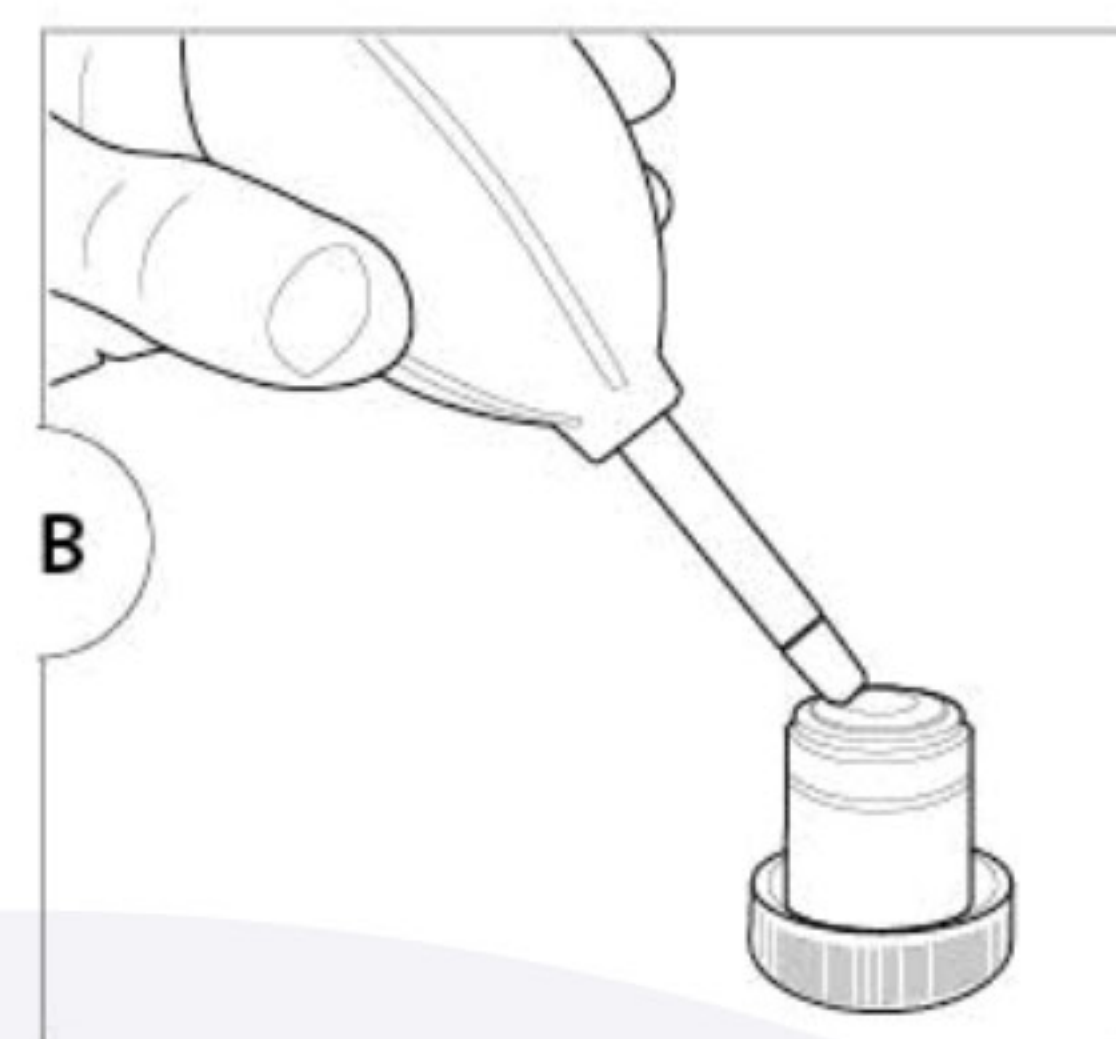
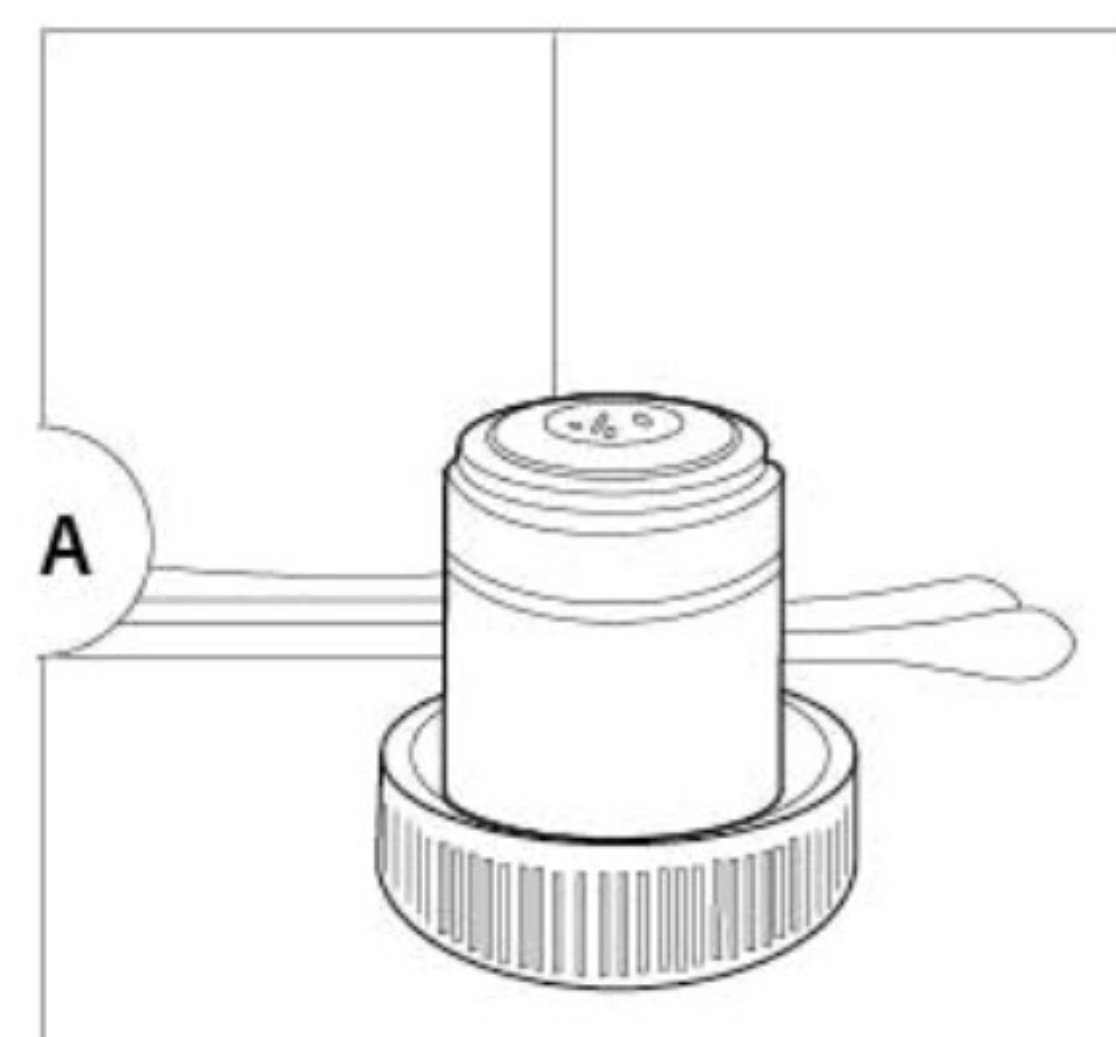
- Use an absorbent lens paper or cotton swap.
- Dampen a swap or towel with a small amount of lens cleaning fluid or cleaning mixture (either pure iso-propanol or a mixture of 7 parts ether and 3 parts alcohol)

FIGURE D |

- Clean the lens by using the tip of the cotton swap or the lens paper. Use enough lens paper so that solvents do not dissolve oils from your hands which can make their way through the paper on to the coated surface
- When cleaning a large lens surface, wipe with little pressure from the centre towards the periphery in a circular motion. **Do not use zig-zag motion**
- Discard each lens paper or cotton swap after a single use

FIGURE E |

- Wait until the cleaning fluid is evaporated, or speed up this process by using pressurized dry air
- Check if the surface is clean by using a magnifying glass
- Place the cleaned item back on the microscope



Please note that cleaning of the optical surfaces indicated in this instruction only applies to external surfaces of objectives, eyepieces, filters and condensers. Internal surfaces must always be done by your Euromex microscopes distributor

Troubleshooting

Proper use and maintenance ensure best performance of your Delphi-X Observer. If problems occur this chapter explains how to resolve most issues. Please make sure this chapter is read and checked before contacting your Euromex distributor for service. If a problem is not described in this list or the suggested solution does not bring the result needed, please contact your Euromex distributor

Problem	Cause	Action
There is no light from the lamp	No power	<i>Check if the power cable is connected well, try other power cable</i>
	The bulb is not inserted	<i>Remove the bulb and place it back</i>
	The bulb is defective	<i>Remove the bulb and place it back</i>
	The transmitted-reflected illumination switch is in the wrong position	<i>Change position of the switch</i>
	The fuse has blown	<i>Replace the fuse</i>
	There is no power from the mains connection	<i>Replace it</i>
The lamp burns out suddenly	Poor bulb quality	<i>Use the specified lamp to replace it. If the problem is not solved, contact your reseller</i>
The bulb flickers or the brightness is vertiginous	The bulb is at the end of its lifespan	<i>Replace the bulb</i>
	The bulb is not inserted entirely into the holder	<i>Remove the bulb and replace it</i>
iCare sensor does not turn off the illumination	There are other things in front of microscope (within 1 meter)	<i>Clear all object in a 1 meter radius</i>
	The iCare function is turned off	<i>Press and hold the iCare button for 4 seconds to activate the function</i>
Problem	OPTICAL SYSTEM - Cause	OPTICAL SYSTEM - Action
The edge of the field of view is dark or the brightness is not uniform	The nosepiece is not in the located position (objective and light path are not coaxial)	<i>Locate the nosepiece properly where it clicks</i>
	The image of the lamp is not centered	<i>Center the lamp</i>
	The lens (objective, condenser, eyepiece or collector) is dirty	<i>Clean it thoroughly</i>
Find dust and stain in the field of view	First rotate the eyepieces, if the dust moves:	<i>Clean the eyepieces</i>
	Next move the stage with slide, if the dust moves:	<i>Clean the slide or replace the slide</i>
	Next move the condenser up and down, if the dust moves (using 4 or 10x objective):	<i>Clean the top of the condenser</i>
	Next change objective, if the dirt is no longer visible:	<i>Clean the bottom lens of the objective</i>
	If problem remains:	<i>Clean the collector lens</i>
Image quality is not optimal (resolution or contrast)	There is no cover slip on the specimen	<i>Add cover slip</i>
	The cover slip is too thick or too thin	<i>Use the standard coverslip (0.17mm)</i>
	The specimen is placed upside down	<i>Turn slide around</i>
	There is oil on a non-oil lens, this often happens to the 40x objective	<i>Clean the objective</i>
	There are stains on the lens (including condenser, objective, eyepiece and collector)	<i>Clean the optical elements</i>
	No oil is used for the 100x oil objective	<i>Use Euromex immersion oil (PB.5255)</i>
	There are bubbles in the oil	<i>Try to remove the bubbles or create a new slide</i>
	Wrong oil is used	<i>Use Euromex immersion oil (PB.5255)</i>
	The size of the aperture diaphragm is too large	<i>Close the diaphragm</i>
	The size of the aperture diaphragm is too small	<i>Open the diaphragm</i>
	The position of the condenser is too low	<i>Adjust the position</i>

Periphery of the image is dark/ unclear (unevenly illuminated)	For low magnification objectives (4x, 2x) the swing-out condenser was not used correctly	<i>Swing out the top lens of the condenser</i>
	Diaphragm(s) closed too far	<i>Open the diaphragms</i>
	Lamp unit is not placed correctly	<i>Take out lamp unit and re-install</i>
	Incorrect position of the light path switching lever	<i>Set to right position</i>
	The nosepiece is not in the right position	<i>Turn the nosepiece until it "clicks " into position</i>
One side of the image is dark	The condenser is not centered correctly	<i>Center the condenser</i>
	The condenser is placed inclined in it's holder	<i>Install the condenser again and center it</i>
	The nosepiece is not in the right position	<i>Turn the condenser until it "clicks " into position</i>
	Diaphragm is not centered	<i>Center diaphragm</i>
One part of the image is not in focus. Part of the image becomes out of focus while moving specimen	The condenser is placed inclined in it's holder	<i>Install the condenser again and center it</i>
	The stage is tilted	<i>Re-install the stage making sure it is levelled</i>
	The specimen slide is not placed flat on the stage	<i>Replace the slide on the stage</i>
	The nosepiece is not in the right position	<i>Turn the nosepiece until it "clicks " into position</i>
	The specimen slide is not prepared well	<i>Try a specimen of known quality and confirm</i>
Image can not be focused while stage is in highest position	Focus lock system is secured at the wrong position	<i>Release the focus lock, focus and lock again</i>
	The stage is not installed correctly	<i>Re-install the stage making sure it is levelled</i>
The image through the eyepieces is shown as a double image or half moons appear	Interpupillary distance has not been set correctly	<i>Perform interpupillary adjustment</i>
	Dioptr adjustment has not been done correctly	<i>Perform diopter adjustment</i>
Eyes are getting tired	Interpupillary distance has not been set correctly	<i>Perform interpupillary adjustment</i>
	Dioptr adjustment has not been done correctly	<i>Perform diopter adjustment</i>
	Brightness is not correct	<i>Adjust brightness using intensity control knob or filters</i>
The image is too dark	Too low intensity set on intensity controller	<i>Increase the intensity by rotating the controller</i>
	The size of the aperture diaphragm is too small	<i>Adjust again</i>
	The position of the condenser is too low	<i>Adjust the position</i>
	Poor bulb quality	<i>Use the specified lamp</i>
	Diaphragm(s) closed too far	<i>Open the diaphragms</i>
	Light path selector set in wrong position	<i>Select the 100:0 or 20:80 position</i>
	The bulb is at the end of it's life span	<i>Replace the bulb</i>
	The Köhler incident light is not in the centre	<i>Adjust the bolt of Köhler incident light</i>
The image is too bright	Too high intensity set on intensity controller	<i>Decrease the intensity by rotating the controller</i>
	The size of the aperture diaphragm is too large	<i>Adjust again</i>
	The position of the condenser is too high	<i>Adjust the position</i>
The image appears blue-ish, yellow-ish or orange-ish	Too low or too high intensity set on intensity controller (Halogen illumination only)	<i>Increase or decrease the intensity by rotating the controller, and use the ND filters</i>
	The bulb is at the end of it's life span	<i>Replace the bulb</i>
The image cannot be focussed when using high magnification objectives	The cover slip is too thick	<i>Use the standard coverslip (0.17 mm)</i>
	The specimen is placed upside down	<i>Turn slide around</i>
	Focus lock system is secured at the wrong position	<i>Release the focus lock, focus and lock again</i>

Notes

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