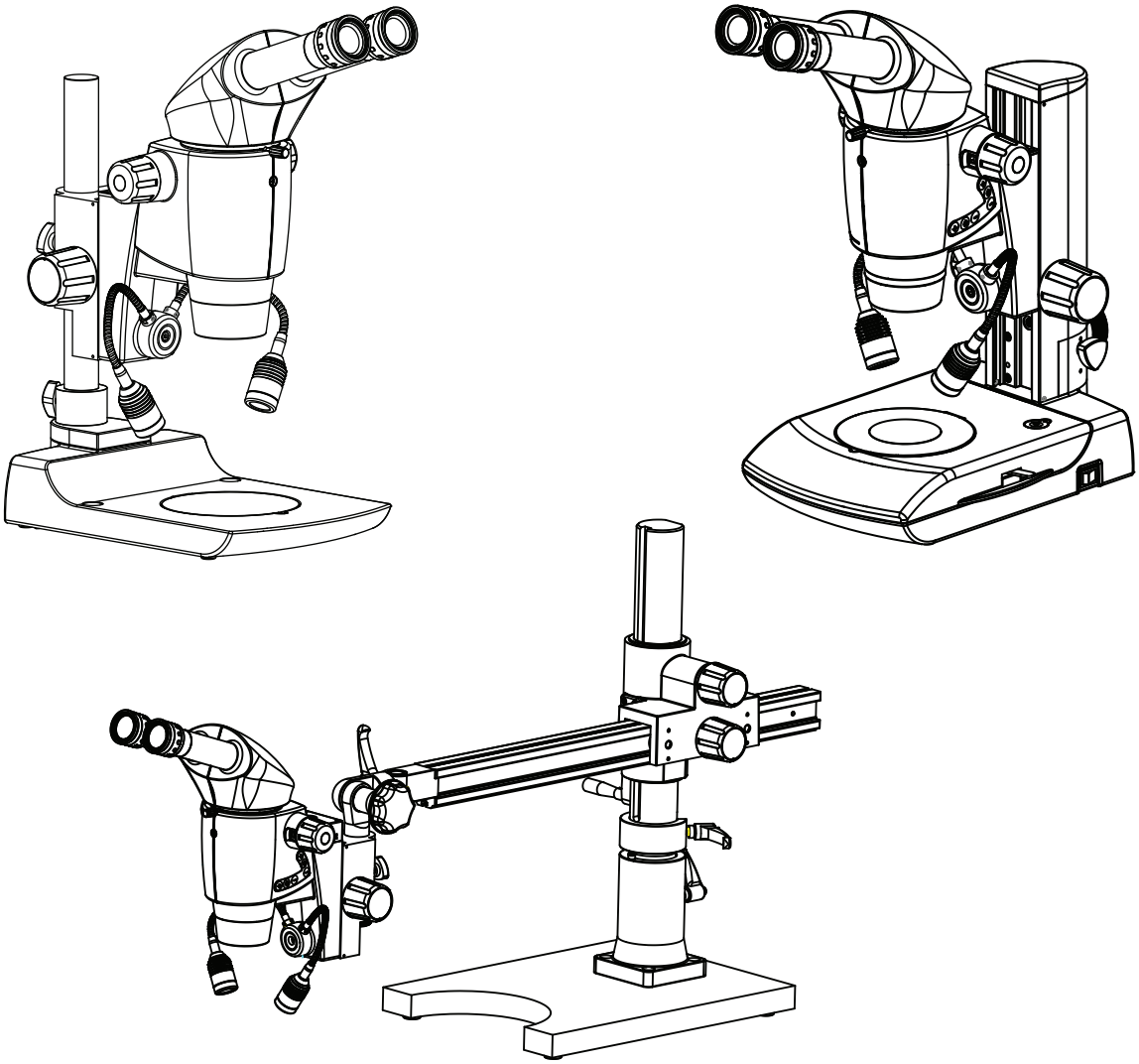
LABOMED
ideas for vision

Luxeo 6i
Stereo Zoom Microscopes

User Manual



To ensure correct use of this instrument and to avoid injury during operation, read this manual completely before use.

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CONGRATULATIONS

Congratulations on purchasing a LABOMED Luxeo 6i, an excellent choice!

The outstanding features of this stereo microscope are its high-performance modular design, its ease of use with an extensive range of accessories and its absolutely maintenance-free performance. Sturdy and reliable, it is exceptionally well suited to industrial, hospital and laboratory applications.

In developing the LABOMED Luxeo 6i, we have placed great emphasis on simple, self-explanatory operation. However, please take the time to read the user manual and the notes on operating safety to learn about all of its features and capabilities and use them to your best advantage.

If you have any questions, please contact your local LABOMED representative. We will be glad to help!

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1. INTRODUCTION

The Luxeo 6i is a high-quality stereo microscope designed on the telescope (Galilean) principle and equipped with an infinity-corrected 6:1 parallel-optics zoom system. This makes it suitable for digital photography with DSLR cameras and smartphones. Typical areas of use are industrial, hospital and laboratory applications.

The Luxeo 6i is a modern, high-performance stereo microscope with a modular design. An extensive range of accessories is available from LABOMED. It can easily be converted from continuous zoom to a stepped magnification changer with the tab on the magnification changer knob. The LABOMED Luxeo 6i stereo microscope has two parallel beam paths and one common main objective, and LED coaxial illumination with a service life of 50,000 hours.

Designed for professionals, this microscope offers many features and functions for a wide range of applications.

Extra clarity and contrast are provided by an optional binocular body with a 0–210° tilt.

The pressure die-cast stand has frictionless ball-bearing side focusing to avoid any loss of motion.

The sturdy, modern design provides both comfort and stability.

The lateral magnification changer allows smooth, comfortable zoom adjustment.

A special crank mechanism extends the travel range so that larger and taller objects can be inspected.

The long working distance accommodates extra-high objects.

The Luxeo runs on a direct-input power supply of 100–240 V AC, 50/60 Hz.
This ensures continuous operation even when the line voltage fluctuates.

2. SAFETY INFORMATION

2.1 SYMBOLS

Warning and caution symbols used in this manual

Although LABOMED products are designed to provide the utmost safety during use, incorrect use or disregard of the instructions may cause personal injury or property damage. For your own safety, read the instruction manual carefully and thoroughly before using the product. Do not discard this manual. Always keep it near the product for easy reference. In this instruction manual, safety instructions are indicated with the symbols shown below. For your safety, always follow the instructions marked with these symbols.

⚠ 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 instrument damage.

⚠ WARNING

1. Intended use of this product
   This product is intended only for microscopy. Do not use it for any other purpose.

2. Do not disassemble
   Disassembly may damage the instrument. Never disassemble any part except as described in this operation manual. Contact your LABOMED representative if you notice any malfunction of this instrument.

3. Check the input voltage
   When using the illumination, check that the input voltage shown on the power supply (supplied) matches the operating voltage. Contact your LABOMED representative about the voltage. Using an incorrectly matched illuminator may damage the equipment.

4. Power cord
   Always turn the power switch off and unplug the power cord before any kind of repair work. Failure to do so may result in electric shock or equipment damage.

SAFETY INFORMATION (CONTINUED)

⚠ CAUTION

1. Place of use
   Use the stereo microscope in closed, dust-free rooms at +10 °C to +40 °C. Protect it from oil, chemicals and extreme humidity. Install electrical devices at least 10 cm from the wall and away from flammable substances.

   In warm and warm-humid climate zones, the individual components require special care to prevent the growth of fungus.

2. Transport
   If at all possible, use the original packaging for shipping or transporting individual modules.

   To prevent damage from vibration, the customer should disassemble all moving parts as described in the user manual and pack them separately.

3. Integration in third-party products
   When LABOMED products are installed in third-party products, the manufacturer of the complete system or its dealer is responsible for following all applicable safety instructions, laws and guidelines.

4. Disposal
   Disposal must comply with locally applicable laws and regulations.

   If the warning label is stained or peels off, contact your LABOMED distributor.

SAFETY INFORMATION (CONTINUED)

2.2 IMPORTANT NOTES

Before installing, operating or using the instrument, you must read this user manual. In particular, observe all safety instructions.

User manual

This user manual contains important instructions on operating safety, maintenance and accessories.

- This manual may not be reproduced or transmitted in part or in whole without the express permission of LABOMED.
- The content of this manual is subject to change without notice.
- Although every effort has been made to ensure the accuracy of this manual, if you notice any points that are unclear or incorrect, contact your nearest LABOMED representative.
- Some of the products described in this manual may not be included in the set you have purchased.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Legal requirements

Follow general and local regulations on accident prevention and environmental protection.

EC Declaration of Conformity

Electrically operated accessories are built to the state of the art and are supplied with an EC Declaration of Conformity.

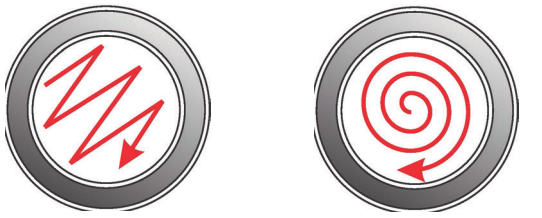
SAFETY INFORMATION (CONTINUED)

2.3 CARE AND MAINTENANCE INSTRUCTIONS

1. General instructions
- Protect the stereo microscope from moisture, fumes and acids, and from alkaline, caustic and corrosive materials.
- Protect the stereo microscope from oil and grease. Never grease or oil mechanical parts or sliding surfaces.
- Follow the instructions of the disinfectant manufacturer.
- We recommend concluding a service contract with LABOMED.

2. Cleaning the lenses
To clean the lens surfaces, remove dust with a soft brush or gauze (cans of compressed air are ideal). To remove fingerprints or grease, use a soft cotton cloth, lens tissue or gauze lightly moistened with cleaning solution (85% petroleum ether and 15% isopropanol). For cleaning the optics, use xylene. Exercise caution when handling xylene.

Cleaning procedure
Place the eyepieces on a dust-free surface (e.g. fresh aluminum foil). Make all other optical components to be cleaned as accessible as possible.
a. Blow away all loose dust particles with a dust blower.
b. Remove all water-soluble dirt with distilled water. If this is unsuccessful, repeat with a solution of diluted liquid hand soap. Remove any remaining residue with a dry cotton swab.
c. To remove oil, first use a solution of diluted liquid hand soap. If this does not give a satisfactory result, repeat the cleaning with a solvent (Optical Cleaning Solution: 85% petroleum ether and 15% isopropanol).
d. Always remove grease with a solvent.
e. Clean with a spiral motion from the center to the rim. Never wipe with zigzag movements, as this only spreads the dirt.
On larger optical surfaces (e.g. tube lenses), start the spiral motion at the rim, work toward the center, and then follow with a center-to-rim cleaning motion. Several spiral wipes are normally recommended. We recommend pure, volatile petroleum ether or the Optical Cleaning Solution described above.



Zigzag motion ⊗ Spiral motion ✓

Wipe with a spiral movement. Do not use a zigzag motion!

3. Cleaning painted surfaces
Do not use any organic solvent (e.g. thinner, xylene, ether or alcohol) to clean the painted surfaces of the instrument. Clean painted surfaces with a very lightly moistened microfiber cloth. Remove loose dust and dirt with a soft-hair brush used only for this purpose.

SAFETY INFORMATION (CONTINUED)

4. Cleaning coated parts and plastic parts
- Remove dust and dirt particles with a soft brush or a lint-free cotton cloth.
- Remove coarse debris with a moistened disposable cloth.
- Do not use acetone, xylene or nitro-based thinners.
- Never use chemicals to clean colored surfaces or accessories with rubberized parts. This could damage the surfaces, and specimens could be contaminated by abraded particles.

Caution
Do not use aggressive organic solvents such as acetone to clean painted surfaces and plastic parts of the microscope.

5. Accessories, maintenance and repair

Accessories
- Use only the accessories described in the “SYSTEM DIAGRAM” section of this user manual.

Maintenance, repair and servicing
- The LABOMED Luxeo 6i stereo microscope is virtually maintenance-free. To ensure that it always operates safely and reliably, we recommend periodic inspections or, if appropriate, a maintenance contract with LABOMED.
- We recommend concluding a service contract with LABOMED.
- For maintenance and repair, use only OEM spare parts.

Repairs and service work
- Use only original LABOMED spare parts.
- Before opening the instrument, switch off the power and unplug the power cable.
- Touching live circuits can cause injury.

6. Never attempt to dismantle the instrument
Never attempt to dismantle the instrument, as this could impair its operating efficiency and accuracy.

7. Disinfection
1. Household bleach (sodium hypochlorite 5%) diluted to 5000 ppm (10 parts water, 1 part bleach).

OR

2. 70% isopropyl alcohol.

Disinfection procedure:
- Take a muslin cloth.
- Moisten it until it feels damp.
- Disinfect/clean the surface gently.

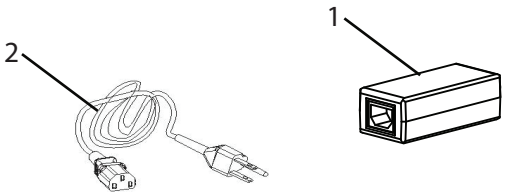
Note: 1. Wear a mask and gloves while cleaning and disinfecting.
2. When cleaning, the muslin cloth must not be dripping wet, to prevent seepage into and rusting of moving or bare parts.
3. Alcohol is flammable. Use it as a surface disinfectant only in well-ventilated spaces.

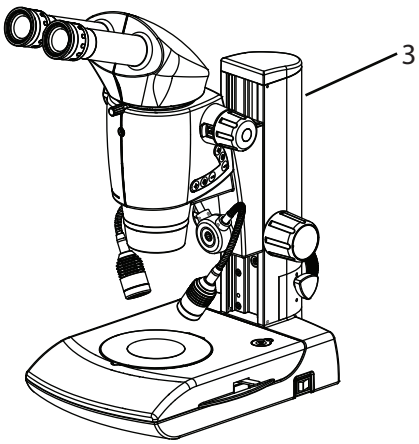
3. INITIAL SETUP

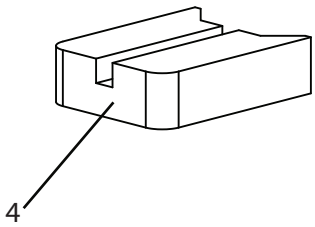
3.1 UNPACKING YOUR MICROSCOPE

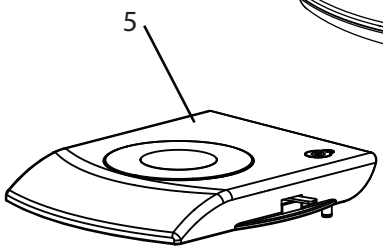
LIST OF PARTS

1. Power adapter (SD 165-24V-P5)
2. Power cable
3. Luxeo 6i microscope
4. DF base compensator
5. DF base (if ordered) (4146100-820)
6. Specimen plate (black and white) (4147000-851)
7. Specimen plate for DF base (if DF base provided) (4146000-827)
8. User manual (4147100-795)
9. Dust cover (PKG-104) with yellow duster



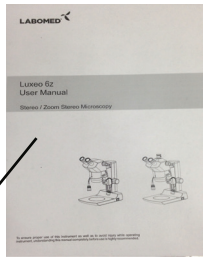








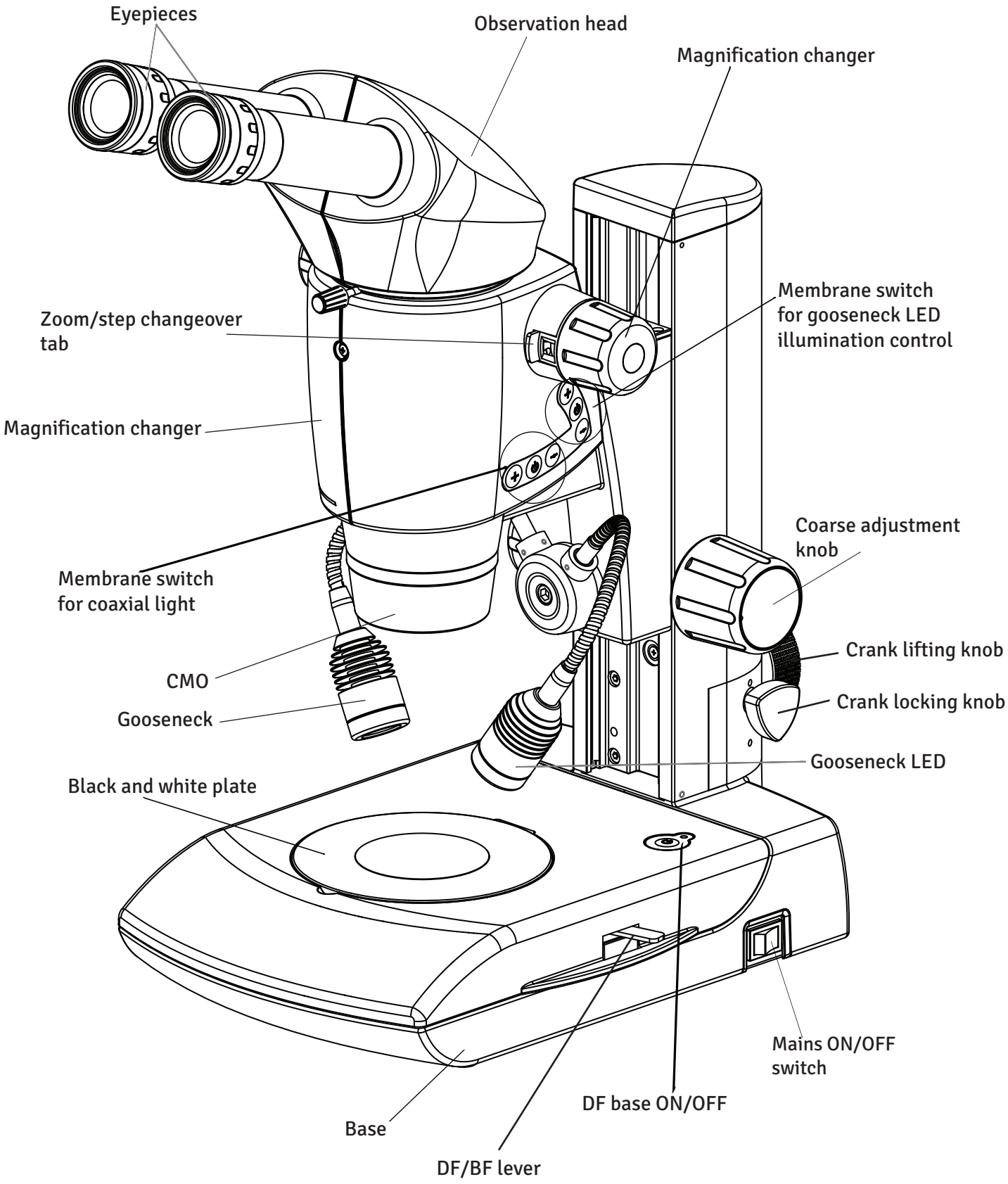






4. Luxeo 6i BINOCULAR MICROSCOPE

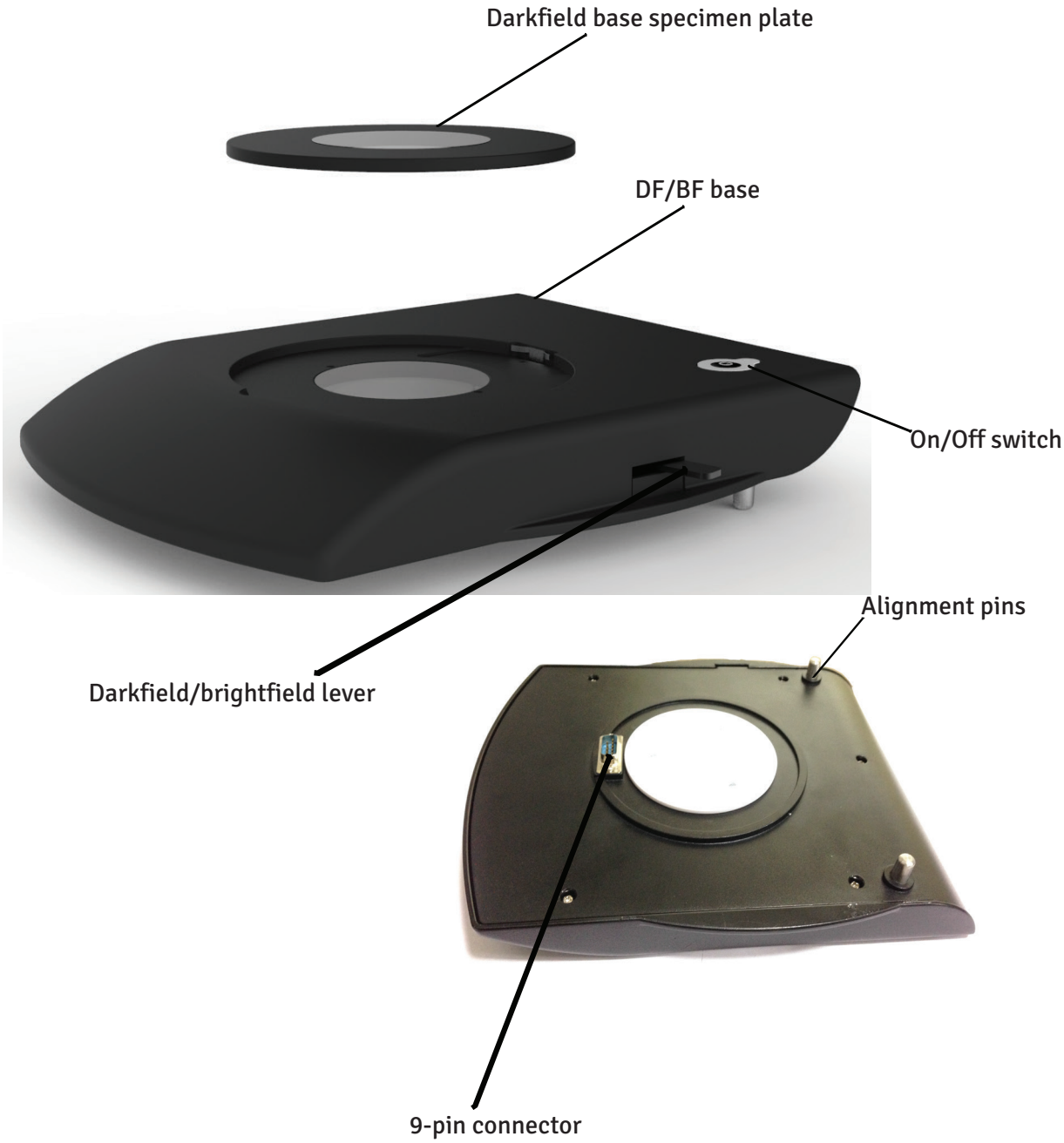
Part No. 4147100-800



5. DARKFIELD/BRIGHTFIELD (DF/BF) BASE

Part No. 4147100-826

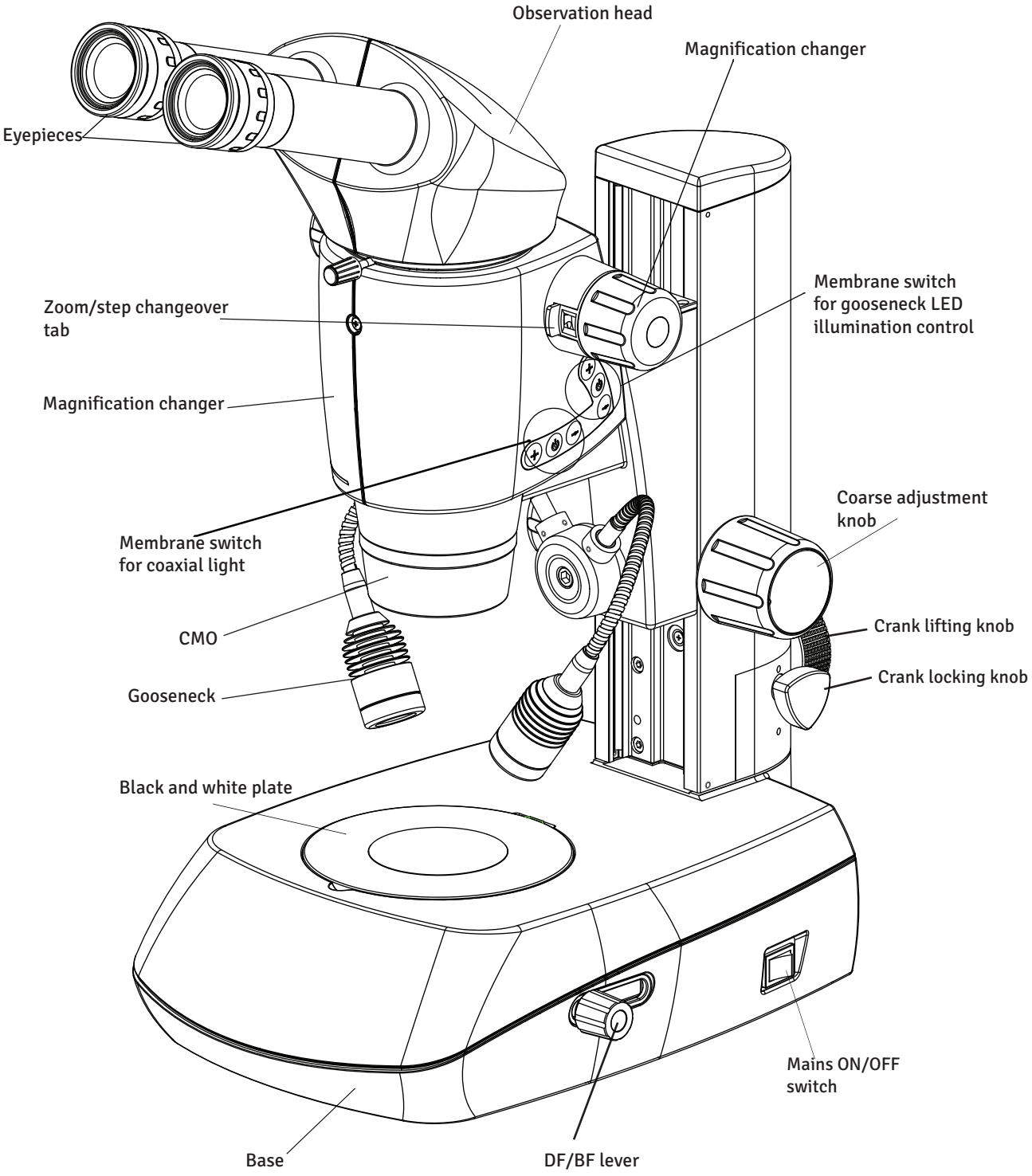
Note: The DF/BF base is not part of the standard Luxeo 6i configuration. It is supplied on order. For use of the DF/BF base, see page 11.



6. MIRROR BASE Luxeo 6i BINOCULAR MICROSCOPE

PRECONFIGURED MIRROR BASE FOR DARKFIELD ILLUMINATION (4147300)

Darkfield observation on the Luxeo 6i is provided by a specialized stand with a reflecting mirror and a light-shielding plate that direct an inverted hollow cone of illumination onto the specimen at oblique angles. It has the same function as the DF/BF base, with the advantage that it is factory-configured and dedicated to darkfield use only.



7. INSTALLATION

7.1 MICROSCOPE SETUP

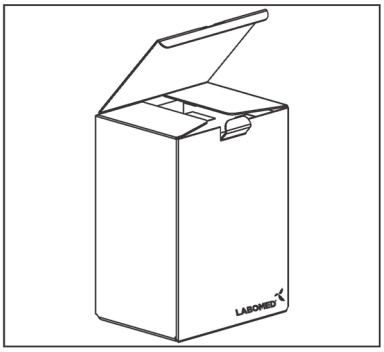


Fig. 1

1. Open the cardboard box from the top.
2. Take out the user manual.
3. Take the EPE foam sheet out of the box and take out the microscope, power cord and power adapter.
4. Raise the microscope bracket with the coaxial knobs.
5. Remove the front support packing.
6. Remove the dummy foam block if no DF/BF base is provided.
7. Place the microscope on a sturdy table. The Luxeo 6i is delivered ready to use.
   No special installation is required apart from powering up the microscope through the power adapter provided.
   The ocular tubes come with the eyepieces installed. The ocular tab prevents the eyepieces from falling out, rotating freely or being pulled out easily.

7.2 SETTING UP THE DARKFIELD ATTACHMENT (IF SUPPLIED)

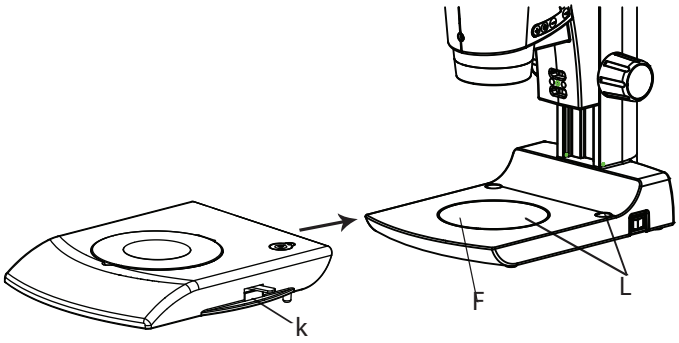


Fig. 2

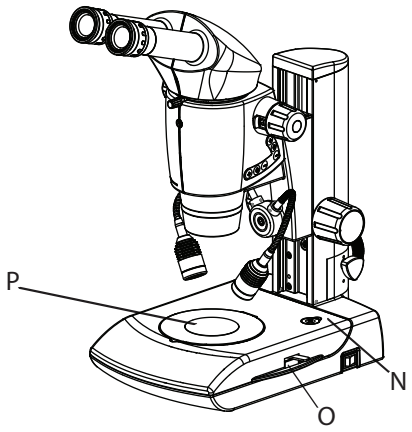


Fig. 3

1. Remove the black and white specimen plate from the base by pressing the plate as shown in Fig. 2.
2. Place the darkfield base gently onto the Luxeo 6i base, matching the guide pins of the darkfield base (K) with the guide holes (L). See Fig. 2.
3. The 9-pin male connector under the darkfield base connects automatically to the 9-pin female inlet (F) while you lift the disc gently onto the Luxeo 6i base. See Fig. 2 and 3.
4. For illumination, press the On/Off button (N) on the darkfield base. See Fig. 3.
5. Place the transparent specimen plate (P) on the DF/BF base. See Fig. 3.
6. Push the lever (O) back for darkfield illumination. Pull the same lever (O) forward for brightfield illumination.

8. OBSERVATION AND USE OF THE MICROSCOPE

8.1 POWER ON THE MICROSCOPE

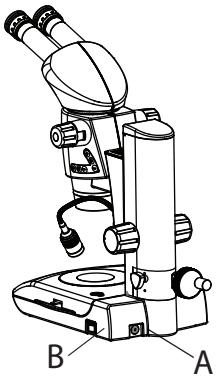


Fig. 4

Connect the output plug of the power adapter and plug the power adapter into the AC socket (A). See Fig. 4.
Press the power switch (B). See Fig. 4.
The incident coaxial illumination is controlled with switch (G). See Fig. 5.

Intensity control
Press buttons (F) and (H) to increase or decrease the coaxial illumination intensity in six steps.

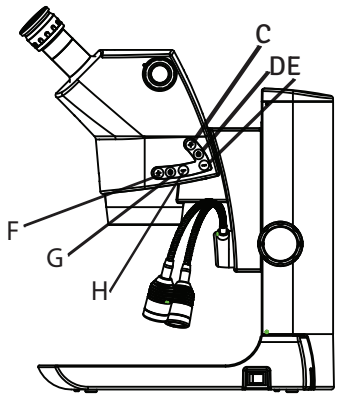


Fig. 5

The incident illumination (gooseneck LEDs) is controlled with switch (D), which lights both gooseneck LEDs. Press the button in the following sequence to operate the gooseneck LEDs.

- Press button (D) to light both gooseneck LEDs.
- Press button (D) a second time to switch off the gooseneck LEDs.

Intensity control
Press buttons (C) and (E) to increase or decrease the gooseneck LED intensity in six steps.

8.2 DIOPTER SETTING OF THE EYEPIECES

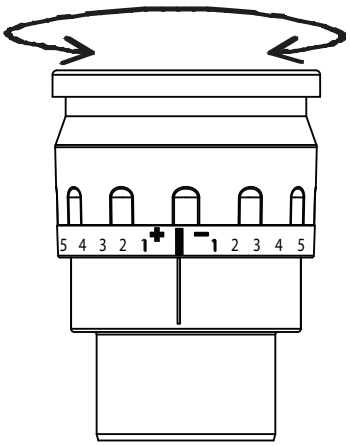


Fig. 6

Perform this adjustment every time the observer changes, since eyesight differs between individuals.

1. Turn the diopter rings on both eyepieces to the 0 position: align the 0 line with the index line.
2. Turn the zoom knob to the highest magnification. Focus on the sample with the focus knob.
3. Turn the zoom knob to the lowest magnification. Looking through the left eyepiece with your left eye, focus on the sample with the diopter ring of the left eyepiece. Then, looking through the right eyepiece with your right eye, focus on the sample with the diopter ring of the right eyepiece.
4. Repeat steps 2 and 3 until the image stays in focus when the zoom magnification is changed. This adjustment ensures a sharp image throughout the zoom range.

OBSERVATION AND USE OF THE MICROSCOPE (CONTINUED)

8.3 IPD ADJUSTMENT

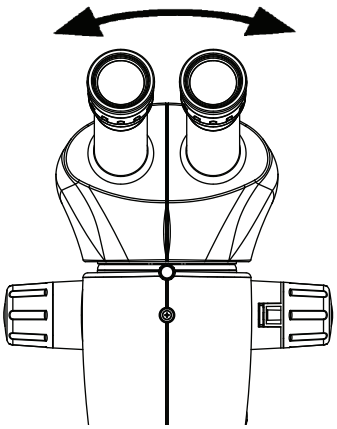


Fig. 7

Perform this adjustment every time the observer changes, since the interpupillary distance differs between individuals. Adjust the interpupillary distance so that the fields of view of both eyes merge into one. Move the eyepieces while holding each sleeve with both hands.

The interpupillary distance is set correctly when you see a single circular image field when looking at a specimen.
If you are new to microscopy, you may need a short time to get used to this. Do not worry: after a little while, it will become automatic.

Adjusting the interpupillary distance
1. Look into the eyepieces.
2. Hold the eyepieces with both hands. Push the eyepieces together or pull them apart until you see a circular image.
3. Slowly bring your eyes closer to the eyepieces until you can see the complete image field without cut-off corners.

8.4 FOCUSING THE MICROSCOPE

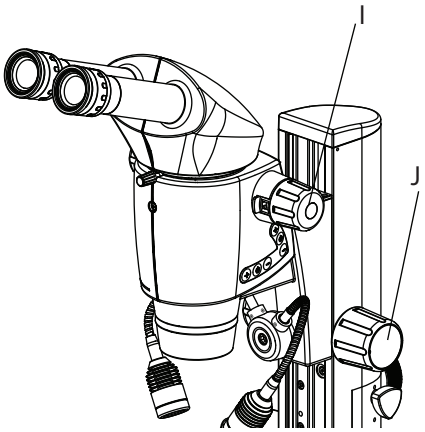


Fig. 8

1. Switch on the illumination required for the selected specimen.

2. Set both eyepieces to the 0 diopter reading.
3. Adjust the IPD as needed.
4. Place a specimen on the black and white plate or on the DF/BF base, depending on the configuration provided.
5. Set the zoom pod to the highest magnification with knob (I).
6. Looking through the eyepieces, focus on the specimen with the coarse adjustment knob (J).
7. Bring the image into critical focus.
8. Change the magnification from highest to lowest.
9. The image should now remain in focus. This setting is called parfocal adjustment of the microscope.
10. The microscope is ready to use.

Focusing raises or lowers the stereo microscope with the focusing drive. The specimen detail comes into sharp focus as soon as it is in the focal point of the objective.
- The focusing drive can be operated with the left or right hand.
- The focusing mechanism can carry a load of up to 20 kg.

OBSERVATION AND USE OF THE MICROSCOPE (CONTINUED)

8.5 FOCUSING TORQUE ADJUSTMENT

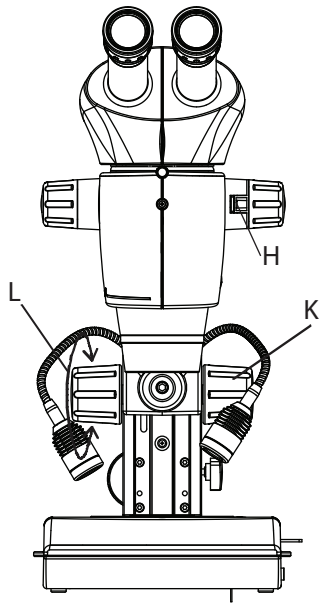


Fig. 9

The focusing torque of the Luxeo 6i is factory-set to the maximum limit, to withstand a maximum force of 20 kg with the standard binocular.

If required, the torque of the focusing mechanism can be loosened for the user's convenience as follows:

1. Hold the right knob (K) firmly. See Fig. 9.
2. Turn the left knob (L) clockwise to loosen the torque of the focusing mechanism.
3. As explained above, the torque cannot be tightened further, but it can be loosened for the user's convenience if required.

Changing the magnification (zoom)
The Luxeo 6i has an integrated 6:1 zoom.

Zooming

1. Look into the eyepieces.
2. Focus on the specimen.
3. Turn the magnification changer until the desired magnification is set.

Zoom to step magnification changer

1. See Fig. 9. The red tab 'H' is disengaged at the factory for continuous zoom observation.
2. Push in the red tab 'H' to engage the stepped magnification changer.

8.6 USING THE CRANK MECHANISM TO OBSERVE EXTRA-HIGH OBJECTS

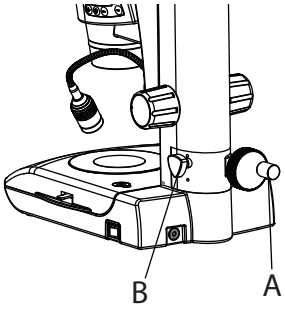


Fig. 10

See Fig. 10.

- Knob A lifts the complete coaxial system of the microscope by up to 65 mm.

- Knob B locks this mechanism at any position within the complete 65 mm range.

- This unique feature accommodates extra-high specimens for observation.

OBSERVATION AND USE OF THE MICROSCOPE (CONTINUED)

8.7 USING COMMON MAIN OBJECTIVES

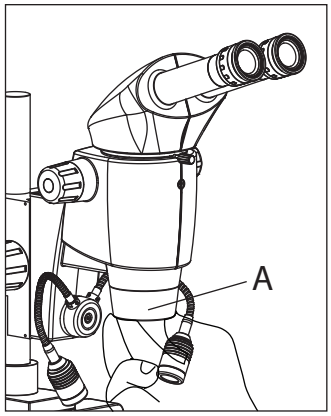


Fig. 11

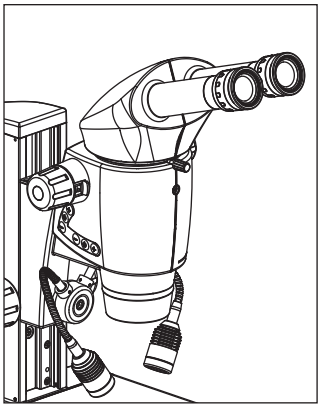


Fig. 12

1. Remove the protective cap from the optics carrier 'A' by turning it.

⚠ Hold the objective 'A' firmly during assembly and disassembly so that it does not fall onto the stage plate. This applies particularly to the 1x or 1.25x planapochromatic objective, which is very heavy. Remove all specimens from the stage plate first.
2. Screw the objective clockwise completely into the optics carrier.

THE DIFFERENT TYPES OF OBJECTIVES

To meet various imaging requirements, there is a choice of high-quality interchangeable planachromatic and planapochromatic objectives and lower-priced interchangeable achromatic objectives.

- Achromatic objectives are particularly suited to specimens with high-contrast structures.
- Flat-field (planachromatic) objectives are particularly well suited to studying flat objects such as wafers and thin sections.
- With planapochromatic objectives, the finest structures are visible with high contrast. The sophisticated apochromatic correction allows these objectives to attain the highest color brilliance and fidelity.

Achromatic objectives

The 0.32×, 0.5×, 0.63×, 0.8× and 1× achromatic objectives offer countless options for selecting the object field diameter, magnification range and working distance.

Planachromatic objective 1.25×

For the highest requirements on overall image quality, we recommend equipping the microscope with the 1.25× plan (flat-field) objective, which delivers sharp, high-contrast object fields.

9. OBSERVING EXTRA-HEIGHT SPECIMENS

9.1 PL STAND (4147400)

The PL stand is useful for:

1. Observing extra-high objects.
2. Any objective between 0.3x and 0.5x magnification.

9.2 ASSEMBLING THE PL STAND (Luxeo 6i)

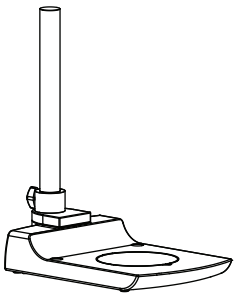


Fig. 13

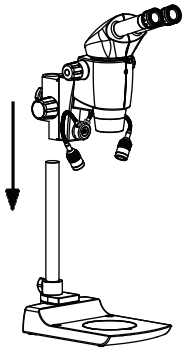


Fig. 14

Place the stand on a level surface.

Fit the zoom pod with its bracket to the pillar as shown and tighten it with the clamping knob on the bracket. See Fig. 14 and 15.

Connect the power supply output (B) to the inlet socket (A) on top of the zoom bracket. See Fig. 16.

Connect the power supply to the microscope (C). See Fig. 16.

Follow the steps on pages 11 to 15 to set up the microscope.

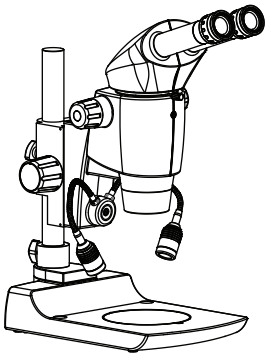


Fig. 15

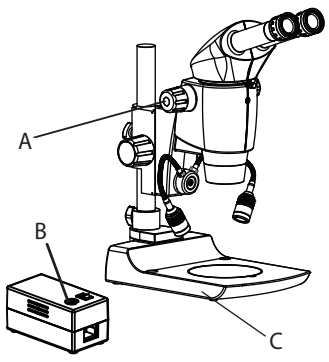
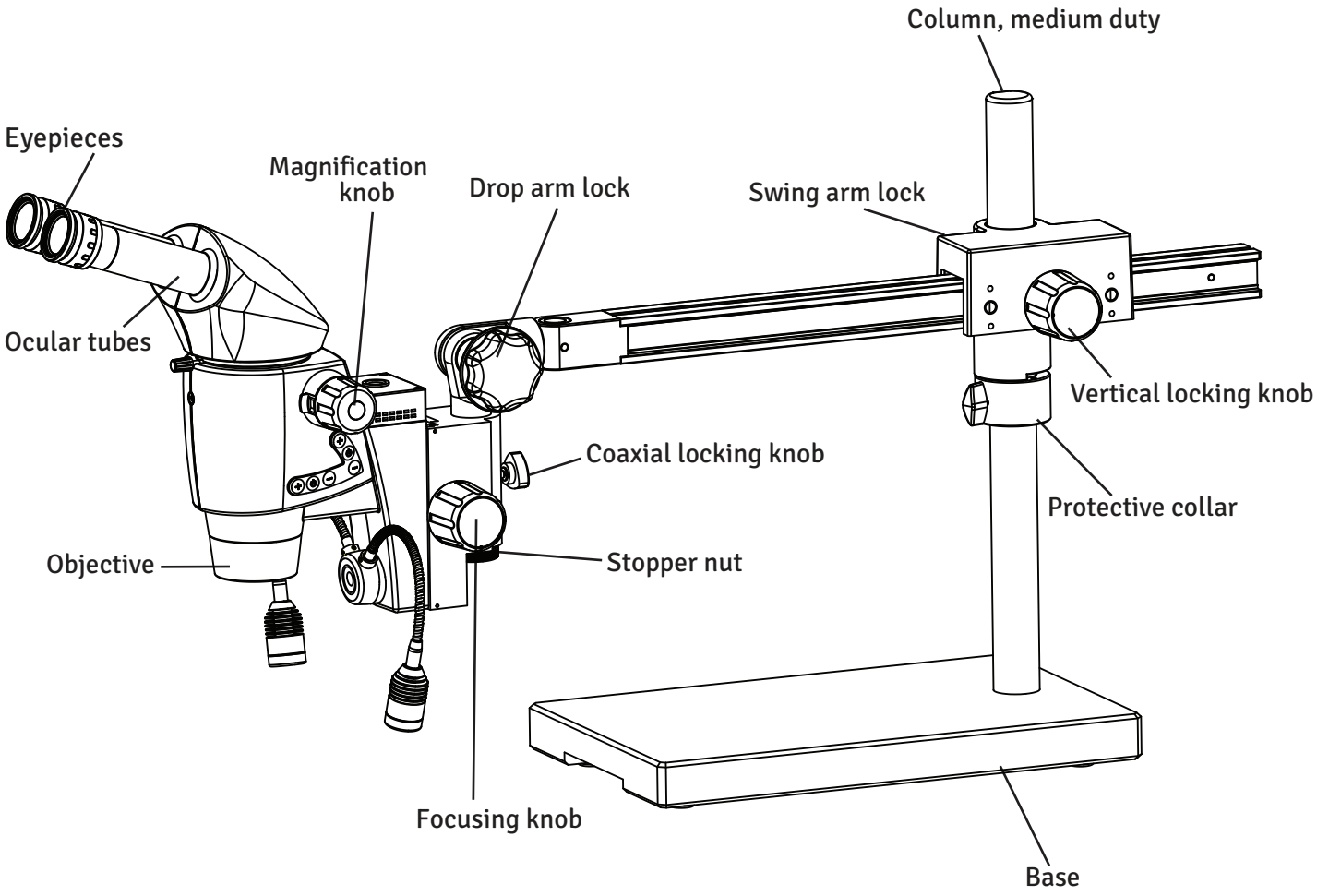
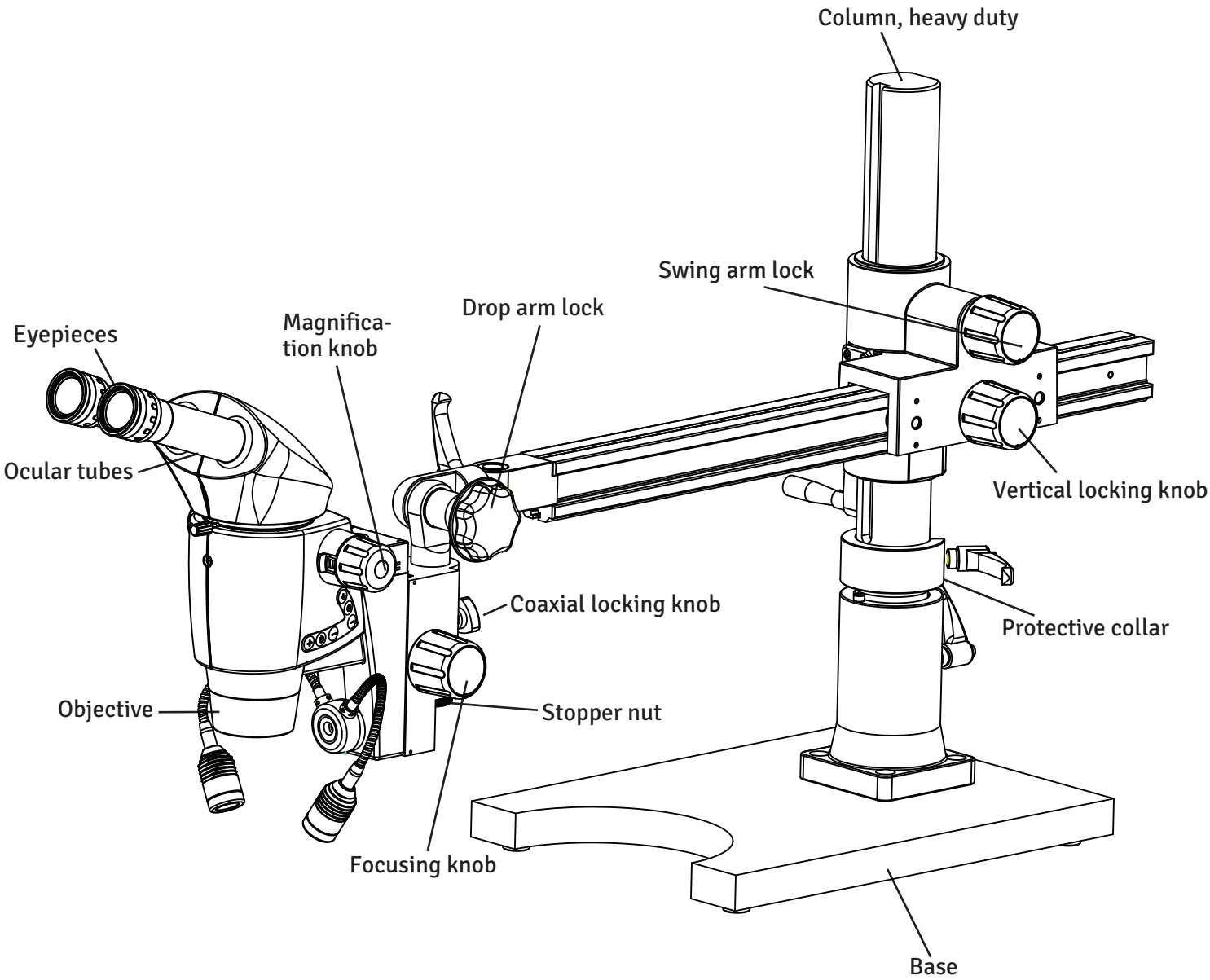


Fig. 16

10A. LUXEO 6i BINOCULAR (SWING ARM, MEDIUM DUTY)



10B. LUXEO 6i BINOCULAR (SWING ARM, HEAVY DUTY)



11. DEFINITION OF PARTS

Adjustable trinocular port
Threaded port with adjustable length for attaching a digital or video camera.

Swing arm
Microscope stand that allows the head to be moved freely in various directions.

Continuous zoom
Microscope head with a knob that changes the magnification continuously over a range.

Diopter
Allows the focus to be optimized for each eye independently.

Focusing knob
Moves the microscope head vertically to bring the sample into focus.

Gooseneck illuminator
Illuminator, independent of the unit, with one or two flexible necks for directed lighting.

Magnification knob
Changes the magnification of the optics on a continuous zoom microscope.

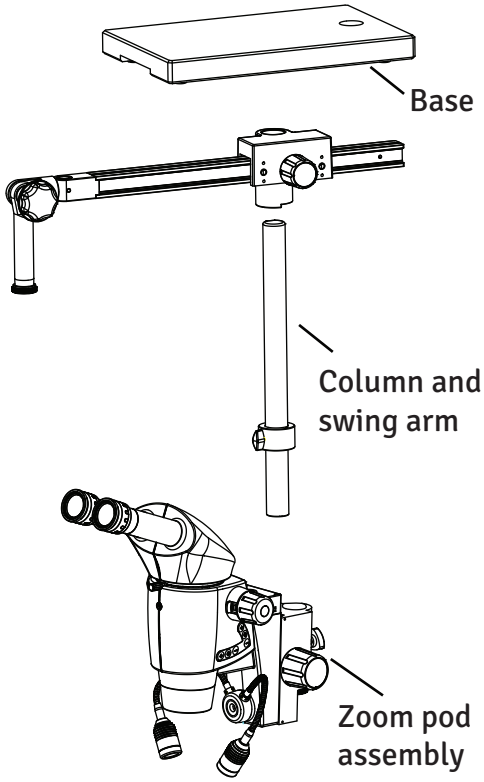
Microscope head
Contains the objective lens, the eyepiece tubes and the prisms used for magnification.

Ocular tube
Tube that holds the eyepieces or a camera in place.

Table stand
Stand that sits on the table and holds the head directly above the sample without moving.

12A. ASSEMBLY FOR MEDIUM DUTY

The Luxeo 6i swing arm is packed in 3 cardboard boxes:
Box 1: Base
Box 2: Column and swing arm assembly
Box 3: Zoom pod assembly
1. Open the box and take the base out of the carton after removing the EPE sheets.
2. Open the box marked “swing arm assembly”. The swing arm is packed in EPE cutouts, split into two parts:
i) Column
ii) Swing arm
3. Open the microscope box and take out the microscope and power supply.
4. Check the packing list to make sure that you have received all items. Note that the contents can vary depending on the model purchased.



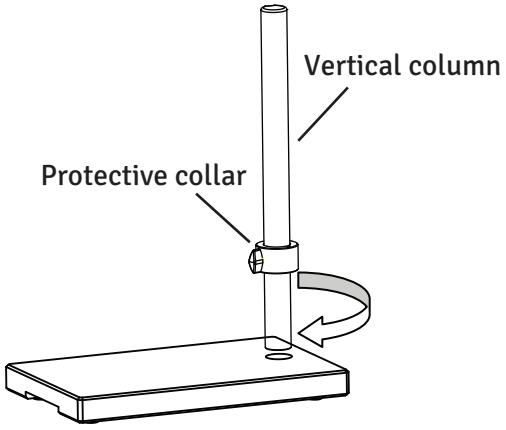


Fig. 1

5. Installing the swing arm stand.

5.1 Insert the vertical column into the base stand and screw the pole in securely with the 10 mm Allen wrench provided, as shown in Fig. 1.

5.2 Loosen the knob on the protective collar and adjust the collar to the correct height. Tighten the knob. See Fig. 1.

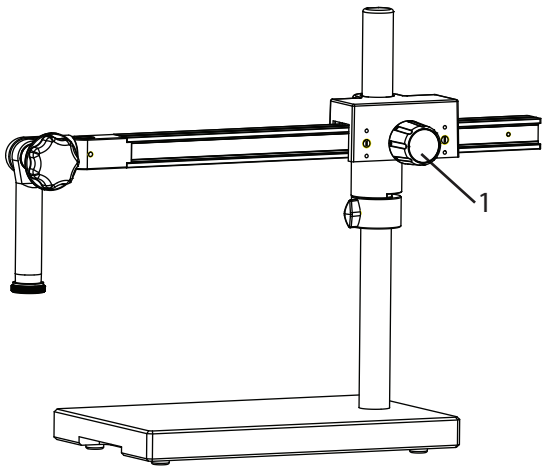
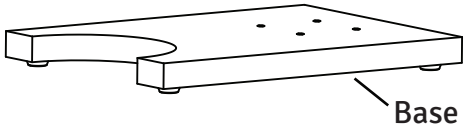


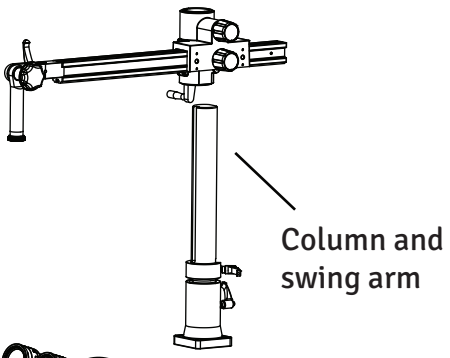
Fig. 2

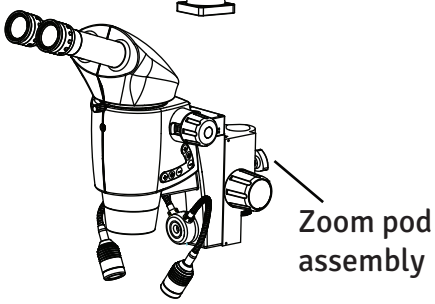
5.3 Loosen knob (1) and place the housing of the horizontal arm onto the vertical pillar. Rest the housing on the protective collar and set the arm as shown in Fig. 2. Tighten knob (1).

12B. ASSEMBLY FOR HEAVY DUTY

The Luxeo 6i swing arm is packed in 3 cardboard boxes:
Box 1: Base
Box 2: Column and swing arm assembly
Box 3: Zoom pod assembly
1. Open the box and take the base out of the carton after removing the EPE sheets.
2. Open the box marked “swing arm assembly”. The swing arm is packed in EPE cutouts, split into two parts:
i) Column
ii) Swing arm
3. Open the microscope box and take out the microscope and power supply.
4. Check the packing list to make sure that you have received all items. Note that the contents can vary depending on the model purchased.







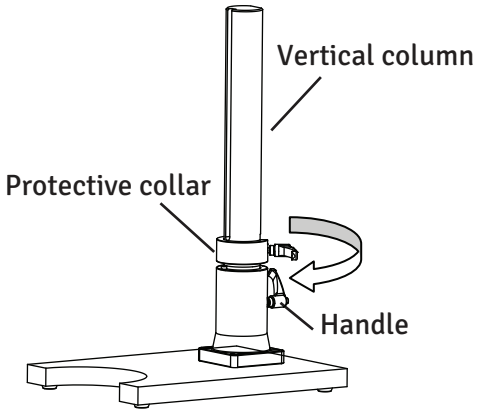


Fig. 1

5. Installing the swing arm stand.

5.1 Insert the vertical column into the base stand and screw the pole in securely with the handle, as shown in Fig. 1.

5.2 Loosen the knob on the protective collar and adjust the collar to the correct height. Tighten the knob. See Fig. 1.

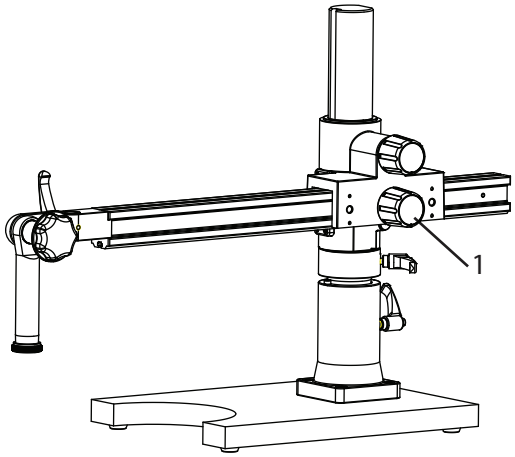


Fig. 2

5.3 Loosen knob (1) and place the housing of the horizontal arm onto the vertical pillar. Rest the housing on the protective collar and set the arm as shown in Fig. 2. Tighten knob (1).

13. ZOOM POD ASSEMBLY FOR MEDIUM/HEAVY DUTY

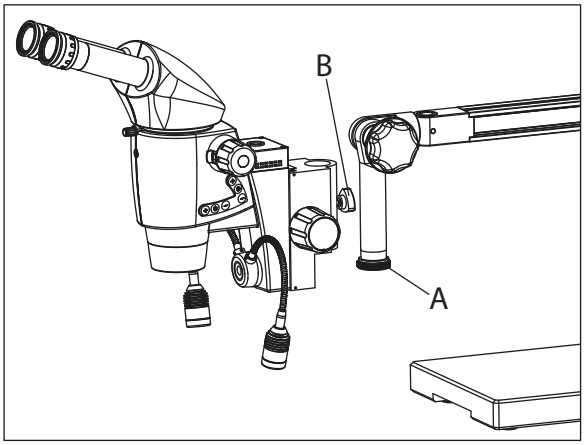


Fig. 3

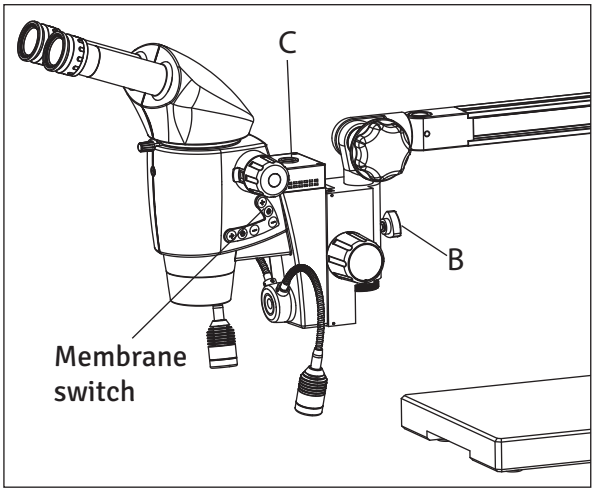


Fig. 3a

5.4 Remove stopper nut 'A', insert the head into the zoom spoodle and put stopper 'A' back in place. Tighten the lock knob (B) as shown in Fig. 3 and 3a.

5.5 On trinocular models, screw the photo port onto the top of the microscope head (trinocular C-mount port).

5.6 An external light source is included. Connect the light source to the microscope at port 'C' (Fig. 3a). Plug in the microscope and switch it on. If no light comes from the light source, adjust the membrane switch (Fig. 3a).

14. CALCULATING THE TOTAL MAGNIFICATION AND FIELD OF VIEW DIAMETER

PARAMETERS

MO	Magnification of objective e.g. 1x
ME	Magnification of eyepiece e.g. 10x
f	Magnification changer position e.g. 2.5
a	Binocular tube factor = 1.6
Field number (FN) Eyepiece	Field number of the eyepiece. Field numbers are printed on the eyepieces together with the magnification. e.g. 10x/22: the field number is 22

Calculation example: magnification (M)

$$M = MO \times ME \times f \times a$$

or

$$1 \times 10 \times 2.5 \times 1.6 = 40\times$$

Calculation example: field of view diameter in the specimen

$$\text{øFOV:} \frac{FN}{M_O \times f \times a}$$

$$\frac{22}{1 \times 2.5 \times 1.6} = 5.5$$

15. MAGNIFICATION CHART

Luxeo 6i Specification Table

Objectives		Achr. 0.32x		Achr. 0.50x		Achr. 0.63x		Achr. 0.80x		Achr. 1.0x/Plan Apo 1x		Achr. 1.25x	
Working distance		300		185		145		114		90 / 106		82	
Eyepiece	Mag. position	Total Mag. X	Obj. Field Ø	Total Mag. X	Obj. Field Ø	Total Mag. X	Obj. Field Ø	Total Mag. X	Obj. Field Ø	Total Mag. X	Obj. Field Ø	Total Mag. X	Obj. Field Ø
10x/22	0.4	2.0	110.0	3.2	68.8	4	55.0	5.13	42.9	6.4	34.4	8	27.5
	0.5	2.5	88.0	4.0	55.0	5	44.0	6.41	34.3	8	27.5	10	22.0
	0.7	3.5	62.9	5.6	39.3	7	31.4	8.97	24.5	11.2	19.6	14	15.7
	0.9	4.5	48.9	7.2	30.6	9	24.4	11.54	19.1	14.4	15.3	18	12.2
	1.0	5.0	44.0	8.0	27.5	10	22.0	12.82	17.2	16	13.8	20	11.0
	1.5	7.5	29.3	12.0	18.3	15	14.7	19.23	11.4	24	9.2	30	7.3
	2.0	10.0	22.0	16.0	13.8	20	11.0	25.64	8.6	32	6.9	40	5.5
	2.5	12.5	17.6	20.0	11.0	25	8.8	32.05	6.9	40	5.5	50	4.4
12.5x/18	0.4	2.5	90.0	4.0	56.3	5	45.0	6.41	35.1	8	28.1	10	22.5
	0.5	3.1	72.0	5.0	45.0	6.25	36.0	8.01	28.1	10	22.5	12.5	18.0
	0.7	4.4	51.4	7.0	32.1	8.75	25.7	11.22	20.1	14	16.1	17.5	12.9
	0.9	5.6	40.0	9.0	25.0	11.25	20.0	14.42	15.6	18	12.5	22.5	10.0
	1.0	6.3	36.0	10.0	22.5	12.5	18.0	16.03	14.0	20	11.3	25	9.0
	1.5	9.4	24.0	15.0	15.0	18.75	12.0	24.04	9.4	30	7.5	37.5	6.0
	2.0	12.5	18.0	20.0	11.3	25	9.0	32.05	7.0	40	5.6	50	4.5
	2.5	15.6	14.4	25.0	9.0	31.25	7.2	40.06	5.6	50	4.5	62.5	3.6
16x/16	0.4	3.2	80.0	5.12	50.0	6.4	40.0	8.21	31.2	10.24	25.0	12.8	20.0
	0.5	4	64.0	6.4	40.0	8	32.0	10.26	25.0	12.8	20.0	16	16.0
	0.7	5.6	45.7	8.96	28.6	11.2	22.9	14.36	17.8	17.92	14.3	22.4	11.4
	0.9	7.2	35.6	11.52	22.2	14.4	17.8	18.46	13.9	23.04	11.1	28.8	8.9
	1.0	8	32.0	12.8	20.0	16	16.0	20.51	12.5	25.6	10.0	32	8.0
	1.5	12	21.3	19.2	13.3	24	10.7	30.77	8.3	38.4	6.7	48	5.3
	2.0	16	16.0	25.6	10.0	32	8.0	41.03	6.2	51.2	5.0	64	4.0
	2.5	20	12.8	32	8.0	40	6.4	51.28	5.0	64	4.0	80	3.2
20x/12	0.4	4	60.0	6.4	37.5	8	30.0	10.26	23.4	12.8	18.8	16	15.0
	0.5	5	48.0	8	30.0	10	24.0	12.82	18.7	16	15.0	20	12.0
	0.7	7	34.3	11.2	21.4	14	17.1	17.95	13.4	22.4	10.7	28	8.6
	0.9	9	26.7	14.4	16.7	18	13.3	23.08	10.4	28.8	8.3	36	6.7
	1.0	10	24.0	16	15.0	20	12.0	25.64	9.4	32	7.5	40	6.0
	1.5	15	16.0	24	10.0	30	8.0	38.46	6.2	48	5.0	60	4.0
	2.0	20	12.0	32	7.5	40	6.0	51.28	4.7	64	3.8	80	3.0
	2.5	25	9.6	40	6.0	50	4.8	64.10	3.7	80	3.0	100	2.4

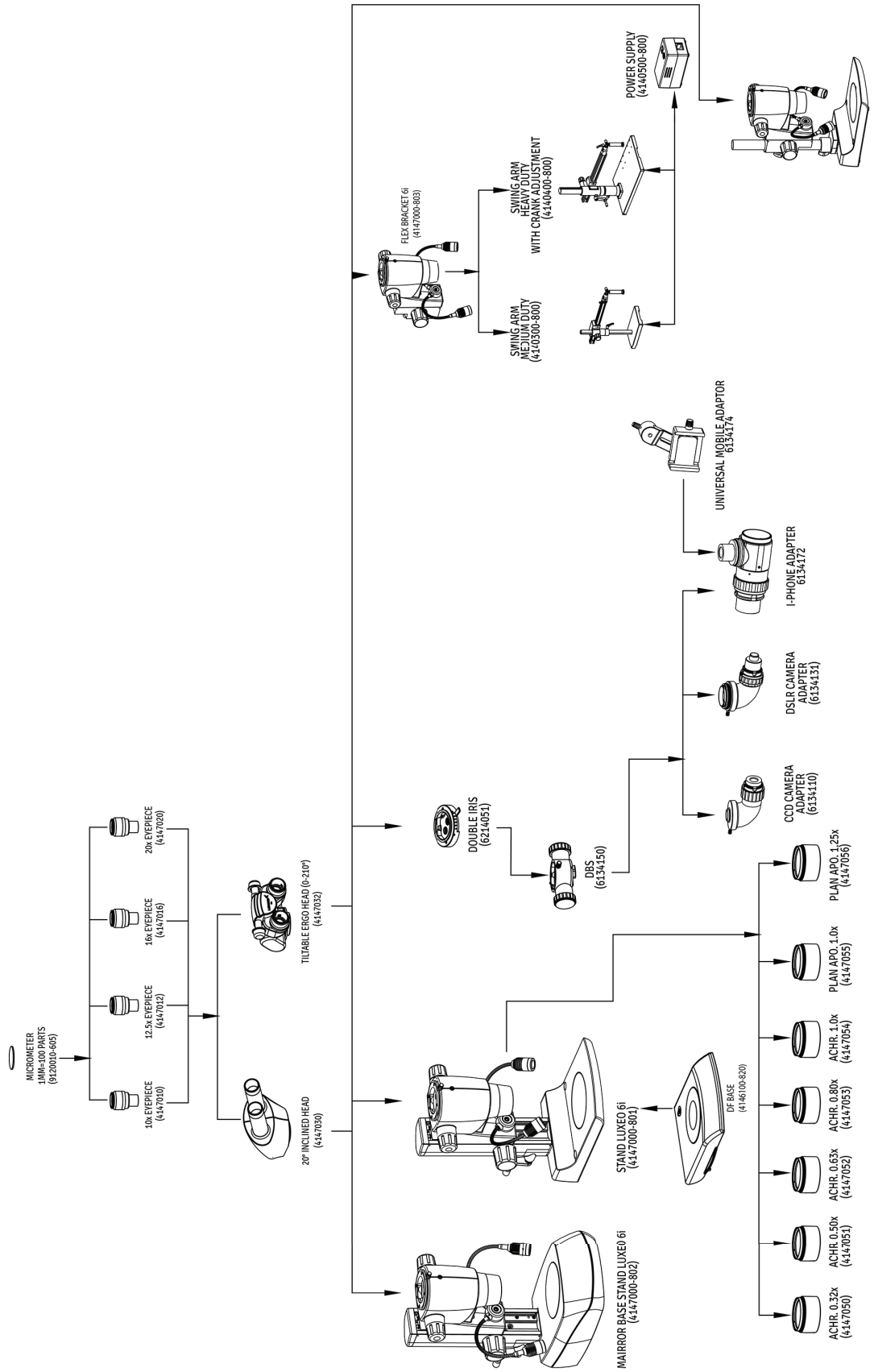
16. SPECIFICATIONS

Optical system	Galilean
Magnification zoom	1:6 continuous zoom, convertible to 8-step magnification
Eyepieces	WF 12.5x/18 mm with foldable eyeguards, diopter adjustment ±5 D Optional: 10x, 16x and 20x eyepieces
IPD	49–78 mm
Viewing angle	Binocular 20° Optional: 0–210° tiltable ergo head
Objective	1.0x apochromat Optional objectives: Achromats: 0.32x, 0.50x, 0.63x, 0.80x, 1.0x Plan apochromat: 1.25x
Working distance	106 mm
Magnification range	8x to 50x
Object field diameter	28.1 to 4.5 mm
Illumination	Incident light Coaxial light with intensity control Gooseneck for extra illumination
Transmitted light	Two options: detachable BF/DF (brightfield/darkfield) base; preconfigured mirror base for transparent objects
Reticles	For length measurement and counting
Camera adapters	DBS, CMOS camera adapter, DSLR camera, iPhone adapter

17. ELECTRICAL DATA

Input rating	100–240 V / 50–60 Hz
Output rating	24 V, 2.7 A
Fuse rating	250 V / 1.4 A
Voltage fluctuation	±10% (fluctuation of more than ±10% may damage the instrument). In regions with high voltage fluctuation, voltage stabilization is recommended for a longer instrument life.
Internal fuse	1.4 A / 250 V
Fuse rating	250 V / 1.4 A
Operating environment	Altitude 2000 m max. Temperature 0–40 °C (indoor use only) Relative humidity 85% max. (no condensation) Pollution degree 2
Storage environment	Temperature 20–60 °C Relative humidity 90% max. (no condensation)
Protection class	Class I
Power cord	Use only the recommended power supply cord. Using the wrong power cord could result in danger or fire. Protection class I equipment must be connected to a PE (protective earth) terminal.

18. SYSTEM DIAGRAM



19. SUMMARY OF THE OBSERVATION PROCEDURE

Turn the main switch “ON”

↓

Switch on the incident and/or transmitted illumination as required. The incident illumination can be controlled with the membrane switches on the observation head.

↓

Place the specimen on the stage

↓

Bring the specimen into focus

↓

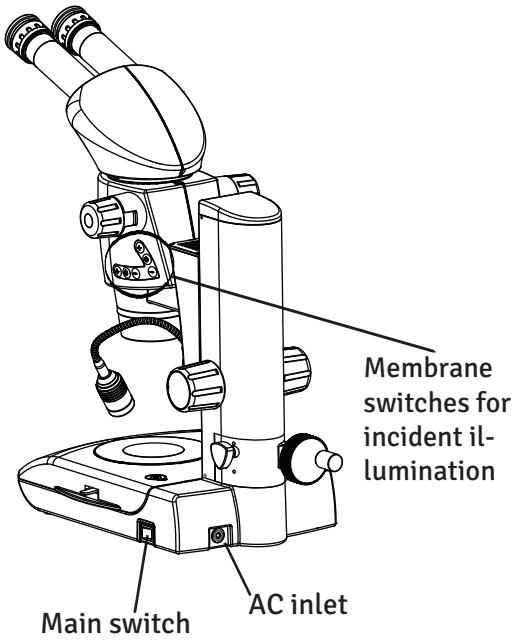
Adjust the observation tube and eyepieces
Adjust the interpupillary distance
Adjust the diopter setting

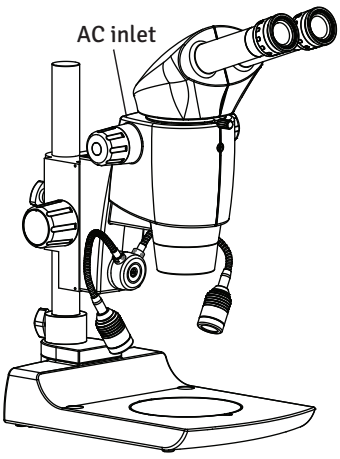
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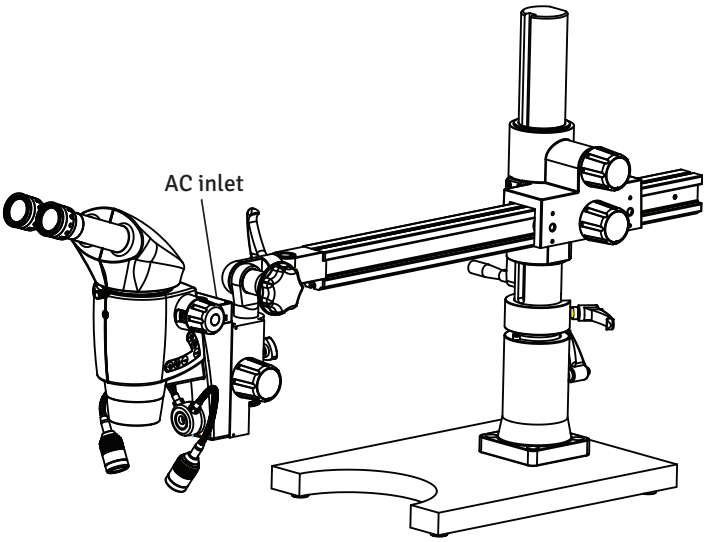
Adjust the brightness of the incident light

↓

Observe specimen







20. TROUBLESHOOTING GUIDE

Under certain conditions, the performance of the unit may be affected by factors other than defects. If a problem occurs, review the following list and take remedial action as needed. If you cannot solve the problem after checking the entire list, contact LABOMED for assistance.

OBSERVATION	CAUSE	REMEDY
Uneven brightness in the field of view	The incident illumination is low. The transmitted illumination is blocked by the specimen.	Increase the incident illumination. Use an opaque specimen or move the specimen. Use incident light.
The light does not come on at all.	The power cord is not connected. The microscope is not switched on. The power button is not switched on. The fuse is blown.	Check the power cord and connect it securely. Switch on the microscope. The switch indicator lights up when the power is on. Check the fuse. If it is blown, replace it with a new fuse. Observe the caution!
The specimen cannot be focused.	The specimen is not properly focused. The specimen is too small. The specimen is too large.	Focus on the specimen at the lowest magnification first. Obtain the best focus with the coarse adjustment knob. The specimen is too small: micro-dissection slides cannot be viewed with a stereo microscope. The specimen is too large to focus: use a smaller specimen.

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