

Instruction Manual

## **ZEISS Stemi 508**

Greenough Stereo Microscope for Routine and Research



**ZEISS Stemi 508**

Original Manual

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# 1 Contact and Addresses

**ZEISS Contact** Find your contact at ZEISS Microscopy at [www.zeiss.com/microscopy/contact](http://www.zeiss.com/microscopy/contact).



**ZEISS Academy** For information on microscopy courses, training, and education visit the ZEISS Academy Microscopy at [www.zeiss.com/microscopy-training](http://www.zeiss.com/microscopy-training).



## Legal Manufacturer



Carl Zeiss Suzhou Co., Ltd.  
No. 26 Wusheng Road, SIP  
215126 Suzhou  
China

**Authorized Representatives, Importers, etc.** This section informs about responsible entities for certain obligations in the identified country or jurisdiction.

**EU**



Carl Zeiss Microscopy GmbH  
Carl-Zeiss-Promenade 10  
07745 Jena  
Germany

**UK Importer**

Carl Zeiss Ltd  
1030 Cambourne Business Park, Cambourne  
CB23 6DW Cambridge  
United Kingdom

## 2 About this Instruction Manual

This Instruction Manual (further called "document") is considered to be part of the Stemi 508, herein after referred to as "microscope".

This document contains basic steps and safety information that must be observed during operation and maintenance. Therefore, the document must be read by the operator prior to commissioning and must always be available at the place of use of the microscope.

This document is an essential part of the microscope and, if the microscope is resold, the document must remain with the microscope or be handed over to the new owner.

### 2.1 Text Conventions and Link Types

Explanation	Example
Software controls and GUI elements.	Click <b>Start</b> .
Hardware controls and elements.	Press the <b>Standby</b> button.
Key on the keyboard.	Press <b>Enter</b> on the keyboard.
Press several keys on the keyboard simultaneously.	Press <b>Ctrl + Alt + Del</b> .
Follow a path in the software.	Select <b>Tools &gt; Goto Control Panel &gt; Airlock</b> .
Text to be entered by the user.	Enter <i>example.pdf</i> in this field.
Anything typed in literally during programming, for example macro codes and keywords.	Enter <code>Integer</code> in the console.
Link to further information within this document.	See: <i>Text Conventions and Link Types</i> [▶ 7].
Link to a website.	<a href="https://www.zeiss.com">https://www.zeiss.com</a>

## 2.2 Explanation of Warning Messages and Additional Information

DANGER, WARNING, CAUTION, and NOTICE are standard signal words used to determine the levels of hazards and risks of personal injury and property damage.

Always observe the safety and warning messages in **all** chapters of this document. Failure to comply with these instructions and warnings may result in personal injury, property damage, and the loss of any claims for damages.

The following warning messages indicating dangerous situations and hazards are used in this document.

### **DANGER**

#### **Type and source of danger**

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

### **WARNING**

#### **Type and source of danger**

WARNING indicates a potentially hazardous situation which, if not avoided, may result in death or serious injury.

### **CAUTION**

#### **Type and source of danger**

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

### **NOTICE**









#### **Type and source of danger**

NOTICE indicates a potentially harmful situation which, if not avoided, may result in property damage.

### **Info**

Provides additional information or explanations to help the user better understand the contents of this document.

## 2.3 Explanation of Symbols

	CE marking (Conformité Européenne)
	UKCA marking (UK conformity assessed)
	Manufacturer
	Country of manufacture. "CC" is the country code, e.g. "DE" for Germany, "CN" for China. Date of manufacture optionally given adjacent to this symbol
	Importer
	Serial number
	Catalogue number
	WEEE label: Do not discard as unsorted waste. Send to separate collection facilities for recovery and recycling

## 2.4 Further Applicable Documents

- Brochures and Certificates** For brochures, certificates (e.g. ISO, CSA, SEMI), and declarations of conformity (e.g. EU, UK) ask your ZEISS Sales & Service Partner.
- Installation Requirements** For more details on technical data, refer to the corresponding Installation Requirements.
- Local and National Health and Safety Regulations** Observe local and national health and safety regulations for the location of installation and during the use of the microscope.
- Safety Data Sheets** Consult with your ZEISS Sales & Service Partner if these regulations are in conflict with the installation requirements of the microscope.
- Software** Observe the enclosed safety data sheets. The instructions and guidelines given in the respective safety data sheets must be complied with.
- System and Third-Party Components, Accessories** For detailed information on how to use the software, refer to its manual (e.g. Online Help, Software Manual) or ask your ZEISS Sales & Service Partner.
- Instruction Manuals** Information about the individual components, enhancements, and accessories can be obtained from your ZEISS Sales & Service Partner. Also refer to the documentation of third-party manufacturers.
- Also observe the following instruction manuals:
- External illuminators (e.g. for fiberoptic cold light sources, LED spot or ring illuminators)
  - Alternative stands (stand U, stand B, stand SDA, floor stand S)
- Many of these instruction manuals can be found at the [ZEISS Portal](#).



## 3 Safety

This chapter contains general requirements for safe working practices. Any person using the microscope or commissioned with installation or maintenance must read and observe these general safety instructions. Knowledge of basic safety instructions and requirements is a precondition for safe and fault-free operation. Operational safety of the supplied microscope is only ensured if it is operated according to its intended use.

If any work is associated with residual risks, this is mentioned in the relevant parts of this document in a specific note. When components must be handled with special caution, they are marked with a warning label. These warnings must always be observed.

Improper use of the microscope and its components can easily lead to impairment of their function or even damage them. Damage caused by incorrect operation, negligence, or unauthorized intervention, in particular by removing, modifying, or replacing parts of the microscope or its components, cannot be held liable by the device manufacturer. Third-party devices or components that are not expressly approved by ZEISS may not be used.

Any serious incident that has occurred in relation to the microscope and its components shall be reported to these institutions:

- the competent authority of the Member State in which the user is established
- Carl Zeiss Suzhou Co., Ltd., Suzhou, China

### 3.1 Intended Purpose

The stereo microscope Stemi 508 is an instrument for the general magnifying, spatial imaging of small objects. The microscope is designed and built for use in industrial manufacturing and quality assurance and is used for observing, preparing and sorting objects and specimens of various types and conditions. It is not intended to either directly or indirectly generate medical diagnostic results.

### 3.2 General Safety Information

This document must be read before commissioning in order to ensure safe and uninterrupted operation. Pay particular attention to all listed safety notes. Make sure, that

- the operating personnel has read and understood this manual, associated documents and particularly all safety regulations and instructions, and applies them.
- the local and national safety and accident prevention regulations must be observed, as well as the applicable laws and regulations in your country.
- this document is always available at the place of use of the microscope.
- the microscope is always in perfect condition.
- in case of defect or damage, the affected parts and the microscope are taken out of operation immediately and are secured against unintentional use.
- maintenance and repair work, retrofitting, removal or replacement of components, as well as any other intervention in the microscope not described in this document, may only be carried out by the manufacturer ZEISS or persons expressly authorized by ZEISS to do so.

### 3.2.1 Requirements for Operators

The microscope, components, and accessories may only be operated and maintained by authorized and trained personnel. The microscope may only be used in accordance with this document. If the microscope is not used as described, the safety of the user may be impaired and/or the microscope may be damaged.

Any unauthorized intervention or use other than within the scope of the intended use shall void all rights to warranty claims. The regional regulations on health protection and accident prevention must be observed at all times and during all work on and with the microscope.

**Training** Authorized ZEISS personnel will provide basic training in operating the microscope, as well as information on equipment safety and maintenance work that can be conducted by the operator. The training will be documented by ZEISS and its completion is to be confirmed by the operator. Special application training is offered for a fee. Current training dates, additional information and the registration form can be found at [www.zeiss.com](http://www.zeiss.com) or at the [ZEISS Portal](#).

### 3.2.2 Safe Operating Condition

If circumstances occur which impair safety and cause changes in operating behavior, the microscope and its components must be shut down immediately and a ZEISS service representative should be informed.

The microscope may only be operated if the operating conditions are adhered to.

- Do not operate the microscope and its components until you have completely read and understood the entire documentation.
- Make sure that all protective cover panels are installed and all warning labels are available and legible.
- Ensure conditions and take measures to prevent the build up of electrostatic charge on the workplace.

### 3.2.3 Order and Use of Spare Parts

Using spare parts that are not provided by ZEISS can be hazardous or can lead to property damage.

- Unless authorized by ZEISS, all spare parts should be installed by a ZEISS service representative.
- Contact your ZEISS service representative for information on spare parts order.
- Only genuine parts supplied by ZEISS are to be used in servicing the microscope and its components.

### 3.2.4 EMC Information

The microscope is intended to be used in an industrial electromagnetic environment.

The microscope complies with the emission and immunity requirements as a CISPR 11 / EN 55011 / class A group 1 system according to IEC 61326-1. Emissions, which exceed the levels required by CISPR 11 / EN 55011, can occur when the microscope is connected to other devices.

The following EMC user notice is for Korea only:

기종별	사용자안내문
A급기기(업무용방송통신기자재)	이기는업무용(A급) 전자파적합기기로서 판매자또는사용자는이점을주의하시기바라며, 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

### 3.2.5 Optical Risk Grouping

According to IEC 62471 sources of optical radiation are classified into risk groups subject to their potential photobiological hazard. Sources are classified into the following four groups according to hazard, based on the emission limit as well as permissible exposure time before hazard exceeded.

Risk group	Description
Exempt	No photobiological hazard.
1 (low risk)	No hazard due to normal behavioral limitations on exposure.
2 (moderate risk)	No hazard due to the aversion response to very bright light sources or thermal discomfort.
3 (high risk)	Hazardous even for momentary exposure.

The following table lists the risk grouping of the available light sources according to the mentioned standard:

Light source	Risk group
Overall device	2
Spot illuminator K LED (reflected illumination)	2
Double spot illuminator K LED (reflected illumination)	2
Transmitted-light unit in stand K LAB	2
Transmitted-light unit in stand K EDU	2
Ring illuminator K LED	2
Transillumination unit M LED	2
Transilluminator Brightfield M LED	2

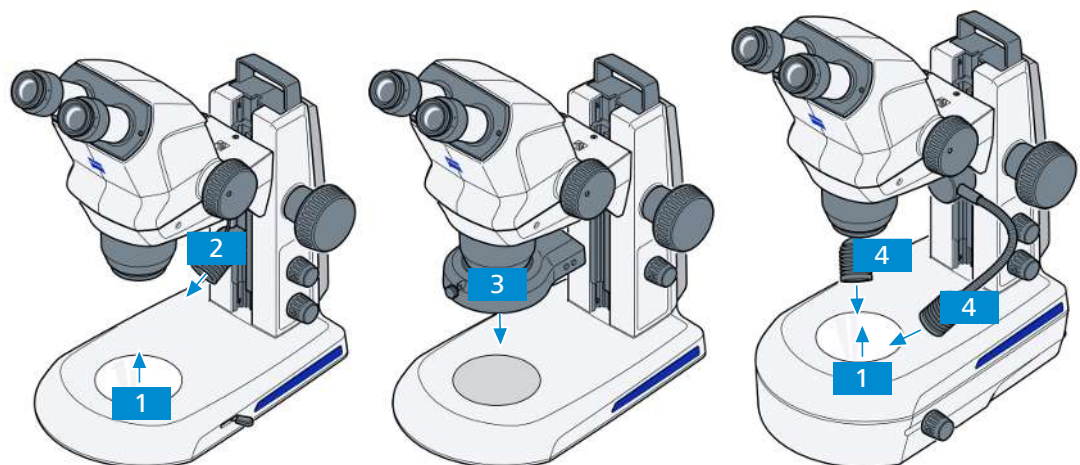


Fig. 1: Apertures for LED radiation in Stemi 508 EDU, Stemi 508 MAT and Stemi 508 LAB

- |  |  |
|--|--|
| <b>1</b> Transmitted-light illuminator       | <b>2</b> Spot illuminator K LED        |
| <b>3</b> Ring illuminator K LED, segmentable | <b>4</b> Double spot illuminator K LED |

### 3.3 Prevention of Hazards

This section summarizes potential hazards and recommended safety precautions. Failure to follow the safety instructions and instructions may result in personal injury and property damage.

#### 3.3.1 Electrical Hazards

- Voltage Hazards** Risk of electric injury (shock or burn) in case of contact with live parts.
- Position the microscope in a way so that you can easily reach the power plug at any time.
  - Pull the power plug for safe disconnection from the power supply. The main switch does **not** provide all-pole disconnection.
  - Detachable power cords must not be replaced with inadequately rated cords.
  - Only connect electrical components that are authorized by ZEISS.
  - Pull the power plug when not using the microscope.

#### 3.3.2 Thermal Hazards

- Heat Accumulation** Covering the ventilation openings can lead to heat accumulation that may damage the microscope and its components and, in extreme cases, can cause a fire.
- Keep ventilation openings unobstructed at all times.
  - Do not cover devices or openings emitting heat.
  - Comply with minimum distance from walls.

#### 3.3.3 Hazards Generated by Radiation

- Optical Radiation Hazards** Gas discharge lights, LED lights and other sources of white light emit strong optical radiation (e.g. UV, VIS, IR). Optical radiation may cause damage to the skin and eyes. The extent of the damage depends on the parameters such as wavelength, exposure time, mode of operation (continuous or pulsed), etc.
- Avoid exposure of eyes and skin to radiation.
  - Do not introduce reflective objects into the beam path.
  - Never remove covers or cover panels during operation.
  - Do not disable any interlock system elements.
  - Use suitable protective equipment / protective clothing if required.
- Strong Light Hazard** When using an external light source, refer to its own manual. There is a risk of dazzling and blindness.
- Never look directly into the fibre optic output of a cold light source.

#### 3.3.4 Hazards Generated by Materials and Substances

- Consumable Hazards** Incorrect handling of consumables and cleaning agents can lead to property damage or skin and eye injuries. Consumables that are not approved by ZEISS can lead to property damage. Consult your ZEISS Sales & Service Partner to learn what consumables you can order and how to handle them.
- Biological Hazard** Biological substances/agents may pose a risk to the health of humans and other living organisms.
- Keep a logbook of the known biological substances/agents used when working with the microscope and show it to the ZEISS service representative before they perform any work on the microscope.

**Chemical Hazard** Chemical substances/agents may pose a risk to the health of humans and other living organisms.

- If normal use involves handling of hazardous chemical substances, refer to the relevant instructions on correct use and indicate whether training or personal protection measures are required.

**Hazardous Substances** The microscope and other components can come into contact with various samples and substances that can be hazardous to humans and the environment. The microscope is not equipped with special user protection against substances that are corrosive, potentially infectious, toxic, radioactive or otherwise hazardous to health. When handling such substances, make sure to observe all legal regulations, particularly the relevant national accident prevention regulations.

- Make sure that the microscope and its components was not in contact with hazardous substances (check the laboratory logbook); otherwise, the microscope and its components must be cleaned/decontaminated/disinfected.
- Label contaminated/infected components that cannot be properly cleaned.
- Direct contact with the eyepieces (if applicable) can be a potential way of passing on bacterial and viral infections. The risk can be lowered by using personal eyepieces or eyecups. If eyepieces need to be disinfected frequently, ZEISS recommends to use eyepieces with eyeglass protection rings instead of foldable eyepieces.
- Contaminated parts shall not be returned to any ZEISS department. Decontaminated parts can be sent to ZEISS accompanied by a signed „Customer Declaration of Decontamination“.
- Wear personal protective equipment if necessary.

### 3.3.5 Hazards Generated with the Operating Environment

**Dirt, Dust, and Moisture** Dirt, dust, and moisture can impair the microscope's functionality.

- Shut down the microscope whenever it is not used and cover it with a dust protection cover (if available).
- Always cover unused openings/ports with the corresponding system component or with blind caps.
- Perform regular maintenance and cleaning according to the instructions in this manual.
- Make sure that no cleaning liquid or moisture gets inside the microscope.
- Make sure that the electrical parts never come into contact with moisture.
- Never expose the microscope to inadmissible climate conditions (high humidity and temperature).

### 3.4 Labels and Lights

This chapter shows labels and, where applicable, indicator lights.

All parts that may pose specific hazards are marked with warning labels.

Always observe **all** warning labels!

- Check all warning labels for availability and legibility.
- Immediately replace damaged or illegible warning labels.

In case a label is missing, contact your ZEISS service representative for free of charge replacement.

#### 3.4.1 Labels on the Stemi 508

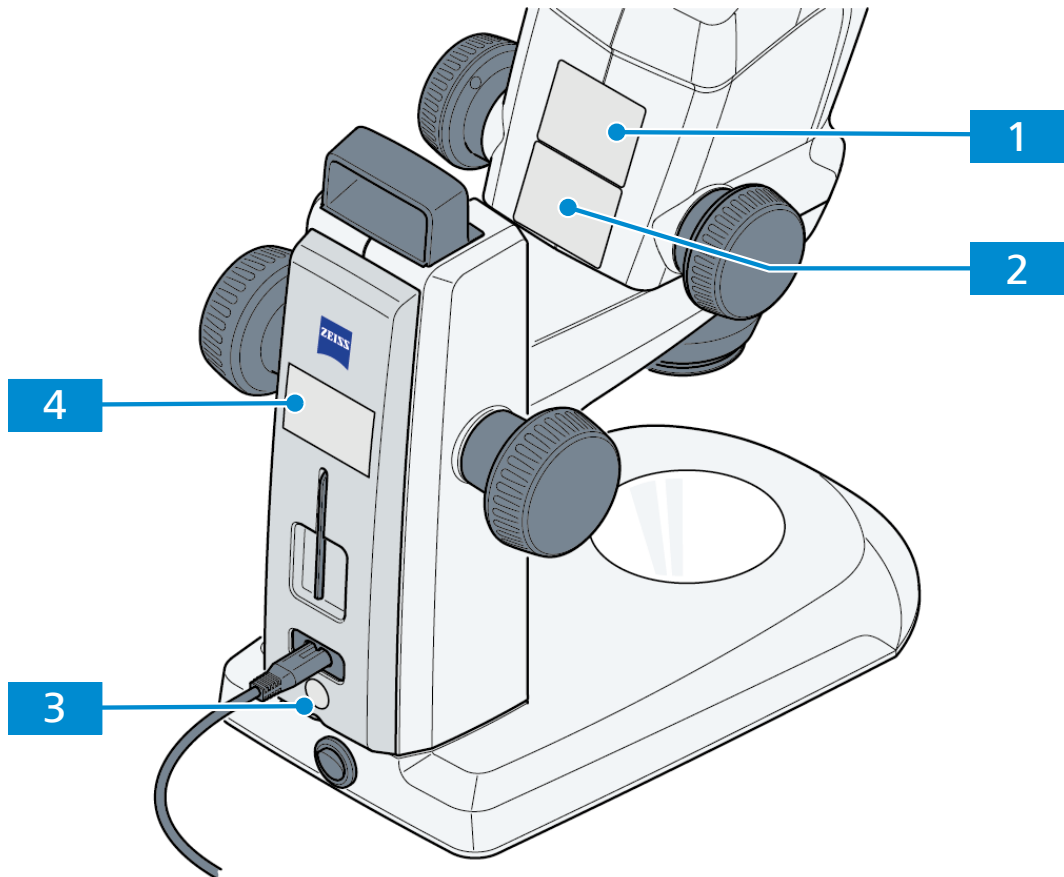






Fig. 2: Warning labels on the microscope

Pos.	Label	Explanation
1	<p>Carl Zeiss Suzhou Co., Ltd. No. 26 Wusheng Road, SIP, 215126 Suzhou, China Stereo Microscope</p>	Type label Stemi 508 body Position: rear side of the microscope body
		Refer to the instruction manual!

Pos.	Label	Explanation
2		Type label Stemi 508 body Position: rear side of the microscope body
3		Caution LED radiation Do not stare at operating lamp. May be harmful to the eyes.
4		Pull the power plug before opening. Position: rear side of the microscope stand
5		Type label Stemi 508 stand Position: rear side of the microscope stand

3.4.2 Labels on the Controller K LED

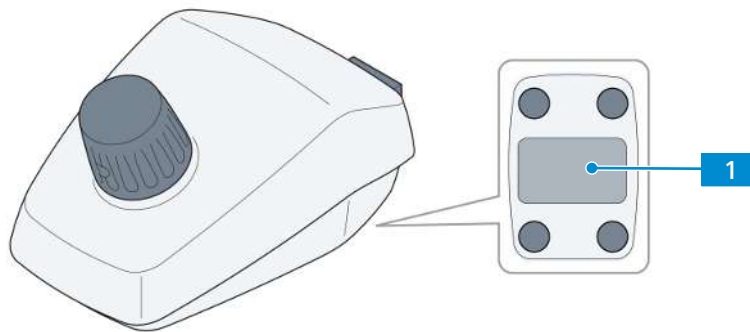
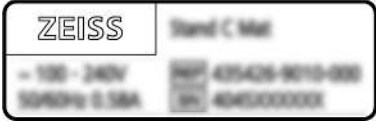


Fig. 3: Warning labels on the controller

Pos.	Label	Explanation
1		Type label controller K LED Position: bottom side of the controller

### 3.4.3 Labels on the Transmitted-Light Illuminators

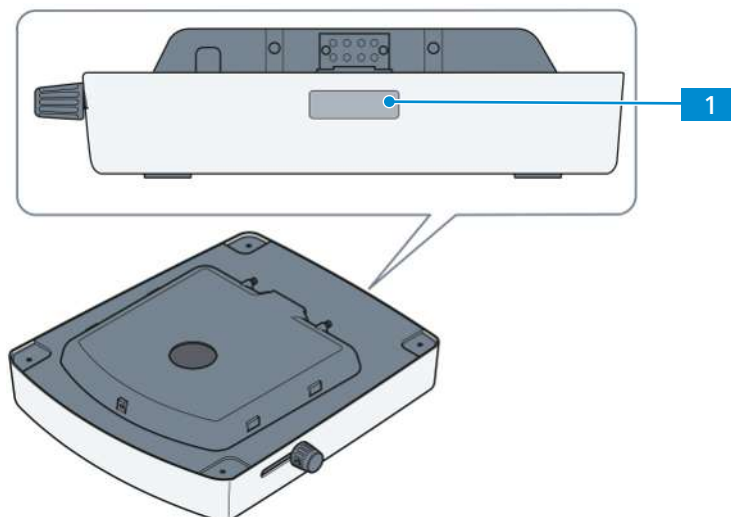


Fig. 4: Warning labels on the transillumination unit M LED

Pos.	Label	Explanation
1		Type label transillumination unit M LED Position: rear side of the transillumination unit

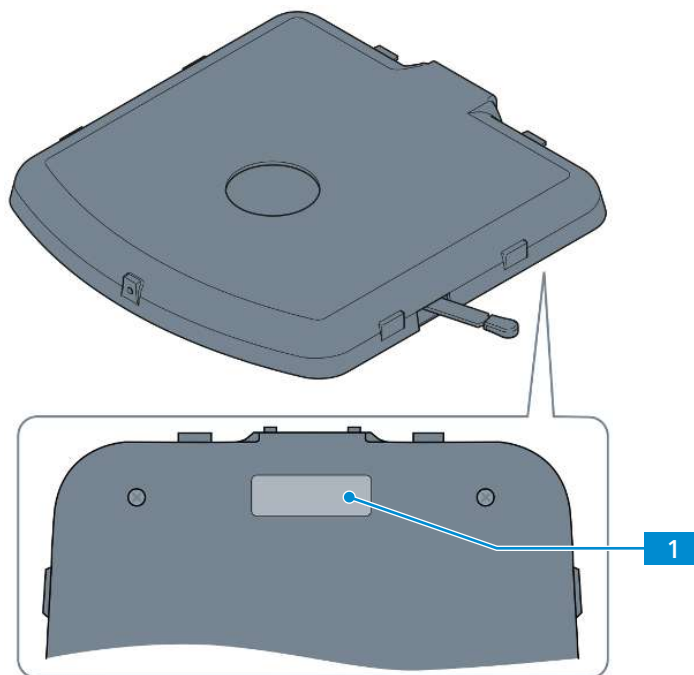


Fig. 5: Warning labels on the transilluminator Brightfield M LED

Pos.	Label	Explanation
1		Type label transilluminator Brightfield M LED Position: bottom side of the transilluminator

## 4 Product and Functional Description

The Stemi 508 is a Greenough Stereo microscope with compact design. The microscope provides 8x zoom factor. With different stands and illuminators, the Stemi 508 can offer brightfield, dark-field, relief contrast, and simple polarization. The Stemi 508 has three configurations as followed:

Stemi 508	Greenough stereo microscope with 8:1 zoom
Stemi 508 doc	Greenough stereo microscope with 8:1 zoom with photoport switchable 100vis/100doc
Stemi 508 trino	Greenough stereo microscope with 8:1 zoom with photoport fixed split 50vis/50doc

### Typical Applications

Typical applications include:

- Observation samples' development in biological laboratories
- Quality inspection and assurance and failure analysis in industrial applications, e. g. PCBs, diamonds, high-precision components
- Analysis and identification in forensics and art fields

### Info

For additional information and detailed descriptions, refer to further applicable documents or ask your ZEISS Sales & Service Partner.

### 4.1 Main Components

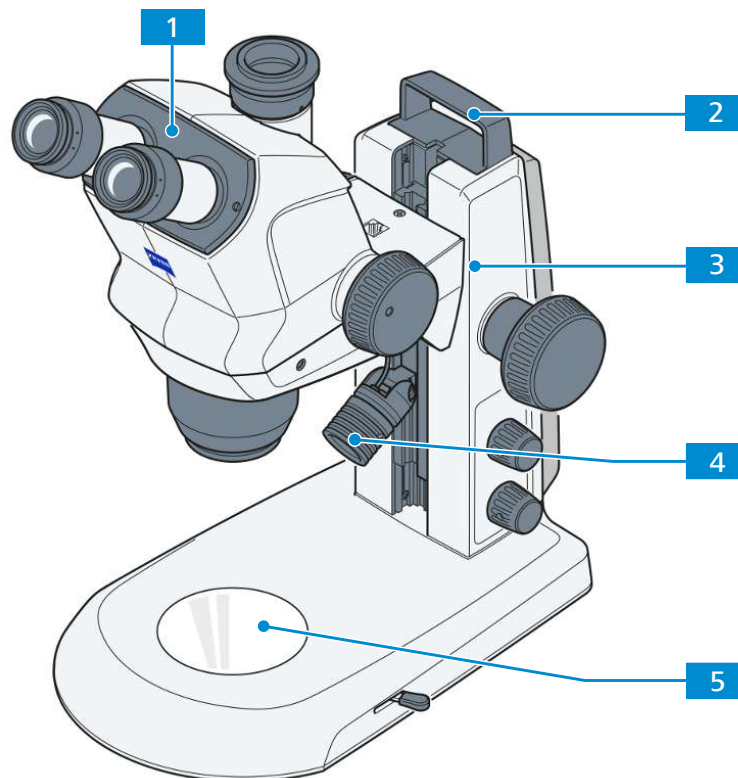


Fig. 6: Main components

- |                                  |  |
|----------------------------------|--|
| <b>1</b> Microscope body (trino) | <b>2</b> Carrying handle (only for stand K)                    |
| <b>3</b> Stand (model K EDU)     | <b>4</b> Reflected-light illumination (spot illuminator K LED) |
| <b>5</b> Insert plate            |  |

## 4.2 Controls and Functional Elements

### 4.2.1 Stands

#### 4.2.1.1 Stand K MAT

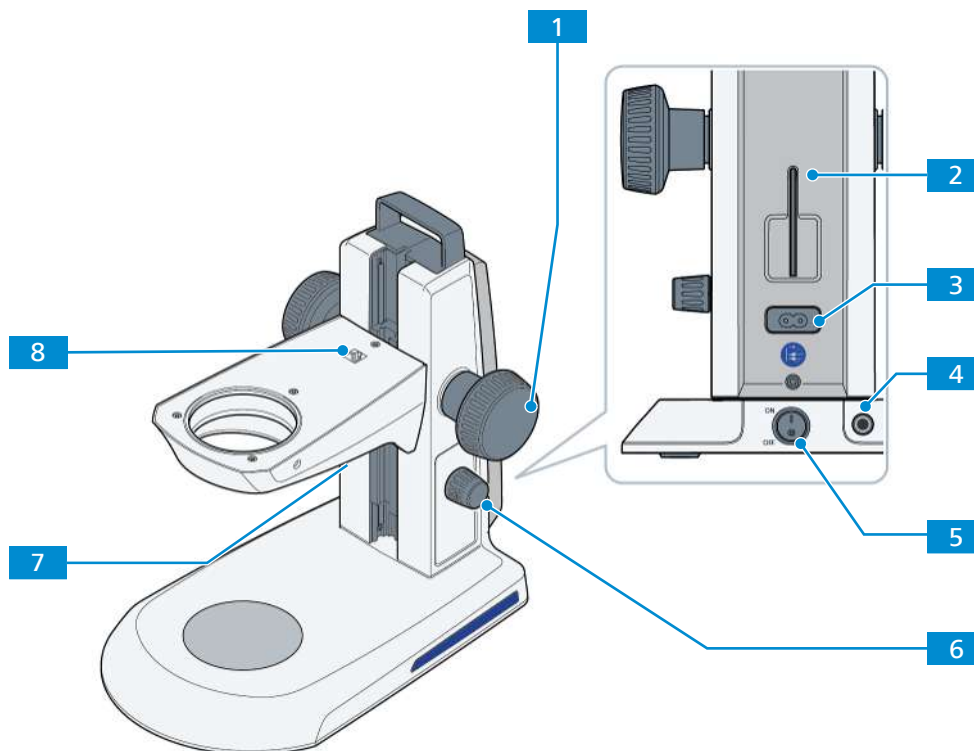


Fig. 7: Stand K MAT

- |          |   |          |  |
|----------|---|----------|--|
| <b>1</b> | Focusing drive  | <b>2</b> | Hex key, 3.0 mm  |
| <b>3</b> | Mains supply port   | <b>4</b> | <b>ESD</b> grounding port to enable the electro-static discharge with an anti-static grounding cord (4 mm snap stud) |
| <b>5</b> | Power switch  | <b>6</b> | Rotary/push knob for the reflected-light illumination  |
| <b>7</b> | Lower port of the stand carrier for reflected-light illumination connecting cable | <b>8</b> | Upper port of the stand carrier for microscope body connecting cable (only used for Stemi 305)                       |

## 4.2.1.2 Stand K EDU

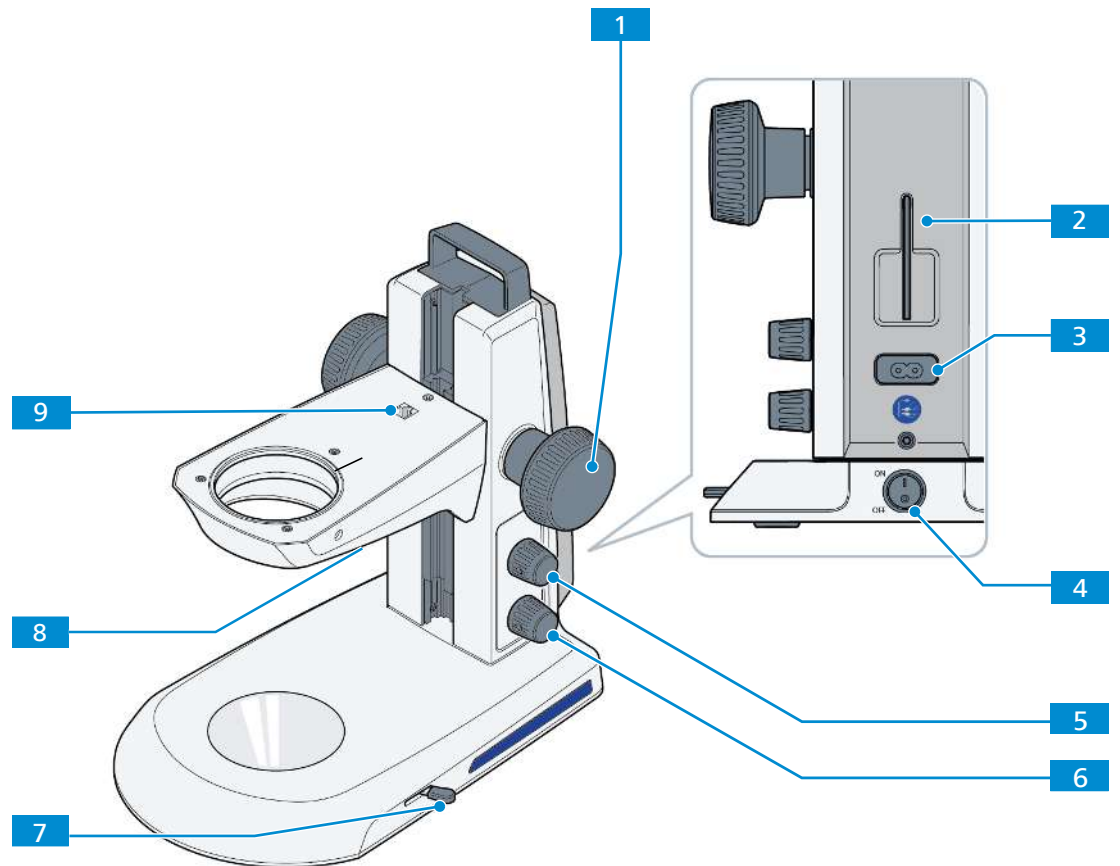


Fig. 8: Stand K EDU

- |          |  |          |   |
|----------|--|----------|---|
| <b>1</b> | Focusing drive   | <b>2</b> | Hex key, 3.0 mm   |
| <b>3</b> | Mains supply port  | <b>4</b> | Power switch  |
| <b>5</b> | Rotary/push knob for additional reflected-light illumination                                   | <b>6</b> | Rotary/push knob for the transmitted-light illumination                           |
| <b>7</b> | Switching lever for brightfield and dark-field   | <b>8</b> | Lower port of the stand carrier for reflected-light illumination connecting cable |
| <b>9</b> | Upper port of the stand carrier for microscope body connecting cable (only used for Stemi 305) |          |   |

## 4.2.1.3 Stand K LAB

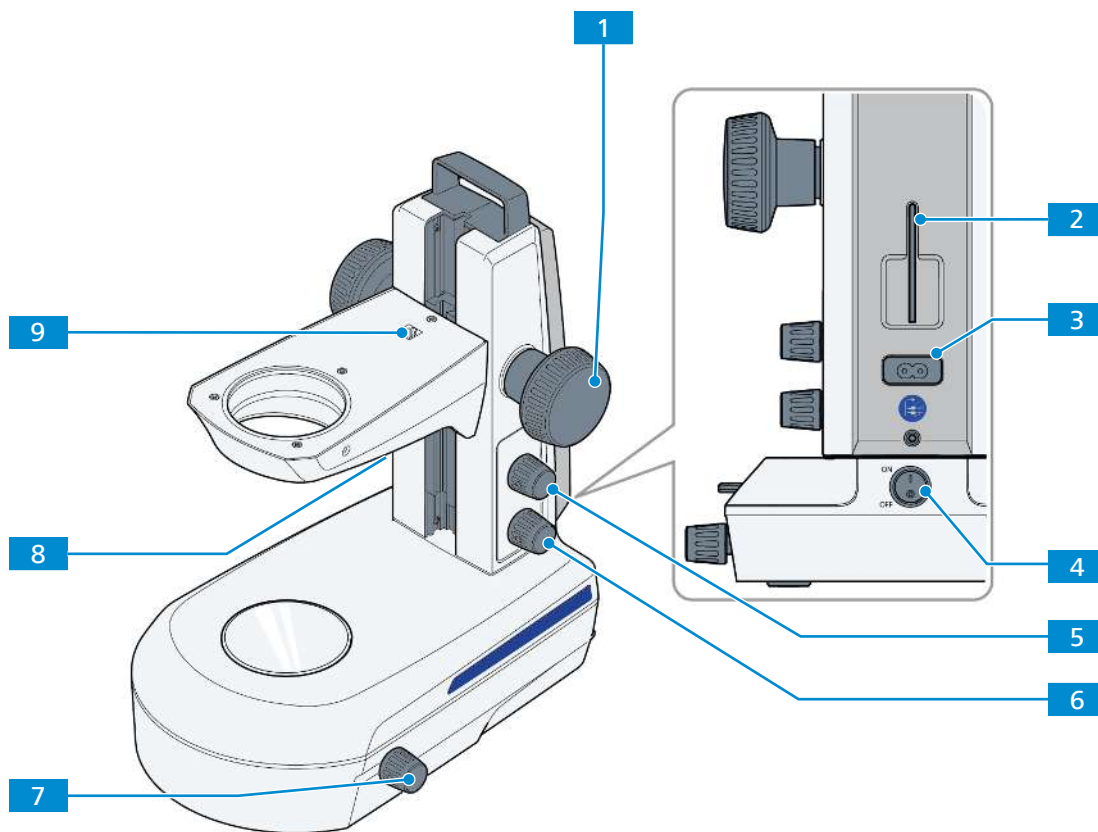


Fig. 9: Stand K LAB

- |          |  |          |   |
|----------|--|----------|---|
| <b>1</b> | Focusing drive   | <b>2</b> | Hex key, 3.0 mm   |
| <b>3</b> | Mains supply port  | <b>4</b> | Power switch  |
| <b>5</b> | Rotary/push knob for the reflected-light illumination  | <b>6</b> | Rotary/push knob for the transmitted-light illumination                           |
| <b>7</b> | Sliding/rotary knob for brightfield, dark-field and relief contrast                            | <b>8</b> | Lower port of the stand carrier for reflected-light illumination connecting cable |
| <b>9</b> | Upper port of the stand carrier for microscope body connecting cable (only used for Stemi 305) |          |   |

## 4.2.1.4 Stand M LED

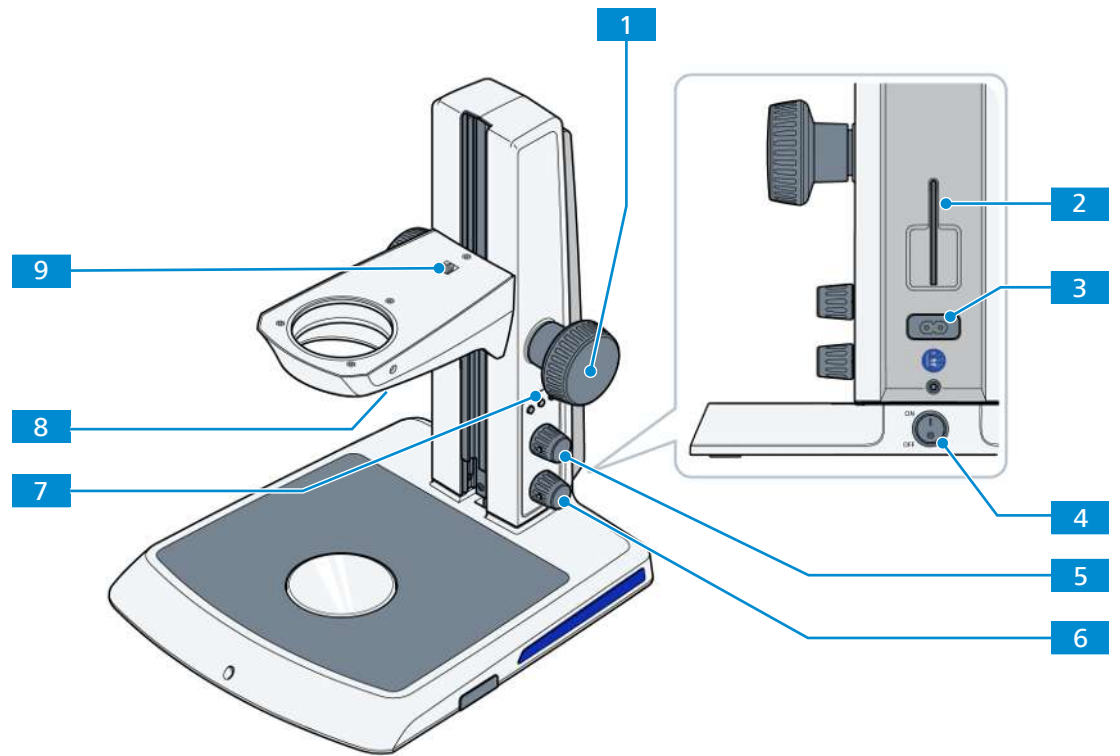


Fig. 10: Stand M LED

- |          |  |          |  |
|----------|--|----------|--|
| <b>1</b> | Focusing drive   | <b>2</b> | Hex key, 3.0 mm  |
| <b>3</b> | Mains supply port  | <b>4</b> | Power switch   |
| <b>5</b> | Rotary/push knob for the illuminators or the additional reflected-light illumination           | <b>6</b> | Rotary/push knob for the transmitted-light illumination and for adjusting the illumination intensity |
| <b>7</b> | Memory buttons   | <b>8</b> | Lower port of the stand carrier for reflected-light illumination connecting cable                    |
| <b>9</b> | Upper port of the stand carrier for microscope body connecting cable (only used for Stemi 305) |          |  |

### 4.2.2 Microscope Bodies

There are three different bodies that can be installed on the stands:

- Microscope body Stemi 508
- Microscope body Stemi 508 doc
- Microscope body Stemi 508 trino

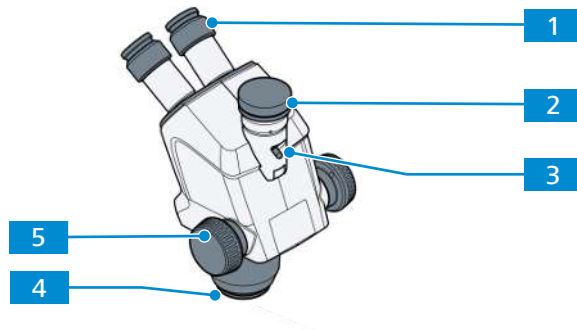


Fig. 11: Microscope body Stemi 508 doc

- |   |  |
|---|--|
| <b>1</b> Eyepiece in tube (PL 10x/23)                       | <b>2</b> 60N interface for camera adapter (only for Stemi 508 trino and Stemi 508 doc) |
| <b>3</b> Photoport switching lever (only for Stemi 508 doc) | <b>4</b> Dust protection glass   |
| <b>5</b> Zoom knob  |  |

### 4.2.3 Eyepieces

**Purpose** The eyepieces serve to observe the microscopic image.

**Position** The eyepieces are inserted into the eyepiece sockets of the binocular tube.

**Function** Both eyepieces are suitable for spectacle wearers. Additionally, they contain a focusing ring for compensation of defective vision. The provided diopter scale helps to find the correct setting. When using the microscope for fluorescence applications, the special eyecups with light protection can be used. However, they cannot be folded over and are not suitable for spectacle wearers.

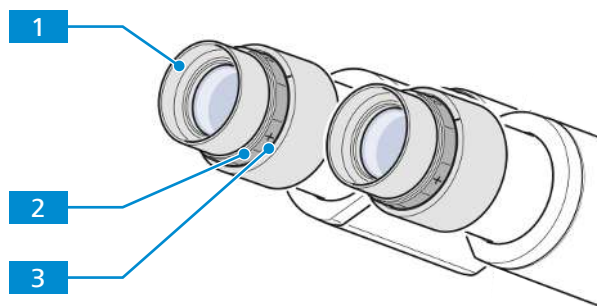


Fig. 12: Eyepiece

- |   |                        |
|---|------------------------|
| <b>1</b> Eyecup (e.g. Foldover rubber eyecup) | <b>2</b> Focusing ring |
| <b>3</b> Diopter scale                        |                        |

#### 4.2.4 Eyepieces with Eyepiece Reticles

**Purpose** The eyepieces with eyepiece reticles serve to observe the microscopic image in special microscopy procedures.

**Position** The eyepieces with reticles are inserted into the tube. This should only be carried out by a ZEISS service representative. However, it is possible for users to insert the reticles themselves when adhering to the following instructions.

The eyepiece reticles must be inserted under dust-free conditions.

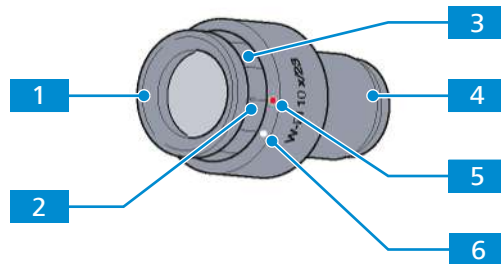


Fig. 13: Eyepiece with installed eyepiece reticle

- |   |  |
|---|--|
| <p><b>1</b> Eyecup, changeable</p>  | <p><b>2</b> Diopter scale with zero point to facilitate finding the correct setting</p>        |
| <p><b>3</b> Focusing ring for compensation of defective vision</p>                          | <p><b>4</b> Mounting stop with inserted eyepiece reticle</p>                                   |
| <p><b>5</b> Red dot, corresponds to the zero diopter setting when a reticle is inserted</p> | <p><b>6</b> White dot, corresponds to the zero diopter setting when no reticle is inserted</p> |

### 4.2.5 Reflected-Light Illumination

There are three reflected-light illuminations that can be installed on the microscope.

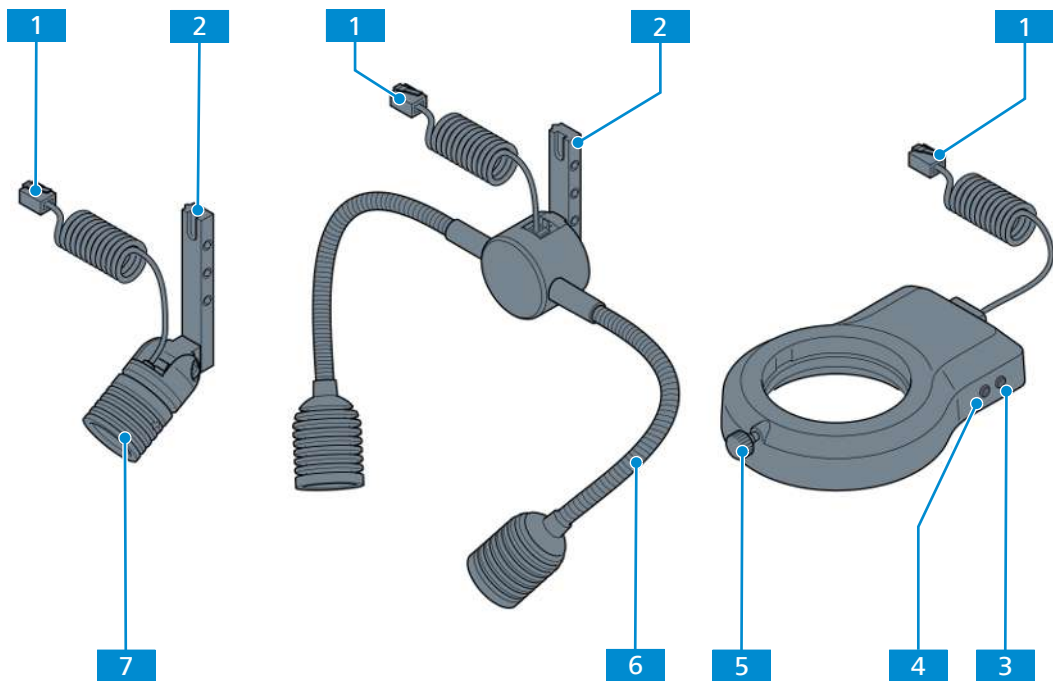


Fig. 14: Spot illuminator K LED, double spot illuminator K LED and ring illuminator K LED, segmentable

- |  |  |
|--|--|
| <b>1</b> Connecting cable  | <b>2</b> Illuminator holder to adjust the height of the spot |
| <b>3</b> Pattern rotation button   | <b>4</b> Pattern switching button                            |
| <b>5</b> Fixing screw  | <b>6</b> Goose necks   |
| <b>7</b> Focusing unit (illumination zoom) to adjust the size and brightness of the spot |  |

### 4.2.6 Transmitted-Light Illuminators for Stand M LED

There are two transmitted-light illuminators that can be installed on the microscope.

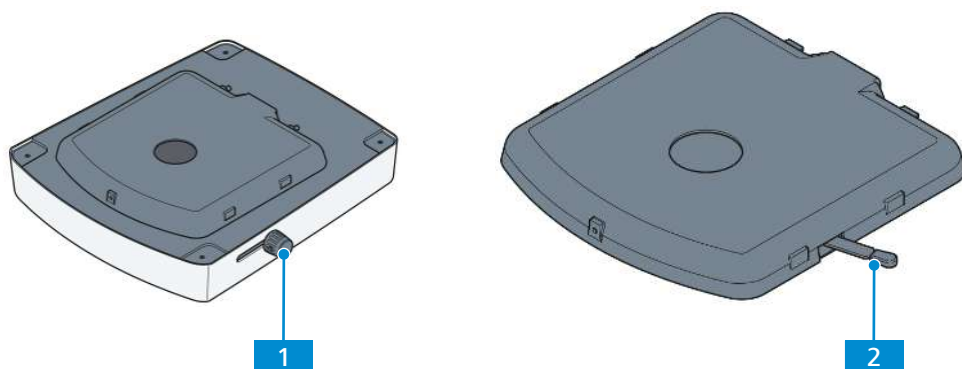


Fig. 15: Transillumination unit M LED and transilluminator Brightfield M LED

- |   |   |
|---|---|
| <b>1</b> Sliding/rotary knob for brightfield, dark-field, and relief contrast | <b>2</b> Switching lever for brightfield and dark-field |
|---|---|

### 4.2.7 Controller K LED

**Function** The controller K LED is used to operate the ring illuminator K LED, when stands without LED electronics are used (such as boom stands B or SDA, floor stand S, tilting arm stand U or desktop stands K, M and N).

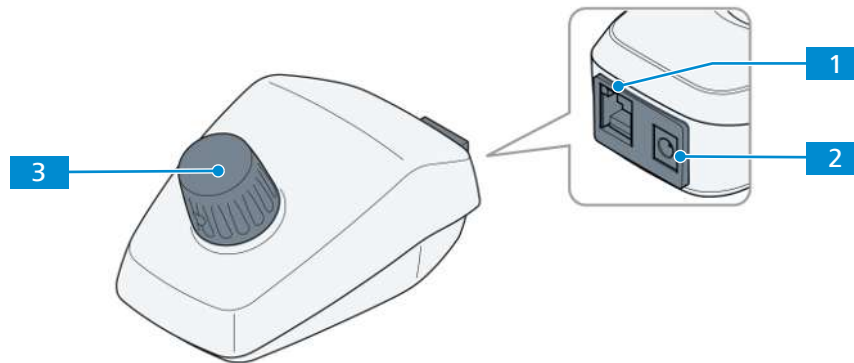


Fig. 16: Controller K LED

- 1** Port for the power cord to connect with the illumination or microscope body
- 2** DC port for the power adapter
- 3** Rotary/push knob to on/off the connected zoom body or illuminator and to adjust the illumination intensity

## 5 Installation

Perform only the installation work described in this document. All other installation work not described may only be carried out by an authorized ZEISS service representative.

### 5.1 Unpacking and Setting up the Microscope

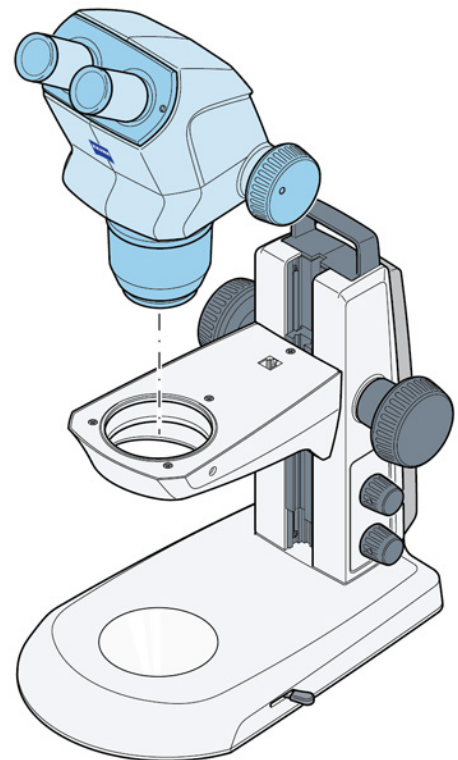
- Procedure**
1. Open the packaging.
  2. Take the microscope, all assemblies, and accessories out of the packaging.
  3. Check them for completeness as per delivery note.
  4. Check all parts for damaging.
  5. Place the microscope on a vibration-free, level, and non-inflammable surface.

It is recommended to keep the original packing and store it away for later use, e.g. for stowing the microscope during periods of non-use or for returning the microscope to the manufacturer for repair.

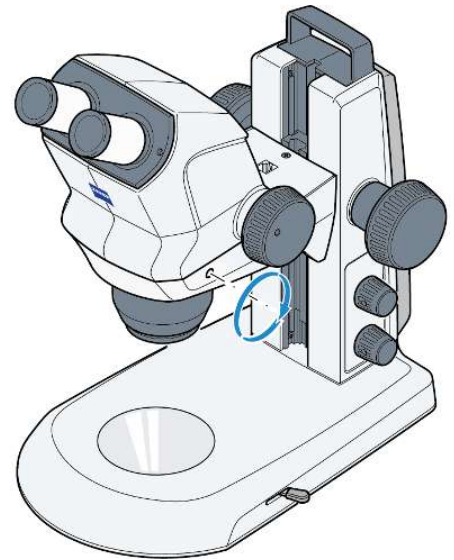
### 5.2 Installing the Microscope Body

**Parts and Tools**  Hex key, 3.0 mm

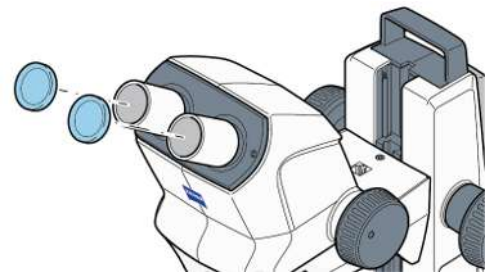
- Procedure**
1. If the Stemi 508 body has not yet been mounted, insert it into the stand carrier.



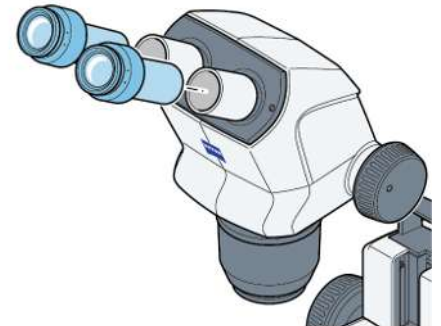
- Align the body and secure it using the clamping screw. **Info** The appropriate hex key is located in the support on the back of the stand column.



- Remove the two protective caps from the eyepiece tubes.



- Insert both eyepieces to their stop in the eyepiece tube.



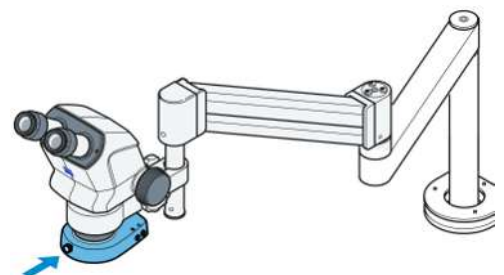
- If necessary, install an additional reflected-light illumination, **Info** Installation has been described in section *Additional Reflected-Light Illumination* [▶ 32].

### 5.3 Installing the Controller K LED

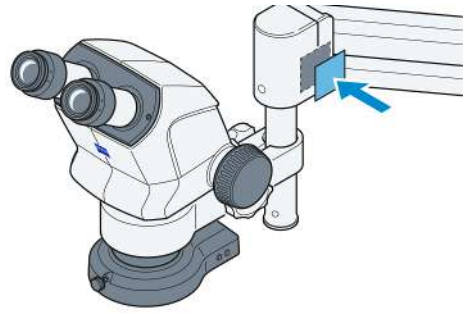
**Prerequisite** ✓ The boom stands including stand B, stand U, stand SDA and floor stand S including the fastening of the microscope body are installed to the stand carrier as described in the operating instructions for the boom stands.

- Procedure**
- Screw-fasten front lens system to the microscope body.
  - Clamp ring illuminator to the front lens system.

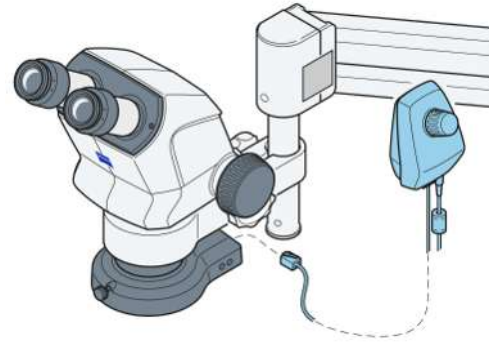
**Info** Before using the front lens systems 0.3x or 0.4x, fasten the retainer ring A53 mounting the ring illuminator to the front lens system.



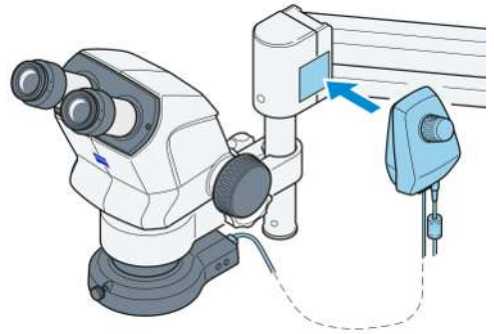
- Secure the adhesive side of the magnetic plate to the swivel arm stand.



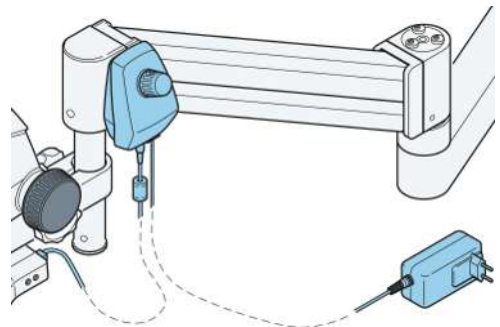
- Plug the connection cable supplied with the device (1 m long) into the socket on the microscope body or the ring illuminator and into the socket on the back of the controller K LED.



- Place controller K LED next to the magnetic plate.



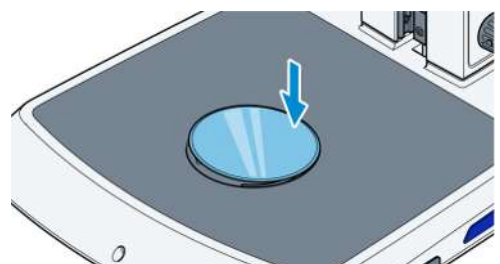
- Connect the controller K LED to the power supply using the power supply unit.



- Set the controller K LED, see section *Setting the Controller K LED* [▶ 51]
- Align swivel arm stand to enable an ergonomic working position.

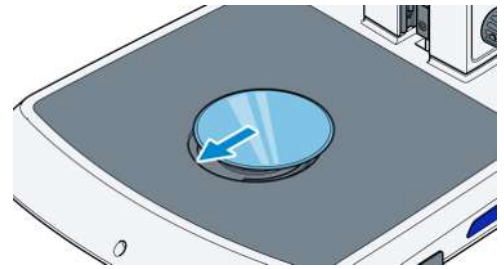
## 5.4 Exchanging the Insert Plate

- Procedure**
- Press on the rear part of the insert plate to lift it up and take it out of the mount.



- Insert the glass plate or the B/W plastic plate in the mount in the base of the stand.

- a To this effect, press the glass plate or the B/W plastic plate against the spring and make it lock in.



## 5.5 Additional Reflected-Light Illumination

Various reflected-light illuminations can be used, depending on the case of application:

- *Installing the Spot Illuminator K LED or Double Spot Illuminator K LED* [▶ 32]
- *Ring Illuminator K LED (segmentable)* [▶ 33]

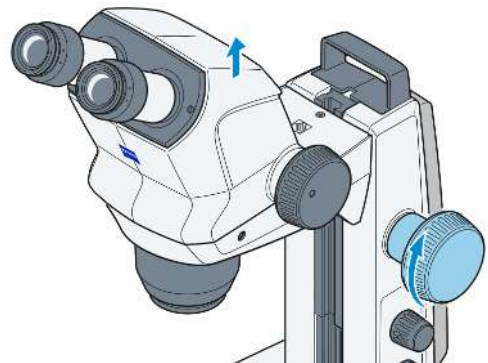
Defined interfaces are provided on the microscope for attachment.

### 5.5.1 Installing the Spot Illuminator K LED or Double Spot Illuminator K LED

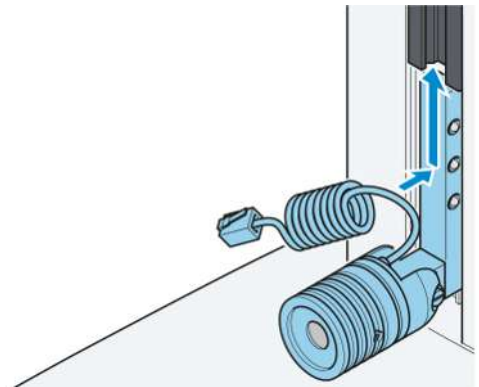
#### Info

The double spot illuminator is mounted in an analogical manner.

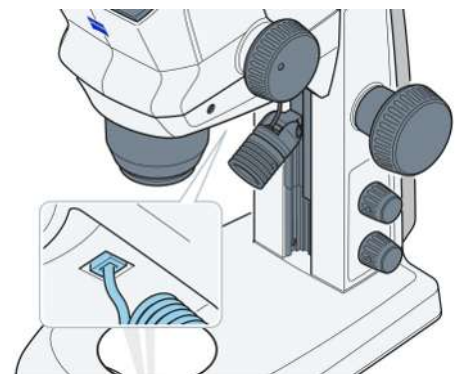
- Procedure**
1. Move the microscope body into its uppermost position via the **focusing** knob.



2. Insert the spot illuminator in the stand by sliding the holder into the stand guide from below and push it upwards into the required position.



3. Plug the connection cable of the spot illuminator into the lower socket of the Stemi mount.



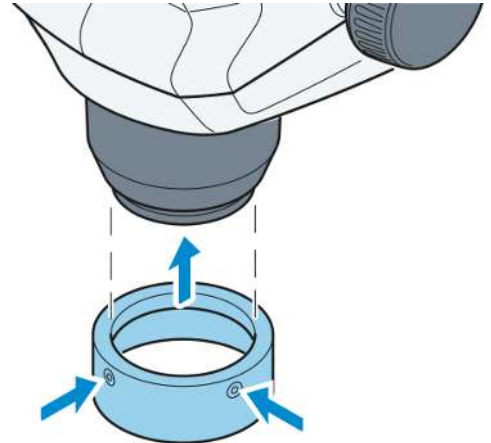
### 5.5.2 Ring Illuminator K LED (segmentable)

Depending on the mounted front optics, there are two ways of installation:

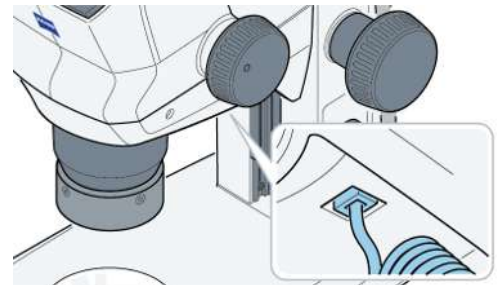
- *Installing the Ring Illuminator K LED to the Microscope Body* [▶ 33]
- *Installing the Ring Illuminator K LED to the Front Optics 5* [▶ 34]

#### 5.5.2.1 Installing the Ring Illuminator K LED to the Microscope Body

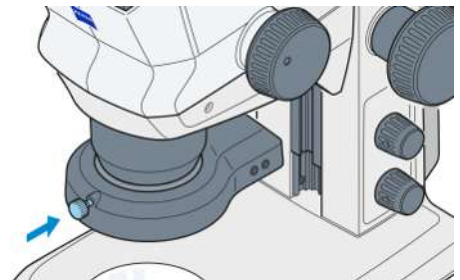
- Procedure**
1. Push holding ring A53 from the underside onto the dust protection glass of the Stemi 508 and secure it by tightening the two retainer screws (hexagon socket, SW 3).



2. Insert one side of the connecting cable into the lower port of the stand carrier and the other side into the port of the ring illuminator.



3. Push the ring illuminator onto the retainer ring A53 from below.
4. Secure the ring illuminator using the knurled screw.



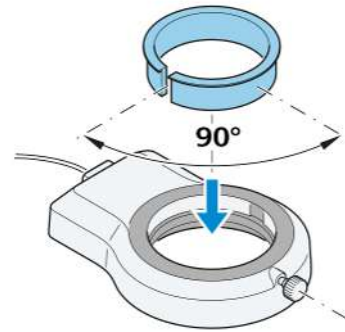
### 5.5.2.2 Installing the Ring Illuminator K LED to the Front Optics 5

#### Info

If front optics 5 Apo is used on the microscope instead of the dust protective glass, locking ring A53 will not be required for the assembly of the ring illuminator!

**Prerequisite** ✓ Dust protection glass has to be removed before screw-fastening the front optics 5 in the microscope body Stemi 508.

- Procedure**
1. Insert the slotted adapter ring (supplied with front optics) into the ring illuminator from above.
    - The optimum clamping action is achieved if the slit of the adapter is placed at approximately  $90^\circ$  relative to the clamping screw of the ring illuminator.

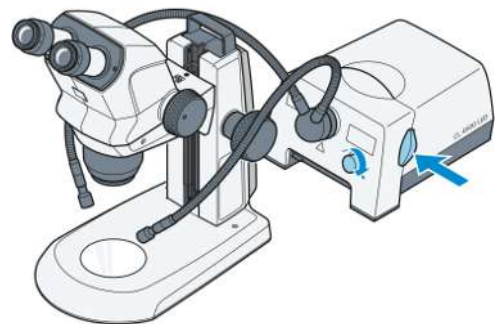


2. Push the ring illuminator including the adapter up on the front optics and fix it with the clamping screw.

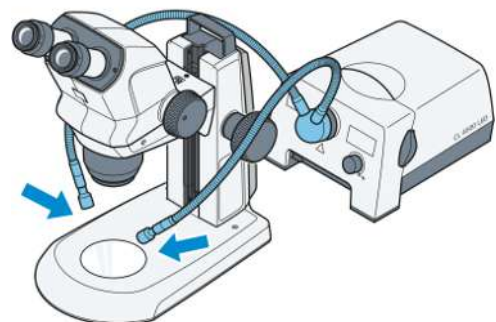


### 5.5.3 Installing the External Fiber-Optic Illumination

- Procedure**
1. Switch on external fiber-optic illumination.
  2. Adjust illumination intensity.



3. Set illumination by bending the two goose necks so that the sample is optimally lit.
  - a To this effect, refer also to the separate operating instructions regarding the cold light source.



## 5.6 Transilluminators for Stand M LED

### **⚠ CAUTION**

#### **Eye damage due to hazardous light emission**

The light source belongs to Risk Group 1 as specified in IEC 62471 and emits optical radiation. Eye damage may result from exposure.

- ▶ Never look directly into the light-emitting aperture of the light source.
- ▶ Before installing or removing the light source always make sure it is switched off.

Various transmitted-light illuminations can be used, depending on the case of application:

- *Installing the Transilluminator Brightfield M LED* [▶ 35]
- *Installing the Transillumination Unit M LED* [▶ 36]

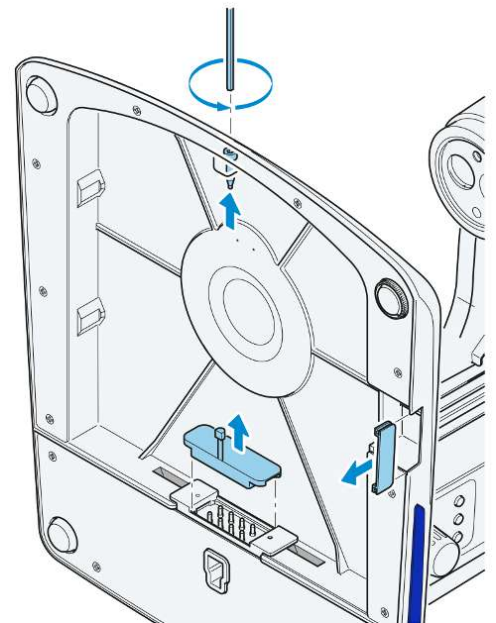
For fastening, defined interfaces have been provided on the microscope.

### 5.6.1 Installing the Transilluminator Brightfield M LED

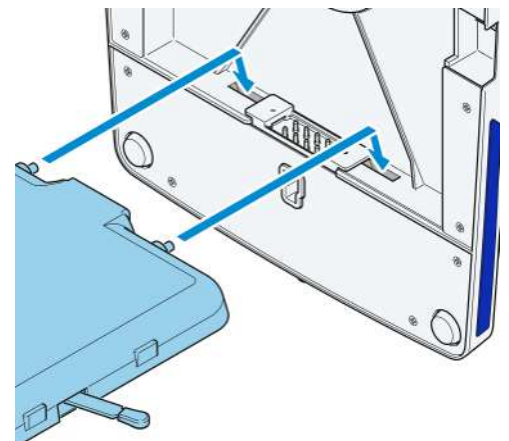
**Parts and Tools** 🔧 Hex key, 3.0 mm

**Prerequisite** ✓ Microscope is switched off and disconnected from power supply.

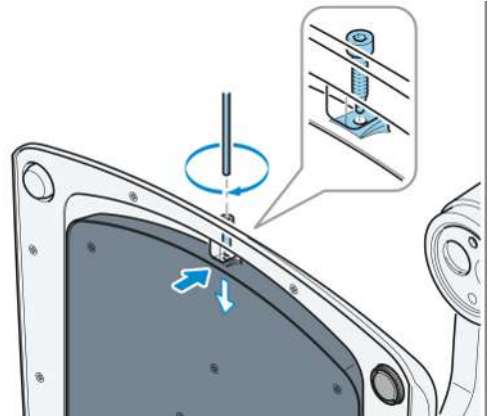
- Procedure**
1. Gently tilt the stand backwards and put it down.
  2. Unscrew the allen screw.
  3. Remove the cover flaps.



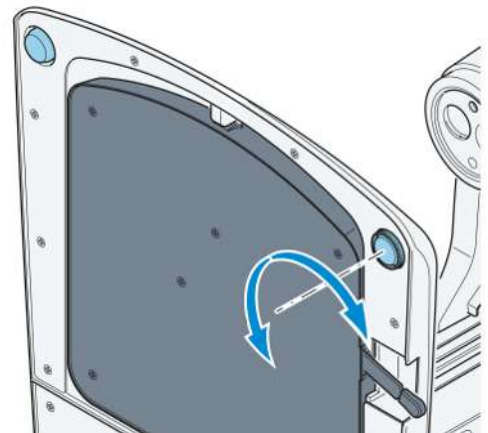
4. Insert the transilluminator so that the two pins click into the recesses on the bottom of the stand.



5. Press the transilluminator against the stand base.
6. Screw the allen screw into the tapped hole of the stand until the tip of the screw engages in the hole of the transilluminator.




7. Tighten the allen screw hand-tight.
8. Return the stand to upright and, if necessary, prevent wobbling by adjusting the height-adjustable foot of the stand base.

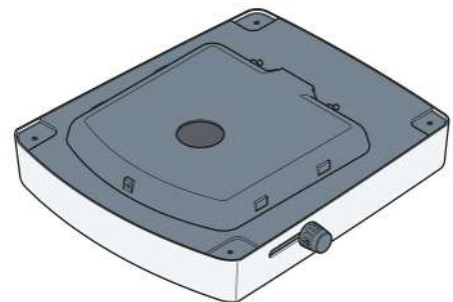


### 5.6.2 Installing the Transillumination Unit M LED

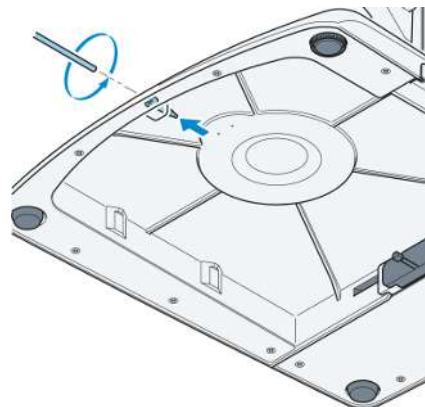
**Parts and Tools**  Hex key, 3.0 mm

**Prerequisite**  Microscope is switched off and disconnected from power supply.

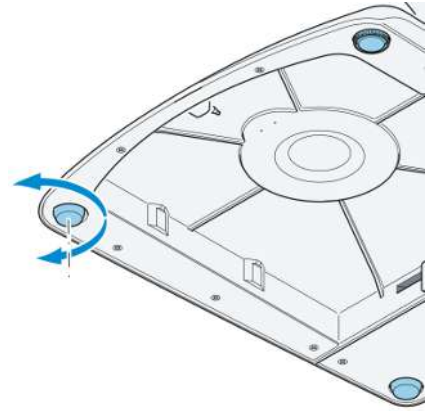
- Procedure**
1. Place the transillumination unit on a stable surface.



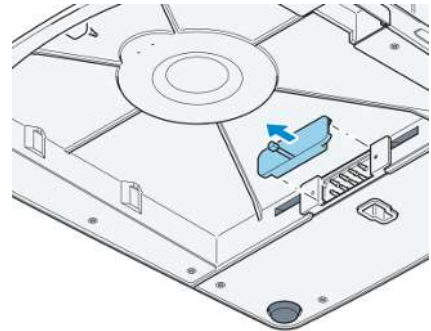
2. Unscrew the allen screw on the front of the stand.



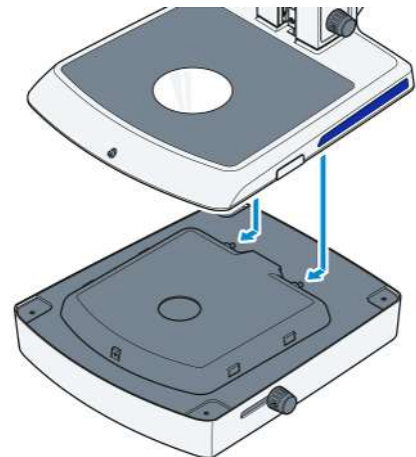
3. Screw the height-adjustable stand foot in completely.



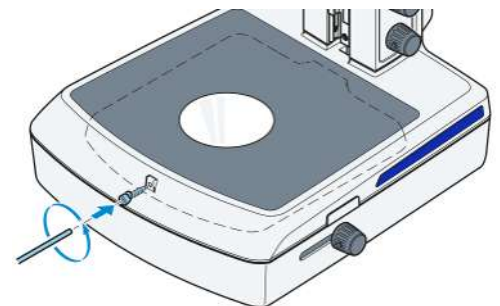
4. Remove the cover flap.



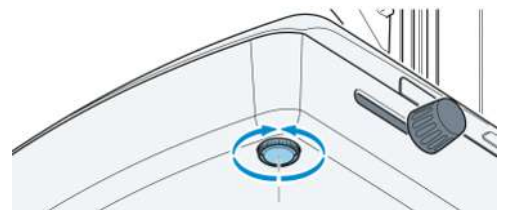
5. Carefully mount the stand onto the transillumination unit from the rear. Push it forwards until the stand plate and transmitted-light housing are flush. The two lugs must lost into the recesses.



6. Screw the allen screw into the tapped hole of the transillumination unit and tighten by hand.



7. If necessary, prevent wobbling by adjusting the height-adjustable foot of the transillumination unit.

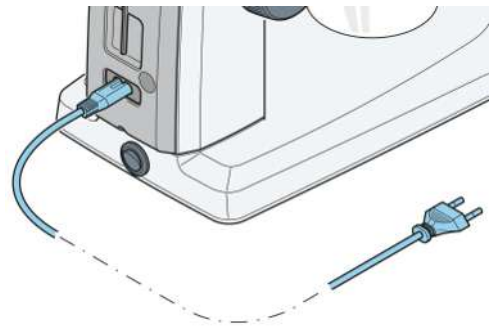


#### Info

To disassemble the transillumination unit M LED, unscrew the allen screw, carefully push the stand backwards and remove it.

## 5.7 Connecting the Microscope to the Mains Power Supply

- Procedure**
1. Insert the power cord in the mains supply socket of the stand.



2. Connect the power cord to a mains supply socket outlet.

## 6 Operation

This chapter describes switching on/off the microscope as well as the operating steps with the microscope.

### Info

For additional information and detailed descriptions, refer to further applicable documents or ask your ZEISS Sales & Service Partner.

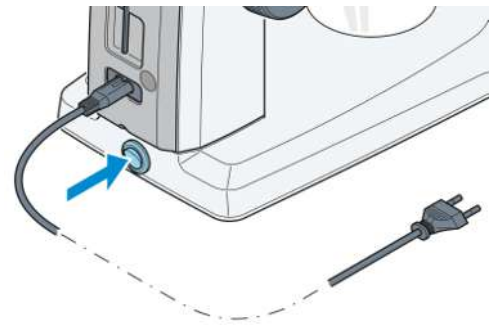
### 6.1 Prerequisites for Commissioning and Operation

The following basic prerequisites are necessary for commissioning and operation:

- This document was read prior to commissioning or operation and kept for further use.
- The chapter **Safety** was read and understood.
- The operator is acquainted with the general Windows-based programs.
- If required: Basic training and safety briefing were successfully completed.

### 6.2 Switching On the Microscope

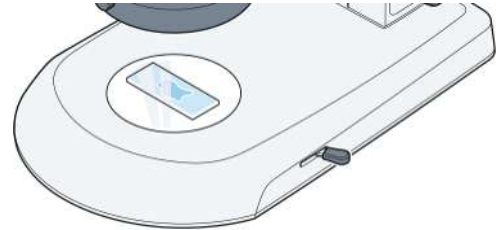
**Procedure** 1. Switch the power switch to **ON**.



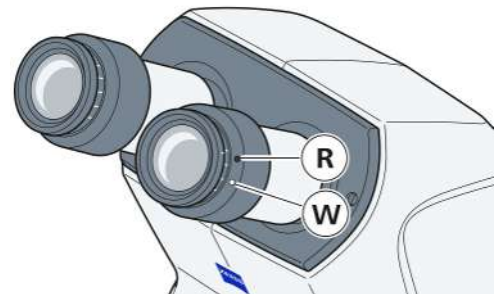
## 6.3 Adjusting the Microscope

**Prerequisite** ✓ The stereo microscope has been connected and switched on

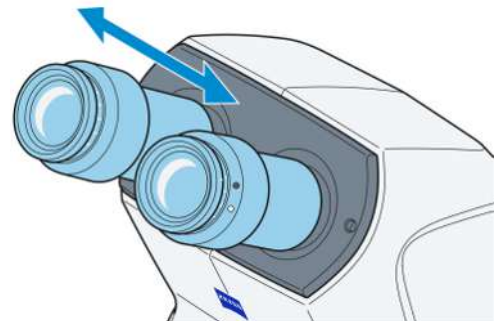
**Procedure** 1. Place sample centrally on the glass or plastic plate.



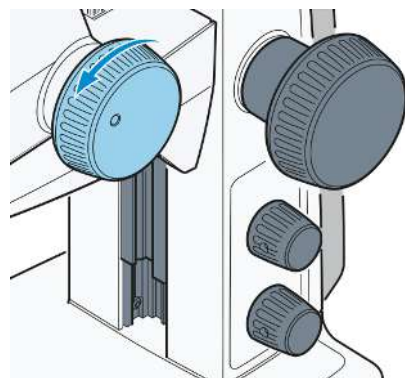
2. Illuminate the sample.
- a See functionality of the knob for the reflected-light illuminator in section *Reflected-Light Illuminations* [▶ 42].
3. Set diopter compensation on the adjustable eyepieces to "0".
- "0" on white dot (without reticle). "0" on red dot (with reticle).



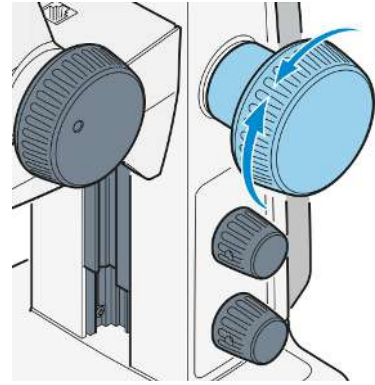
4. Check that the eyepieces are inserted into the tube to their stop.
5. Set individual eye distance by shifting the eyepiece tube laterally, until only **one** complete light circle (sample field) is visible when looking into the eyepieces with both eyes.
- a To this effect, a distance of approx. 2 cm must be maintained between the eye and the eyepiece.



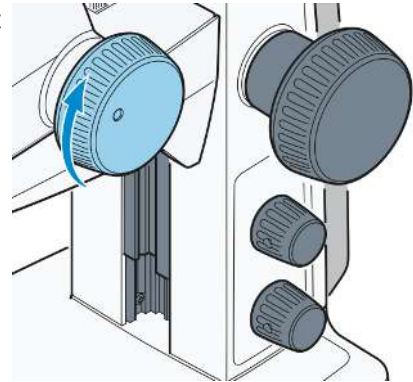
6. Initially, set the zoom to the smallest magnification.



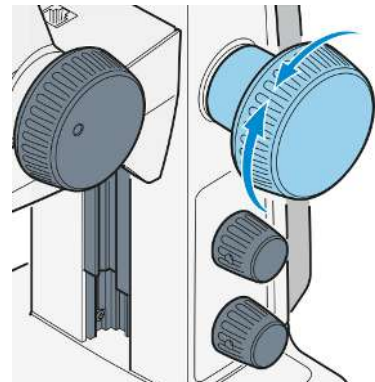
7. Focus on a small distinct detail in the center of the sample.



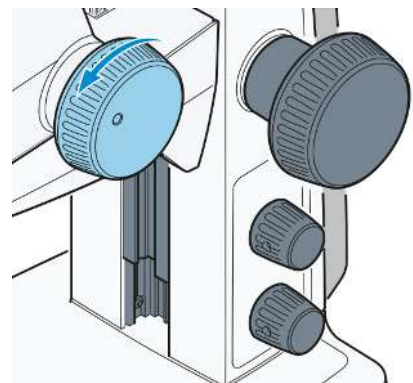
8. Adjust maximum zoom value.  
 → Magnification will probably make the distinct detail appear blurred and no longer in the image center.



9. Refocus the observed "distinct object detail" using the **focus** knob until it is observed "sharply" in the object field center again.



10. Reset to the lowest zoom value and correct any image blurring by adjusting the diopter compensation **on the adjustable eyepieces for each eye separately** (compensation of visual defect).  
 For this final step, do not use the **focusing** knob.



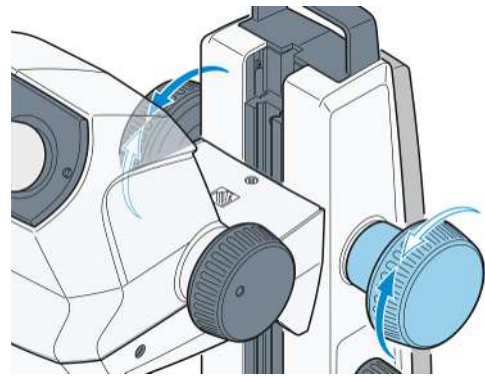
- ↳ Once the stereo microscope has been adjusted in this way, the image focus remains unchanged over the entire zoom range. This can be verified by increasing or reducing the zoom value.

#### Info

After change of the user, repeat steps 3. to 10.

## 6.4 Setting the Ease of Motion

- Procedure**
1. If necessary, the ease of motion of the focusing drive can be set as required on a case-by-case basis by adjusting the two focusing buttons in opposite directions. **NOTICE** The ease of motion must not be set so loosely that the drive moves downwards by itself. This might damage the microscope or the sample.



## 6.5 Reflected-Light Illuminations

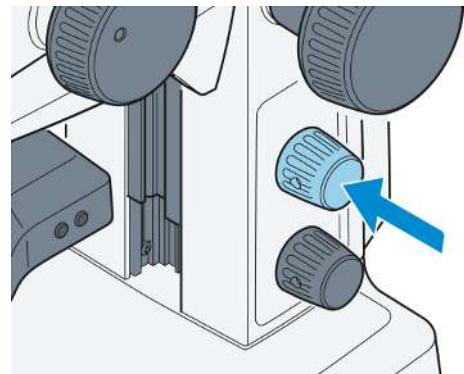
### **CAUTION**

#### Eye damage due to hazardous light emission

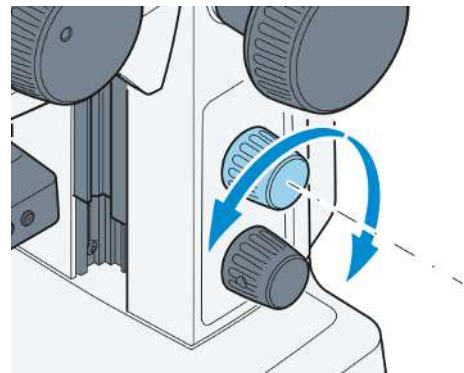
The light source belongs to Risk Group 2 as specified in IEC 62471 and emits optical radiation. Eye damage may result from exposure.

- ▶ Never look directly into the light-emitting aperture of the light source.
- ▶ Before installing or removing the light source always make sure it is switched off.

- Procedure**
1. Press the knob, to switch the reflected-light illumination on or off (spot illuminator or double spot illuminator).



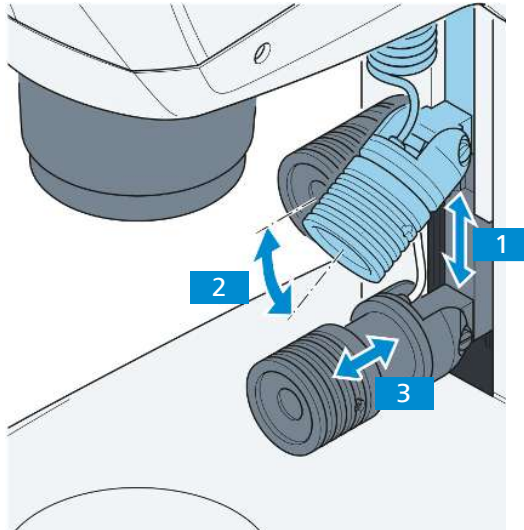
2. Turn the knob, to adjust the illumination intensity of the switched-on reflected light illumination.



### 6.5.1 Setting the Spot Illuminator K LED

#### Info

For switching the illumination intensity on and off and adjusting the illumination intensity refer to section *Reflected-Light Illuminations* [▶ 42]



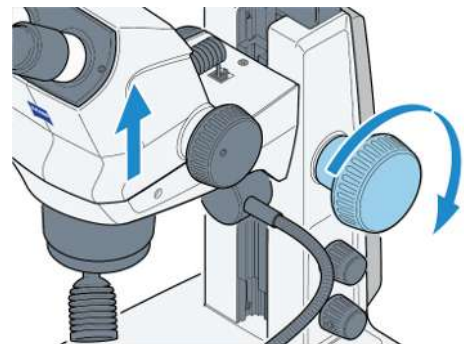
- Procedure**
1. Push the spot illuminator in the guide to the required height **1**. **Info** **Low positions lead to cast shadows and thus enhance surface structures.**
  2. Set the angle **2** via the pivot of the spot illuminator so that the object is optimally illuminated.
  3. Set the size and the brightness of the spot by axially shifting the focusing unit **3** (illumination zoom).

### 6.5.2 Setting the Double Spot Illuminator K LED

#### Info

For switching the illumination intensity on and off and adjusting the illumination intensity refer to section *Reflected-Light Illuminations* [▶ 42]

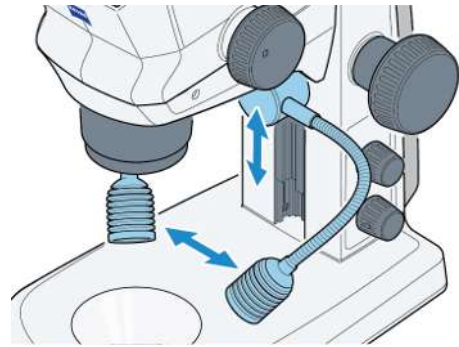
- Procedure**
1. Move the microscope body to its uppermost position via the **focusing** knob.



2. Push double spot illuminator to the required level within the guide.

3. Bend the two goose necks to adjust the spots so that the sample is optimally illuminated.

**Info** Low positions lead to cast shadows and thus enhance surface structures.



### 6.5.3 Setting the Ring Illuminator K LED

#### Info

For switching the illumination intensity on and off and adjusting the illumination intensity refer to section *Reflected-Light Illuminations* [▶ 42]

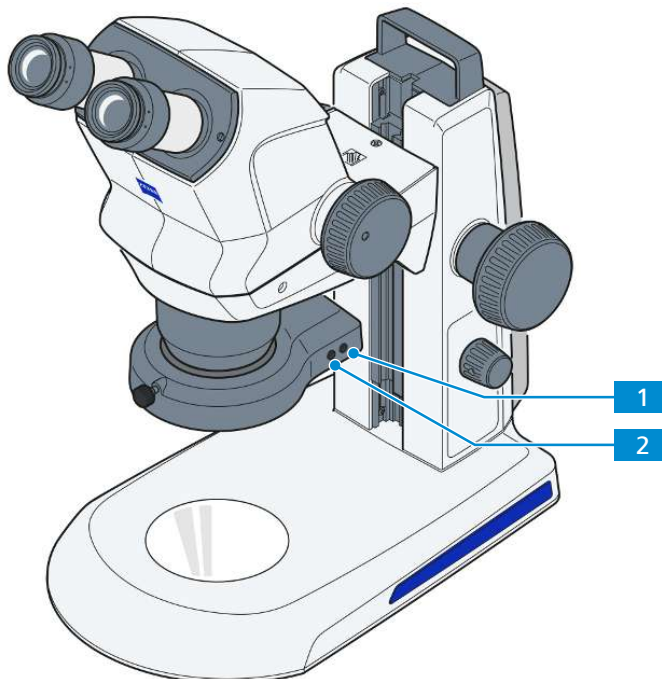


Fig. 17: Ring illuminator

**1** Pattern rotation button

**2** Pattern switching button

- Procedure**
1. Press the pattern switching button successively to change over between the four illumination patterns of the ring illuminator:
    - a full circle
    - b semi-circle
    - c quadrant
    - d two quadrants (opposite each other)
 → When switching the semi-circle or quadrant illumination on, the sample is first illuminated from the rear (from the direction of the stand column).
  2. Press the pattern rotation button once briefly to turn the adjusted segment forward clockwise by one quarter turn.
  3. Press the pattern rotation button for more than 2 seconds to start continuous rotation of the active segment (rotation steps of 1/8 circle, 1 second per turn).
  4. Press the pattern rotation button briefly to stop the rotation.

## 6.6 Transmitted-Light Illuminators

### **⚠ CAUTION**

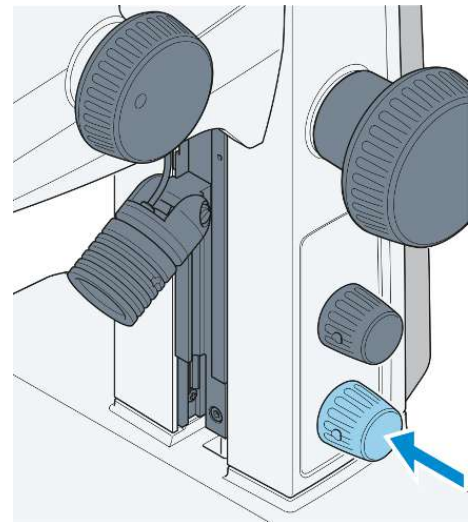
#### **Eye damage due to hazardous light emission**

The light source belongs to Risk Group 1 as specified in IEC 62471 and emits optical radiation. Eye damage may result from exposure.

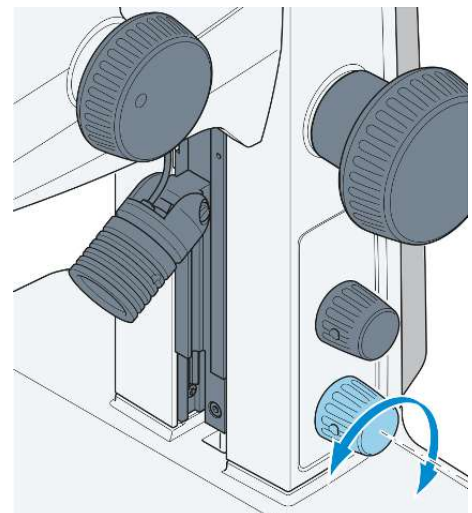
- ▶ Never look directly into the light-emitting aperture of the light source.
  - ▶ Before installing or removing the light source always make sure it is switched off.
- *Setting the Transmitted-Light Module in Stand K EDU [▶ 45]*
  - *Setting the Transilluminator Brightfield M LED, in Stand M LED [▶ 46]*
  - *Setting the Transmitted-Light Unit in Stand K LAB [▶ 47]*
  - *Setting the Transillumination Unit M LED in Stand M LED [▶ 48]*

### 6.6.1 Setting the Transmitted-Light Module in Stand K EDU

**Procedure** 1. Press the lower knob to switch transmitted-light illumination ON.



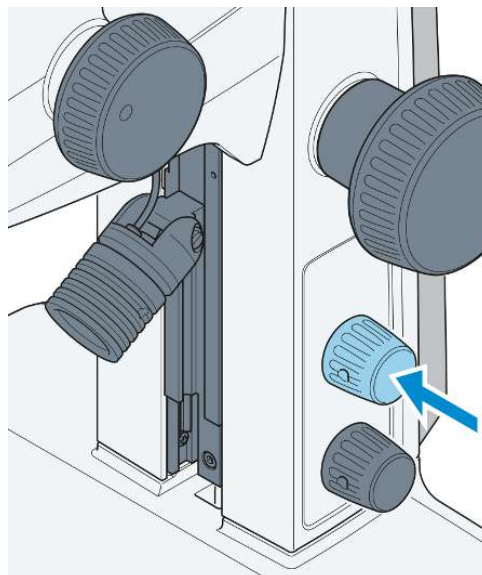
2. With the transmitted light on, turn this knob to adjust the illumination intensity.



3. Change over by adjusting the lever between the bright field and the dark field illumination.
- a Front position: Darkfield (DF)
  - b Rear position: Brightfield (BF)

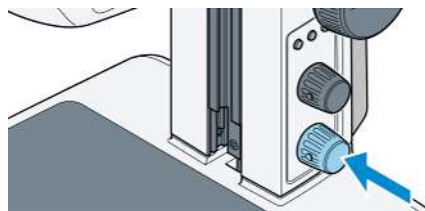


4. Press the upper knob to blend in reflected light, see chapter *Reflected-Light Illuminations* [▶ 42]).

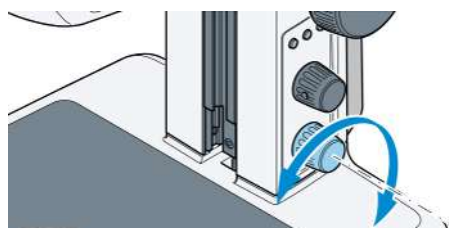


### 6.6.2 Setting the Transilluminator Brightfield M LED, in Stand M LED

- Procedure**
1. Press the lower knob to switch transmitted-light illumination on.



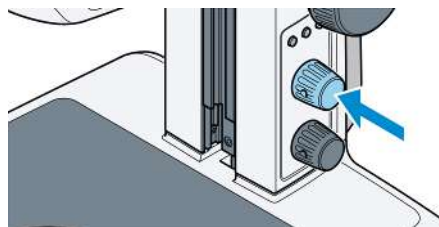
2. With the transmitted light on, turn this knob to adjust the illumination intensity.



3. Change over by adjusting the lever between the brightfield and the darkfield illumination.
  - a Front position: Darkfield (**DF**)
  - b Rear position: Brightfield (**BF**)

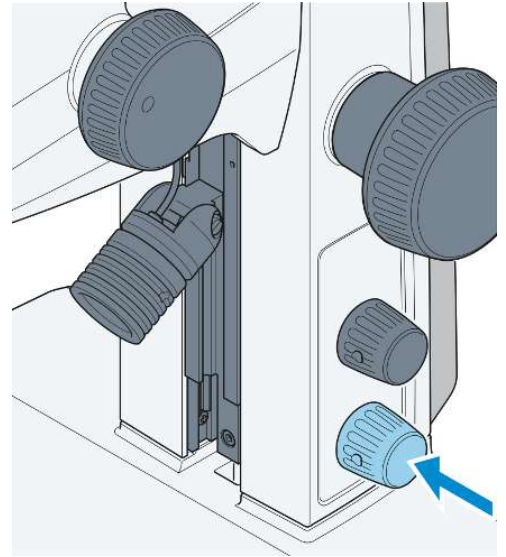


4. Press the upper knob to combine with reflected light, see chapter *Reflected-Light Illuminations* [▶ 42]).

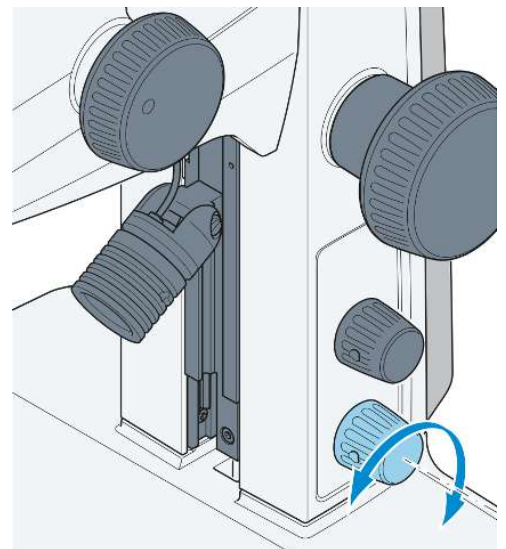


### 6.6.3 Setting the Transmitted-Light Unit in Stand K LAB

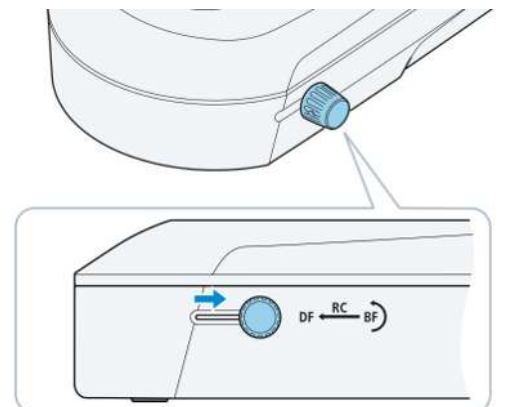
**Procedure** 1. Press the lower knob to switch transmitted-light illumination ON.



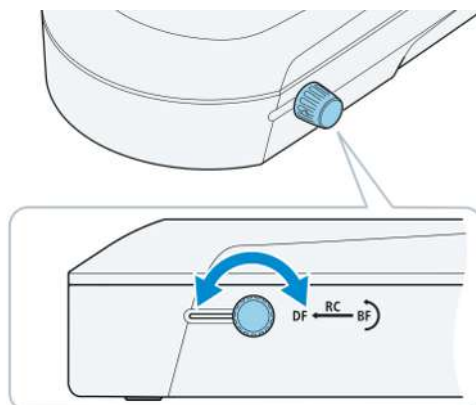
2. With the transmitted light ON, turn this knob to adjust the illumination intensity.



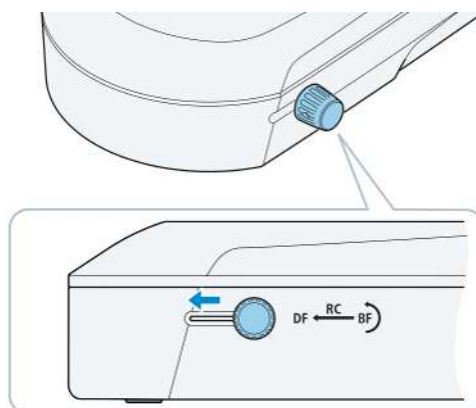
3. Push the sliding knob into its rear position (BF) to adjust the bright field (BF).



4. Turn the sliding knob to swing the clear or diffuse mirror into position or to adjust the inclination angle.
  - a Clear mirror for high-contrast bright field.
  - b Diffuse mirror for homogenous bright field.



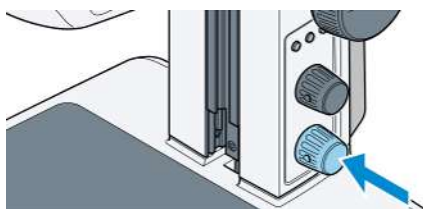
5. Push the sliding knob into its front position to change over to dark field illumination (DF).



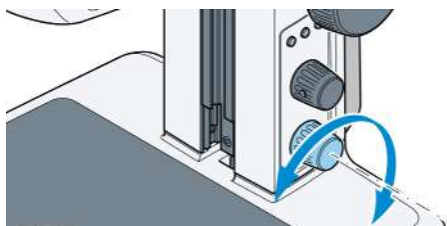
6. Turn the mirror until the sample structures are brightly lit against the dark background.

#### 6.6.4 Setting the Transillumination Unit M LED in Stand M LED

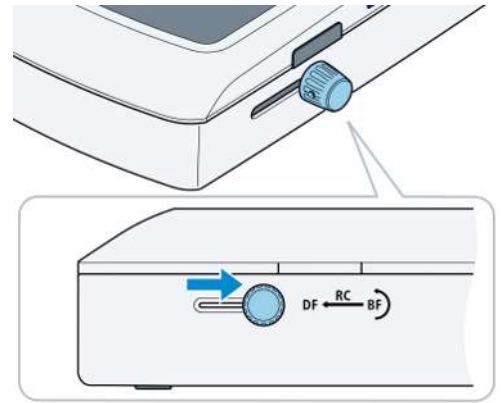
- Procedure**
1. Press the lower knob to switch transmitted-light illumination on.



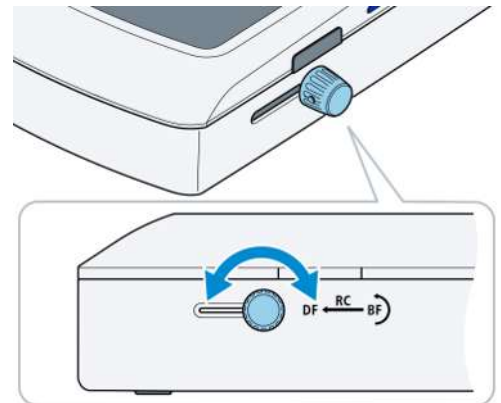
2. With the transmitted light on, turn this knob to adjust the illumination intensity.



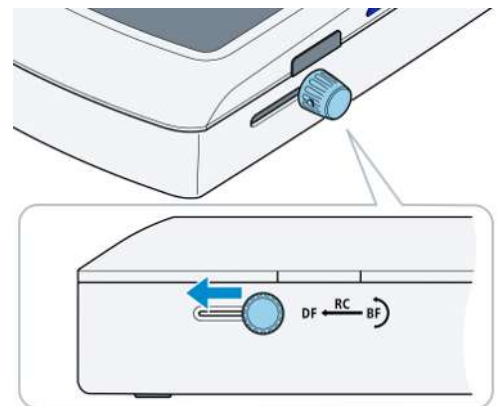
3. Push the sliding knob into its rear position to adjust the brightfield (**BF**).



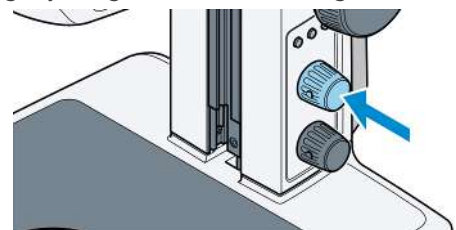
4. Turn the sliding knob to swing the clear or diffuse mirror into position or to adjust the inclination angle.
  - a Clear mirror for high-contrast brightfield.
  - b Diffuse mirror for homogenous brightfield.



5. Push the sliding knob into its front position to change over to darkfield illumination (**DF**).



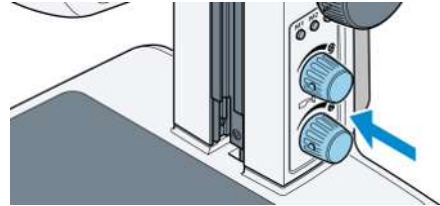
6. Turn the mirror until the sample structures are brightly lit against the dark background.
7. Press the upper knob to combine with reflected light, see chapter *Reflected-Light Illuminations* [▶ 42].



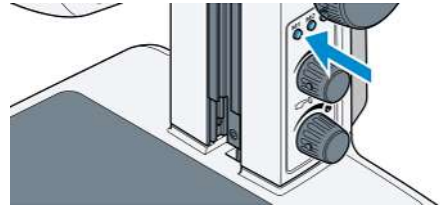
## 6.7 Setting the Memory Buttons in Stand M LED

Stand M LED has three memory buttons to save different illumination settings and to permit rapid switching between different reflected, transmitted and mixed illumination types.

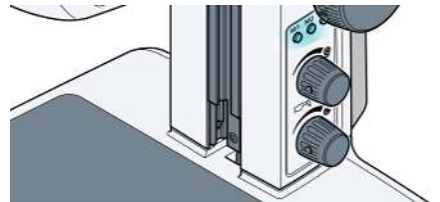
- Procedure**
1. Turn on the desired illumination types (reflected and / or transmitted light) by pressing the lower or upper knob.



2. Adjust the desired intensity for the reflected- and / or transmitted-light illumination by turning the upper or lower knob.
3. Choose one of the three memory buttons (**M1**, **M2**, **M3**) and hold it down for 3 seconds.



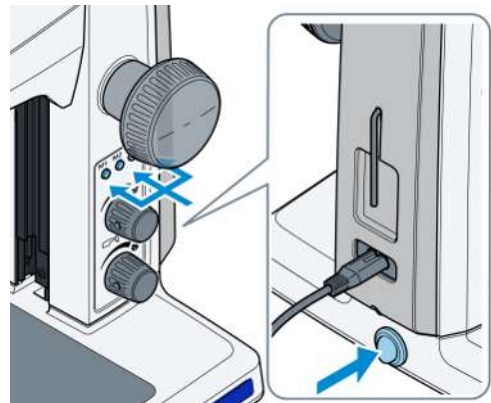
- All three buttons will light up when the settings have been successfully saved.



4. Repeat the process to assign the other two memory buttons.
5. To recall an illumination setting, press the relevant memory button shortly.

## 6.8 Resetting the Memory Buttons in Stand M LED

- Procedure**
1. Switch off the microscope.
  2. Press all three memory buttons simultaneously while switching on the microscope.

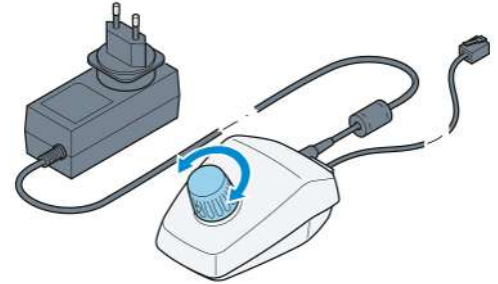


- Memory slots are empty.  
 → All connected illuminators switch on at 50 % brightness.
- ↳ Briefly pressing the buttons now causes no change in the illumination until a new setting is made.

## 6.9 Setting the Controller K LED

**Prerequisite** ✓ The controller K LED is installed and connected, see section *Installing the Controller K LED* [▶ 29].

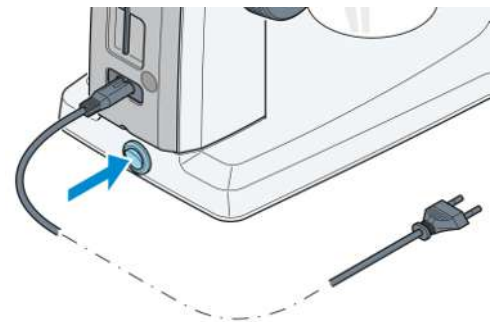
- Procedure**
1. Press the knob on the controller K LED to switch the ring illuminator on and adjust illumination intensity by turning the knob.



2. Place the sample in the illuminated sample field.
3. Set the stereo microscope to its initial setting, see section *Adjusting the Microscope* [▶ 40].

## 6.10 Switching Off the Microscope

- Procedure**
1. Switch the power switch to **OFF**.



## 7 Care and Maintenance

To ensure the best possible performance of the microscope and its components, maintenance must be performed on a regular basis. Keep the service logs of the microscope.

To maintain operational safety and reliability of the microscope, we recommend entering into a **ZEISS Protect Service Agreement**.

### Info

For additional information and detailed descriptions, refer to further applicable documents or ask your ZEISS Sales & Service Partner.

### Info

Contact the ZEISS service representative to learn more about the **ZEISS Predictive Service**.

### 7.1 Safety during Cleaning and Maintenance

Only conduct preventive measures described here. All tasks of maintenance and cleaning not described may only be performed by an authorized ZEISS service representative.

Any unauthorized intervention or any operation outside the scope of the intended use can lead to injuries and property damage and voids all rights to warranty claims. Only original spare parts from ZEISS may be used.

### NOTICE

#### Functional impairment due to dirt, dust and moisture

Dirt, dust, and moisture can impair the microscope and its components functionality and can cause short-circuits. Blocking or covering ventilation slots can lead to a build-up of heat that can damage the device and, in extreme cases, cause a fire.

- ▶ Use the dust protection cover if the microscope is not used.
- ▶ The ventilation slots must be unobstructed at all times and the heat sink (if available) must be unobstructed.
- ▶ Do not insert any objects or allow them to fall into the ventilation slots.
- ▶ Perform regular maintenance and cleaning according to the instructions in this document and according to the instructions in the applicable documents.
- ▶ Make sure that no cleaning liquid or moisture gets inside the microscope and its components.
- ▶ In case of damage, the affected parts of the microscope must be taken out of operation.

## 7.2 Maintenance Work

### 7.2.1 Cleaning an Optical Surface

#### NOTICE

##### Damage of optical surfaces due to improper cleaning

- ▶ Remove dust from the optical surface slowly and carefully.
- ▶ Remove dust on optical surfaces with a natural-hair brush or blow it off with a dust blower.
- ▶ Avoid touching optical surfaces with fingers.
- ▶ Never use abrasive compounds or cleaners.

- Parts and Tools**
- 🔧 Clean cloth
  - 🔧 Cotton swab
  - 🔧 Distilled water
  - 🔧 Optical cleaning solution (70 % ethanol)
  - 🔧 Lint-free cloth

- Procedure**
1. Moisten a cotton swab or a clean cloth with distilled water or, if necessary, with an optical cleaning solution.
  2. Wipe optical surfaces in a circular motion towards the edge of the optics with slight pressure.



3. Dry with a lint-free cloth.

### 7.2.2 Removing Water-Soluble Contamination

- Parts and Tools**
- 🔧 Clean cloth
  - 🔧 Lint-free cloth

- Prerequisite** ✓ The microscope and its components are switched off and disconnected from the power supply.

- Procedure**
1. Remove dust and loose dirt particles with a soft brush or clean lint-free cloth.
  2. If necessary, moisten a clean cloth with water. **Info A mild detergent (no solvent!) may be added to the water for stubborn dirt.**
  3. Wipe off the area with the moistened cloth. **Info Labels on the device may only be cleaned using a dry cloth.**
  4. Dry with a lint-free cloth.

### 7.2.3 Exchanging the Internal Power Supply Unit

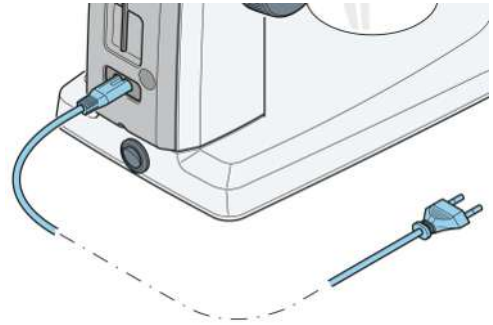
**Info**

The internal power supply unit in stand M is exchanged in a similar way to that in stand K.

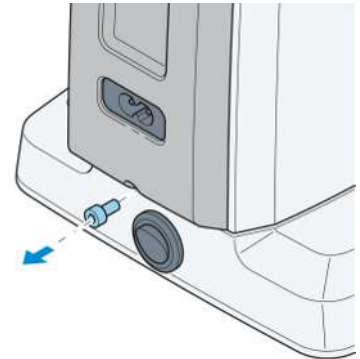
Only the desktop power adapter specified by the manufacturer may be used. Make sure that the mains plug is removed from the socket before the device is opened.

**Prerequisite** ✓ Microscope is switched off and disconnected from power supply.

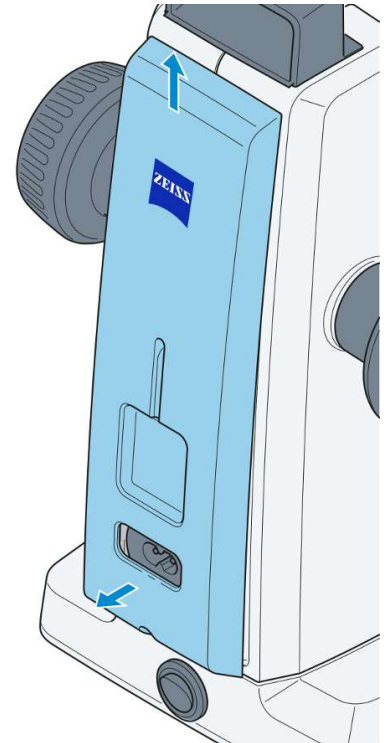
**Procedure** 1. Remove the power cord from the back of the device.



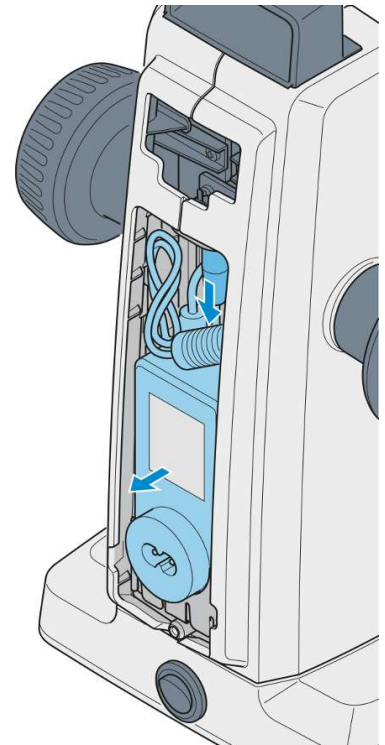
2. Use a hex key to release the screw on the underside of the housing cover.



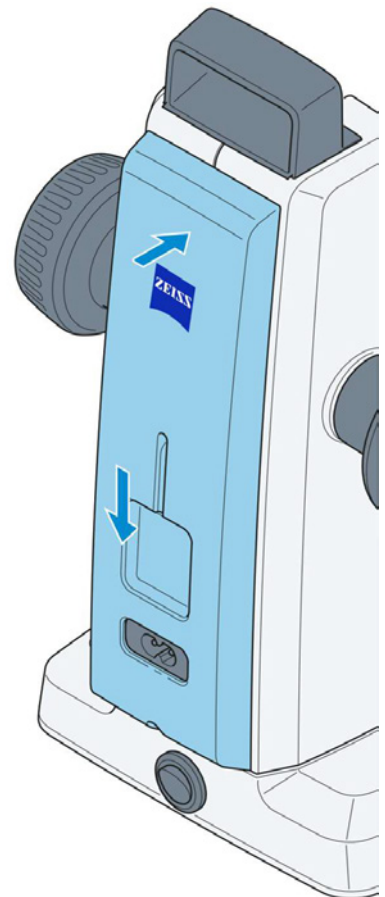
3. Pull off the housing cover slightly at the bottom, then press it upwards.



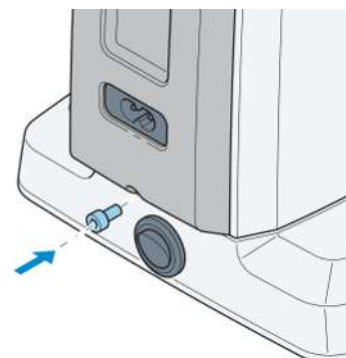
4. Release the plug and remove the faulty internal power supply unit.



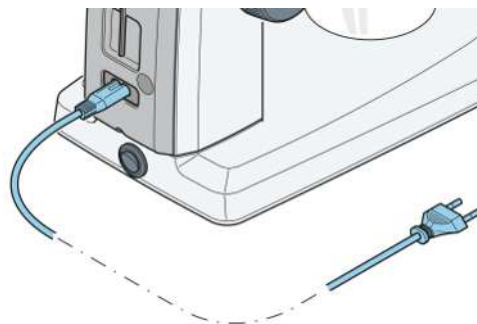
5. Insert the new internal power supply unit and connect the plug.
6. Bring the upper part of the housing cover into place and press in the lower part of the housing cover.



7. Secure the housing cover by means of the screw.



8. Insert the power cord on the back of the device.



9. Insert the mains plug into a mains supply socket.


### 7.2.4 Opening the Stand Cover Plate (Stand K EDU)

The stand cover plate may be removed for cleaning or to remove any foreign matter which might have fallen in accidentally.

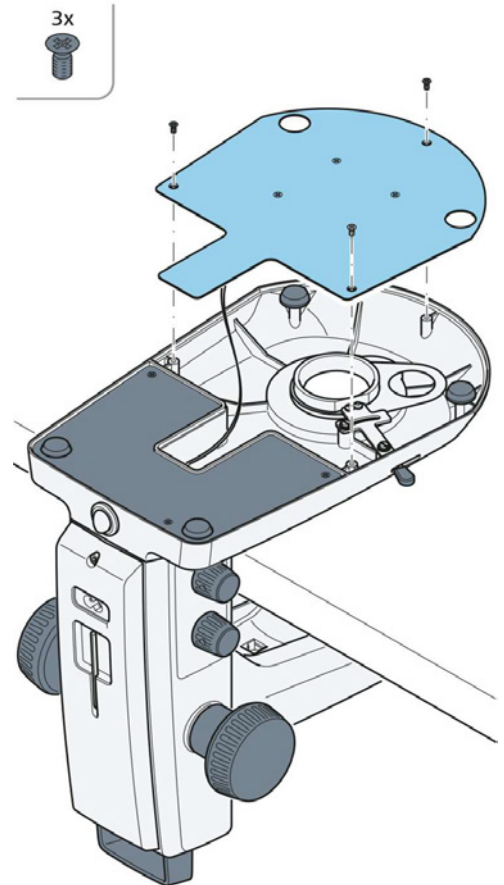
#### Info

To clean the LED board, use a soft lintfree cloth, a cotton swab or a brush with natural bristles, possibly moistened slightly in distilled water.

**Parts and Tools**  Phillips screwdriver

**Prerequisite**  Microscope is switched off and disconnected from power supply.

**Procedure** 1. Release the three recessed head screws.



2. Lift off the stand cover plate carefully and then put it aside. **Info** Make sure that the cable is not disconnected from the stand cover plate.


### 7.2.5 Opening the Stand Cover Plate (Stand K LAB)

The transmitted-light base can be removed from the stand cover plate for cleaning or for removal of any foreign matter which might have fallen in inadvertently.

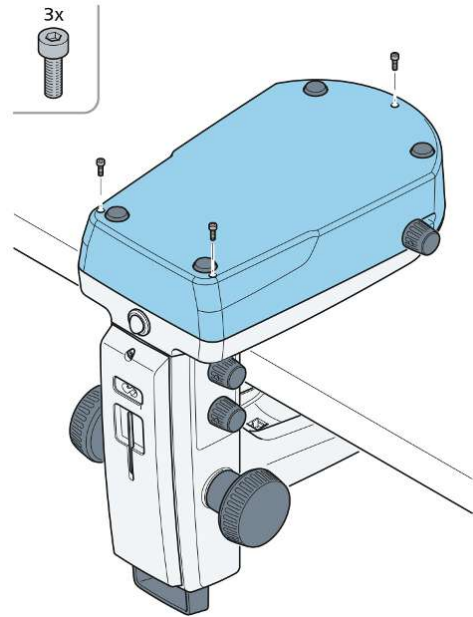
#### Info

To clean the LED board, the optical elements and the mirror, use a soft lintfree cloth, a cotton swab or a brush with natural bristles, possibly moistened slightly in distilled water.

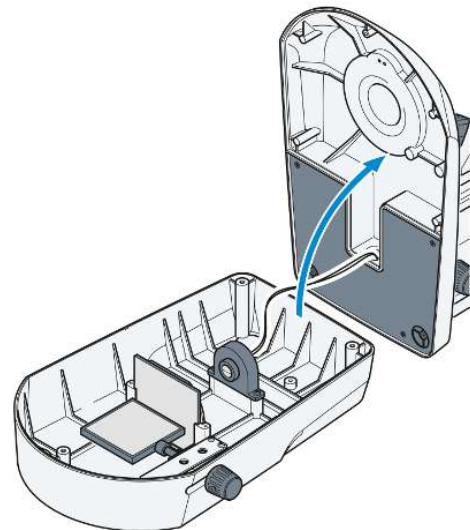
**Parts and Tools**  Hex key, 2.5 mm

**Prerequisite**  Microscope is switched off and disconnected from power supply.

**Procedure** 1. Release the three screws from the stand cover plate.



2. Carefully lift the stand cover plate off the transmitted-light base and put the stand aside. **Info** Make sure that the cable is not disconnected from the transmitted-light base.



## 8 Troubleshooting

The following table provides information about solving common problems.

### Info

If you cannot solve the problem or if you are unsure about a certain technical difficulty, contact your local ZEISS service representative.

Symptom	Cause	Measure
Stereo microscope illumination cannot be switched ON.	Power supply interrupted.	<ul style="list-style-type: none"> <li>▪ Check or establish connection to power supply.</li> <li>▪ Switch power switch on back of stereo microscope to <b>ON</b>.</li> </ul>
	Power supply interrupted.	
	Power unit faulty.	Replacing the power unit, see section <i>Exchanging the Internal Power Supply Unit</i> [▶ 54].
Additional reflected-light illuminators are not lit.	Power supply cable RJ-12 not plugged in.	Insert RJ plug correctly, see section <i>Installing the Microscope Body</i> [▶ 28] or <i>Additional Reflected-Light Illumination</i> [▶ 32].
	Reflected light not switched on or dimmed.	Press and turn knob several times to switch reflected light on and to increase its intensity; see section <i>Reflected-Light Illuminations</i> [▶ 42].
Transmitted-light illuminator does not light up	Transmitted light not switched on or dimmed.	Press and turn rotary / push-button to switch illumination on and to increase its intensity; see section <i>Transmitted-Light Illuminators</i> [▶ 45].
	Transmitted light not connected.	Open stand K EDU or K LAB and connect the plug-in connectors of the LED illumination according to section <i>Opening the Stand Cover Plate (Stand K LAB)</i> [▶ 58].
Transmitted-light illuminator dirty or control lever cannot be actuated.	Liquids or foreign matter in the transmitted-light unit.	Open and clean stand K EDU or K LAB and eliminate foreign matter according to section <i>Opening the Stand Cover Plate (Stand K LAB)</i> [▶ 58].
Microscope mount moves down by itself.	Focusing drive too easy to move.	Set ease of motion of the focusing drive, see section <i>Installing the Microscope Body</i> [▶ 28].

## 9 Decommissioning and Disposal

This chapter contains information on the decommissioning and disposal of the microscope and its expansions/components or accessories.

### 9.1 Decommissioning

If the microscope and its components are not used for an extended period of time such as several months, they should be shut down completely and secured against unauthorized access.

- Procedure**
1. Switch off the microscope.
  2. Pull the power supply plug.

### 9.2 Transport and Storage

The following regulations must be observed before and during transport:

- The boxes must be secured during transport.
- Avoid rocking the boxes back and forth.
- Note the weight information on the package and on the shipping document.
- Where possible, the original packaging must be used for shipping or transport.

**Allowable environmental conditions**

Off-site transportation and storage in shipping packaging:

- Between -40 °C and +70 °C
- Relative humidity less than 93 % at +40 °C

On-site storage without packaging:

- Between +10 °C and +40 °C
- Relative humidity less than 75 % at +35 °C

**Info**

**24 hours before installation** of the microscope it is required that the boxes are at recommended room temperature to avoid ingress of humidity, which is harmful to optical paths, and to ensure effective stability of the microscope during installation and testing.

### 9.3 Disposal

The microscope and its components must not be disposed of as domestic waste or through municipal disposal companies. They must be disposed of in accordance with applicable regulations (WEEE Directive 2012/19/EU). ZEISS has implemented a system for the return and recycling of devices in member states of the European Union that ensures suitable reuse according to the EU Directives mentioned.

ZEISS introduced a procedure for the return and recycling of the instruments within the member states of the European Union which ensures suitable recycling procedures conforming to the EU directives.

For more information on disposal and recycling consult your ZEISS Sales & Service Partner. The microscope may not be disposed of in the household waste or through municipal waste disposal services. If the microscope is resold, the seller shall be obliged to inform the buyer that the microscope must be disposed of in accordance with the regulations.

The customer is responsible for decontamination.

## 9.4 Decontamination

A decontamination statement must be submitted before returning any used objects to the ZEISS location.

If reliable decontamination cannot be guaranteed, the hazard must be marked according to applicable regulations. In general, a well-visible warning sign must be affixed to the article itself and to the outside of the packaging, together with detailed information on the type of contamination.

## 10 Technical Data and Conformity

This chapter contains important technical data as well as information on the conformity.

### 10.1 Performance Data and Specifications

Due to continuous development, we reserve the right to change specifications without notice.

#### Info

Your ZEISS Sales & Service Partner will provide you with the detailed installation requirements.

**Location Requirements** The microscope may only be operated in closed rooms. The microscope should not be installed near radiators or windows with direct sunlight. The microscope must be placed securely on the table surface to prevent slipping and falling.

Compliance with the installation requirements of the microscope is the responsibility of the customer. The requested supplies have to be readily available at the time of installation.

Installation site	Exclusively inside buildings
Altitude	Max. 2000 m above sea level
Atmospheric pressure	Min. 800 hPa

#### Air Conditioning and Quality

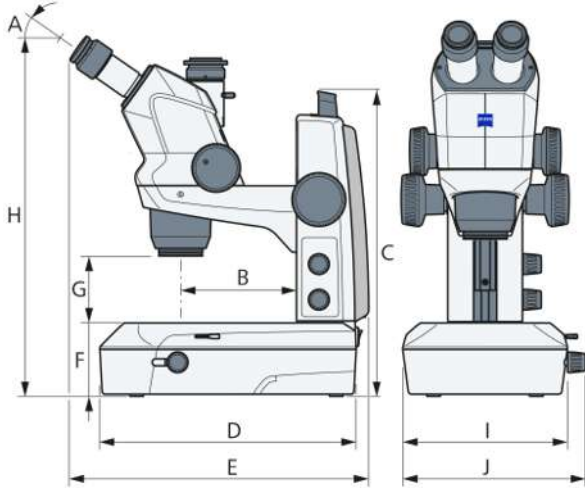
Temperature range for operation	10 to 40 °C
Relative humidity	< 75 % at 35 °C
Atmospheric pressure / altitude	800 to 1060 hPa / $\leq$ 2000 m above sea level
Pollution degree	2

#### Optical Data

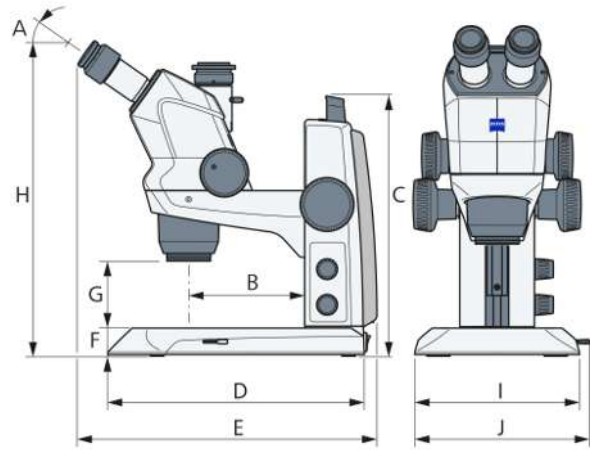
##### Optical Data Basic System (Eyepieces 10x, No Front Optics)

Zoom range	8:1 (0.63x – 5.0x)
Number of zoom click stops	0.65x / 0.8x / 1x / 1.25x / 1.6x/ 2x/ 2.5x/ 3.2/ 4x/ 5x
Interpupillary distance	55 – 75 mm
Magnification range	6.3x – 50x
Maximum object field diameter	36.8 mm
Free working distance	92 mm

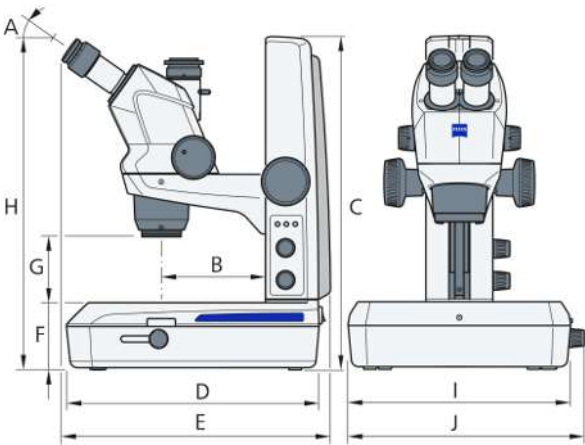
**Weight and Sizes**



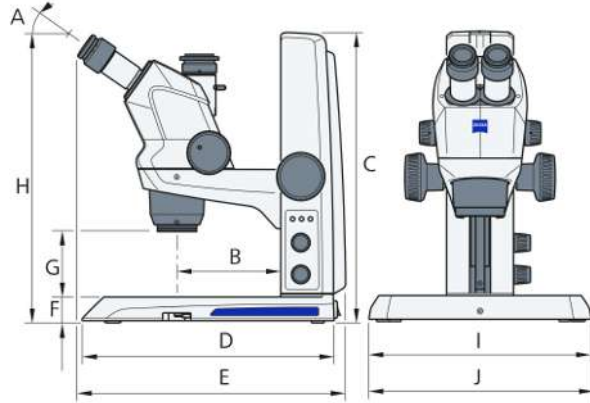
Stemi 508 doc in stand K LAB



Stemi 508 doc in stand K EDU / K MAT



Stemi 508 in stand M LED with transillumination unit



Stemi 508 in stand M LED with transilluminator Brightfield

	Stemi 508 doc in stand K LAB	Stemi 508 doc in stand K EDU / K MAT	Stemi 508 in stand M LED with transillumination unit	Stemi 508 in stand M LED with transilluminator Brightfield
<b>A (°)</b>	35	35	35	35
<b>B (mm)</b>	140	140	140	140
<b>C (mm)</b>	380	330	446	391
<b>D (mm)</b>	310	310	340	340
<b>E (mm)</b>	370	370	370	370
<b>F (mm)</b>	90	35	90	35
<b>G (mm)</b>	92	92	92	92
<b>H (mm)</b>	445	380	435	380
<b>I (mm)</b>	200	200	298	298
<b>J (mm)</b>	220	212	318	304
<b>Weight (kg)</b>	5.6	5.2	9.0	6.7

<b>Mains Connection</b>	<b>Value</b>
Nominal AC voltage	L+N 100 to 240 VAC $\pm$ 10 % No line voltage conversion required!
Nominal frequency	50 / 60 Hz
Power consumption	max. 40 VA
Max. current	1.5 A
Protection class	IP20 (IEC 60529)
IEC earth class	Class II of IEC 61140
Oversoltage Category	II

## 10.2 Applicable Standards and Regulations

The Stemi 508 is a product for research purposes only. It conforms to current international standards (e.g. IEC 61010-1) as well as to harmonized standards of the applied EU directives.

The Stemi 508 complies with the following EU directives:

2011/65/EU and delegated directive (EU) 2015/863	Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS), amended by Commission Delegated Directive (EU) 2015/863 of 31 March 2015
2012/19/EU	WEEE Directive
2014/30/EU	Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to electromagnetic compatibility
2014/35/EU	Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits

Not for therapeutic use, treatment, or medical diagnostic evidence. Not all products are available in every country. Observe all general and country-specific safety regulations as well as applicable environmental protection laws and regulations.

ZEISS conforms to the following management system standard: ISO 9001.

# 11 Accessories and System Expansions

Only the following accessories may be used with the microscope as their safe use has been confirmed by ZEISS. Only original parts from ZEISS may be used. Check in advance whether your microscope can be retrofitted with a system expansion or accessories.

After installation or conversion it must be carefully checked whether the microscope and its system expansions/accessories are in a safe operational state and whether unused ports are closed. For details and safety measures refer to the associated documents.

## Info

Further information on the software and its operation is available in the software's online help.

## Info

For additional information and detailed descriptions, refer to further applicable documents or ask your ZEISS Sales & Service Partner.

Thanks to the interface Ø 76 mm, the Stemi 508 can also be used in conjunction with other stands of the modular kit of the Stereo system – and other ZEISS stereo microscopes such as e.g. the Stemi 305, may also be inserted in the stand K LED.

Name	Description/Info
Front optics	The following optics are available: <ul style="list-style-type: none"> <li>▪ Vario front lens system 0.3x-0.5x FWD 233...90 mm</li> <li>▪ Front lens system 0.3x FWD 287 mm</li> <li>▪ Front lens system 0.4x FWD 211 mm</li> <li>▪ Front Optics 5 Apo 0.63x FWD 127 mm</li> <li>▪ Front Optics 5 Apo 1.5x FWD 53 mm</li> <li>▪ Front Optics 5 Apo 2.0x FWD 35 mm</li> </ul>
Dust protection glass	The following protection glass is available: <ul style="list-style-type: none"> <li>▪ Dust Protection Glass M50</li> <li>▪ Dust Protection Glass M52/M49</li> </ul>
Pol analyzer	The following analyzer is available: <ul style="list-style-type: none"> <li>▪ Analyzer M49/52 rotatable</li> </ul>
Eyepieces	The following eyepieces are available: <ul style="list-style-type: none"> <li>▪ Eyepiece PL10x/23 Br foc</li> <li>▪ Eyepiece PL 16x/16 Br foc</li> <li>▪ Eyepiece W 25x/10 foc</li> </ul>
Eyepieces with reticles	The following eyepieces with reticles are available: <ul style="list-style-type: none"> <li>▪ Eyepiece PI 10x/23 Br foc w/micrometer for Stemi 305/508</li> <li>▪ Eyepiece PI 10x/23 Br foc w/crossline for Stemi 305/508</li> <li>▪ PI 16x/14 Br foc w/micrometer for Stemi 305/508</li> </ul>
Eyecup	The following eyecup is available: <ul style="list-style-type: none"> <li>▪ Folding Eyecup</li> </ul>
Stage micrometers	The following light stage micrometers are available: <ul style="list-style-type: none"> <li>▪ Stage Micrometer 25+50/10, f/Stemis</li> <li>▪ Stage Micrometer, 25+50/10, calibrated</li> </ul>

Name	Description/Info
LED stands	The following LED stands are available: <ul style="list-style-type: none"> <li>▪ Stand K MAT</li> <li>▪ Stand K EDU</li> <li>▪ Stand K LAB</li> <li>▪ Stand M LED</li> </ul>
Mechanic stands w/o LEDs	The following mechanic stands are available: <ul style="list-style-type: none"> <li>▪ Stand K</li> <li>▪ Stand M</li> <li>▪ Stand N with Column 32/450 mm</li> </ul>
required for Stand N	<ul style="list-style-type: none"> <li>▪ Stemi Mount Column 32 with Drive</li> </ul>
Illuminators K LED	The following illuminators are available: <ul style="list-style-type: none"> <li>▪ Spot Illuminator K LED</li> <li>▪ Double Spot Illuminator K LED</li> <li>▪ Ring Illuminator K LED segmentable</li> </ul>
for spot/double spot K LED (optional)	<ul style="list-style-type: none"> <li>▪ Polarizer Spot K LED</li> </ul>
for stand-alone use of ring light K LED	<ul style="list-style-type: none"> <li>▪ Controller K LED</li> </ul>
Stages (d=84 mm for stands K/M/N)	The following stages are available: <ul style="list-style-type: none"> <li>▪ Gliding Stage f/ Stemis</li> <li>▪ Stage Ball &amp; Socket f/ Stemis</li> <li>▪ Rotating Stage Stemi</li> </ul>
for rotating stages	<ul style="list-style-type: none"> <li>▪ Polarizer S f/ Stage 455120</li> <li>▪ Lambda Plate in Slider</li> </ul>

## Revision History

Revision	Date of Issue	Introduced Modifications
2	11/2025	<ul style="list-style-type: none"><li>▪ Editorial rework</li><li>▪ Implementation of LVD marking</li><li>▪ Production transfer</li></ul>

# Glossary

**BF (Brightfield)**

Illumination and imaging system where direct light passes through the objective aperture and provides a bright background against which the image is viewed.

**DF (Darkfield)**

Illumination and imaging system that prevents direct light from entering the objective aperture.

**FWD (Free Working Distance)**

A distance in air, or in the specified immersion liquid, between the front of the objective and the surface of the cover glass, or of the object if uncovered, under normal operating conditions.

**Insert plate**

Part that sits in a mounting frame and holds slides.

**LED (Light emitting diode)**

Solid state device embodying a p-n junction, emitting optical radiation when excited by an electric current.

**PE**

Primary Electron

**pol (polarization)**

An oscillation state of a light wave, characterized by the motion which the light vector describes in the plane perpendicular to the direction of propagation.

**reticle**

Glass plate, usually disposed in the object focal plane of the eyepiece, with a series of lines or a cross hair applied upon it, or another device carrying an aiming mark used for targeting an object or for measuring angles and distances to an object.

**UDI**

Unique device identifier

**User**

Person examining a sample under the microscope.

**UV-VIS-IR**

Objective with longitudinal chromatic aberration correction for the visual and near IR wavelength range. It has good transmission properties in the near UV wavelength range.

**ZEISS Sales & Service Partner**

The Sales & Service Partner is generally in the field for customer support in a regional area and / or a clearly defined customer group.

**ZEISS service representative**

Specially trained service expert, either ZEISS staff or authorized service partner of ZEISS.

**ZEN**

ZEISS Efficient Navigation

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