

MEASURING QUALITY. SINCE 1796



## MICROSCOPES

RELIABLE SOLUTIONS FOR ANY APPLICATION

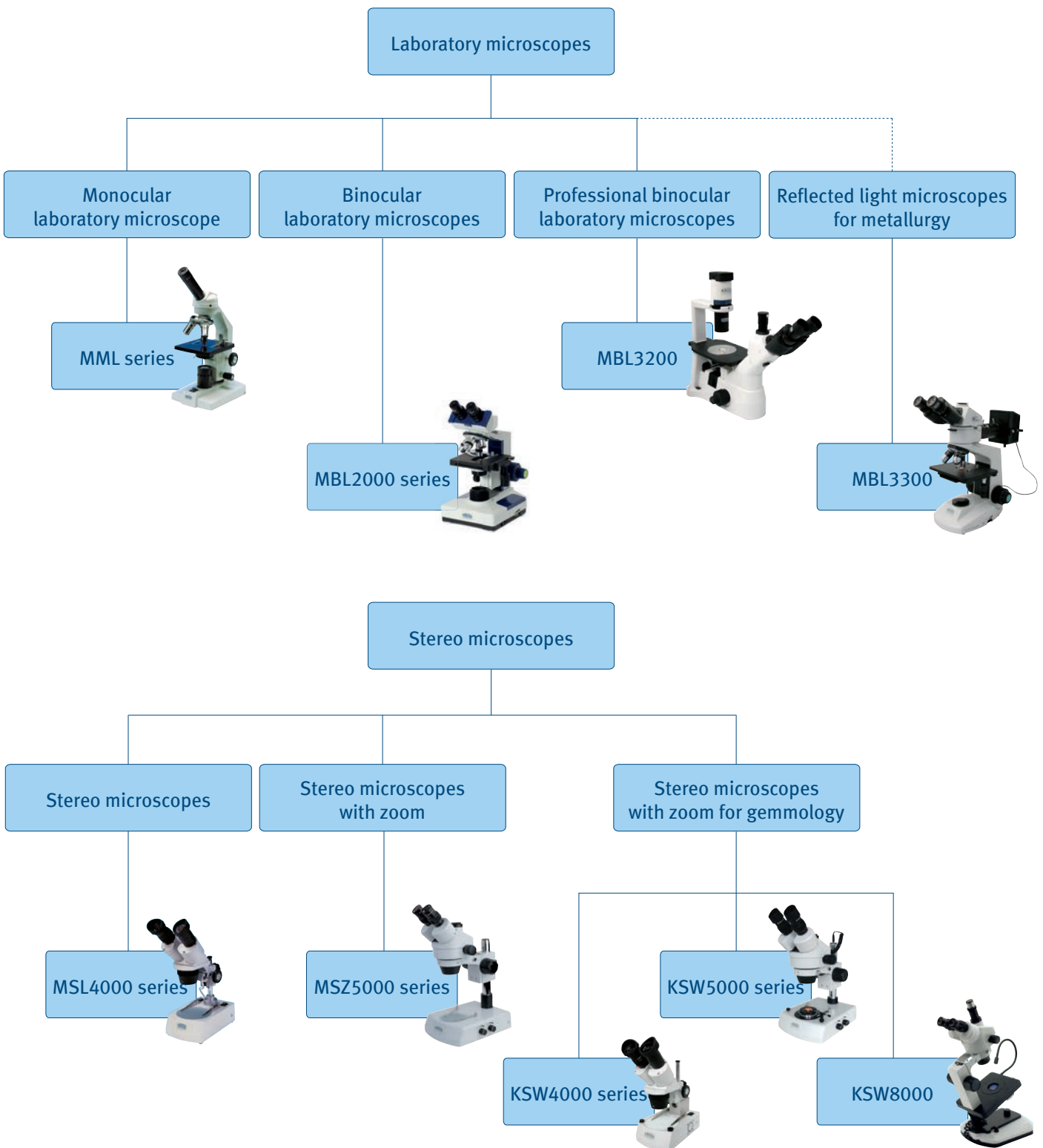


[www.kruess.com](http://www.kruess.com)

# KRÜSS MICROSCOPES

As a company with a long-standing tradition, A.KRÜSS has set the goal for itself of offering top quality and an excellent value for money. We build instruments providing the performance and reliability buyers can depend on in the long run. The solid weight of the microscopes ensures stability even in harsh environments and the long-lasting precision engineering ensures quality work in the laboratory for many years to come. Take advantage of over 200 years of tradition and

experience. The 3-year warranty on the housing, optics and mechanics shows that A.KRÜSS truly believes in the products it makes! Customer satisfaction is our top priority, which is why our developers and production staff are more than happy to make special customer requests a reality. All microscopes can be upgraded or converted, thus giving you the best quality at a good price. A.KRÜSS: microscopes you can depend on!



## Laboratory microscopes

### MML series:

MML1200  
MML1300  
MML1400

### MBL2000 series:

MBL2000  
MBL2000-T  
MBL2000-30W  
MBL2000-T-30W  
MBL2000-PL  
MBL2000-T-PL  
MBL2000-PL-PH  
MBL2000-T-PL-PH  
MBL2000-PL-30W  
MBL2000-T-PL-30W  
MBL2000-PL-PH-30W  
MBL2000-T-PL-PH-30W  
MBL2000-B  
MBL2000-B-T  
MBL2000-B-PL  
MBL2000-B-T-PL

### MBL3000 series:

MBL3200  
MBL3300

### Key microscope features:

T	Trinocular/phototube
PL	Planachromatic objectives
PH	Phase contrast feature
30W	30 Watt illumination
B	Blood test setup
10/30	10x/30x magnification
20/40	20x/40x magnification
IL	Incident light
TL	Transmitted light
S	Swivelling arm/stand
RL	Ring light
K	Cold light source
W	Horizontal construction

## Stereo microscopes

### MSL4000 series:

MSL4000-10/30-IL-TL  
MSL4000-10/30-IL-S  
MSL4000-10/30-S  
MSL4000-20/40-IL-TL  
MSL4000-20/40-IL-S  
MSL4000-20/40-S

### MSZ5000 series:

MSZ5000  
MSZ5000-T  
MSZ5000-RL  
MSZ5000-T-RL  
MSZ5000-S  
MSZ5000-T-S  
MSZ5000-S-RL  
MSZ5000-T-S-RL  
MSZ5000-IL-TL  
MSZ5000-T-IL-TL

### KSW4000 series:

KSW4000  
KSW4000-K  
KSW4000-K-W

### KSW5000 series:

KSW5000  
KSW5000-T  
KSW5000-T-K-W

### KSW8000 series:

KSW8000

On request, we are of course happy to build a microscope customised to meet your specific needs.

# LIGHT MICROSCOPY

The microscope was invented around 1600 in the Netherlands and has undergone continuous development ever since. With the advent of electron microscopes, light microscopes have been declared dead numerous times. Yet these predictions have proven overly hasty. Just as before, biologists and physicians appreciate the easy-to-use light microscopes thanks to their natural images and the ability to observe living tissue.

Composite light microscopes consist of two lens systems: one eyepiece toward the eye and one toward the object-side objective. The objectives are the most important and valuable part of the microscope, because their quality is critical for determining the overall performance of the microscope. Achromatic objectives consist of compound lenses made of different materials. This makes it possible to correct longitudinal chromatic aberration for two colours, i.e. the varying focal points of several different wavelengths. Apochromatic objectives are corrected for three colours and the deviation of the image location for the intermediate colours is very small. Objectives that are used to correct the curvature of the image field are referred to as plane objectives.

The eyepiece acts as a magnifying glass and magnifies the intermediate image of the objective. Wide-field eyepieces have a larger field-of-vision number than normal eyepieces. The field-of-vision number is the diameter of the object field in mm multiplied by the magnification factor of the objective: an eyepiece with a field-of-vision of 18 mm with a 4x objective yields an object field with 4.5 mm. Plane eyepieces smooth out the image field similar to the plane objectives.

Modern light microscopes are basically categorised as monocular, binocular or stereo microscopes depending on the number of eyepieces and objectives. Monocular microscopes have one eyepiece and one objective and are the most simple type of microscopes. Binocular microscopes have two eyepieces and one objective.

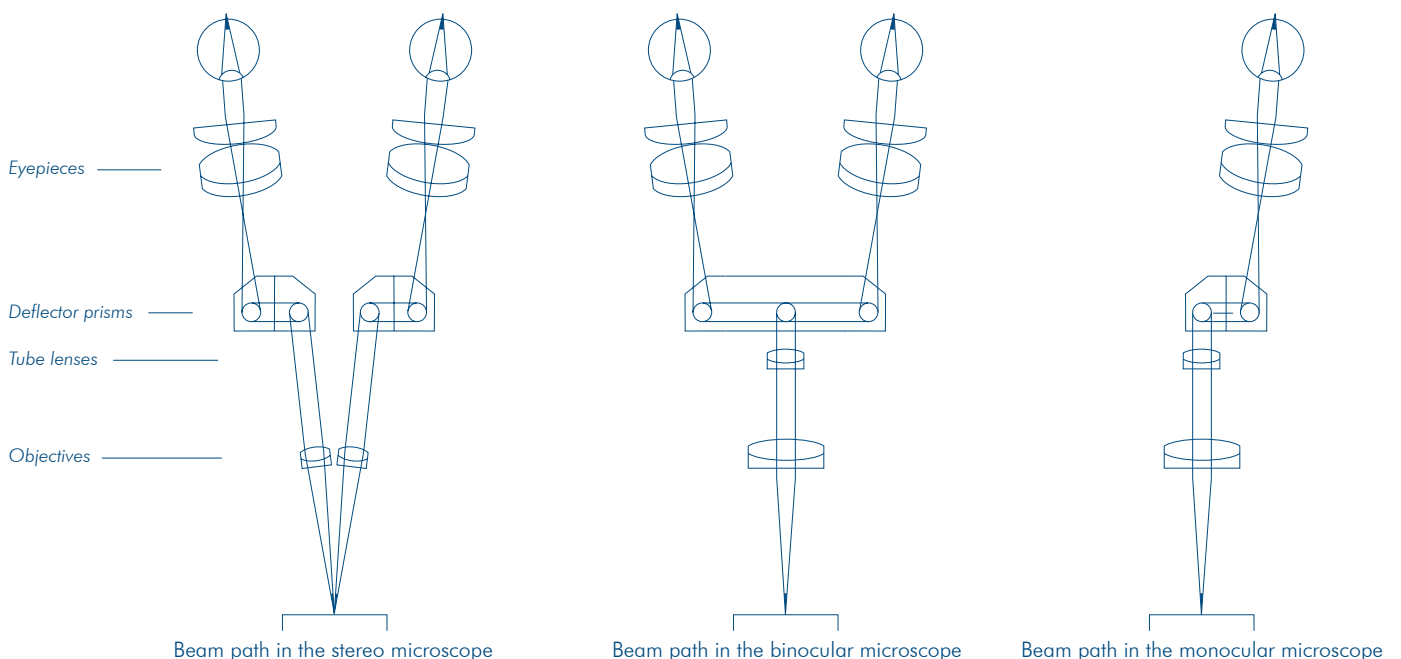
They provide for fatigue-free working as microscopes with one eyepiece. However, they do not allow for three-dimensional viewing of the object. Stereo microscopes have two eyepieces and two objectives, which can, however, be combined to form a main objective and thus project a separate image of the object in each eye. This allows objects to be viewed three dimensionally.

In biology and medicine, the object is usually illuminated with transmitted light before the light passes through the objective. This is referred to as transmitted light microscopy. In incident light microscopy, the light is cast from above onto the object and is reflected back into the objective. Incident light microscopy is used for the microscopic examination of opaque objects.

The Köhler illumination makes it possible to illuminate precisely the object area that can be overlooked. This prevents unnecessary stray light from illuminated parts of the object that are not in the field of view.

Dark-field microscopy is used to examine objects that are particularly lacking in contrast such as micro-organisms or red blood cells. The dark-field feature directs the light at an oblique angle through the object, past the objective. The light that is refracted from the object hits the objective where a bright image is then produced against a dark background. This makes it possible to see outlines of objects that are normally mostly transparent.

Phase-contrast microscopy was developed for the microscopy of particularly transparent objects. Transparent objects are, for the most part, optically denser than the surrounding medium and therefore create more resistance to the light. The light is therefore slowed down, which results in a phase shift when it exits the object again. This phase shift is used to create a brightness contrast. This also requires a ring aperture in the condenser and a phase ring in the objective which must be calibrated to each other.



## A strong start

### MML monocular - compact and inexpensive

Monocular microscopes are ideal for many applications in the laboratory, teaching and production. All models have 45° inclined viewing and 360° rotating optical head. The sturdy metal tripod ensures high stability and the option to choose between coarse and fine adjustment facilitates precise working. The microscopes are equipped with integrated illumination.

Power supply: 230 V (115 V optional).  
A wide range of accessories is available for all models.



MML1200

	Optical equipment	Illumination	Special features	Application
<b>MML1200</b>	10x wide field eyepiece Objectives (achromatic) 4x/NA 0.10 10x/NA 0.25 40x/NA 0.65	6 V 10 W bright-field Abbe condenser		Schools Training Simple laboratory applications
<b>MML1300</b>	10x wide field eyepiece Objectives (achromatic) 4x/NA 0.10 10x/NA 0.25 40x/NA 0.65	6 V 10 W bright-field Abbe condenser, adjustable	Adjustable illumination	Schools Training Simple laboratory applications
<b>MML1400</b>	10x wide field eyepiece Objectives (achromatic) 4x/NA 0.10 10x/NA 0.25 40x/NA 0.65 100x/NA 1.25 oil	6 V 10 W bright-field Abbe condenser, adjustable	Adjustable illumination 4x objective turret	Schools Training Simple laboratory applications

## MBL2000 SERIES

### The robust Allrounder

### MBL2000 - The laboratory microscope for all applications



MBL2000

Robust and universal. This model is ideal for general microscopy in laboratories, schools and universities. The MBL2000 offers an extensive range of add-on options: for example, with phase-contrast setting, a dark-field condenser, micrometre setup, planachromatic objectives and additional eyepieces.

A binocular optical head offers inclined viewing and interocular adjustment. A wide range of accessories is available for all models.

- Dioptre compensation with compensation scale
- Sturdy metal stand
- Coarse and fine focussing, double coaxial (0–200  $\mu\text{m}$ , division 2  $\mu\text{m}$ )  
Coarse focussing range: 30 mm  
Fine focussing range: 30 mm
- Right-side coarse focussing knob with fast focus adjustment, left-sided knob with quick-focus setting
- Graduated XY cross table with coaxial operation
- Low-voltage illumination with lighting control and removable pre-condenser
- Twin-lens Abbe condenser: NA 1.25
- Iris diaphragm
- Pivoting filter holder
- Height adjustment
- Glass filters: blue, yellow, green
- Power supply: 230 V (115 V optional)

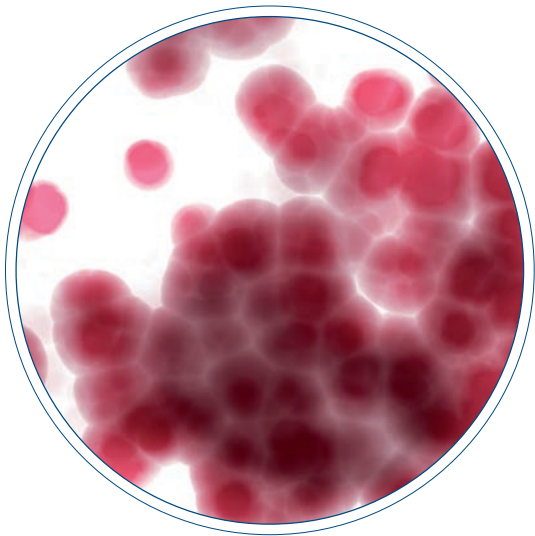
<b>MBL2000-B</b>	10x plane eyepiece Objectives: 4x/NA 0.10 10x/NA 0.25 40x/NA 0.65 100x/NA 1.25 oil	15 V 150 W adjustable cold light source Dark-field condenser for blood examination	Cold light source Dark-field for blood	Blood testing with Enderlein-microscopy Non-medical practitioners
<b>MBL2000-T-B</b>	10x plane eyepiece Objectives: 4x/NA 0.10 10x/NA 0.25 40x/NA 0.65 100x/NA 1.25 oil	15 V 150 W adjustable cold light source Dark-field condenser for blood testing	Phototube Cold light source Dark-field for blood	Blood testing with Enderlein-microscopy Non-medical practitioners
<b>MBL2000-PL-B</b>	10x plane eyepiece Objectives (planachromatic): 4x/NA 0.10 10x/NA 0.25 40x/NA 0.65 100x/NA 1.25 oil	15 V 150 W adjustable cold light source Dark-field condenser for blood testing	Cold light source Dark-field for blood Planachromatic objectives	Blood testing with Enderlein-microscopy Non-medical practitioners
<b>MBL2000-T-PL-B</b>	10x plane eyepiece Objectives (planachromatic): 4x/NA 0.10 10x/NA 0.25 40x/NA 0.65 100x/NA 1.25 oil	15 V 150 W adjustable cold light source Dark-field condenser for blood testing	Phototube Cold light source Dark-field for blood Planachromatic objectives	Blood testing with Enderlein-microscopy Non-medical practitioners

**T** Trinocular/phototube      **B** Blood test setup  
**PL** Planachromatic objectives      **30W** 30 Watt illumination  
**PH** Phase contrast feature

	Optical equipment	Illumination	Special features:	Application
<b>MBL2000 (Basic model)</b>	10x plane eyepiece Objectives: 4x/NA 0.10 10x/NA 0.25 40x/NA 0.65 100x/NA 1.25 oil	6 V 20 W adjustable Bright-field Abbe condenser		Research Diagnostics Quality control
<b>MBL2000-T</b>	10x plane eyepiece Objectives: 4x/NA 0.10 10x/NA 0.25 40x/NA 0.65 100x/NA 1.25 oil	6 V 20 W adjustable Bright-field Abbe condenser	Phototube	Research Diagnostics Quality control
<b>MBL2000-30W</b>	10x plane eyepiece Objectives: 4x/NA 0.10 10x/NA 0.25 40x/NA 0.65 100x/NA 1.25 oil	6 V 30 W adjustable Bright-field Abbe condenser	30 W illumination	Research Diagnostics Quality control
<b>MBL2000-T-30W</b>	10x plane eyepiece Objectives: 4x/NA 0.10 10x/NA 0.25 40x/NA 0.65 100x/NA 1.25 oil	6 V 30 W adjustable Bright-field Abbe condenser	Phototube 30 W illumination	Research Diagnostics Quality control
<b>MBL2000-PL</b>	10x plane eyepiece Objectives (planachromatic): 4x/NA 0.10 10x/NA 0.25 40x/NA 0.65 100x/NA 1.25 oil	6 V 20 W adjustable Bright-field Abbe condenser	Planachromatic objectives	Research Diagnostics Quality control
<b>MBL2000-T-PL</b>	10x plane eyepiece Objectives (planachromatic): 4x/NA 0.10 10x/NA 0.25 40x/NA 0.65 100x/NA 1.25 oil	6 V 20 W adjustable Bright-field Abbe condenser	Phototube Planachromatic objectives	Research Diagnostics Quality control
<b>MBL2000-PL-PH</b>	10x plane eyepiece Objectives (planachromatic): 4x/NA 0.10 PH10x/NA 0.25 PH40x/NA 0.65 PH100x/NA 1.25 oil	6 V 20 W adjustable Bright-field Abbe condenser Phase contrast Dark-field	Phase contrast feature with dark-field	Research Diagnostics Quality control Sewage treatment plants
<b>MBL2000-T-PL-PH</b>	10x plane eyepiece Objectives (planachromatic): 4x/NA 0.10 PH10x/NA 0.25 PH40x/NA 0.65 PH100x/NA 1.25 oil	6 V 20 W adjustable Bright-field Abbe condenser Phase contrast Dark-field	Phototube Phase contrast feature with dark-field	Research Diagnostics Quality control Sewage treatment plants
<b>MBL2000-PL-PH-30W</b>	10x plane eyepiece Objectives (planachromatic): 4x/NA 0.10 PH10x/NA 0.25 PH40x/NA 0.65 PH100x/NA 1.25 oil	6 V 20 W adjustable Bright-field Abbe condenser Phase contrast Dark-field	Phase contrast feature with dark-field 30 W illumination	Research Diagnostics Quality control Sewage treatment plants
<b>MBL2000-T-PL-PH-30W</b>	10x plane eyepiece Objectives (planachromatic): 4x/NA 0.10 PH10x/NA 0.25 PH40x/NA 0.65 PH100x/NA 1.25 oil	6 V 20 W adjustable Bright-field Abbe condenser Phase contrast Dark-field	Phototube Phase contrast feature with dark-field 30 W illumination	Research Diagnostics Quality control Sewage treatment plants
<b>MBL2000-PL-30W</b>	10x plane eyepiece Objectives (planachromatic): 4x/NA 0.10 10x/NA 0.25 40x/NA 0.65 100x/NA 1.25 oil	6 V 30 W adjustable Bright-field Abbe condenser	Planachromatic objectives 30 W illumination	Research Diagnostics Quality control
<b>MBL2000-T-PL-30W</b>	10x plane eyepiece Objectives (planachromatic): 4x/NA 0.10 10x/NA 0.25 40x/NA 0.65 100x/NA 1.25 oil	6 V 30 W adjustable Bright-field Abbe condenser	Phototube Planachromatic objectives 30 W illumination	Research Diagnostics Quality control



# MBL3200 INVERTED MICROSCOPE



## Multicultural in the lab

### MBL3200 - Inverted microscope for biology and medicine

The inverted microscope is specially designed for the identification and analysis of biological substances and cultures. The lenses have a large working distance making it possible, for example, to examine samples through the bottom of Petri dishes. The photo and C-mount video adapter lets you connect SLR and video cameras.

- Stage size (WxDxH): 160 x 250 x 20 mm
- Width with mounted XY stage: 300 mm
- Movement range of XY stage: 80 x 118 mm
- Object field diameter:
  - 5.5 mm with 4x/NA 0.10
  - 2.2 mm with 10x/NA 0.25
  - 0.55 mm with 40x/NA 0.65
  - 1.1 mm with PH20x/NA 0.40
- Maximum object height
  - 24 mm with 4x/NA 0.10
  - 23 mm with 10x/NA 0.25
  - 21 mm with 40x/NA 0.65

Power supply: 90–240 V.

A wide range of accessories is available for the MBL3200.



MBL3200

	Optical equipment	Equipment	Illumination	Special features	Application
MBL3200	10x plane eyepiece Visual field number: 22 Objectives (planachromatic, infinity): 4x/NA 0.10 // object field Ø: 5.5 mm 10x/NA 0.25 // object field Ø: 2.2 mm 40x/NA 0.65 // object field Ø: 0.55 mm PH20x/NA 0.40 // object field Ø: 1.1 mm	XY table Coaxial coarse/fine adjustment Iris diaphragm Filter holder Blue filter Green filter	6 V 30 W adjustable	Inverted microscope Third tube for connecting photo and video cameras	Laboratory



# MBL3300 INCIDENT LIGHT MICROSCOPE

## Impeccable view of detailed structures MBL3300 - Metallurgical incident light microscope

The MBL3300 is a real specialist. It is a perfect instrument for the identification and analysis of steel connections and other metals.

It is also ideal for quality assessment, raw material analysis and examining metal structures following heat treatment.

This metallurgical microscope is particularly well suited for laboratory and industrial applications.

It is equipped with a phototube for connecting a camera or a video recorder.



- Object field diameter::
  - 4.5 mm with 4x/NA 0.10
  - 1.8 mm with 10x/NA 0.25
  - 0.45 mm with 40x/NA 0.65
- Maximum object height
  - 24 mm with 4x/NA 0.10
  - 23 mm with 10x/NA 0.25
  - 21 mm with 40x/NA 0.65

Power supply: 90–240 V.

A wide range of accessories is available for the MBL3300.



MBL3300

	Optical equipment	Equipment	Illumination	Special features	Application
<b>MBL3300</b>	10x plane eyepiece Field of view: 18 Objectives (planachromatic): 4x/NA 0.10 // object field Ø: 4.5 mm 10x/NA 0.25 // object field Ø: 1.8 mm 40x/NA 0.65 object field Ø: 0.45 mm	XY table Coaxial coarse/fine adjustment Iris diaphragm Filter holder Blue filter Green filter (optional)	6 V 30 W adjustable Incident light through objectives	Metallurgical microscope with incident light Phototube	Laboratory Material testing

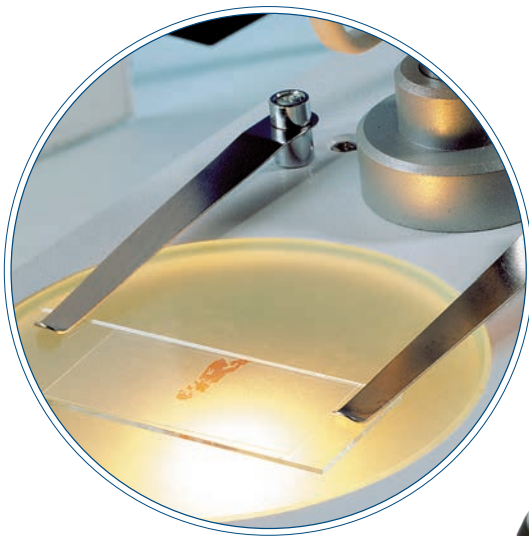
## MSL4000 SERIES

### Fantastic perspective for small budgets MSL4000 - stereo microscopes

MSL4000 series stereo microscopes offer an optimal value for money. Thanks to the wide range of accessories and different eyepieces, these microscopes are suitable for a wide range of applications. All microscopes have a 45° inclined viewer piece, an eye-distance adjustment and dioptre adjustment. The metal casing is sturdy and durable. To allow you the option for working anywhere without having to depend on any external power supply, some of the MSL microscopes have a battery providing a user-friendly 25 hours of power.

- Incident and transmitted light (depending on configuration)
- Range of dioptre adjustable on one eyepiece
- Adjustable eye distance

Power supply: 100–240 V, 50–60 Hz.  
A wide range of accessories is available for all models.



MSL4000-10/30-S



MSL4000-10/30-IL-TL

**IL** Incident light      **10/30** 10x/30x magnification  
**TL** Transmitted light      **20/40** 20x/40x magnification  
**S** Swivelling arm

	Optical equipment	Illumination	Special features
<b>MSL4000-10/30-IL-TL</b>	10x wide-field eyepieces 1x and 3x objectives 10x and 30x magnification	LED incident and transmitted light	Battery life: 25 hours
<b>MSL4000-10/30-IL-S</b>	10x wide-field eyepieces 1x and 3x objectives 10x and 30x magnification	LED incident light	Swivelling arm
<b>MSL4000-10/30-S</b>	10x wide-field eyepieces 1x and 3x objectives 10x and 30x magnification		Swivelling arm
<b>MSL4000-20/40-IL-TL</b>	10x wide-field eyepieces 2x and 4x objectives 20x and 40x magnification	LED incident and transmitted light	Battery life: 25 hours
<b>MSL4000-20/40-IL-S</b>	10x wide-field eyepieces 2x and 4x objectives 20x and 40x magnification	LED incident light	Swivelling arm
<b>MSL4000-20/40-S</b>	10x wide-field eyepieces 2x and 4x objectives 20x and 40x magnification		Swivelling arm

## Zoom in: sharpness for professionals

### MSZ5000 - stereo microscopes have an impressive zoom range

A robust zooming stereo microscope for the professional examination of electronics, precision engineering, plastics and medical products. The microscope is used for inspection, assembly, analysis, for soldering and polishing and finishing – an excellent tool for quality control. The large zoom range, large working distance and broad depth of field facilitates very comfortable work in many areas. It offers continuously variable magnification with 7–45x total zoom. The rugged metal housing makes it easier to work with reliability, even in harsh environments. Accessories include various eyepieces and auxiliary lenses to modify the magnification and working distances.



MSZ5000-T-IL-TL

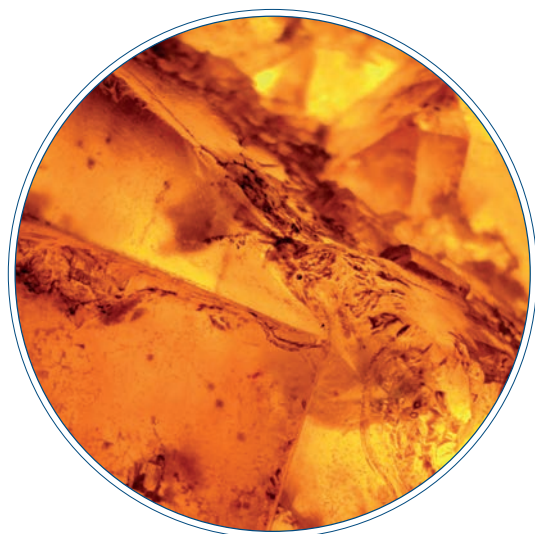
- Zoom feature for continuous magnification settings
- Large depth of focus
- Incident and transmitted light (depending on configuration)
- 45° inclined viewer piece with dioptre adjustment on both sides and eye-distance adjustment 51–75 mm
- Range of vision 20 mm, object field 28.6–4.44 mm
- Power supply: 230 V, option with 115 V available

<b>T</b>	Trinocular/phototube	<b>RL</b>	Ring light
<b>IL</b>	Incident light	<b>S</b>	Swivelling stand
<b>TL</b>	Transmitted light		

	Optical equipment	Illumination	Special features
<b>MSZ5000</b>	10x wide-field eyepieces 0.7–4.5x zoom objective 7–45x total magnification		
<b>MSZ5000-T</b>	10x wide-field eyepieces 0.7–4.5x zoom objective 7–45x total magnification		Phototube
<b>MSZ5000-RL</b>	10x wide-field eyepieces 0.7–4.5x zoom objective 7–45x total magnification	Incident light (ring light)	
<b>MSZ5000-T-RL</b>	10x wide-field eyepieces 0.7–4.5x zoom objective 7–45x total magnification	Incident light (ring light)	Phototube
<b>MSZ5000-S</b>	10x wide-field eyepieces 0.7–4.5x zoom objective 7–45x total magnification		Swivelling stand
<b>MSZ5000-T-S</b>	10x wide-field eyepieces 0.7–4.5x zoom objective 7–45x total magnification		Phototube Swivelling stand
<b>MSZ5000-S-RL</b>	10x wide-field eyepieces 0.7–4.5x zoom objective 7–45x total magnification	Incident light (ring light)	Swivelling stand
<b>MSZ5000-T-S-RL</b>	10x wide-field eyepieces 0.7–4.5x zoom objective 7–45x total magnification	Incident light (ring light)	Phototube Swivelling stand
<b>MSZ5000-IL-TL</b>	10x wide-field eyepieces 0.7–4.5x zoom objective 7–45x total magnification	12 V 15 W incident and transmitted light infinitely variable adjustment	
<b>MSZ5000-T-IL-TL</b>	10x wide-field eyepieces 0.7–4.5x zoom objective 7–45x total magnification	12 V 15 W incident and transmitted light infinitely variable adjustment	Phototube

## KSW4000 SERIES

### Jewels in sight: precision optics for professional gemmology KSW4000 - Stereo microscope for inspecting diamonds and gemstones



The stereo microscopes from the KSW4000 series (each with 1x and 3x objectives) are ideal for inspecting diamonds and gemstones. The magnification factor is 10x and 30x (optional 20x and 60x). The rugged metal housing facilitates reliable work, even in harsh conditions. These microscopes are equipped with wide-range power units (90–240 V or 100–240 V, 50/60 Hz). The microscopes of this series are equipped with a dark-field, objective turret and stone pincers. All models have power-saving, long-lasting LED illumination. Also available in options with twin-arm light conductor, cuvette and cuvette table, built-in cold light source or 12 V 10 W. Available with incident and transmitted light.



KSW4000

**K** cold light source  
**W** Horizontal construction

	Optical equipment	Illumination	Special features	Application
<b>KSW4000</b>	10x wide-field eyepieces 1x and 3x objectives 10x and 30x magnification	LED incident and transmitted light Dark-field illumination	Stone holder Storage battery with 24 h battery life	Gemmology Diamond and gemstone examination
<b>KSW4000-K</b>	10x wide-field eyepieces 1x and 3x objectives 10x and 30x magnification	LED transmitted light LED cold light source with light conductor Dark-field illumination	Stone holder	Gemmology Diamond and gemstone examination
<b>KSW4000-K-W</b>	10x wide-field eyepieces 1x and 3x objectives 10x and 30x magnification	LED transmitted light LED cold light source with light conductor Dark-field illumination	Stone holder Glass cuvette Cuvette table Horizontal mounting of the microscope head possible	Gemmology Diamond and gemstone examination



**Nothing escapes the view of these optics**

**KSW5000 - stereo microscopes with zoom objective for professional gemmology**

The KSW5000 series consists of three models that are based on the MSZ5000 or MSZ5000-T. They offer a continuously variable magnification setting with 7–45x total zoom factor.

The rugged metal housing facilitates reliable working, even in difficult environments.

The voltage of the microscopes of this series are available in 115 or 230 V models; switching the voltage is not possible.

The power supply is not reversible.

The microscopes of this series are equipped with dark-field and stone holders, some also including a cuvette table and polarisation feature.



KSW5000

T Trinocular/phototube  
 K Cold light source  
 W Horizontal construction

	Optical equipment	Illumination	Special features	Application
<b>KSW5000</b>	10x wide-field eyepieces 0.7–4.5x zoom objective Total magnification 7–45x	Incident and transmitted light Dark-field	Stone holder	Gemmology Diamond and gemstone examination
<b>KSW5000-T</b>	10x wide-field eyepieces 0.7–4.5x zoom objective Total magnification 7–45x	Incident and transmitted light Dark-field	Phototube Stone holder	Gemmology Diamond and gemstone examination
<b>KSW5000-T-K-W</b>	10x wide-field eyepieces 0.7–4.5x zoom objective Total magnification 7–45x	Transmitted light Cold light source with light conductor Dark-field Polarisation feature	Phototube Stone holder Glass cuvette Cuvette table Horizontal mounting of the microscope head possible	Gemmology Diamond and gemstone examination

## KSW8000

### Uncompromisingly good

KSW8000 - The pivoting stereo microscope with zoom objective lens for the professional gemologist.



The KSW8000 microscope leaves nothing to be desired. Its modern lighting system consists of a combination of transmitted light, incident light and dark-field LED illumination as well as integrated daylight illumination. Both the main body and the head of the microscope can be rotated up to 360° and the stands can be tilted at angles of up to 90°. The magnification factor is between 7x and 45x and is continuously variable over the whole range of magnification.

A large selection of accessories, for example stone tongs, plane objectives with iris diaphragms, polarization units and immersion cuvettes, offer the highest level of flexibility.



KSW8000

	Optical equipment	Illumination	Special features	Application
KSW8000	10x wide-field eyepieces 0.7-4.5x zoom objective 45° insight 90° tiltable 360° pivotable	LED incident and transmitted light Extra fiber optic light guide Dark-field with iris diaphragm	Stone holder Phototube	Gemmology Diamond and gemstone examination





## MICROSCOPE ACCESSORIES

### Cold light sources

#### KL5110

- Cold light source without light conductor
- 8 V 20 W, **not** adjustable
- Power supply 100–240 V, i.e. can be used internationally
- Constant colour temperature: 3200 Kelvin



KL5110

#### KL5120

- Cold light source without light conductor
- 8 V 20 W, **adjustable**
- Power supply 100–240 V, i.e. can be used internationally
- Brightness control using iris diaphragm, therefore no change in colour temperature
- Constant colour temperature of 3200 Kelvin



KL5120

#### KL5125

- 230 V Cold light source without light conductor
- 150 W halogen lamp
- Colour temperature 3200 Kelvin
- Electronic brightness control



KL5125

### Light conductors

#### KL5130

One-arm light conductor for all cold light sources

#### KL5131

Twin-arm light conductor for all cold light sources

### Video-Eyepieces

#### VOPC91

- Video eyepiece for PC
- Resolution: 1.3 megapixels
- USB 2.0, driver software included
- Windows 2000/XP/Vista/7

#### VOPC93

- Video eyepiece for PC
- Resolution: 3 megapixels
- USB 2.0, driver software included
- Windows 2000/XP/Vista/7



VOPC93

VOPC91

## Digital camera

We would be happy to recommend a model that is up-to-date and has been tested by us.



Example

## Universal adapter for digital cameras

### UH80

Universal support with tripod socket for inexpensive adapting of many digital cameras for use with a microscope.

UH80 may be directly mounted to an eyepiece tube. If mounted to a photo tube, a specifically machined eyepiece MML1105 is needed.



UH80

## LED Daylight Ring Lamp

### LDR72

- 72 LEDs, adjustable brightness and direction of lighting
- Inner diameter: 27–60 mm
- Adapter ring: approx. 42.5 mm external thread
- Power supply: 100–240 V, 50/60 Hz



LDR72

## Accessories for laboratory microscopes

	MML series	MML1500	MBL2000 series	MBL3000 series
Polarisation feature	MML1001	MML1001	MML2051	MML2057
Mirror	MML1005	MML1006	MML1006	
XY cross table	MML1240		MML2041	
Köhler light field aperture		MBLLK	MBLLK	
Micrometer eyepiece 10X	MML1004	MML1004	MML1004	MML1004
Micrometer eyepiece 15X	MML1002	MML1002	MML1002	MML1002
Stage micrometer	MML1003	MML1003	MML1003	MML1003
Plane eyepiece 12.5X				MML1112
Plane eyepiece 15X	MML1115	MML1115	MML1115	MML1115
Plane eyepiece 16X	MML1016	MML1016	MML1016	MML1016
Wide-field eyepiece 5X	MML1105	MML1105	MML1105	MML1105
Wide-field eyepiece 10X	MML1110	MML1110	MML1110	MML1110
Wide-field eyepiece 16x	MML1116	MML1116	MML1116	MML1116
Eyepiece with pointer 10X	MML1017	MML1017	MML1017	MML1017
Achromatic objective 4X		MML2010	MML2010	MML2010
Achromatic objective 10X		MML2011	MML2011	MML2011
Achromatic objective 20X		MML2012	MML2012	MML2012
Achromatic objective 40X		MML2014	MML2014	MML2014
Achromatic objective 60X		MML2013	MML2013	MML2013
Achromatic objective 63X		MML2017	MML2017	MML2017
Achromatic objective 100X		MML2015	MML2015	MML2015
Planachromatic objective 4X		MML2020	MML2020	MML2020
Planachromatic objective 10X		MML2021	MML2021	MML2021
Planachromatic objective 20X		MML2022	MML2022	MML2022
Planachromatic objective 40X		MML2024	MML2024	MML2024
Planachromatic objective 63X		MML2027	MML2027	MML2027
Planachromatic objective 100X		MML2025	MML2025	MML2025
Planachromatic objective 100X with iris diaphragm		MML2028	MML2028	MML2028
Large phase contrast equipment			MML2030	MML2035
Phase contrast feature 20X			MML2032	
Phase contrast feature 40X			MML2031	MML2036
Dark field condensor			MML2052	MML2056
Dark field condensor for blood		MML2053	MML2053	MML2053

## Accessories for inverted microscope

	MBL3200
Planachromatic objective 20X (Infinity)	MBL3220
Planachromatic objective 60X (Infinity)	MBL3260
Phase contrast objective 40X (Infinity)	MBL3240

## Accessories for incident light microscope

	MBL3300
Planachromatic objective 20X	MBL3320
Polarisation feature	MMB2314
Yellow filter	MMB2310
Green filter	MMB2311
Neutral filter	MMB2312
Planachromatic objective 60X/NA 0.85	MML2360

## Accessories for stereo microscopes

	MSL4000 -Serie	MSZ5000 -Serie
Swivel arm	MSL4326	
Wide-field eyepiece 15X	MSL4331	
Wide-field eyepiece 20X	MSL4332	
Wide-field eyepiece 10X	MSL4333	
Wide-field eyepiece 5X	MSL4334	
Wheel for coarse drive	MSL4335	
Power supply	MSL4336	
2 light bulbs, 12 V 10 W	MSL4999	
Frosted glass plate	MG9	
Dark field	MSZ5419	MSZ5419
Accessory lens 0.5X		MSZ5405
Accessory lens 2X		MSZ5418
Halogen bulb for incident light, 12 V 10 W		MSZ5019
Eyepiece 10X		MSZ5010
Halogen bulb for transmitted light, 12 V 10 W		MSZ5008
Gear wheel		MSZ5012
Micrometer eyepiece 10X		MSZ5416
Micrometer eyepiece 20X		MSZ5417
Pair of eyepieces 20X		MSZ5420
Incident light		MSZ5020
Swiveling stand		MSZ5050
Daylight ring lamp 230 V		TRL13
Daylight ring lamp 110 V (USA)		TRL14
LED daylight ring lamp		LDR72

## Accessories for gemological microscope

	KSW8000
Gemology kit including polarisation device, stone holder and cell holder for inspections in horizontal position	KSW8050

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