

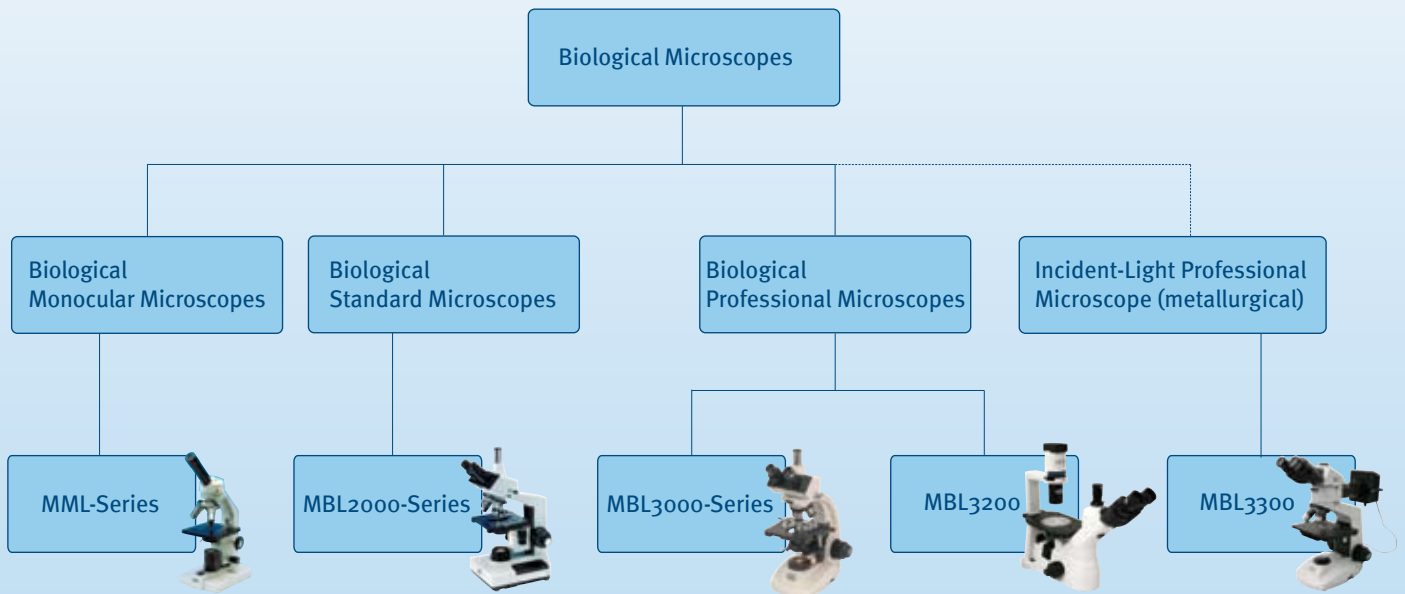
Microscopes

- MML-Series
- MBL2000-Series
- MBL3000-Series
- MBL3200
- MBL3300
- MSL4000-Series
- MSZ5000-Series
- Accessories



innovation since 1796

KRÜSS Microscope Models



KRÜSS Microscopes Overview

Microscope Identification:

T	trinocular / photo tube
PL	planachromatic objectives
PH	phase contrast feature
PH40	40 x phase contrast feature
30W	30 Watt lighting
5R	5 x objective turret
63	63 x objective
V	installed 1,3 megapixel camera
B	blood test setup
10/30	10x/30x magnification
20/40	20x/40x magnification
IL	incident light
TL	transmitted light
S	swivel arm
RL	ring lamp

Biological Microscopes

MML-Series:

MML1200
MML1300
MML1400
MML1500

MBL2000-Series:

MBL2000
MBL2000-30W
MBL2000-5R
MBL2000-T
MBL2000-T-30W
MBL2000-T-5R
MBL2000-PL-PH
MBL2000-T-PL-PH
MBL2000-PL
MBL2000-PL-30W
MBL2000-PL-5R
MBL2000-T-PL
MBL2000-T-PL-30W
MBL2000-T-PL-5R
MBL2000-V
MBL2000-B
MBL2000-T-B
MBL2000-PL-B
MBL2000-T-PL-B

MBL3000-Series:

MBL3000-PL
MBL3000-PL-30W
MBL3000-T-PL
MBL3000-T-PL-30W
MBL3000-PL-PH40-63
MBL3000-T-PL-PH40-63
MBL3000-PL-PH
MBL3000-PL-PH-30W
MBL3000-T-PL-PH
MBL3000-T-PL-PH-30W
MBL3200 (inverse)
MBL3300 (metallurgical)

Stereo Microscopes

MSL4000-Series:

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

MSZ5000-Series:

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

Light microscopy

The microscope was invented around 1600 in Holland and continued to be developed from then on. The development of the electron beam microscopes prompted predictions that light microscopes would soon be outdated.

However, these predictions proved to be rash. Biologists and medical personnel still appreciate the easy-to-use light microscopes for their natural images and the possibilities offered in observing living tissue.

Composite light microscopes consist of two lens systems: the eye/alignment ocular piece and the tilt/shift adaptor.

The objective is the most valuable and most important part of a microscope, as its quality has an enormous influence on a microscope's all round performance.

Achromatic objectives consist of composite lenses made of various materials. This makes it possible to correct an axial chromatic aberration, i.e. a variable focus point of varying wavelengths, relative to two colors.

Apochromatic objectives must have apochromatic correction for three colors, while the chromatic aberration of the image's location in terms of interim colors is very small. If objectives also include curvature correction for the frame (field of vision) they are referred to as *plane objectives*.

The eyepiece has the effect of a loupe and magnifies the intermediate image of the objective. Broad spectrum eyepieces include a higher field-of-vision number than normal oculars. The field-of-vision related figures, multiplied by the ocular magnification, result in an apparent diameter of the microscopic image at a 25 cm distance. In plane ocular pieces, analogous to plane objectives, the field of vision is leveled.

Modern light microscopes are basically grouped into the number of oculars (eye pieces) and objectives in monocular microscopes, binocular microscopes and stereo microscopes.

Monocular microscopes have one eyepiece and objective and one tubular lens, and are considered the simplest of microscopes.

Binocular microscopes have two eyepieces and one tubular lens; they facilitate lower physical stress while working, compared to microscopes with one ocular piece, but do not permit a stereoscopic vision of the object.

Commonly, in the fields of biology and medicine the light first passes through the object before it enters the objective. This is referred to as transmitted light microscopy.

In incident light microscopy the light hits the object from above and is then reflected by the object into the objective.

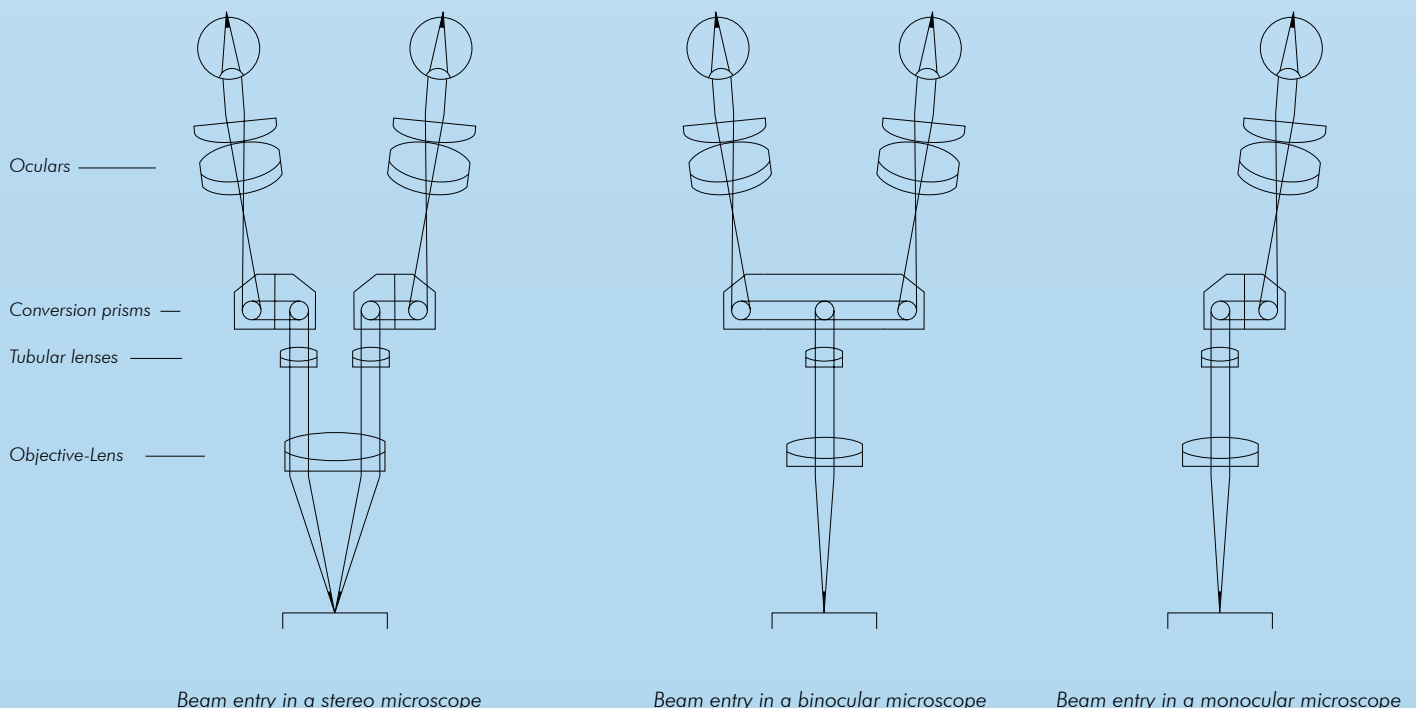
Incident-light microscopy is used for the microscopic study of opaque (non transparent) objects.

Köhler lighting makes it possible to illuminate precisely that area of an objective which is visible to the eye. This prevents any unnecessary light scatter from illuminated parts of the objective which are outside the field of vision.

Dark-field microscopy is used to observe low contrast objects, such as microorganisms or red blood cells. Dark-field microscopy configuration guides the light through the specimen at an angle, past the objective. The light, refracted by the object, falls into the objective where it produces a light image in front of a dark background. This is how the contours of otherwise mostly transparent objects or specimens are well visible, while the inner structures are barely visible.

Phase contrast microscopy was developed for microscopy of particularly transparent objects. Transparent objects frequently have higher optical density than the surrounding medium, and therefore offer resistance to the light; hence it is slowed and, relative to the light passing by the object, exits the object in a phase-offset manner.

This phase-offset condition is utilized to form a contrast in brightness. For this purpose a circular aperture is required in the condenser and a phase ring in the objective, which must be coordinated.



MML1200-Series and MML1500



MML1200



MML1500

MML-Monocular Microscopes - compact and cost effective

Ideal for the laboratory, for teaching and production. All models are provided with 45° angled ocular head, 360° rotating optical head, stable metal stand including coarse/fine mode and built-in light source. With 230 V power supply (115 V optional).

	Optical equipment	Equipment	Light source	Special features	Use
MML1200	Monocular microscope, 10x plano eyepiece, Achromatic objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65	Iris diaphragm, filter holder	6 V 10 W light field Abbe-condenser		Educational institutions, training purposes
MML1300	Monocular microscope, 10x plano eyepiece, Achromatic objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.66	Iris diaphragm, filter holder	6 V 10 W light field Abbe-condenser adjustable	Adjustable lighting	Educational institutions, training purposes
MML1400	Monocular microscope, 10x plano eyepiece, Achromatic objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.67 100x/NA 1.25 oil	Iris diaphragm, filter holder	6 V 10 W light field Abbe-condenser adjustable	100x objective	Educational institutions, training purposes
MML1500	Monocular microscope, 10x plano eyepiece, Achromatic objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.67 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, Abbe-condenser, iris diaphragm, filter holder, blue filter, green filter	6 V 20 W light field Abbe-condenser adjustable	XY table, coaxial coarse/fine mode	Educational institutions, training purposes, laboratories

MBL2000-Series



MBL2000

Biological Standard Microscope MBL2000

Robust and universal.

Ideal for general microscopy in laboratories, schools and university settings.

Expandable to: phase contrast features, dark field condenser, micrometer setup and planachromatic objective lenses.

Binocular optical head with angled view and eye-distance-adjustment.

- Diopetre-compensation scale
- Stable metal stand
- Coarse and fine mode, coaxial, both sides (0 - 200 μm , 2 μm division)
coarse mode: 30 mm,
fine mode: 30 mm
- Right coarse mode focus control with mobility adjustment, left control with fast focus feature.
- Graduated XY cross table with coaxial operation
- Low-voltage lighting with light control and removable pre-condenser.
- Double lens Abbe-condenser: NA 1.25
- Iris diaphragm
- Swivelling filter holder
- Height adjustment
- Glass filter: blue, green
- Power supply: 230 V (115 V optional)



MBL2000-T

Specifications MBL2000-Series

T trinocular / phototube
PL planachromatic objective lenses
PH phase contrast feature
B blood test setup
30 W 30 Watt illumination
5R 5x objective turret
V built in camera 1.3 mill Pixel

	Optical equipment	Equipment	Lighting	Special features	Use
MBL2000 (basic model)	Binocular microscope, 10x plano eyepieces, objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 20 W adjustable, light field Abbe-condenser		Laboratory, quality control, universities
MBL2000-30W	Binocular microscope, 10x plano eyepieces, objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 30 W adjustable, light field Abbe-condenser	30 W illumination	Laboratory, quality control, universities
MBL2000-5R	Binocular microscope, 10x plano eyepieces objectives 4x/NA 0.10, 10x/NA 0.25, 40 x/NA 0.65, 60x/NA 0.85, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 20 W adjustable, light field Abbe-condenser	5x objective turret 60x objective	Laboratory, quality control, universities
MBL2000-T	Trinocular microscope 10x plano eyepieces, objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 100x NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 20 W, light field Abbe-condenser	Third tubular feature to connect to photo and video cameras	Laboratory, quality control, universities
MBL2000-T-30W	Trinocular microscope 10x plano eyepieces, objectives 4x/NA 0.10, 10 x/NA 0.25, 40 x/NA 0.65, 60x/NA 0.85, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 30 W adjustable, light field Abbe-condenser	Third tubular feature to connect to photo and video cameras, 30 W lighting	Laboratory, quality control, universities
MBL2000-T-5R	Trinocular microscope 10x plano eyepieces, objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 20 W, light field Abbe-condenser	Third tubular feature to connect to photo and video cameras, 5x objective turret, 60x objective	Laboratory, quality control, universities
MBL2000-PL-PH	Binocular microscope, 10x plano eyepiece, 4x Planachromatic objectives, 4x/NA 0.10, 10x/NA 0.25, PH40x/NA 0.65, PH100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 20 W adjustable, light field Abbe-condenser, phase contrast, dark field	Phase contrast feature, 10x, 40x, 100x dark field, planachromatic PH objectives	Sewage works, laboratory, quality control, universities
MBL2000-T-PL-PH	Trinocular microscope 10x plano eyepieces, 4x planachromatic objectives, 4x/NA 0.10, 10x/NA 0.25, PH40x/NA 0.65, PH100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 20 W adjustable, light field Abbe-condenser, phase contrast, dark field	Phase contrast feature 10x, 40x, 100x dark field, planachromatic PH objectives, third tubular feature to connect to photo and video cameras	Sewage works, laboratory, quality control, universities
MBL2000-PL	Binocular microscope 10x plano eyepieces, 4x planachromatic objectives, objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 20 W adjustable, light field Abbe-condenser	Planachromatic objectives	Laboratory, quality control, universities
MBL2000-PL-30W	Binocular microscope, 10x plano eyepieces, 4x planachromatic objectives, objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 30 W adjustable, light field Abbe-condenser	Planachromatic objectives, 30 W lighting	Laboratory, quality control, universities
MBL2000-PL-5R	Binocular microscope 10x plano eyepieces, 4x planachromatic objectives, objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 60x/NA 0.85, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 20 W adjustable, light field Abbe-condenser	Planachromatic objectives, 5x objective turret, 60x objective	Laboratory, quality control, universities
MBL2000-T-PL	Trinocular microscope 10x plano eyepieces, 4x planachromatic objectives, objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 20 W, light field Abbe-condenser	Planachromatic objectives, third tubular feature to connect to photo and video cameras	Laboratory, quality control, universities
MBL2000-T-PL-30W	Trinocular microscope 10x plano eyepieces, 4x planachromatic objectives, objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 30 W, light field Abbe-condenser	Planachromatic objectives, third tubular feature to connect to photo and video cameras, 30 W lighting	Laboratory, quality control, universities
MBL2000-T-PL-5R	Trinocular microscope 10x plano eyepieces, 4x planachromatic objectives, objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 60x/NA 0.85 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 20 W, light field Abbe-condenser	Planachromatic objectives, third tubular feature to connect to photo and video cameras, 5x objective turret 60x objective	Laboratory, quality control, universities
MBL2000-V	Trinocular microscope 10x plano eyepieces, objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter, built-in camera	6 V 20 W, light field Abbe-condenser	Built-in camera with connector to PC and video	Laboratory, quality control, universities
MBL2000-B	Binocular microscope, 10x plano eyepieces, objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	15 V 150 W fiber optic light source (adjustable), dark field condenser for blood examination	150 W fiber optic light source, dark field for blood examination	Blood test according to Enderlein, medical practitioners, laboratory, quality control, universities
MBL2000-T-B	Trinocular microscope 10x plano eyepieces, objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	15 V 150 W fiber optic light source, adjustable, dark field condenser for blood examinations	150 W fiber optic light source, dark field for blood examination, third tubular feature to connect to photo and video cameras	blood test according to Enderlein, medical practitioners, laboratory, quality control, universities
MBL2000-PL-B	Binocular microscope 10x plano eyepieces, 4x planachromatic objectives, objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	15 V 150 W fiber optic light source, adjustable, dark field condenser for blood examinations	planachromatic objectives, 150 W, fiber optic light source, dark field for blood examinations	blood test according to Enderlein, medical practitioners, laboratory, quality control, universities
MBL2000-T-PL-B	Trinocular microscope, 10x plano eyepieces, 4x planachromatic objectives, objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	15 V 150 W fiber optic light source, adjustable, dark field condenser for blood examinations	planachromatic objectives, 150 W fiber optic light source, dark field for blood examination, third tubular feature to connect to photo and video cameras	blood test according to Enderlein, medical practitioners, laboratory, quality control, universities

MBL3000 Series

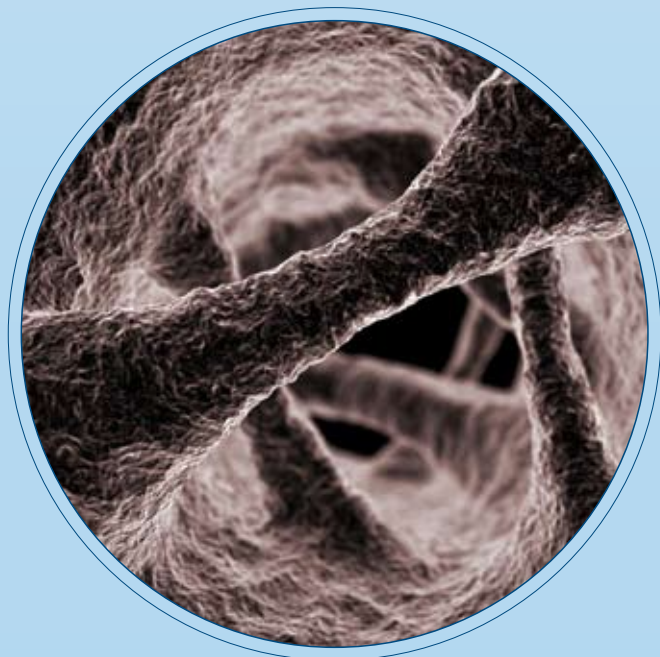


MBL3000-T-PL

MBL3000 - Professional Biological Microscope

Binocular/Trinocular Microscopes with Köhler lighting for challenging medical and biological examinations. Includes optional features for presentations. Also suitable for examination of transparent fibres. All models are equipped with planachromatic objective lenses. Expandable with phase contrast setup, darkfield lighting and micrometer ocular pieces.

- Dioptre compensation scale
- Stable metal stand
- Coarse and fine mode, coaxial, both sides (0 - 200 μm , partition 2 μm)
coarse mode range: 30 mm,
fine mode range: 30 mm
- Right coarse-mode focus control with mobility adjustment, left control with fast focus feature
- Double lens-Abbe-condenser: NA 1.25
- Iris diaphragm
- Swivelling filter holder
- Height adjustment
- Glass filter: blue, green
- Köhler lighting
- Planachromatic objectives
- XY table, coaxial coarse/fine mode
- Low voltage lighting
- Power supply: 90 - 240 V



Specifications MBL3000-Series

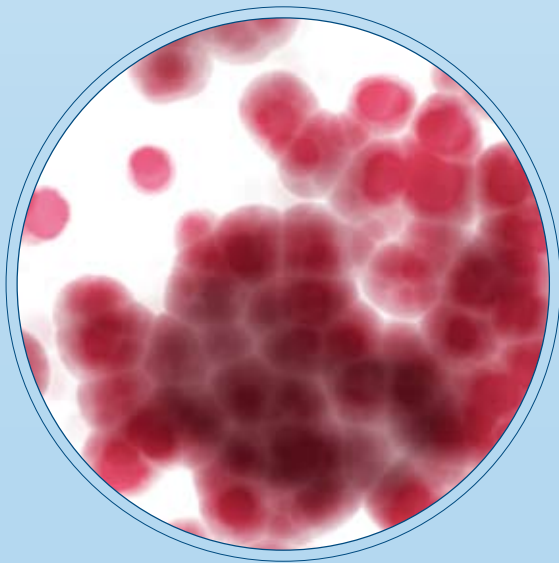
T trinocular / phototube
PL planachromatic objectives
PH phase contrast setup
PH40 40x phase contrast setup
30 W 30 Watt - Illumination
63x 63x objective

	Optical equipment	Equipment	Lighting	Special features	Use
MBL3000-PL (basic model)	Binocular microscope, 10x plano eyepieces, planachromatic objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 20 W adjustable Köhler lighting, light field Abbe-condenser	Köhler lighting, planachromatic objectives	Laboratory, quality control, universities
MBL3000-PL-30W	Binocular microscope, 10x plano eyepieces, planachromatic objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 30 W adjustable Köhler lighting, light field Abbe-condenser	30 W Köhler lighting, planachromatic objectives	Laboratory, quality control, universities
MBL3000-T-PL	Trinocular microscope, 10x plano eyepieces, planachromatic objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 20 W adjustable Köhler lighting, light field Abbe-condenser	30 W Köhler lighting, planachromatic objectives, third tubular feature to connect to photo and video cameras	Laboratory, quality control, universities
MBL3000-T-PL-30W	Trinocular microscope, 10x plano eyepieces, planachromatic objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 30 W adjustable Köhler lighting, light field Abbe-condenser	30 W Köhler lighting, planachromatic objectives, third tubular feature to connect to photo and video cameras	Laboratory, quality control, universities
MBL3000-PL-PH40-63x	Binocular microscope, 10x and 12.5x plano eyepieces, planachromatic objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 63x/NA 0.85, 100x/NA 1.25 oil PH40x/NA 0.65	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter, phase contrast 40x	6 V 20 W adjustable Köhler lighting, light field Abbe-condenser	63x objective, 40x phase contrast	Breweries
MBL3000-T-PL-PH40-63x	Trinocular microscope, 10x and 12.5x plano eyepieces, planachromatic objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 63x/NA 0.85, 100x/NA 1.25 oil PH40x/NA 0.65	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter, phase contrast 40x	6 V 20 W adjustable Köhler lighting, light field Abbe-condenser	63x objective, 40x phase contrast, third tubular feature to connect to photo and video cameras	Breweries
MBL3000-PL-PH	Binocular microscope, 10x plano eyepieces, planachromatic PH objectives PH 10x/NA 0.25, PH20x/NA 0.40, PH40x/NA 0.65, PH100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 20 W adjustable Köhler lighting, light field Abbe-condenser	Köhler lighting, planachromatic objectives, phase contrast 10/20/40/100	Laboratory, quality control, universities
MBL3000-PL-PH-30W	Binocular microscope, 10x plano eyepieces, planachromatic PH objectives PH 10x/NA 0.25, PH20x/NA 0.40, PH40x/NA 0.65, PH100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 30 W adjustable Köhler lighting, light field Abbe-condenser	30 W Köhler lighting, planachromatic objectives, phase contrast 10/20/40/100	Laboratory, quality control, universities
MBL3000-T-PL-PH	Trinocular microscope, 10x plano eyepieces, planachromatic PH objectives PH10x/NA 0.25, PH20x/NA 0.40, PH40x/NA 0.65, PH100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 20 W adjustable Köhler lighting, light field Abbe-condenser	30 W Köhler lighting, planachromatic objectives, third tubular feature to connect to photo and video cameras, phase contrast 10/20/40/100	Laboratory, quality control, universities
MBL3000-T-PL-PH-30W	Trinocular microscope, 10x plano eyepieces, planachromatic PH objectives PH10x/NA 0.25, PH20x/NA 0.40, PH40x/NA 0.65, PH100x/NA 1.25 oil	XY table, coaxial coarse/fine mode, iris diaphragm, filter holder, blue filter, green filter	6 V 30 W adjustable Köhler lighting, light field Abbe-condenser	30 W Köhler lighting, planachromatic objectives, third tubular feature to connect to photo and video cameras, phase contrast 10/20/40/100	Laboratory, quality control, universities

Inverse Microscope MBL3200



MBL3200



MBL3200 - Professional Biological Inverse Microscope

For identification and analysis of biological substances and cultures.

Versatile accessories, universally usable.

Mirror reflex and video camera connection via photo- and C-mount video adapter

Power supply: 90 - 240 V

	Optical equipment	Equipment	Lighting	Special features	Use
MBL3200	Trinocular-Invers Microscope 10x plano eyepiece, objectives 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65, 20x phase contrast	XY table, coaxial coarse/fine, iris diaphragm, filter holder, green filter	6 V 30 W adjustable	Inverse microscope, third tubular feature to connect to photo and video cameras	Laboratory

MBL3300 Incident-Light Microscope



MBL3300

MBL3300 - Professional Metallurgical Microscope

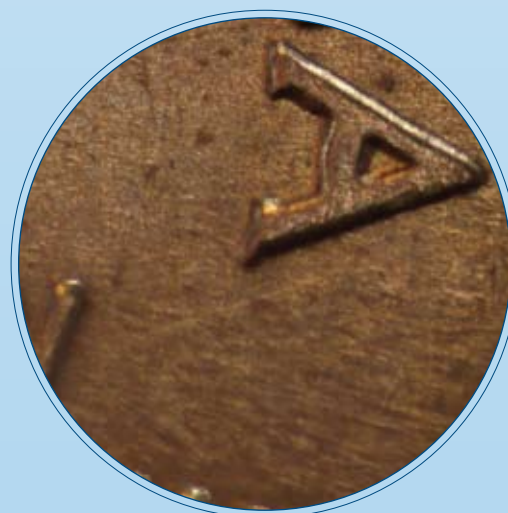
For identification and analysis of steel connections and other metals.

Ideal to determine quality, raw material analysis and control of metal structures after heat treatment.

Particularly suitable for laboratories and industrial use.

The MBL3300 Microscope has a photo tube for connection to a camera or video camera.

Power supply: 90 - 240 V



	Optical equipment	Equipment	Lighting	Special features	Use
MBL3300	Trinocular microscope, 10x & 16x plano eyepieces, planachromatic objectives, 4x/NA 0.10, 10x/NA 0.25, 40x/NA 0.65	XY table, coaxial coarse /fine, iris diaphragm, filter holder, green filter, blue filter	6 V 30 W, adjustable incident light through objective	Metallurgical microscope with incident light through objective, third tubular feature to connect to photo and video cameras	Laboratory, quality control

MSL4000 Series



MSL4000-10/30-IL-TL



MSL4000
- Standard Stereo Microscopes

Optimal price/performance ratio. Varying magnification options and uses are possible through versatile accessories (see accessories P. 15). Includes 45° angled view and eye-distance-adjustment.

- Stable metal housing
- Revolver with 2 magnification capability
- Height adjustment per gear drive
- Power supply: 230 V or 120 V



MSL4000-10/30-S

IL incident light
TL transmitted light

10/30 magnification 10x/30x
20/40 magnification 20x/40x
S swivel arm

	Optical equipment	Equipment	Lighting	Special features
MSL4000-20/40-IL-TL	Stereo Microscope, 10x wide field eyepieces, 2x and 4x objectives	45° view, objective turret 20x and 40x	LED incident and transmitted light , 110 or 220 V or battery driven	LED-lighting, battery driven
MSL4000-10/30-IL-TL	Stereo-Microscope, 10x wide field eyepieces, 1x and 3x objectives	45° view, objective turret 10x and 30x	LED incident and transmitted light , 110 or 220 V or battery driven	LED-lighting, battery driven
MSL4000-10/30-IL-S	Stereo-Microscope, 10x wide field eyepieces, 1x and 3x objectives	45° view, objective turret 10x and 30x swivel arm	Incident light	Swivel arm
MSL4000-10/30-S	Stereo-Microscope, 10x wide field eyepieces, 1x and 3x objectives	45° view, objective turret 10x and 30x swivel arm	n/a	Swivel arm
MSL4000-20/40-IL-S	Stereo-Microscope, 10x wide field eyepieces, 2x and 4x objectives	45° view, objective turret 20x and 40x swivel arm	Incident light	Swivel arm
MSL4000-20/40-S	Stereo-Microscope, 10x wide field eyepieces, 2x and 4x objectives	45° view, objective turret 20x and 40x swivel arm	n/a	Swivel arm

MSZ5000 - Professional Stereo Microscopes

Robust stereo-zoom-microscope for professional use, examination of electronics, precision engineering-synthetic/plastic products and medical products. Used for inspection, assembly, analysis, soldering and polishing and for precision- and smooth finishing work. An excellent tool for use in quality control. Due to large zoom range and excellent depth-focus these allow for pleasant work conditions in many fields of application. The robust metal housing ensures reliable performance even in a rougher environment.

- Zoom feature for continuous magnification settings
- great depth-focus
- Incident and transmitted light (dep. upon features)
- With 45° angled view and dioptr adjustment and adjustable eye-distance from 51 to 75 mm
- Range of vision- Ø: 32.8-5.1 mm
- Power supply: 230 V or 115 V



MSZ5000-T-IL-TL

T trinocular / phototube
IL incident light
TL transmitted light
RL ring lamp
S swivelling arm

	Optical equipment	Equipment	Lighting	Special features
MSZ5000	Stereo-Microscope 10x wide field eyepieces 7-45x zoom-objective	45° view, zoom feature	n/a	Continuous magnification
MSZ5000-IL	Stereo-Microscope 10x wide field eyepieces 7-45x zoom-objective	45° view, zoom feature	Incident light	Continuous magnification
MSZ5000-S	Stereo-Microscope 10x wide field eyepieces 7-45x zoom-objective	45° view, zoom feature, swivelling stand	n/a	Continuous magnification
MSZ5000-S-RL	Stereo-Microscope 10x wide field eyepieces 7-45x zoom-objective	45° view, zoom feature, swivelling stand	Ring lamp (incident)	Continuous magnification
MSZ5000-T	Stereo-Microscope 10x wide field eyepieces 7-45x zoom-objective	45° view, zoom feature	n/a	Continuous magnification, third tubular feature to connect to photo and video camera
MSZ5000-T-S	Stereo-Microscope 10x wide field eyepieces 7-45x zoom-objective	45° view, zoom feature, swivelling stand	n/a	Continuous magnification, third tubular feature to connect to photo and video camera
MSZ5000-T-S-RL	Stereo-Microscope 10x wide field eyepieces 7-45x zoom-objective	45° view, zoom feature, swivelling stand	Ring lamp (incident)	Continuous magnification, third tubular feature to connect to photo and video camera
MSZ5000-IL-TL	Stereo-Microscope 10x wide field eyepieces 7-45x zoom-objective	45° view, zoom feature	12 V 20 W incident and transmitted light, continuously adjustable	Continuous magnification settings
MSZ5000-T-IL-TL	Stereo-Microscope 10x wide field eyepieces 7-45x zoom-objective	45° view, zoom feature	12 V 20 W incident and transmitted light, continuously adjustable	Continuous magnification, third tubular feature to connect to photo and video camera

Microscope Accessories

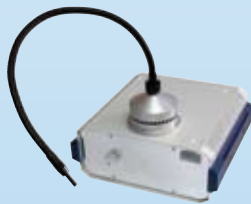
Fiber optic light sources



KL5110



KL5120



KL5125

KL5110 Fiber optic light source without light conductor
8 V/20 W, **not** adjustable
line connector 100 - 240 V, i.e. usable worldwide
color temperature: 3200 Kelvin

KL5120 Fiber optic light source without light conductor
8 V/20 W, adjustable
line connection 100 - 240 V, i.e. usable worldwide
brightness adjustment through iris diaphragm,
therefore no changes in color/light,
constant color temperature: 3200

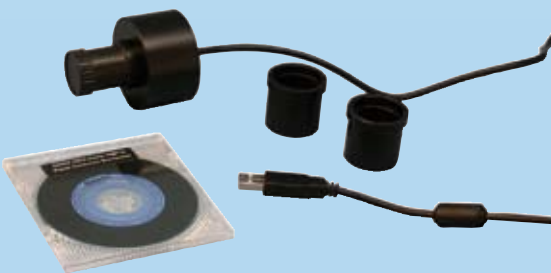
KL5125 Fiber optic light source without light conductor
110 or 230 V 150 W,
electronic control,
color temperature 3200 Kelvin
no 100 Hz flicker

Light conductors

KL5130 Light conductor, one arm for all fiber optic light sources

KL5131 Light conductor, two arms for all fiber optic light sources

VOPC80, VOPC85 and VOTV20 | Color Video-Oculars



VOPC80 Color video-ocular for PC
resolution: 3 megapixel
USB 2.0 incl. driver software
Windows 2000/XP

VOPC85 Color video-ocular for PC
resolution: 5 megapixel
sensitivity: 1.0 V/Lux.sec at 550 nm
USB 2.0 incl. driver software
Windows 2000/XP

VOTV20 Video-ocular for TV, PAL,
450 TV-lines of resolution

P5100 | Digital Camera



Resolution: 12.1 effective megapixels
 Focal width: 36-126 mm
 Zoom: 3.5x optical

Accessories for Biological Microscopes

	MML1200 MML1300 MML1400	MML1500	MBL2000 -Series	MBL3000 -Series
Polarisation feature	X	X	X	X
Mirror	X	X	X	
XY-Cross Table	X	X	X	
Light field aperture acc. to Köhler	X	X	X	
Wide-field micrometer plano eyepieces 15x/100 graduation lines, 10x/120 graduation lines	X	X	X	X
Object lens micrometer, graduation 0.01 mm	X	X	X	X
Plano eyepieces 5x, 12.5x, 16x, 20x	X	X	X	X
Wide-field plano eyepieces 10x, 15x	X	X	X	
Wide-field-indicator plano eyepiece 10x	X	X	X	X
Trinocular optical head		X	X	
Achromatic objectives: 4x/NA 0.1, 10x/NA 0.25, 20x/NA 0.4, 40x/NA 0.65, 60x/NA 0.85, 63x/NA 0.85, 100x/NA 1.25		X	X	X
Planachromatic objektives: 4x/NA 0.1, 10x/NA 0.25, 20x/NA 0.4, 40x/NA 0.65, 100x/NA 1.25		X	X	X
Phase contrast setup with planachromatic PH-objectives 10x/0.25, 40x/0.65, 100x/1.2			X	
Phase contrast setup for 20x/0.4 and 40x/0.65			X	
Phase contrast setup for infinite planachromatic PH objectives and centering telescopes: 10x/0.25, 20x/0.40, 40x/0.65, 100x/1.25 oil				X
Phase contrast feature for 40x/0.65 planachromatic				X
Dark field condenser		X	X	X
Dark field condenser for blood tests		X	X	X

Accessories for Stereo Microscopes

	MSL4000 -Series	MSZ5000 -Series
Swivel arm	X	
Planoculars 10x, 20x		X
Wide-field eyepieces 15x, 20x	X	
Dark field	X	X
Objective 0.3x, 0.5x, 2x		X
Micrometer eyepiece with 100 graduation lines 10x, 20x		X
Swivel arm		X
LED daylight lamp with 56 LEDs, adjustable with power supply 110-230 V		X
Daylight ring lamp, 110 V or 220-230 V		X
UV ring lamp, 220-230 V		X

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