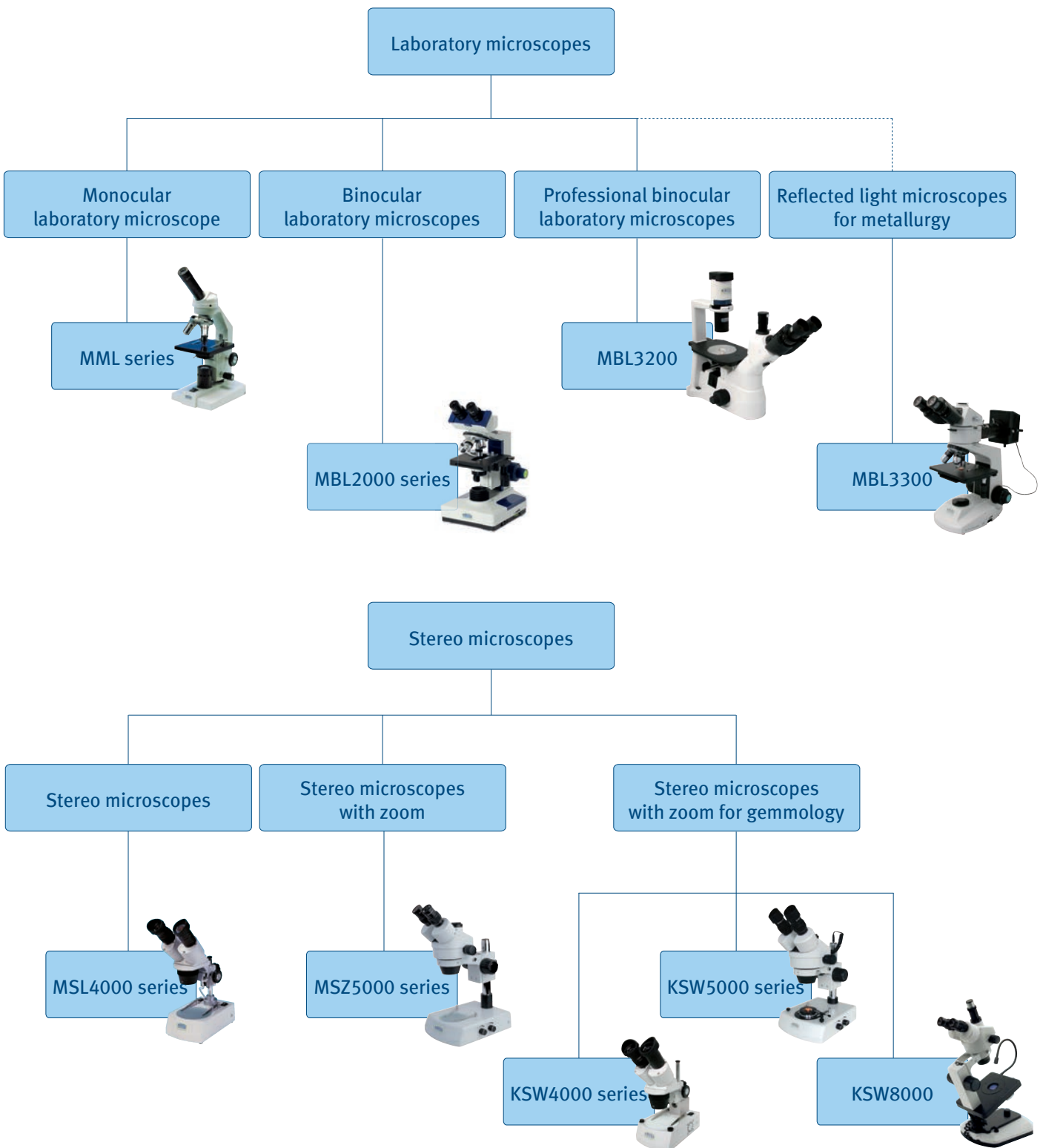


KRÜSS MICROSCOPES

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.

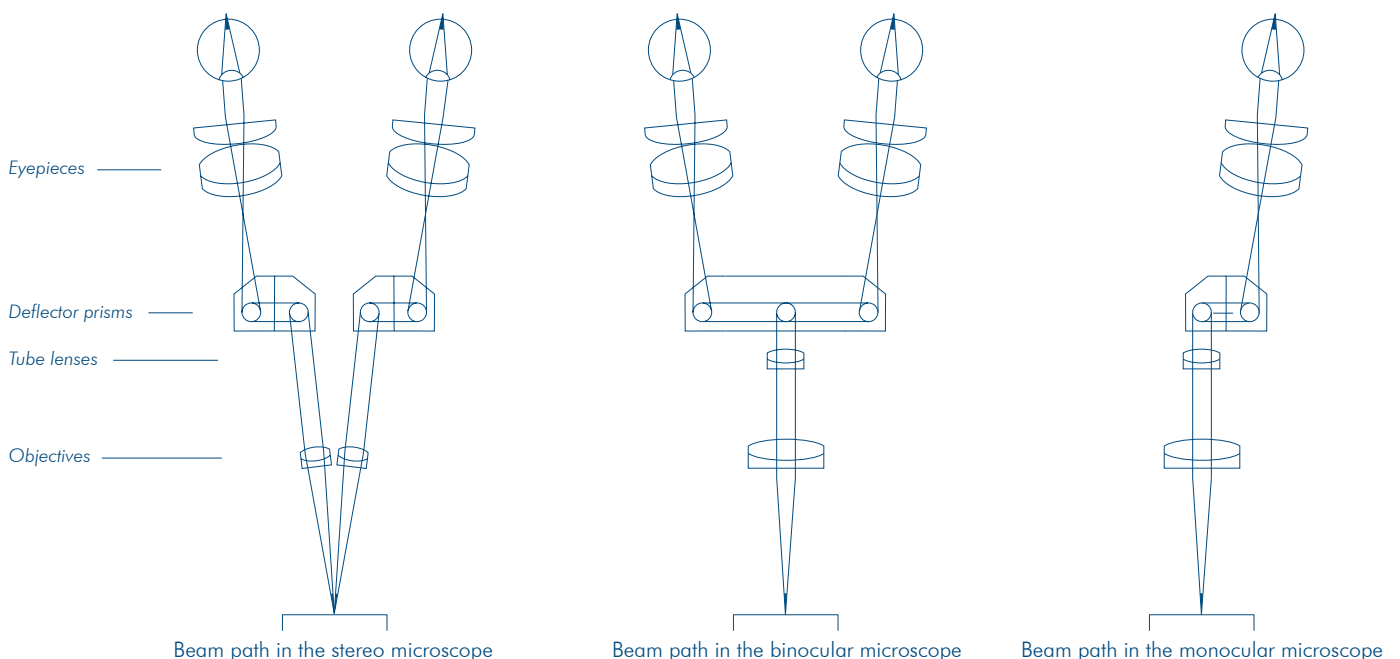
They provide for fatigue-free working as microscopes with one eyepiece. However, they do not allow for three-dimensional viewing of the object. Stereo microscopes have two eyepieces and two objectives, which can, however, be combined to form a main objective and thus project a separate image of the object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



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
MBL3300	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