



M-series



euromex

The M-series

The Euromex M-series consists of three types of microscopes: metallurgic microscopes, polarisation microscopes and a microscope which is specially designed for asbestos research.

The high quality of these microscopes - the robust metal construction and ball bearings - guarantee a long lifetime. The ergonomic design provides the ultimate in usability and comfortable control which results in relaxed observation.

There is a wide choice of system components available for the M-series like binocular and trinocular heads, objectives, eyepieces, filters and so on.

Metallurgic microscopes are used for research of metal and plastic surfaces, also using polarized illumination.



Metallurgic microscope ME.2665

M-serie models

Model	Tube	Objectives	Remarks
ME.2660	Binocular KHWF 10x/20 eyepieces	4x, 10x, 40x	Metallurgic microscope with SMM semiplan infinity type objectives and coaxial illuminator.
ME.2665	Trinocular KHWF 10x/20 eyepieces	4x, 10x, 40x	Metallurgic microscope with SMM semiplan infinity type objectives and coaxial illuminator.
ME.2680	Binocular KHWF 10x/20 eyepieces	4x, 10x, 40x	Metallurgic microscope with BD semiplan infinity type bright field/dark field objectives and coaxial illuminator.
ME.2685	Trinocular KHWF 10x/20 eyepieces	4x, 10x, 40x	Metallurgic microscope with BD semiplan infinity type bright field/dark field objectives and coaxial illuminator.
ME.2070	Binocular Eyepieces HWF 12,5x, measuring eyepiece HWF 12,5x with Walton-Beckett graticule	4x, 10x with built-in polarisation filter, 10x with built-in polarization filter and filter 1st order gypsum red, and PL BF phase S40x. Optional: Mc Crown objective AE.3600	Specifically for asbestos research. The objectives 4x and 10x are semiplan DIN objectives, the 40x is a PL BF phase objective
ME.2075	Trinocular Eyepieces HWF 12,5x, measuring eyepiece HWF 12,5x with Walton-Beckett graticule	4x, 10x with built-in polarisation filter, 10x with built-in polarization filter and filter 1st order gypsum red, and PL BF phase S40x. Optional: Mc Crown objective AE.3600	Specifically for asbestos research. The objectives 4x and 10x are semiplan DIN objectives, the 40x is a PL BF phase objective



Measuring eyepiece AE.1179



Mechanical stage AE.5179



Bright field /dark field objectives

Optical system

The SMM semiplan infinity type objectives of the metallurgic microscopes ME.2660 and ME.2665 are corrected for an infinite tube length. The image quality is not affected by the coaxial illuminator which is mounted into the tube. The objective have been corrected for usage without cover glass. The models ME.2680 and ME.2685 have BD semiplan infinity bright field/dark field objectives. The polarisation microscopes are equipped with SMPOL semiplan stress-free polarization objectives. The magnification factor of the tube is 1.5x.

The asbestos microscope has semiplan objectives with a built-in polarization filter and a semiplan BF phase objective.

All M-series microscopes have a height adjustable Abbe condenser, an iris diaphragm and a blue filter. A photo or video camera can be mounted on the third tube of the trinocular versions. When using this option the light is divided between the Photo tube (80%) and the eyepieces (20%).

Stand

The stand is very stable and has coaxial course and fine adjustment knobs. The M-series has an adjustable safety device to protect the specimen and objective from damage. The friction can be adjusted in accordance to personal preference.

Revolving nosepiece

The metallurgic microscopes ME.2660 and ME.2665 and the asbestos microscope have a quintuple revolving nosepiece with a ball bearing. The nosepiece of the metallurgic microscopes ME.2680 and ME.2685 can hold four objectives. The nosepiece of the polarization microscopes are also suitable for four objectives of which three positions can be centred.

Mechanical stage

The mechanical stage of the M-series microscopes have ball bearing and coaxial course and fine focusing controls. An attachable mechanical stage is available for the polarisation microscopes

Polarization

The polarisation microscopes are supplied with an analyser in a sliding holder and a polarizer in an inclined mount. This is rotatable with click-stops at 0 and 90 degrees. They are also equipped with a Bertrand lens for displaying large interference images and exchangeable compensation filters mica 1/4 wave length and gypsum red, 1st order. Optional available is a quartz wedge-6 order filter. The coaxial illumination of the metallurgic microscopes is used for bright field and polarization. The microscopes have a telescopic analyser, polarizer and exchangeable filters blue LB100, green G533 and neutral ND8.

The asbestos microscope has a polarizer, rotatable on the illuminator and two 10x objectives with built-in polarization filter and filter 1st order red.

Dark field

Dark field is recommended when surface structures and transparent materials needs to be examined. For this purpose the metallurgic microscopes ME.2680 and ME.2685 are equipped with a dark field device (mounted in the coaxial illuminator) and bright field/dark field objectives.

Illuminator

The illuminator of the microscopes ME.2660, ME.2665, ME.2890 and ME.2895 is a 30 Watt coaxial Köhler halogen type for bright field and polarization. The transformer has a separate housing with adjustable light intensity.

The coaxial Köhler halogen illumination of the microscopes ME.2680 and ME.2685 is 50 watt for bright field, dark field and polarization.

All microscopes, including the metallurgic types, have a 30 Watt transmitted Köhler halogen illuminator with field diaphragm. The transformer is incorporated in the base with adjustable light intensity. The lamp is pre-centred and has a collector lens.

General technical information

Observation tube	Bino- or trinocular. 30° tube, 360° rotatable, adjustable inter-pupillary distance 53-72 mm
Stand	Stable stand with coaxial course and fine adjustment knobs with graduated scale (interval 2.5µm)
Mechanical stage	Flat top type for the ME.2660, ME.2665, ME.2070 and ME.2075, 171x140 mm with X-Y translation 80x52 mm, readable in 0.1 mm with vertical coaxial control and detachable specimen holder. Flat top type with ball bearing for the ME.2680 and ME.2685, 172x130 mm, with ø 95 mm glass plate, X-Y translation 100x100 mm, with vertical coaxial controls. Round stage for the ME.2880, ME.2885, ME.2890 and ME.2895, ø 150mm, 360° rotatable with ball bearing. Graduated with Vernier 0.1 mm readable and lock screw. Optional: mechanical stage AE.5179
Protection	Adjustable specimen protection to prevent damage of objective and specimen
Eyepieces	Paired DIN eyepieces KHWF 10x/20, also suitable for people with spectacles. The models ME.2880, ME.2885, ME.2890 and ME.2895 are supplied with eyepieces HWF 10X/18, HWF 10X/18 with cross hair and HWF 10x/18 with micrometer 10 mm in 100 parts. The models ME.2070 and ME.2075 are equipped with a HWF 12,5x eyepiece and a HWF 12,5x measuring eyepiece with Walton-Beckett graticule
Revolving nosepiece	For 5 objectives, with click-stop. The polarization microscopes and the ME.2680 and ME.2685 can hold 4 objectives
Objectives	The objectives of the metallurgic microscopes ME.2660 and ME.2665 are SMM semiplan infinity. The ME.2680 and ME.2685 have BD semiplan infinity bright field/dark field objectives. The microscopes ME.2880, ME.2885, ME.2890 and ME.2895 are equipped with SMPOL semiplan objectives. The models ME.2070 and ME.2075 have SMP semiplan objectives including an SMP phase BF S40x
Abbe Condenser	Height adjustable Abbe condenser N.A. 1.25 with iris diaphragm and blue filter in holder
Phase contrast condenser	The microscopes ME.2070 and ME.2075 have a combined bright field and phase Abbe condenser
Packing	Complete with dust cover in styrofoam case
Manual	English

Outstanding performance

Polarisation microscopes are used for mineralogy, petrography and crystallography.

They are also suitable for orthoscopic and conoscopic research, research of polymers, and research of other transparent materials with a double refraction index.

With the asbestos microscopes one can analyse asbestos fibres.



Microscope for asbestos research ME.2075



Polarisation microscope ME.2895

M-serie models

Model	Tube	Objectives	Remarks
ME.2880	Binocular Eyepieces HWF 10x/18, HWF 10x/18 with cross hair, HWF 10x/18 with micrometer 10/100	4x, 10x, S40x	Polarization microscope with SMPOL semiplan stress-free DIN objectives
ME.2885	Trinocular Eyepieces HWF 10x/18, HWF 10x/18 with cross hair, HWF 10x/18 with micrometer 10/100	4x, 10x, S40x	Polarization microscope with SMPOL semiplan stress-free DIN objectives
ME.2890	Binocular Eyepieces HWF 10x/18, HWF 10x/18 with cross hair, HWF 10x/18 with micrometer 10/100	4x, 10x, S40x	Polarization microscope with SMPOL semiplan stress-free DIN objectives and coaxial illuminator.
ME.2895	Trinocular Eyepieces HWF 10x/18, HWF 10x/18 with cross hair, HWF 10x/18 with micrometer 10/100	4x, 10x, S40x	Polarization microscope with SMPOL semiplan stress-free DIN objectives and coaxial illuminator.

Optional accessories



Heads, without eyepieces

- AE.1105 Monocular 30° tube, 360° rotatable
- AE.1107 Binocular 30° tube, 360° rotatable
- AE.1108 Binocular tube similar to AE.1107, but with an un-reversed image. Only suitable for metallurgic microscopes
- AE.1109 Trinoculaire head with binocular 30° tube, 360° rotatable
- AE.1115 Trinocular tube similar to AE.1109, but with an un-reversed image. Only suitable for metallurgic microscopes

Eyepieces

Suitable for spectacle wearers

- AE.1120 Wide field eyepiece HWF 10x / field number 18
- AE.1121 Wide field eyepiece HWF 15x / 12
- AE.1122 Wide field eyepiece HWF 12,5x / 15
- AE.1123 Wide field eyepiece HWF 20x / 9
- AE.1125 Paired wide field eyepiece KHWF 10x / 20
- AE.1140 Wide field eyepiece HWF 10x / 18 with arrow pointer
- AE.1104 Pair of eyeshades for wide field eyepieces, please mention part number of the eyepiece when ordering

Measuring eyepieces with adjustable eye lens

Suitable for spectacle wearers

- AE.1143 Wide field eyepiece HWF 10x / 18 with micrometer scale 10 mm/100
- AE.1145 Wide field eyepiece HWF 10x / 18 with cross hair
- AE.1146 Wide field eyepiece HWF 10x / 18 with graticule 10 x 10 mm divided into 400 squares
- AE.1148 Wide field eyepiece HWF 12,5x / 15 with Walton-Beckett scale for asbestos research
- AE.1179 Micrometer eyepiece 10x / 15 with screw thread micrometer, range 10 mm. One interval is 1 mm divided in 100 parts

Measuring scales for calibration of measuring eyepieces

- AE.1110 Stage micrometer 1 mm, divided into 100 parts, on 76 x 26 mm glass slide
- AE.1111 Stage micrometer 2 mm, divided into 200 parts, on 76 x 26 mm glass slide

SMM semiplan achromatic objectives, infinity type

For ME.2660 and ME.2665. To be used without cover glass

	Objective	Numerical Aperture	Working Distance
AE.3491	SMM 4x	N.A. 0.10	20 mm
AE.3492	SMM 5x	N.A. 0.10	20 mm
AE.3493	SMM 10x	N.A. 0.25	9.4 mm
AE.3494	SMM 20x	N.A. 0.40	5.2 mm
AE.3497	SMM 40x	N.A. 0.65	0.81 mm
AE.3495	SMM 50x	N.A. 0.70	0.36 mm
AE.3498	LWD SMM 50x	N.A. 0.50	6.00 mm
AE.3499	SMM 60x	N.A. 0.85	0.38 mm
AE.3500	SMM S100x	N.A. 0.75	0.27 mm

BD semiplan bright field/ dark field objectives, infinity type

For ME.2680 and ME.2685

	Objective	Numerical Aperture	Working Distance
AE.3511	BD 4x	N.A. 0.10	16 mm
AE.3512	BD 10x	N.A. 0.25	7.4 mm
AE.3514	BD 20x	N.A. 0.40	5.2 mm
AE.3517	BD 40x	N.A. 0.65	0.8 mm
AE.3519	BD 60x	N.A. 0.85	0.3 mm

SMPOL semiplan achromatic DIN objectives

Stress-free for polarization microscopes

	Pol. Objective	Numerical Aperture	Working Distance
AE.3471	SMPOL 4x	N.A. 0.10	20 mm
AE.3473	SMPOL 10x	N.A. 0.25	6.7 mm
AE.3474	SMPOL S20x	N.A. 0.40	1.8 mm
AE.3477	SMPOL S40x	N.A. 0.65	0.40 mm
AE.3479	SMPOL S60x	N.A. 0.85	0.38 mm
AE.3480	SMPOL S100x oil	N.A. 1.25	0.10 mm

Mc Crown objective for asbestos microscopes

- AE.3600 Mc Crown objective 10x N.A. 0.25

HSE test slide for asbestos microscopes

- AE.3700 HSE test slide

Dark field

- AE.3632 Dark field diaphragm disc which fits in the filter holder, for objectives 4x - 40x

Polarization

- AE.3640 Quartz-6-wig in holder for polarization microscopes ME.2880, ME.2885, ME.2890 and ME.2895

Mechanical stage

- AE.5179 Attachable mechanical stage for polarization microscopes ME.2880, ME.2885, ME.2890, ME.2895. With the low mounted control knobs the stage can be rotated without touching the objectives. X-Y movement 25 mm. Vernier scale 0.1 mm

Spare bulbs and fuses

- SL.3678 Spare halogen bulb 6 Volts 30 Watt for F-series
- SL.3679 Spare halogen bulb 12 Volts 50 Watt for G-series
- AE.3683 Fuses 250 Volts/1A. Packed per 10 pieces

Cabinet for microscopes

- AE.3690 Cabinet with handle and lock for ME.2880, ME.2885, ME.2070, ME.2075

Accessories for photography and- video cameras

- AE.1106** Vertical tube. Exchangeable with the binocular head of the M-series. To be used with camera-adapters AE.5127, AE.5129 and C-mount adapters
- AE.5046** Photo eyepiece PH 3.3x with micrometer 10/100 mm
- AE.5061** Photo eyepiece PH 2.5x / 16
- AE.5062** Photo eyepiece PH 5.0x / 9,5
- AE.5127** Adapter for SLR camera with T2 mount. To be used with a photo eyepiece
- AE.5129** SLR camera-adapter with built-in optics and set up eyepiece with image mask. With T2 mount to be used with a photo eyepiece
- AE.5017** C-mount adapter with built-in optics for CCD camera
- AE.5059** Universal C-mount adapter with photo eyepiece 0.45x, optional with micrometer
- AE.5063** Universal C-mount adapter with photo eyepiece 0.7x, optional with micrometer

On request we supply T2-adapters for AE.5127 and AE.5129 and adapters for digital photo cameras.

Please enquire for an overview of our camera range.



Robert Hooke (1635 – 1703)

The English scientist Robert Hooke looked at a thin slice of cork (cork oak) through a compound microscope as shown above. He observed tiny, hollow, room-like structures and called these structures 'cells' because they reminded him of the rooms that monks lived in only seeing the outer walls (cell walls).

Today the users of Euromex microscopes are similarly studying structures for determination in a far more sophisticated way.



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