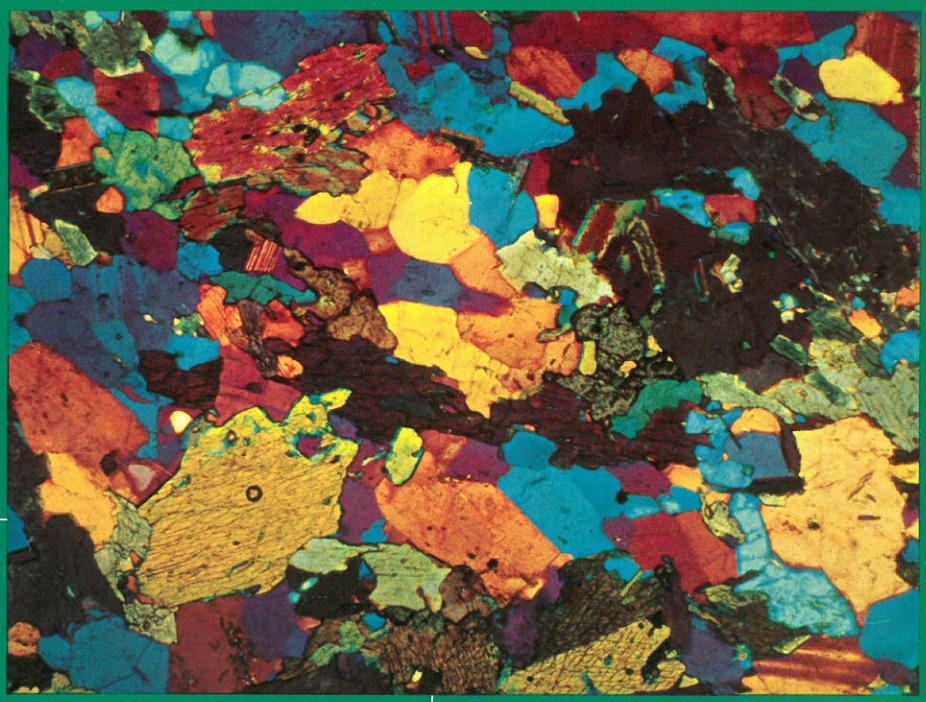
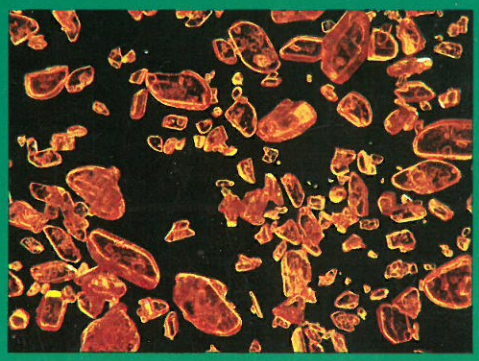
Attachable cameras for photomicrography

WILD
HEERBRUGG







Attachable cameras for photomicrography

It is not so many years since the taking of photomicrographs was a complicated subject, requiring the services of highly-skilled specialists. Today, with the ubiquitous use of photomicrography in science and technology and the development of modern equipment, the procedures have become enormously simplified. Now even the inexperienced can take faultless photomicrographs. With the easily-operated attachable cameras, which can be readily fitted on to microscopes, the procedure is just routine.

Wild have developed a range of such cameras. They are constructed on the modular principle and can be consequently adapted to various situations.

The Wild camera range includes the following:

Attachable camera MKa1, with focussing telescope and mechanical shutter. It is used in monocular assembly with Wild microscopes and stereomicroscopes and also in trinocular assembly with the latter.

Attachable camera MKa2, with mechanical shutter, for trinocular assembly with Wild microscopes.

Photoautomat MKa4, with focussing telescope and automatic exposure. It is used in monocular assembly with Wild microscopes and stereomicroscopes and also in trinocular assembly with the latter.

Photoautomat MKa5, with automatic exposure, for trinocular assembly with Wild microscopes.

These cameras are to be mounted on a phototube appropriate to the microscope or stereomicroscope being used. A photo-eyepiece, the magnification and design of which are selected according to the optics of the microscope, is placed in the phototube.

In the MKa1 and MKa4 cameras, the focussing telescope can be used for checking on the image sharpness and the format limits. In the MKa2 and MKa5, a special format-indicating eyepiece is placed in the binocular tube for this purpose. In either event the specimen can be rapidly and accurately brought into focus in the film plane.

Holders are available for all internationally-accepted roll film sizes. They are quickly interchangeable using a bayonet mount, which enables photographs of the same specimen to be successively made on different formats.

The stability and simplicity of the Wild attachable cameras enable work to be carried out quickly, and ensure that microscope outfits are used to best effect for photomicrography.



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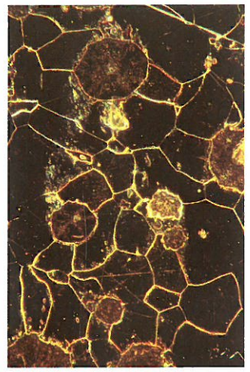


2

1
Snail
Taken using M7A Stereomicroscope

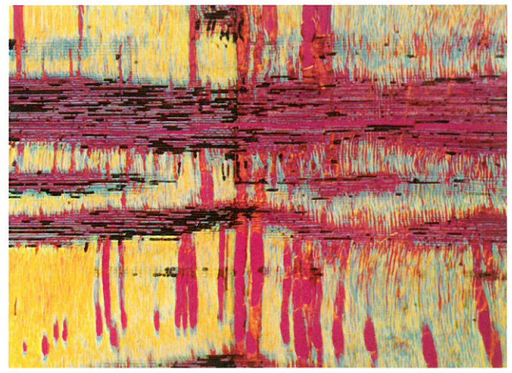
2
Ductile cast iron
Taken using M50 Microscope, dark field

3
Cherry wood, in polarised light
Taken using M20 Microscope, Plan-Fluotar 3× and wide-field eyepiece 10×

4
Diode, in polarised light
Taken using M5 Stereomicroscope

5
Integrated circuit
Taken using M3 Stereomicroscope

6
Cat tongue, longitudinal section, impregnated with silver
Taken using M7A Stereomicroscope, dark field



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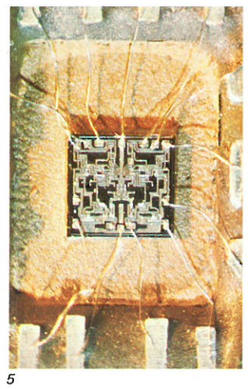

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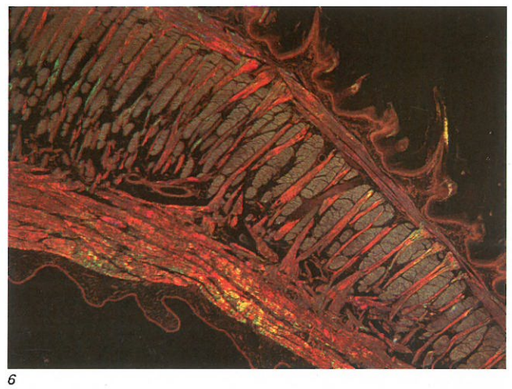


6

Attachable cameras with mechanical shutter

Attachable camera MKa1

for monocular assembly

The attachable camera MKa1 can be mounted on any classical microscope having a tube diameter of 25 mm, or on any stereomicroscope having a tube diameter of 33 mm.

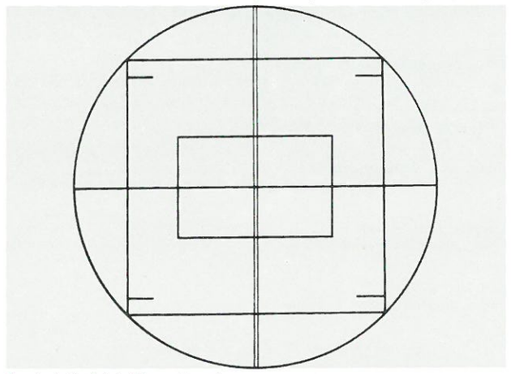
The camera body has a synchronised, self-cocking shutter with the settings T, B and 1 ... $^1/_{125}$ sec. The focussing telescope is used for ascertaining the image sharpness and the format limits, and contains graticules showing the 35 mm and 6×6 cm formats. A fixed beam-splitting prism directs 25% of the light into the focussing telescope and 75% to the film. The specimen can therefore be observed down the focussing telescope even when the photograph is being taken.

The camera body is also equipped with a swing-in photocell, which can be connected by means of a cable to the exposure meter S or to a micro-ammeter and is used for determining exposure time.

The camera can be used with film holders for all formats from 35 mm to 4×5". Commercially-available cameras, their lenses removed, can be attached to the Wild cameras by means of special adapters, and they then serve as film holders.



Attachable camera MKa1 with focussing telescope and 35 mm magazine



Graticule (reticle) of focussing telescope





Left:
M3 Stereomicroscope with phototube A, attachable camera MKa1 and 35 mm magazine

Right:
M11 Microscope with attachable camera MKa1 and roll film magazine

Attachable camera MKa2

for trinocular assembly

This attachable camera was designed specifically for use with Wild microscopes in trinocular assembly.

The camera body includes a synchronised, self-cocking shutter with the settings T, B and 1 ... $^1/_{125}$ sec. Unlike the MKa1, however, it has no focussing telescope. Instead, the beam is split by means of an Hu or Hzu phototube, which fit between the microscope and the camera body.

The sharpness and the format limits are checked using the binocular tube. Special 10× format-indicating eyepieces, available as either compensating or wide-field versions, are used for this purpose and depict the format limits for 6×, 10× and 15× eyepieces and for the 35 mm and 6×6 cm photographic formats.

The attachable camera MKa2, like the MKa1, can be used for all formats from 35 mm to 4×5".

1
M20 incident light outfit, Hu phototube, and attachable camera MKa2 with 35 mm magazine

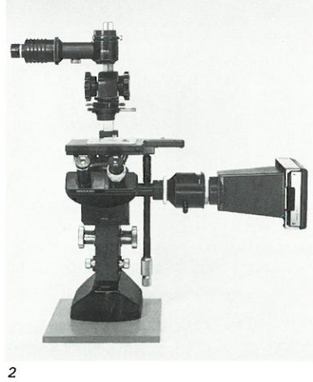
2
M40 Microscope with Hzu phototube, attachable camera MKa2, and Polaroid-Land back

3
Attachable camera MKa2 with 35 mm magazine

4
Beam path in trinocular photomicrographic assembly:
1 Swing-in photocell
2 Compensating lens
3 Photo-eyepiece
4 Format-indicating eyepiece with graticule (reticle)
5 H phototube with beam-splitting prism



1



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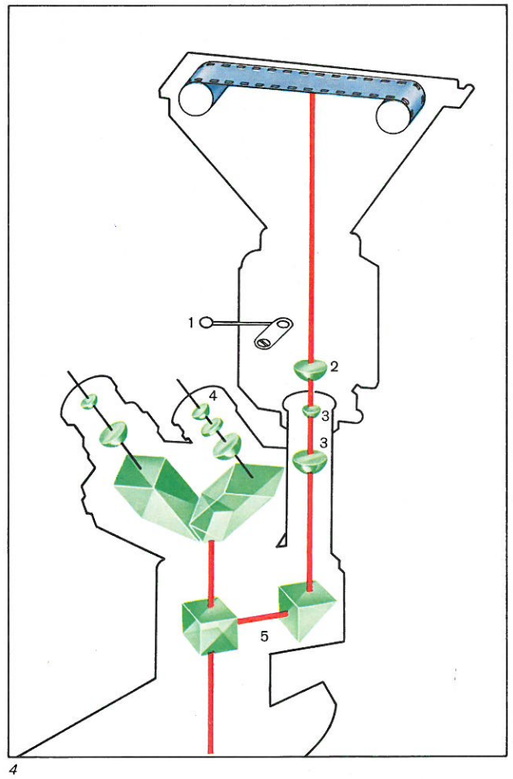


4

Exposure Meter S

The exposure meter S enables every photomicrographer to determine exposure times quickly, precisely and easily. It is used with the attachable cameras MKa1 and MKa2 and with the cine/TV focussing attachment, all of which have a built-in photocell. It can also be used with the separate Wild photocell unit.

The exposure meter S consists of an extremely precise microammeter and a three-stage transistorised amplifier, which are housed together in one compact unit. It works on 110–250 V, and the current consumption is minimal. A 50 mA fuse protects it from overloading, and the measuring cable is screened against interference. The instrument is sensitive enough to be used for all observation techniques, including fluorescence.

A calculator supplied with the meter has a system of 35 index numbers, enabling the effects of various equipment and techniques to be allowed for.

Exposure determination: The photoelectric current is first measured using the selenium photocell. The index number is then taken from a table in the instruction booklet, and is lined up with the film speed on the disc of the calculator. Each exposure meter reading now corresponds to a particular exposure time (or, in cinemicrography, to a filming speed in frames per second).

Small corrections made necessary by deviations from standard equipment can be taken into account in the selection of the index number; they do not have to be calculated. The new exposure meter S is therefore very simple to use, and can readily be matched to individual requirements.



Exposure meter S



M20 Microscope with attachable camera MKa2, exposure meter S and exposure calculator

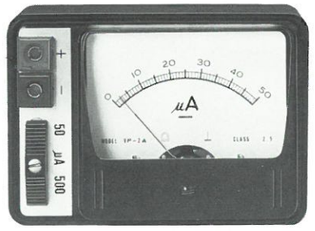
Catalogue references

284 947	Exposure meter S with measuring cable and mains (line) cable, 110–250 V, comprising:
349 710	Exposure meter S with measuring cable, 110–250 V
313 782	Exposure calculator
280 636	Mains (line) cable
193 037	Separate photocell unit with measuring cable

Microammeter

This low-priced measuring instrument is used for exposure time determination in transmitted light (bright field), and also for continuous cinemicrography (12, 18, 24 or 32 frames per second). It has two ranges (up to 50 µA and 500 µA respectively).

It can be connected to the Wild attachable cameras MKa1 and MKa2 and to the cine/TV focussing attachment. The exposure time is read from a table provided in the instruction book.



Microammeter

Catalogue reference

250 257	Microammeter (double range)

Photoautomats – Attachable cameras with electronically-controlled exposure

Using a Wild Photoautomat, anyone can take perfectly-exposed photomicrographs without difficulty. It is convenient to carry and easy to use, and has the following special features:

- Fits on any microscope or stereomicroscope having tube diameter 25 mm or 33 mm.
- Fully-automatic exposure, but manual operation also possible.
- Normal choice of eyepieces.
- Light intensity can be checked using built-in meter.
- 35 mm magazine available with motor-driven film transport.
- Interchangeable magazines permit use of a range of film format sizes from 35 mm to 4×5″, and also Polaroid film (3¼×4¼″ and 4×5″).
- Possible fluctuations in light intensity during exposure are monitored and compensated.
- The electronics of the instrument are enclosed in a small case. The camera itself is small and convenient.

The Wild Photoautomat is offered in two versions; the MKa4 with focussing telescope for monocular assembly and the MKa5 for trinocular assembly on Wild microscopes.

The film speed can be set within the range 5–2500 ASA on the control unit, and there are separate film speed scales for camera factors 0.5× and 1.0×. On the attachable camera itself are two milled rings for matching the instrument settings to the observation technique employed (bright or dark field) and to the magnification of the eyepiece used. The exposure time can be determined before the photograph is taken, without opening the shutter or advancing the film. The Photoautomat can also be used to operate a flash device. If both hands should remain free, the exposure and the film transport can be made using a foot switch.



Control unit of Photoautomat

The timer is not temperature-sensitive. Variations in mains (line) voltage of up to ±15% are automatically balanced out by means of a built-in stabiliser.

Photoautomat MKa4

The Photoautomat MKa4 can be used with any microscope of tube diameter 25 mm or with any stereomicroscope of tube diameter 33 mm.

The camera body has a focussing telescope for focussing on the image and for checking the format. The graticule shows the limits of the 35 mm and 6×9 cm formats. An electromagnetic shutter is built in for the exposure, and is governed by the control unit. A beam-splitting prism diverts part of the light to the photoresistor for controlling the exposure time, and part passes to the focussing telescope so that the specimen can be seen even during the exposure.

The control unit has most of the controls on its front panel.

The camera will accept all formats from 35 mm to 4×5″ and also, using adapters, commercially-available cameras.



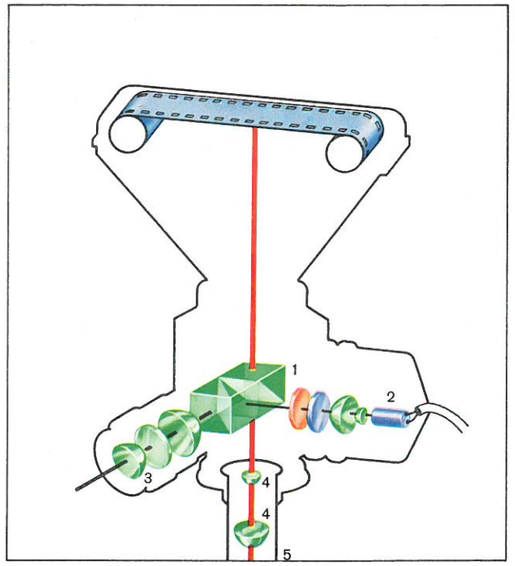
Photoautomat MKa4 with motor-driven 35 mm magazine

Left:
M20 Microscope with Photoautomat MKa4 and Polaroid-Land back

Right:
M7A Stereomicroscope with phototube for trinocular assembly, Photoautomat MKa4 and motor-driven 35 mm magazine







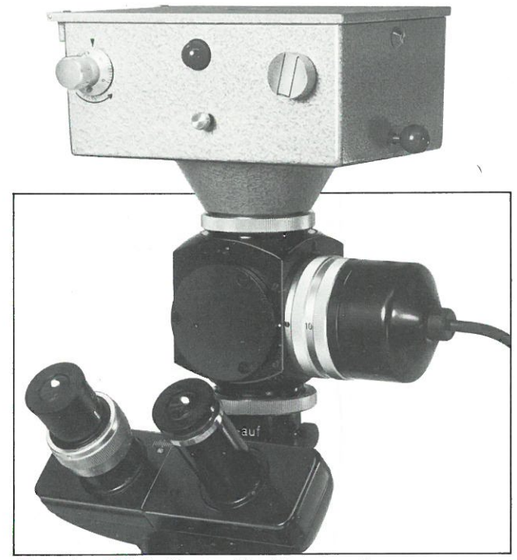
Beam path in camera MKa4
1 Beam-splitting prism
2 Photoresistor
3 Focussing telescope with graticule (reticle)
4 Photo-eyepiece
5 Monocular tube of microscope

Photoautomat MKa5
for trinocular assembly

The camera MKa5 is designed for use in trinocular assembly with Wild microscopes.

Like the manually-operated camera MKa2, this camera is to be mounted on the special phototubes Hu or Hzu. The binocular tube is used for controlling the sharpness of the focussing and the format limits, and a 10× format-indicating eyepiece showing the limits for 6×, 10× and 15× photo-eyepieces and for 35 mm and 6×6 cm formats is placed in it. The electromagnetic shutter is governed by the control unit.

The camera will accept all formats from 35 mm to 4×5″ and also, using adapters, commercially-available cameras.



Photoautomat MKa5 with motor-driven 35 mm magazine



M20 Microscope with Photoautomat MKa5 and Polaroid-Land back



M40 Microscope with Photoautomat MKa5 and motor-driven 35 mm magazine

Photographic formats

Wild attachable cameras can be equipped for use with internationally-recognised film formats. The film holders, being mounted in a bayonet fitting, are easily interchangeable. Adapters are available which enable commercially-available 35 mm cameras to be used.

315 217 35 mm magazine



This can be fitted directly on the attachable camera. The camera factor is 0.5×. The magazine accepts normal 35 mm film. The film is transported using the advance lever. There is a frame counter, and a device to prevent double winding.

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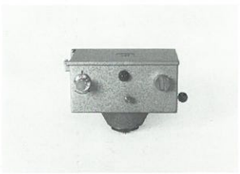
217 522 Motor-driven 35 mm magazine (only for Photoautomats MKa4 and MKa5)



This magazine fits directly on the MKa4 and MKa5 cameras. The camera factor is 0.5×. After each exposure, the film is advanced by the motor. A red control lamp lights up during the transport, and when the end of the film is reached. The film can also be advanced by hand.

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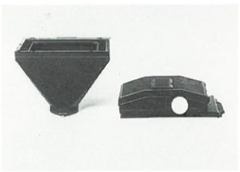
126 147 Roll film magazine 6×9 cm



This is to be attached to the camera via the adapter cone 194 068. The camera factor is 0.5×. Reducing frames, having formats 4.5×6 cm and 6×6 cm, are available separately; they can be fitted into the roll film magazine and enable the film to be used economically.

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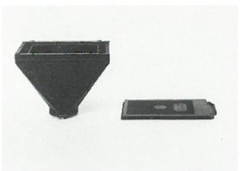
126 146 Plate holder 6×9 cm



The adapter cone 194 068 is also used for mounting the plate holder. The latter is used primarily for single exposures. The camera factor is 0.5×. The frame for cut film, 126 150, can be inserted into this plate holder; its format is 6×9 cm.

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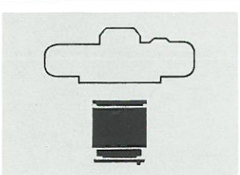
250 373 Wild-modified Polaroid-Land pack film magazine 3¼×4¼″ (8.5×10.5 cm)



This Polaroid magazine (factor 1.0×) fits directly on the attachable cameras. It is designed to accept Polaroid film packs 105 and 107 (for black/white) and 108 (colour).

Adapters for commercially-available 35 mm cameras



Commercially-available cameras can be used as film holders with the Wild cameras; the camera lens must first be removed. A range of adapters is available to fit most makes.

268 027 Large format attachment
Although directly-attachable 35 mm cameras are convenient to use and excellent for continuous photomicrography, the large format has advantages of its own. In particular, the results can be judged immediately from the large format negative, and contact prints can be made without an enlarger. The camera factor is 1.0×.

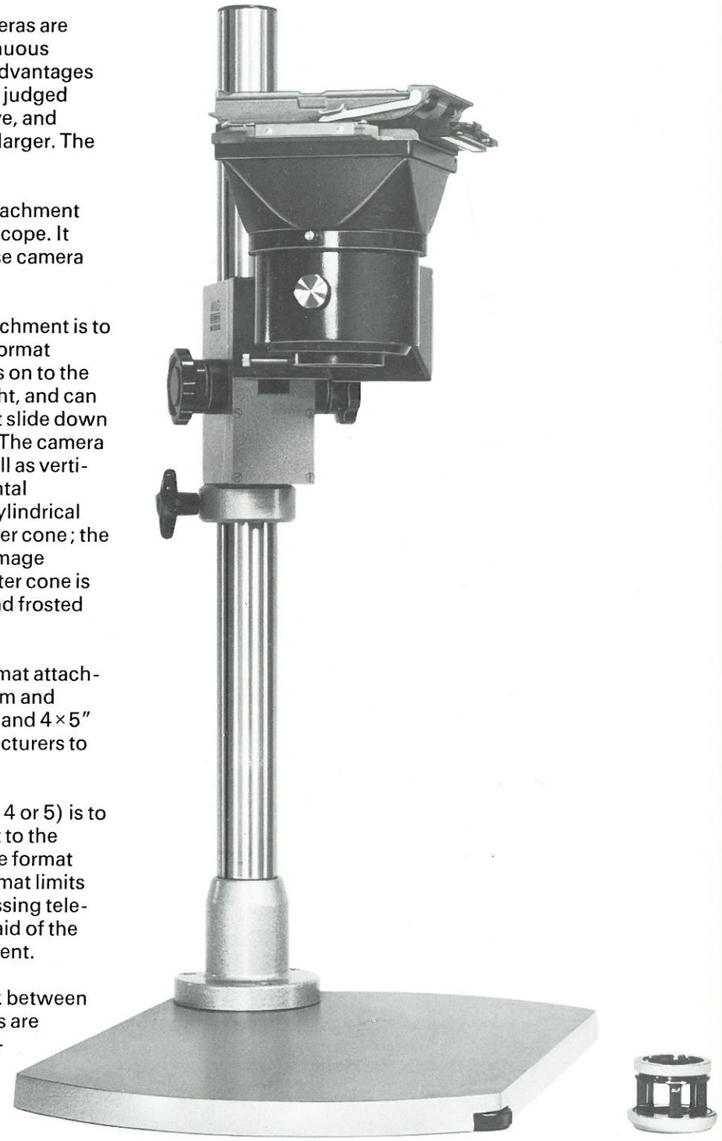
Because of its weight, the large format attachment cannot be mounted directly on the microscope. It must first be fixed to the Wild multipurpose camera stand (table or wall model).

The camera carrier of the large format attachment is to be fixed to the drive housing of the large format attachment. The drive housing itself slides on to the column of the stand, is fixable at any height, and can be used with a safety ring so that it cannot slide down even when its clamping knob is released. The camera carrier can be mounted horizontally as well as vertically, and can therefore be used in horizontal assembly. The camera carrier includes a cylindrical rotatable insert in which is fixed the adapter cone; the latter can therefore be turned so that the image position is related to the format. The adapter cone is supplied complete with film holder clip and frosted screen.

The sheet film holder of the Wild large format attachment corresponds to the international norm and enables commercially-available 9×12 cm and 4×5″ large format magazines of various manufacturers to be used.

A Wild attachable camera body (MKa1, 2, 4 or 5) is to be attached by means of a bayonet mount to the underside of the camera carrier of the large format attachment. The image sharpness and format limits can be inspected either by using the focussing telescope (for MKa1 and MKa4), or with the aid of the frosted screen of the large format attachment.

Because there is no direct mechanical link between the camera and the microscope, vibrations are not transmitted between them. The microscope is centred relative to the camera by using a centring ring having a bayonet mount.



Photography with stereomicroscopes



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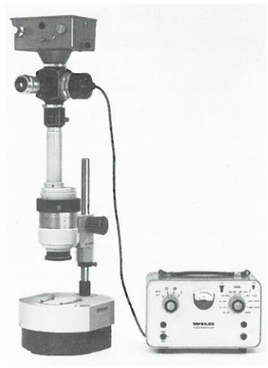


3

1
M5 Stereomicroscope with phototube for trinocular assembly, Photoautomat MKa4 and motor-driven 35 mm magazine

2
M7A Stereomicroscope with phototube B, attachable camera MKa1 and Polaroid-Land back

3
M7A Stereomicroscope with transmitted-light base for bright and dark field, phototube A, Photoautomat MKa4 and motor-driven 35 mm magazine

Photography using a stereomicroscope fills the gap between photomacrography and photomicrography. Wild stereomicroscopes, used in conjunction with the corresponding phototubes and with the MKa1 or MKa4 cameras, make a compact photomicrographic outfit. They can also be used in trinocular assembly, so that the facility of normal binocular observation is retained.

The exposure meter S can be used with the attachable camera MKa1. No calculations for the effect of bellows extension need to be made. The MKa4 Photoautomat can of course be used without any difficulty.

Adequate illumination is very important in photomicrography with the stereomicroscope. A second 6 V/15 W lamp can be attached for incident-light work. Fibre optics are useful, particularly at the higher magnifications.

For transmitted-light work there are available not only transmitted-light bases which accept 6 V/15 W low-voltage lamps, but also one having a built-in 12 V/100 W halogen lamp and which can also be used for dark field.

A 5×, 10×, 15× or 20× widefield eyepiece is placed in the phototube. The clamping ring of 33 mm diameter (184 947) is used to attach the camera, and the magazine is added on top of this. The image scale on the film depends on the magnifications of the eyepiece and objective and on the position of the magnification changer; the factors introduced by any intermediate tubes must also be taken into consideration.

A double iris diaphragm is available; it fits between the stereomicroscope and the binocular and is used to increase the depth of field of uneven specimens. The following phototubes are available for use with Wild stereomicroscopes:

Phototube A
256 526 Phototube A, for M3/M7A/M7S/M8
256 528 Phototube A, for M5

These monocular phototubes can be positioned over either the left or the right beam path of the stereomicroscope. Sharpness and format limits are determined with the focussing telescope of the camera.

The specimen cannot be observed stereoscopically when the phototube is in position.

Phototube B
256 527 Phototube B, for M3/M7A/M7S/M8
256 529 Phototube B, for M5

These monocular phototubes are mounted symmetrically on the stereomicroscope, and the beam path is changed from left to right and vice versa by means of a lever-operated swing-out prism. Sharpness and format limits are determined with the focussing telescope of the camera. The specimen cannot be observed stereoscopically when the phototube is in position.

This phototube is particularly useful for making stereopairs of stationary specimens for later observation as mounted prints under a stereoscope.

Phototube for trinocular assembly
352 873 Phototube for trinocular assembly using M3/M7A/M7S/M8

This fits beneath the inclined binocular tube, which is used for focussing on the specimen. Before the photograph is taken, the whole of the left-hand beam is deflected into the camera, so that all of the light is available for photomicrography. The sharpness and the format are finally inspected in the focussing telescope of the camera. The phototube includes a double iris diaphragm for increasing the depth of field.

256 530 Phototube for trinocular assembly using M5

This phototube also fits between the stereomicroscope body and the binocular head. The specimen is focussed using the binocular. There is a fixed beam-splitter prism which directs 25% of the light to the binocular tube for observation and 75% to the camera. The focussing telescope of the camera is used for the final focussing of the image and for checking the format. The tube has a magnification factor of 1.25×, which must be taken into account when the image scale is calculated.

M7A Stereomicroscope with transmitted-light base for bright and dark field phototube for trinocular assembly, attachable camera MKa1 and 35 mm magazine



Photography with classical microscopes



M11 Microscope and Photoautomat MKa4 with Polaroid-Land pack film back

Photomicrography covers the photographic recording of microscopy specimens in the magnification range 50× to 1500×.

All Wild microscopes have provision for the use of photomicrographic equipment. The outfit may be monocular (with attachable cameras MKa1 or MKa4) or trinocular (with attachable cameras MKa2 or MKa5). In the monocular outfit the image sharpness and format limits are inspected in the focussing telescope of the camera, but a format-indicating eyepiece can be used in the binocular tube of Wild classical microscopes in trinocular assembly, which is appreciably more convenient.

The exposure meter S is used for all techniques with the cameras MKa1 and MKa2. In the MKa4 and MKa5, the exposure is controlled automatically.

To get optimal results from the microscope, Koehler illumination should be set up.

Both the built-in illuminator S (for M20) and the attachable Koehler illuminator Q (for M11/M12/M40) can be usefully run at 8.5 V for photomicrography with colour film (emulsions for artificial light). The 12 V/100 W halogen lamp, which is incorporated into the transmitted-light bases I and III or can be supplied for the M12/M20 incident light outfit, enables the exposure times to be shortened considerably and is almost indispensable with low-intensity techniques.

The image scale on the film is determined by the eyepiece and objective magnifications. In trinocular systems, the 1.25× tube factor of the phototubes Hu and Hzu must also be taken into account.

The Variomag zoom adapter, 250 390, which can be used on the microscopes M12/M20/M40/M50, enables the magnification to be changed steplessly within the range 3:1 so that the features of interest in the specimen can be matched very neatly to the format.
The photo-eyepiece is to be selected according to the objective used. Achromat objectives are suitable for black/white photography and to some extent for colour work; they are used with the 6× or 10× compensating photo-eyepieces or with the 15× Complanat eyepiece. The 10× compensating format-indicating eyepiece 184 632 is used with trinocular outfits.

Fluotar objectives, which are particularly suitable for colour photomicrography, are also used with the 6× or 10× compensating photo-eyepieces or with the 15× Complanat eyepiece. The 10× compensating format-indicating eyepiece is again used in trinocular assembly.

Plan-Fluotar objectives have excellent colour correction and produce a very flat field; they are used for colour photomicrography with all formats, but particularly with the larger ones. The 10×, 12.5× and 15× wide-field eyepieces can be used for either photography or observation. For trinocular outfits the 10× wide-field format-indicating eyepiece 192 986 is used with 35 mm film, and the 10× wide-field format-indicating eyepiece 325 468 for the 4×5″ format.

Monocular phototubes
256 534 Straight monocular tube for M11

The observation tube (including the adapter of the binocular outfit) is removed, and the straight tube is threaded into position. The focussing telescope of the camera is used for focussing and for selecting the format.

256 535 Straight monocular tube E, for M12/M20/M21
256 537 Straight monocular tube Ep with Bertrand lens and diaphragm, for M21
256 538 Monocular phototube for M40/M50

These phototubes are fitted in the quick-change mount in place of the inclined binocular tube. The focussing telescope of the camera is used for inspecting the image.

Phototubes for trinocular assembly
256 543 Phototube Hu, for M11/M12/M20
256 546 Phototube Hzu, for M40/M50

The phototube Hu enables the camera to be mounted vertically on the M11/M12/M20 microscopes. The phototube Hzu enables it to be mounted horizontally, and are intended primarily for use with the M40 and M50 inverted microscopes.

The appropriate format-indicating eyepiece is used for inspecting the image.

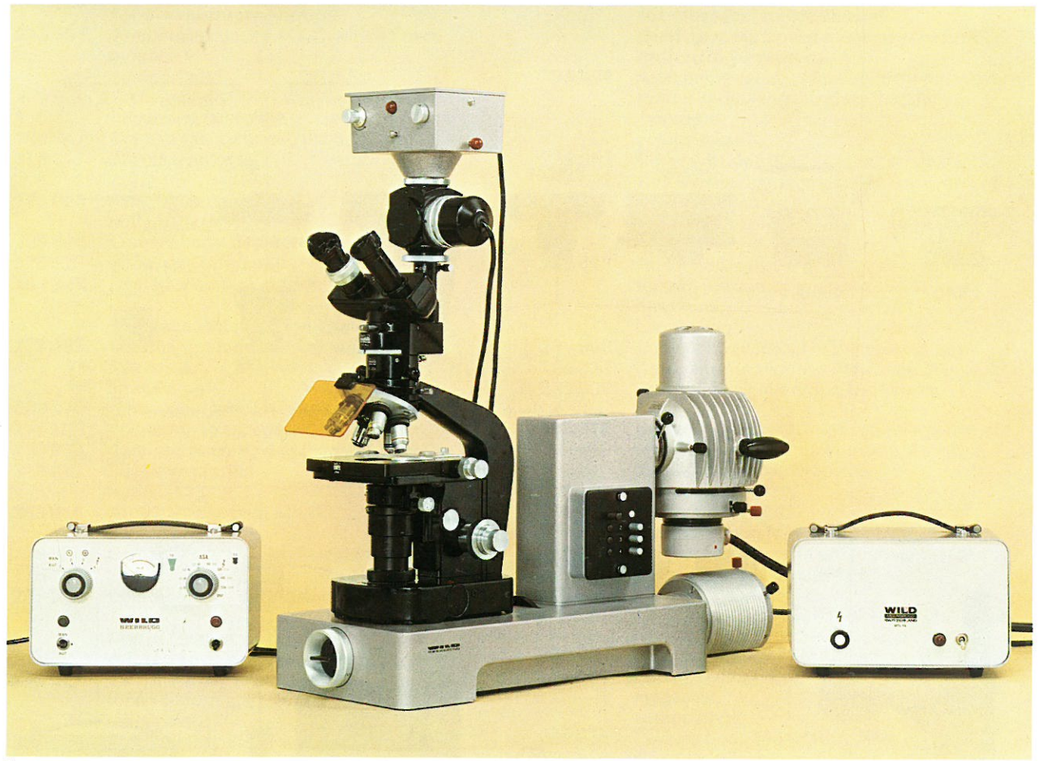
In the Hu and Hzu phototubes the partition of the light can be varied. It can all be directed to the binocular tube or to the camera or, in the third position, 25% can go to the binocular tube and 75% to the camera. These phototubes are therefore particularly suitable for low-intensity techniques, e.g. fluorescence or incident light.

Phototubes for trinocular assembly have a tube factor of 1.25×, which must be taken into account when calculating the image scale in the film plane.

1
M20 Microscope on transmitted-light base III, Hu phototube, Photoautomat MKa5 and motor-driven 35 mm magazine

2
M12 Microscope with Variomag zoom adapter, Hu phototube, attachable camera MKa2, 35 mm magazine and exposure meter S

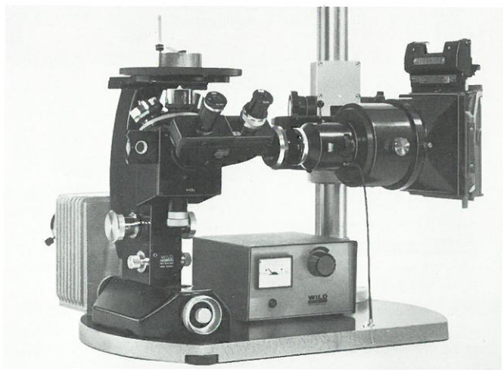
3
M50 Inverted Microscope with attachable camera MKa2, large format attachment and Polaroid-Land magazine for 4×5″ sheet film



1

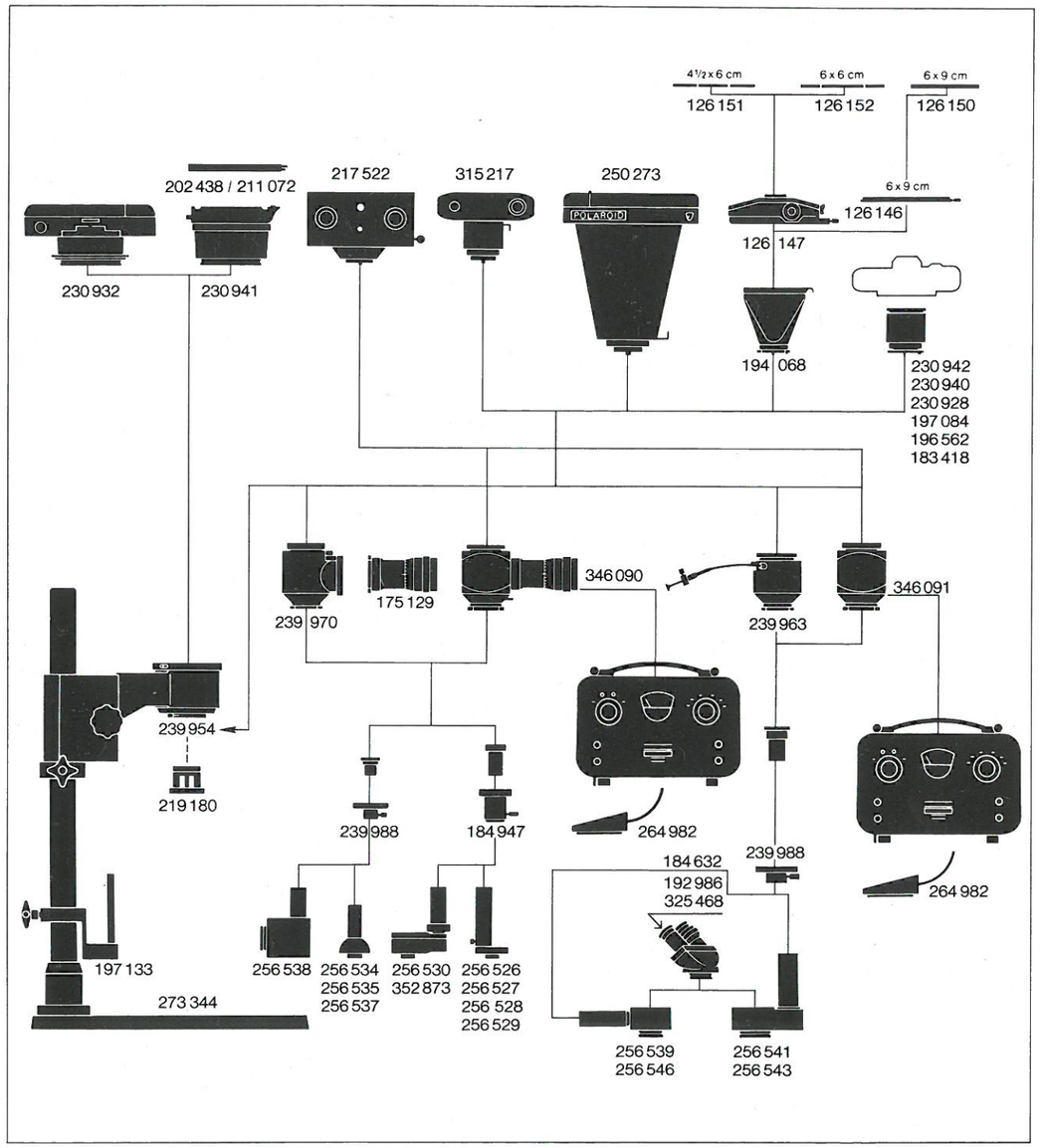


2



3

Assembly diagram



Catalogue References

Attachable Camera MKa1

for stereomicroscopes

273 464 Attachable camera MKa1 with 35 mm magazine,
comprising:
239 970 Camera body MKa1 with cable release
175 129 Focussing telescope
184 947 Camera clamping ring diam. 33 mm
315 217 35 mm magazine

268 009 Attachable camera MKa1,
comprising:
239 970 Camera body MKa1 with cable release
175 129 Focussing telescope
184 947 Camera clamping ring diam. 33 mm

for classical microscopes

273 465 Attachable camera MKa1 with 35 mm magazine,
comprising:
239 970 Camera body MKa1 with cable release
175 129 Focussing telescope
239 988 Camera clamping ring diam. 25 mm
315 217 35 mm magazine

268 010 Attachable camera MKa1,
comprising:
239 970 Camera body MKa1 with cable release
175 129 Focussing telescope
239 988 Camera clamping ring diam. 25 mm

Large format outfit for classical microscopes or stereomicroscopes

268 011 Camera MKa1 with large format attachment for 4×5″ formats,
comprising:
239 970 Camera body MKa1 with cable release
175 129 Focussing telescope
268 027 Large format attachment with table stand and super sheet film holder 4×5″

The phototube and photo-eyepiece are not included in the above outfits and must be ordered separately.

Attachable Camera MKa 2

for classical microscopes
Outfits with compensating format-indicating eyepiece

273 466 Attachable camera MKa2 with compensating format-indicating eyepiece and 35 mm magazine,
comprising:
239 963 Camera body MKa2 with cable release
184 632 Compensating format-indicating eyepiece 10×
239 988 Camera clamping ring diam. 25 mm
315 217 35 mm magazine

268 017 Attachable camera MKa2 with compensating format-indicating eyepiece and 35 mm magazine,
comprising:
239 963 Camera body MKa2 with cable release
184 632 Compensating format-indicating eyepiece 10×
239 988 Camera clamping ring diam. 25 mm

268 019 Camera MKa2 with large format attachment for 4×5″ formats and with compensating format-indicating eyepiece,
comprising:
239 963 Camera body MKa2 with cable release
184 632 Compensating format-indicating eyepiece 10×
268 027 Large format attachment with table stand and super sheet film holder 4×5″

Outfits with wide-field format-indicating eyepiece

273 467 Attachable camera MKa2 with wide-field format-indicating eyepiece and 35 mm magazine,
comprising:
239 963 Camera body MKa2 with cable release
192 986 Wide-field format-indicating eyepiece 10×
239 988 Camera clamping ring diam. 25 mm
315 217 35 mm magazine

268 018 Attachable camera MKa2 with wide-field format-indicating eyepiece,
comprising:
239 963 Camera body MKa2 with cable release
192 986 Wide-field format-indicating eyepiece 10×
239 988 Camera clamping ring diam. 25 mm

268 020 Camera MKa2 with large format attachment for 4×5″ formats and with wide-field format-indicating eyepiece,
comprising:
239 963 Camera body MKa2 with cable release
325 468 Wide-field format-indicating eyepiece 10× with graticule for 4×5″
268 027 Large format attachment with table stand and super sheet film holder 4×5″

Photoautomat MKa4

for stereomicroscopes

268 012 Photoautomat MKa4 with 35 mm magazine, comprising:
346 090 Photoautomat MKa4 with focussing telescope, exposure control unit 110–250 V and connecting cable
184 947 Camera clamping ring diam. 33 mm
217 522 Motor-driven 35 mm magazine

268 013 Photoautomat MKa4, comprising:
346 090 Photoautomat MKa4 with focussing telescope, exposure control unit 110–250 V and connecting cable
184 947 Camera clamping ring diam. 33 mm

for classical microscopes

268 014 Photoautomat MKa4 with 35 mm magazine, comprising:
346 090 Photoautomat MKa4 with focussing telescope, exposure control unit 110–250 V and connecting cable
239 988 Camera clamping ring diam. 25 mm
217 522 Motor-driven 35 mm magazine

268 015 Photoautomat MKa4, comprising:
346 090 Photoautomat MKa4 with focussing telescope, exposure control unit 110–250 V and connecting cable
239 988 Camera clamping ring diam. 25 mm

Large format outfit for classical microscopes or stereomicroscopes

268 016 Photoautomat MKa4 with large format attachment for 4×5″ formats, comprising:
346 090 Photoautomat MKa4 with focussing telescope, exposure control unit 110–250 V and connecting cable
268 027 Large format attachment with table stand and super sheet film holder 4×5″

The phototube and photo-eyepiece are not included in the above outfits and must be ordered separately.

Photoautomat MKa5

for classical microscopes
Outfits with compensating format-indicating eyepiece

268 021 Photoautomat MKa5 with compensating format-indicating eyepiece and 35 mm magazine, comprising:
346 091 Photoautomat MKa5 with exposure control unit 110–250 V and connecting cable
184 632 Compensating format-indicating eyepiece 10×
239 988 Camera clamping ring diam. 25 mm
217 522 Motor-driven 35 mm magazine

268 023 Photoautomat MKa5 with compensating format-indicating eyepiece, comprising:
346 091 Photoautomat MKa5 with exposure control unit 110–250 V and connecting cable
184 632 Compensating format-indicating eyepiece 10×
239 988 Camera clamping ring diam. 25 mm

268 025 Photoautomat MKa5 with large format attachment for 4×5″ formats and with compensating format-indicating eyepiece, comprising:
346 091 Photoautomat MKa5 with exposure control unit 110–250 V and connecting cable
184 632 Compensating format-indicating eyepiece 10×
268 027 Large format attachment with table stand and super sheet film holder 4×5″

Outfits with wide-field format-indicating eyepiece

268 022 Photoautomat MKa5 with wide-field format-indicating eyepiece, camera clamping ring diam. 25 mm and 35 mm magazine, comprising:
346 091 Photoautomat MKa5 with exposure control unit 110–250 V and connecting cable
192 986 Wide-field format-indicating eyepiece 10×
239 988 Camera clamping ring diam. 25 mm
217 522 Motor-driven 35 mm magazine

268 024 Photoautomat MKa5 with wide-field format-indicating eyepiece, comprising:
346 091 Photoautomat MKa5 with exposure control unit 110–250 V and connecting cable
192 986 Wide-field format-indicating eyepiece 10×
239 988 Camera clamping ring diam. 25 mm

268 026 Photoautomat MKa5 with large format attachment for 4×5″ formats and with wide-field format-indicating eyepiece, comprising:
346 091 Photoautomat MKa5 with exposure control unit 110–250 V and connecting cable
325 468 Wide-field format-indicating eyepiece 10× with graticule for 4×5″
268 027 Large format attachment with table stand and super sheet film holder 4×5″

Accessories for photomicrography

Phototubes for stereomicroscopes

256 526 Phototube A, for M3/M7A/M7S/M8
256 528 Phototube A, for M5
256 527 Phototube B, for M3/M7A/M7S/M8
256 529 Phototube B, for M5
352 873 Phototube for trinocular assembly with M3/M7A/M7S/M8 (observation 100%/0%) with built-in double iris diaphragm
256 530 Phototube for trinocular assembly using M5 (observation 25%)

Double iris diaphragms for increasing depth of field

214 120 Double iris diaphragm, for M3/M7A/M7S/M8
212 150 Double iris diaphragm, for M5

Phototubes for classical microscopes

256 534 Straight monocular tube E, for M11
256 535 Straight monocular tube E, for M12/M20/M21
256 537 Straight monocular tube Ep with Bertrand lens and iris diaphragm, for M21
256 538 Monocular phototube for M40/M50
256 543 Phototube Hu, for M11/M12/M20 (observation 100%/25%/0%)
256 546 Phototube Hzu, for M40/M50 (observation 100%/25%/0%)

Photo-eyepieces for stereomicroscopes

362 528 Wide-field eyepiece 5×/25
192 620 Wide-field eyepiece 10×/21
175 133 Wide-field eyepiece 15×/17
202 210 Wide-field eyepiece 20×/13

Photo-eyepieces for classical microscopes

175 095 Compensating eyepiece 6×/18
334 680 Compensating photo-eyepiece 10×/14
175 119 Complanat eyepiece 15×/9.5
191 915 Wide-field eyepiece 10×/18
250 237 Wide-field eyepiece 12.5/18
198 451 Wide-field eyepiece 15×/18

Matching eyepieces for use in the binocular tube with the format-indicating eyepieces

198 130 Compensating eyepiece 10×/14
191 915 Wide-field eyepiece 10×/18

Magazines

194 068 Adapter cone for plate holders and for 6×9 cm roll film magazine
126 146 Plate holder 6×9 cm

268 031 Magazine for 6×9 cm cut film, comprising:
126 146 Plate holder 6×9 cm
126 150 Frame for cut film
126 147 Roll film magazine 6×9 cm
126 152 Reducing frame 6×6 cm for roll film magazine
126 151 Reducing frame 4.5×6 cm for roll film magazine

315 217 35 mm magazine
217 522 Motor-driven 35 mm magazine for MKa4/MKa5, with cable
250 373 Wild-modified Polaroid-Land pack film magazine 3¼×4¼″ (8.5×10.5 cm), camera factor 1.0×
202 438 Super sheet film holder 4×5″ for large format attachment
211 072 Super sheet film holder 9×12 cm for large format attachment
230 932 Wild-modified Polaroid-Land roll film magazine 3¼×4¼″ (8.5×10.5 cm), for large format attachment

Adapters for commercially-available 35 mm cameras

230 942 Adapter, Leica (thread M39×1)
230 940 Adapter, Contax
230 928 Adapter, Alpa
197 084 Adapter, Edixa and Praktica
196 562 Adapter, Exakta
183 418 Adapter, Contarex
Information about adapters for other 35 mm reflex cameras will be supplied on request

Exposure meter

284 947 Exposure meter S with measuring cable and mains (line) cable, 110–250 V
250 257 Micro-ammeter, double range
193 037 Separate photocell unit with cable

Miscellaneous

239 988 Camera clamping ring diam. 25 mm, for classical microscopes
184 947 Camera clamping ring diam. 33 mm, for stereomicroscopes
202 734 Cable release
221 867 Frosted screen in frame, for adapter cone
175 131 Focussing magnifier 6×
264 982 Foot switch for Photoautomat exposure control unit
273 345 Multipurpose camera stand, wall model, with drive housing
197 133 Lamp carrier for multipurpose camera stand

Our manufacturing programme includes

Wild M1 stereomicroscope with interchangeable main objective. Range: 1.25× to 40×.

Wild M3 stereomicroscope with three-step magnification changer. Range: 1.5× to 160×.

Wild M5 stereomicroscope for advanced work. Range: 1.4× to 200×.

Wild M7A zoom stereomicroscope with 5:1 zoom magnification changer. Range: 3× to 124×.

Wild M7S zoom stereomicroscope, convertible for axial photography, with 5:1 zoom magnification changer. Range: 3× to 124×.

Wild M8 zoom stereomicroscope with 8:1 zoom magnification changer. Range: 2.4× to 160×.

Wild M11 and Wild M11-EB field, course and laboratory microscopes.

Wild M20 and Wild M20-EB research microscopes combine maximum operational convenience with versatility and highest precision. The universal instruments for advanced work and special research techniques.

Wild M40 inverted biological microscope for tissue culture, plankton and chemical investigations.

Wild M50 inverted metallurgical microscope for investigations in incident light (bright field, dark field and polarisation).

Wild M501 sampling microscope, with stopmotor-driven stage, for systematic scanning and for representative gridding in stereological work. With the aid of mathematical procedures, the instrument is used for quantitative determination of the three-dimensional structure of a body from the inspection of sections, and is particularly useful in biology, metallurgy and geology.

Macrotube for M11, giving an erect, unreversed image at magnifications 3×, 8× and 20×. Ideal for sample preparation and for observing large specimens.

Wild interference attachments for the M20 microscope. For interferometric measurements and observations in incident light.

Modern microscope lamps: low voltage, halogen and mercury vapour sources.

Transmitted-light illumination bases for Wild microscopes, with one or two lamps for various light sources. Built-in filter sets for fluorescence. Optimum light intensity for microprojection.

Wild objectives of highest quality. For all techniques, including phase contrast, polarisation, incident light and interference.

Wild eyepieces, matched to objective performance. Special eyepieces for measuring, polarisation, photography, wide field, etc.

Wild condensers for all techniques, including bright and dark field, polarisation, fluorescence and phase-contrast.

Electronic micro-length measuring attachments (Wild/Censor for Wild stereomicroscopes and Wild/Tesa for Wild microscopes). Direct readoff for precise and rapid work.

Wild Variomag zoom adapter, range 3:1, permits stepless variation of magnification for M20, M40 and M50.

Photomicrographic outfits from 35 mm to 4×5″ formats. Attachable cameras for all stands, including stereomicroscopes.

Wild Photoautomat – the simplest instrument for fully automatic, electronically-controlled exposure and film transport.

Special equipment for cinemicrography, including time-lapse and TV microscopy.

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