

Micro and macro pictures

• most easily and exactly • with the camera

KINE-EXAKTA

1/1½" (24/36 mm)



It is astonishing how simple the means are which open up two of the most interesting fields of work to the earnest KINE-EXAKTA photographer:

A microscope attachment effects the connexion between the KINE-EXAKTA and the microscope for micro-pictures, and a pair of bayonet rings and three extension tubes give the camera the increased distance which is necessary for macro-pictures.

But what abundance of possibilities is effected by that modest number of accessories!

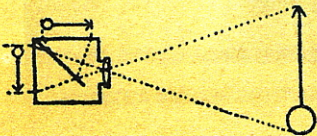
First of all the whole of **micro-photography**. We can hardly imagine the large spread of modern natural sciences without its help. The KINE-EXAKTA with its micro attachment serves the scientist in the laboratory instead of an expensive and complicated special instrument. It introduces the economical small film, which is to be had as colour film as well, into micro-photography, so that the precious results of the bacteriologist's, the chemist's, the physician's or the metallurgist's researches can be recorded continuously.

Objects which one would regard with the naked eye or with an average pocket-lens, do not require a microscope, but a long camera extension for close-up exposures, the so-called **macro-photography**. The bayonet rings and the extension tubes of the KINE-EXAKTA increase the image distance (i. e. the distance between lens and film plane), if desired, so much that even close-up pictures in the original size of the object (scale 1 : 1) or in a slight enlargement can be made. This corresponds to more than the double extension of the old platecameras!

For the lover of nature, for the collector and for the great number of scientists the KINE-EXAKTA and its extension tubes have thus become an exceptionally versatile camera also for close-up exposures. This field of work is full of stimulations and surprises also for the amateur photographer; it supplies extraordinary pictures of small animals, flowers, leaves, postage stamps — in short of everything one likes to look at closely.

The most important fact, however, is that the KINE-EXAKTA allows of focussing and composing the picture on its ground-glass screen in the finder hood in any case, also for all micro and macro pictures. This reflex image which is magnified to really "microscopic" focussing by two lenses, is projected by the camera lens. The resulting picture corresponds entirely with it as regards frame and sharpness.

For the KINE-EXAKTA is a real reflex camera working — as the picture shows — without parallactic errors. Therefore cheapness and simplicity of the accessories are coupled with the highest precision of the pictures obtained.



Micro pictures



THE KINE-EXAKTA MICROSCOPE ATTACHMENT

(according to Dr. W. Koch), Catalogue No. 147,

attaches the KINE-EXAKTA to the microscope. The illustrations show how to fasten the camera with the micro attachment to the microscope standing upright. The lens of the KINE-EXAKTA must be removed; for one works exclusively with the ocular and the objective of the microscope is, however, in a position to focus the image in any case on the ground glass screen in the finder hood of the camera (important for photos of living objects). The back ring with bayonet joint No. 140 is delivered as a connection between the bayonet of the KINE-EXAKTA and the thread of the metal sockets of the micro attachment. The micro attachment is fastened to the tube of the microscope by slightly turning the clamping screw. In order to be able to change the ocular and, thereby, to alter the scale of enlargement without removing the camera, the micro attachment is provided with a hinge: the upper part of the attachment with the camera is turned aside, as shown in illustration B. This may be done also as soon as the photographic work is interrupted and the purely visual work is to be continued.

The technical dates of our pictures

Page 1 (strip of film, from left to right!):

1. Reproduction of a postage stamp, with Special rings 140 and 141 and Tubes 143 and 144.
2. Micro picture of a bee's proboscis with Microscope attachment No. 147.
3. Technical picture of a clock-work with Special rings 140 and 141.

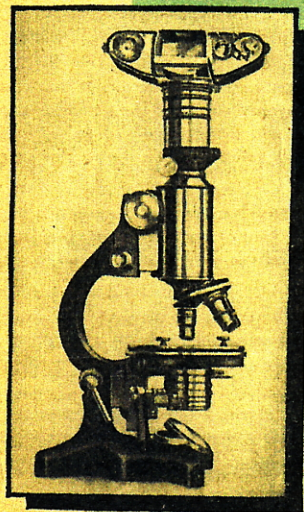


fig. A

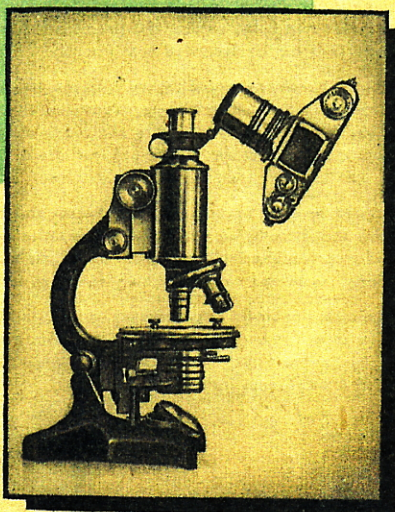


fig. B

Macro pictures



In order to be able to use the KINE-EXAKTA for macro photos — i. e. close-up pictures —, the two bayonet rings (back ring No. 140, front ring No. 141) are indispensable for the increase of the camera extension in any case. Alone by themselves they allow of exposures at a distance of 35 to 25 cm according to the table printed on the last page of this leaflet. The rings are screwed together, the lens is removed from the KINE-EXAKTA, and the pair of rings is screwed into the bayonet lens mount in the same way as the lens (red dots must face each other, when the rings are set in). The lens is linked to the front ring carrying

the socket of the lens. If the increase of the camera extension does not suffice, i. e. if one wishes to focus still shorter distances, the two rings are screwed asunder. The back ring is now attached to the camera, the front ring to the lens. Into the threads open on both sides the

EXTENSION TUBES

(No. 142: 5 mm, No. 143: 15 mm or No. 144: 30 mm long)

can be screwed in any combination. The table on the following page shows the possibilities of focussing with their help. By themselves, without the two bayonet rings, the extension tubes cannot be used in the KINE-EXAKTA.

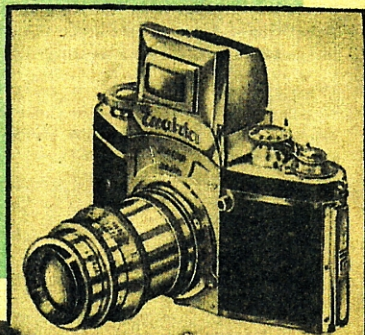
The KINE-EXAKTA has realized what was hardly credible: one is able to make exposures at shortest distances without special close-up focussing instruments. Pictures 1 : 1 with double extension (i. e. about 10 cm) present absolutely no difficulties, for by adding further extension tubes even feebly enlarged pictures are within its reach. For this kind of work it is advisable to avail oneself of a stable tripod with ball and socket joint. One must pay attention to the fact that a longer extension requires also longer time of exposure (namely corresponding to the second power of the increase of the extension, i. e. for double extension — which means for a focal length of $f = 5$ cm a distance of 10 cm from the object to the film plane — $2 \times 2 =$ four times the exposure time). The extension tubes are simply screwed together, and one set of tubes (Nos. 142, 143 and 144) is completely sufficient for the larger part of exposures. Close-up pictures, too, are focussed solely according to the finder hood image, as the principle of "one-eye" reflex focussing is not altered in the least.

The KINE-EXAKTA does not know the parallax, which is dreaded especially in close-up pictures; the reflex image corresponds entirely with the photo even in case of the shortest distance exposure.

Technical dates:

Page 2: Micro picture of a coral (*Eunicea*) with Microscope attachment No. 147.

Page 3: Head of a tortoise (close-up picture) with Special rings 140 and 141 and Tube 143.



Extension tubes put in	total distance cm.	image distance cm.	object distance cm.	exposure factor	scale of pictures
without bayonet rings and tubes	∞	5	∞	1,0	variable
both bayonet rings (140 and 141)	41	6	$\oplus 64,5$ $35,0$ $\oplus 25,0$	1,4	1 : 5,8
both bayonet rings and Tube 142 (5 mm.).....	31,5	6,5	$25,0$ $\oplus 20,0$	1,6	1 : 3,9
Tube 143 (15 mm.)	24,0	7,5	$16,5$ $\oplus 15,0$	2,2	1 : 2,2
Tubes 142 + 143 (20 mm.)	23,0	8,0	$15,0$ $\oplus 13,5$	2,5	1 : 1,9
Tube 144 (30 mm.).....	21,5	9,0	$12,5$ $\oplus 11,5$	3,2	1 : 1,4
Tubes 142 + 144 (35 mm.)	21,0	9,5	$11,8$ $\oplus 11,0$	3,5	1 : 1,2
Tubes 143 + 144 (45 mm.)	21,0	10,5	$10,5$ $\oplus 10,0$	4,3	1 : 1
Tubes 142 + 143 + 144 (50 mm.)	21,0	11,0	$10,0$ $\oplus 9,5$	4,8	1 : 0,9

⊕ All the items in the table refer to the shortest interval of the helical screw (i. e. focussing mark at ∞). It is for the object distance only that, second place, the distance has been mentioned which exists between the lens and the object when focussing the lens for close-up exposures (i. e. for Tessar 3,5 focussing mark at 0,70 m.).

The above table shows which exposure distances and scales of pictures are possible when using the bayonet rings and the extension tubes, provided the KINE-EXAKTA is equipped with a Tessar 1 : 3,5/5 cm. The following explanations refer to the headings of the above table:

1. Total distance == distance between the object and the film plane in the KINE-EXAKTA (in cm.);
2. Image distance == distance between lens (about shutter plane) and film plane (in cm.);
3. Object distance == distance between object and lens (about shutter plane — measured in cm.);
4. Prolongation of exposure time:
Increase of camera extension requires longer exposure time. (Exposure time 1,0 == correct time of exposure for ∞ focus without bayonet rings and tubes);
5. Scale of pictures 1 : 5,8 means e. g. 5,8 cm. of the object appear as 1 cm. on the negative.

The special rings (Nos. 140 and 141) and the three tubes (Nos. 142, 143 and 144) are sold as sets only at the price of	} Prices are indicated on request
Price of the Microscope attachment No. 147 (ready for use, together with the tubes Nos. 143 and 144 and the back ring with bayonet joint No. 140) — all packed in one case —	

Furthermore we can deliver the following accessories to a limited extent:

diameter of front mount:	32 mm.	42 mm.
Lens hoods fitting on to the mounting ring	No. 202	No. 206
Colour filters (yellow etc.) fitting on to the mounting ring	No.	No.
Duto Soft-focus disc, fitting on to the mounting ring..	No.	No.
For Tessar 1:3,5/5 cm an Adapting ring (to be screwed in) is necessary	} Prices are indicated on request	
Aero Shutter Release for reinforcing the shutter release	No. 201-4	No. 151
Rewinder, simplifying the winding back of film	No. 150	No. 150

We are always endeavouring to complete our stock of KINE-EXAKTA accessories, in order to offer all the technical possibilities of pre-war times to the friends of our camera. If you have any questions arising from your work with your KINE-EXAKTA, please apply to our Clients' Service, which will gladly give you any information you may want!

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