Before using

the EXAKTA-CAMERA

4 x 6,5 cm.

please carefully study the instructions in this booklet

Exakta-Camera models A and B and Exakta-Junior

Ihagee CAMERA WORKS STEENBERGEN & Co

DRESDEN-A. 19 / SCHANDAUER STRASSE 24

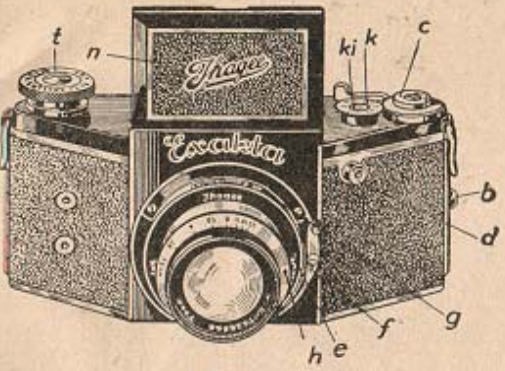


fig. 1

a = Window in the camera back for observing the film number
b = Knob to open the back of camera
c = Window on knob with lever connected to it
d = Shutter release
e = Rotating ring for focussing
f = Lever stopping the focussing ring at infinity
g = Focussing scale
h = Iris diaphragm scale
ki = Speed pointer
k = Moving knob for the short exposures
l = Catch holding down the focussing hood
m = Button for releasing the focussing magnifier
n = Mirror inside the focussing hood
o = Rear part of the frame finder
p = Button releasing the mirror in the focussing hood
q = Back wall of the focussing hood
r = Right wall of the focussing hood
s = Left wall of the focussing hood
t = Time regulating knob for slow speeds
u = Bolt for film spool

A personal Appeal to all owners of an Exakta!

We are very glad that you have bought an Exakta. Before describing the use of this model we personally appeal to you:

Treat your camera carefully! Never use **force!**
Above all: read the instructions for use with the greatest care. Wrong manipulation may soon become a habit, and we cannot accept liability for defects due to faulty handling.

The Exakta camera is a precision instrument, and its operation requires your full attention, particularly at first! If anything should not be perfectly clear to you our Service Departments will be glad to help you.

With best wishes for successful work with your Exakta we are,

always at your service

IHAGEE CAMERA WORKS
Steenbergen & Co.
DRESDEN-A. 19.

EXAKTA-INSTRUCTIONS FOR USING

Inserting the film. The loading of a film into the camera is done in the ordinary way as in any other roll film camera. Holding the camera in the left hand, as shown in figure 2, press with the right forefinger knob B in the direction of the arrow, pulling the camera back away from the main body with the thumb and middle finger. The roll film is then inserted with the printed side up in the lower empty spool compartement until its two ends slip into the slots provided for them and the film is held in position by the bent spring which must first be turned back. With the right hand, pull the backing paper straight up to the upper empty spool (fig 3). The pointed end of the paper is pushed as far as possible into the broader slot of the upper empty spool which is then turned once by means of the film winding lever *c* to prevent the paper from slipping out, afterwards close the camera. During insertion of the film be sure that it runs straight, particularly when putting in the pointed end of the paper. Then move the film winding lever *c* until the figure 1 appears in the red window on the back of the camera. The light hood (important for panchromatic film) is pressed aside with the thumb in the meantime to expose the window. The lever *c* is moved in the direction of the arrow up to the stop and returns automatically. This is repeated until the figure 1 is seen in the film window.

The winding of the film automatically sets the shutter. After a few turns of the lever a braking device begins to act and renders the movement of the film more difficult. **Do not pay attention to this,** but continue to wind until the number appears in the window.

The braking device is very important and prevents overwinding the shutter.

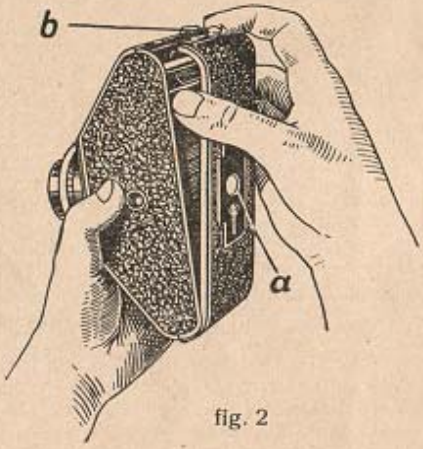


fig. 2

fig. 3

Loading of the film (Roll Film V. P. $2\frac{1}{2}\times1\frac{5}{8}$" 4×6.5 cm.) must be done very carefully. Hasty and inaccurate insertion of the backing paper in the film guide and the uneven placing in the slot of the upper empty spool often causes troubles which can be avoided with necessary care.

As soon as the number 1 appears in the red window *a* on the camera back the first picture is ready to be taken. Set the lens to "infinity" by turning the focussing mount up to the stop.

Something highly important must now be mentioned: If the focussing mount is in a position of rest, that is, turned into the camera, the shutter can not be released even by force. Unless the focussing mount is screwed out to infinity, do not try to release the shutter. This locking mechanism prevents faulty exposures by thoughtless release or accidentally touching the release knob.

The Mirror Reflex Attachment. — A superior feature of the "Exakta" camera is the possibility afforded by it to check the image before exposure.

Image Control I: A slight depression of the lever *l* automatically erects the light hood and the ground glass screen is exposed, on which the image can be observed up the moment of exposure. When the light is poor or very exact focussing in critical cases is required, it is advisable to use the magnifier which springs forward from the back of the hood after the knob *m* has been slightly depressed (fig. 4).

Image Control II: When the magnifying lens springs into position it brings with it the back portion *o* of the frame finder. By now pressing down the mirror *n* until it catches, the front portion of the frame finder is opened, as shown in figure 5, which is very useful for taking pictures at eye level. However, it is necessary to focus accurately either by the focussing scale

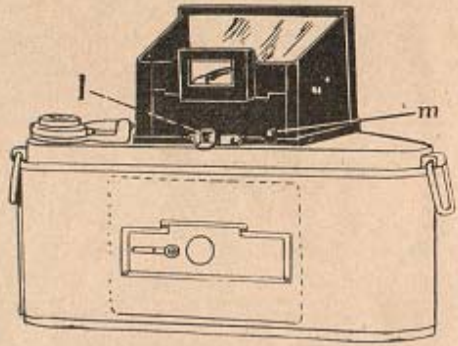


fig. 4

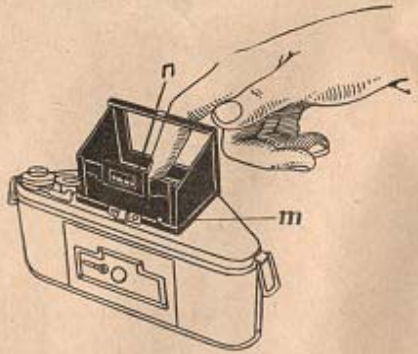


fig. 5

or by looking first on the ground glass screen. The field covered by the camera is accurately seen if the eye is brought as near as possible to the rear frame of the finder. The frame of the front of the finder will then show the amount covered by the camera.

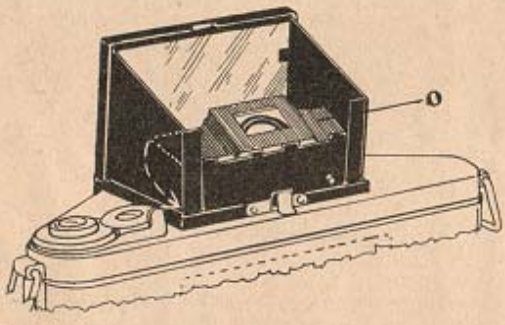


fig. 6

fig. 7

Image Control III: It is also possible to see the ground glass screen while using the camera at eye level. This is easily done by allowing the mirror *n* to come back to its original position by pressing the small lever *p*. The magnifying lens together with the rear part *o* of the frame

finder must then be pressed down inside the hood until it catches in position (see figure 6). The mirror is now pressed downwards and backwards once more but only until the first catch (figure 7). The ground glass screen may now be easily seen through the mirror *n*.

fig. 8

Closing the light hood cannot be done until the mirror *n* has been allowed to spring back into its upright position by pressing the small lever *p*. The magnifying lens and the rear frame *o* of the frame finder must then be folded back, as shown in figure 6, until it snaps into position. The walls of the finder hood can now be folded down in the order *q*, *r*, *s*, and finally, the covering frame holding the mirror *n* is closed on top of them. These movements are shown in the five small pictures of figure 8, in which position 1 shows the lowering of the magnifying lens and the rear part of the frame finder.

The Focal-Plane Shutter. As has been said, the shutter has been already wound up by winding on the film. When the shutter has been released, no picture can be seen in the light hood, because the mirror in the camera has risen upwards in order to stop any light reaching the film

that has not come through the lens. When the film is wound on once more, the mirror sinks into the correct position for focussing. The camera is then ready for the next picture, and this simple mechanism makes it impossible to give two exposures on one section of the film.

The setting of the shutter speed is arranged by lifting the knob *k*, and turning it in the direction of the arrow (while in the lifted position) until the required speed is opposite the red dot on the inner knop *ki* (see figure 9). The outer knob *k* is then lowered until flush with *ki*. The numbers on this knob give fractions of a second. Short "time" exposure of any required length may be made by turning knob *k* so that the red dot on *ki* is opposite "B". The shutter will now remain open as long as the shutter release *d* is pressed, and closes as soon as pressure is released. For long "time" exposures, "*Z*" on the knob *k* should be placed against the red dot on *ki*. In this position one pressure on the shutter release *d* opens the shutter, which then remains open until the release *d* is pressed a second time. For the convenience of camera users the shutter release *d* is provided with a socket into which a wire release may be screwed.

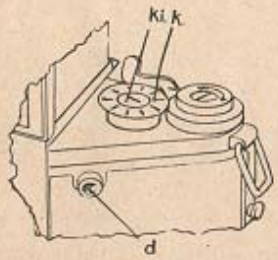


fig. 9

Only the wire release supplied by us is suitable. When making exposures that are longer than $^1/_{25}$th of a second, the camera should be screwed on to a tripod. A bush for the tripod screw will be found on the bottom of the camera body.

The shutter can only be released when the lens is focussed at "infinity" or a nearer distance and the focussing mount has been screwed out far enough. Prior to this the shutter is locked, and no attempt should be made to force the release knob into the camera.

The Lens and Focussing. The lens, as the eye of the camera, is extremely sensitive and fragile, and must always be handled with great care. In particular, care must be taken that the fingers do not soil it. The glass may always be cleaned by wiping with a soft dry washleather, but too frequent use of this will spoil the polish of the glasses. On this account, the lens should always be covered by its cap when the camera is not in use, and should never be touched with the fingers when focussing.

fig. 10

The lens is mounted in a ring which, when turned to the left (hold the ring *h* when turning) screws forward the lens on a helical thread. Other short or long focus lenses can be substituted for the standard lens.

Before the lens can be focussed, it is necessary to turn the ring until a stop is felt. The lens is brought into this position by holding the outer ring *e* (shown in figure 10, with the word "Ihagee" on it) and turning it in an anti-clockwise direction up to the stop In this position the lens is focussed at infinity, and at the same time the lock on the shutter is released. This shutter lock stops the camera being used before the lens is in the proper position. For all objects beyond 65 feet the lens will be correctly focussed when the scale reads infinity ∞. (The infinity zone begins for Exakta (mean aperture about F/3.5) at approximately 20 metres. At a smaller aperture this distance is reduced and at a larger aperture increased **according** to depth of focus.)

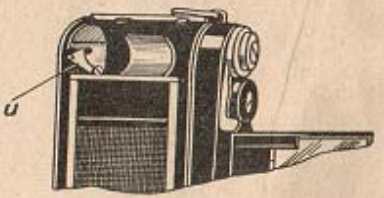
In order to focus at nearer distances, the small stop lever *f* is pressed down lightly, and it is then possible to screw out the helical mount still further. The picture may then be focussed either on

the ground glass screen, or else by the scale, which reads distances from the camera to the object photographed. On the helical mount is a mark which moves along the scale of distances as the lens is screwed outwards, and shows accurately the distance at which the lens is sharply focussed.

The diaphragm of the lens should not be undervalued, for it is often very useful. If, for example, it is desired to have objects in the foreground sharp, as well as objects in the background, the diaphragm must be adjusted accordingly. The alteration is effected by moving the nickelled ring *h*, on which the various lens apertures are marked, and as the aperture is made larger or smaller, so the depth of field is lessened or increased. The rule is simple to remember, and runs — the smaller the lens aperture, the greater the depth of field, but the longer the time of exposure.

Change of Film: It is necessary to wind the film for each exposure. It is not sufficient to turn the film until the image appears again in the light hood, but always consider the numbers in the film window and wind the film to the next number after an exposure has been made. After all eight exposures have been made, the film spool is wound until no protective paper appears for a few seconds in the film window, then the camera can be opened and the film taken out. The full film spool will be found in the upper compartment. Opposite the film winding lever a small bolt *u* must be depressed. In most cases the film spool will raise itself and can then be lifted out, or it may be gripped with the thumb and forefinger of the right hand and taken out. The spool is to be firmly fastened by the gummed back label adhering to it and carefully kept until developing. Fold down the end of the protective paper before gumming to facilitate subsequent loosening. The empty spool in the lower compartment must be transferred to the top. On the right (on the side of the film winding lever) is a bushing with a bar on which the groove of the spool is placed. On the left the spool is then pressed into the body until the small bolt snaps into position.

What one should know about exposures, besides the purely technical operation of the camera, will be found in the "Exakta"-book by Gerhard Isert (published by Gerhard Isert, Magdeburg-Sudenberg). It is of course impossible to offer here a handbook on photography, but a few hints may be welcome:



The main feature of the Exakta camera is its mirror reflex focussing. The image on the focussing screen is always decisive as to focussing. If the object has been sharply focussed, you may be sure, that the picture taken will always have the same qualities as the image on the screen. To be always ready for working it is advisable to carry the camera over the shoulder by means of a sling furnished for that purpose. The reflex equipment will chiefly be used at breast level. Any subject, even a racing car, can be easily followed, but for rapidly moving subjects press photographers in particular prefer the sport finder (see fig. 5). All image observation possibilities mentioned apply equally well to vertical work. The image on the focussing screen indicates when the camera is held not exactly level. For vertical work it is advisable to focus sharply first with the reflex equipment and then to employ the frame finder. If the normal reflex focussing is resorted to in vertical work, one looks towards the front but photographs to the left or right. In this way one may often succeed in taking pictures unnoticed. Standing behind a crowd, one holds the camera above one's head and looks at the image on the focussing screen from below. Vertical pictures with a tripod require the use of a ball-joint which is again mentioned below.

Exakta model B (figure 11)

By means of the special shutter supplied with the Exakta, exposures between $^1/_{10}$th and 12 seconds can be given. If this mechanism is used (the range is $^1/_{10}$th to 12 seconds normally, or $^1/_{10}$th to 6 seconds if the "delayed action mechanism" is used) the shutter control *k* must be set either to *B* or *Z*. Before setting the Time Control, the film must be brought into its proper position by means of the film moving lever *c* whereupon the knob *t* **must be wound up to the end stop. Important: The shutter works accurately only if the knob *t* is wound up to the end stop.** When looking at the camera from the front, winding is effected by turning the knob *t* to the right. Sometimes only little turning is required if a shorter exposure time has been previously used.

fig. 11

Notice: The gradual winding of the spring towards the end stop makes the winding of the knob difficult. Do not be confused thereby. Shortly before the end one has a feeling that the knob is fully wound, but a little additional winding is actually necessary to complete the operation. This should not be overlooked, and the user should always make certain to wind up fully.

The desired time exposure is adjusted only after winding as follows:
The knob *t* must then be wound up to its fullest extent, and the necessary time of exposure adjusted. The outer ring of the knob *t* is lifted up and turned until the desired exposure time is against the mark on the central part of the knob. The outer ring is then allowed to drop back into place. Black figures show the times of exposure for normal work, and red figures show those possible when the "delayed action mechanism" is being used. In the latter case the various times of exposure will be given approximately 12 seconds after the shutter release is pressed. If the instantaneous exposures engraved on the knob *k* ($^1/_{25}$th to $^1/_{1000}$th) are to be used with the "delayed action mechanism", the shutter is set to the desired exposure (for example to $^1/_{200}$th of a second) while the knob *t* is placed with the mark opposite any of the red numbers on the ring. It should be noted that it is always necessary to adjust knob *k* whether the knob *t* is being used or not. Longer exposures than 12 seconds may be given by the normal method of setting the shutter to *B* or *Z*, but the time should be noted with a watch. It is difficult to count seconds accurately without much practice.

The order is therefore as follows

1. Move the film to the next number.
2. Set the shutter:
   $^1/_{10}$th — 12 sec. without delayed action and $^1/_{10}$th — 6 sec. with delayed action, tension knob *t* and adjust time.
   $^1/_{25}$th — $^1/_{1000}$th with delayed action: set small knob *k*, tension knob *t* and set to any red number.
3. Release (the shutter cannot be released until the focussing mount has been turned out to "infinity").

If you wish to familiarize yourself with the operation of an "Exakta" not loaded with film, move the film lever *c* after each release at least three times up to the stop as only then will the shutter be wound up and the mirror in proper position. Later on during actual work one should always be guided by the number in the small red window.

The Exakta Junior

Loading the film: see pages 3—5.

Mirror Reflex Equipment: see pages 5—8.

Shutter: see pages 8—9 (highest shutter speed of Exakta Junior $^1/_{500}$th second.)

Change of film: see page 11.

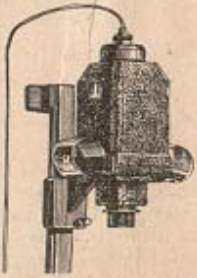
Focussing the lens. The lens of Exakta Junior and its operation differ in many respects from that of the model A. The Exakta Junior has a lens which focusses by means of movement of the front lens. First, the lens tube is pulled out and turned lightly in a clockwise direction until it stops. To do this the lens should be held by the ring with the apertures marked on it, and when in this "pulled" out position it is focussed on infinity. As before all objects further than 65 feet from the camera will be found to be in focus on the ground glass, always assuming that the focussing mark on the front lens is opposite the infinity mark on the ring. Focussing for nearer distances is arranged by turning the front lens until the mark is against the appropriate

figure on the scale of distances. It is also possible, of course, to do the focussing by examining the picture on the ground glass screen. When the lens is to pushed back again into the rear position, a gentle turn to the left will allow it to slide back into the camera, while this closing of the lens will also lock the shutter to avoid accidental exposure. Again the lens should be handled by the ring marking the lens apertures.

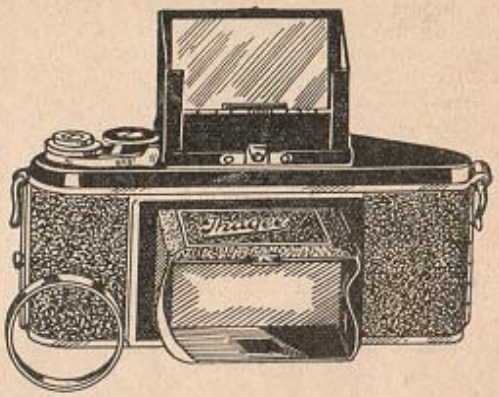
The iris diaphragm is worked as in model A by turning the ring.

For enlarging negatives taken with the Exakta it is recommended to use the Exakta-Lumimax enlarger.

The lens of every Exakta camera may be screwed out and removed. By turning to the left (anti-clockwise) and, in the case of the Junior model, pulling out the lens tube from the camera body, the lens and its mount comes away from the body and can be used in the Lumimax enlarger as an enlarger lens. The Lumimax enlarger is very reasonable in price, and is a necessary accessory for every owner of an Exakta camera. We will gladly send you particulars.



The Exakta Camera with the Plate Back



Everybody owning this special Exakta make should remember the following:

Plate exposures cannot be focussed by the screen in the light hood, but on the second ground glass screen at the back of the camera.

To permit the use of the distance scale a metal ring is interposed between the lens and the focussing mount. When roll film is used, the ring remains where it is. However, as the focussing plane for plates lies somewhat behind the roll film plane, the lens must recede this distance to make focussing scale and infinity stop harmonize again, which is done by removing the metal ring. By turning the diaphragm ring to the left the lens is screwed out, and the ring can then be easily removed. You see for yourself that after removal of the ring the lens is closer to the camera so as to maintain the same distance up to the plate. If one wishes to focus by the screen on the back of the camera, the shutter is first set to *Z* and opened.

The image can now be checked. Before exposure close the shutter and wind it up again by pressing the film winding lever *c* **at least 3 times** against the stop in the direction of the arrow. Then pull out the focussing screen at the back of the camera and the darkslide loaded with a plate can then be inserted. For roll film exposures remove the focussing screen and in lieu of it insert the slide provided with the film pressure plate.

Briefly, remember:

Roll film exposures: Ring remains between the lens and the focussing mount. Focussing by scale and screen in the light hood. Film pressure plate slide inserted on back. Move the film always according to the number in the red film window.

Plate exposures: Remove ring. Focussing by scale or screen on back of camera.

Exakta Accessories;

are quite comprehensive and will be briefly described below.

Protective Case

Preserve your Exakta if you value it. This case completely surrounds the camera without interfering with its instantaneous use. The camera is inserted in the case so that the laterally attached hangers are suspended close to the side wall of the camera. The bush is screwed through the opening in the bottom of the case into the tripodbush of the camera. As the bush is also fitted with thread, the Exakta may be screwed to the stand with its case. Before exposure unbutton the flap covering the lens and turn it down. (This case can be used also for Exakta Junior.)

Special Lenses of Exakta

These lenses are intended for two separate fields:

The Tele-Lenses for distance work, the Wide-angle lens for wide angle exposures.

The lenses are fitted on in our works, i. e. the infinity stop is put together with that of the standard lens. We further attach a focussing scale. The red figures apply for the Tele lens, the white ones for the standard lens. The prices of special lenses include the cost of fitting, so that the camera must be sent to our factory. If you do not want fitting, you can always focus without scale and infinity stop by the focussing screen. The standard lens is screwed out by turning the diaphragm ring to the left, and the same mount holds the long focus and the wide angle lens. In case of fitted lenses one may depend, also on the focussing screen in the light hood, or on the red scale. For the Tele-lenses (Ihagee-Anastigmat F/4.5/10.5—11 cm., Tele-Tessar F/6.3/12 cm., Tele-Megor F/5.5/15 cm., Tele-Tessar F/6.3/18 cm. and Tele-Tessar F/6.3/25 cm. focal length) the frame finder of the Exakta is provided with a mask which indicates the limits of the picture attainable with the Tele-lens. The mask, with the engraved lettering to the rear, is first placed with the two supports in the front frame to the right and left and then pressed on top into the frame until it snaps into position.

Exakta Light Filters

They serve for producing proper tone values when orthochromatic or panchromatic material is used by increasing or reducing the action of certain light rays.

The Yellow Screen for orthochromatic material that is lightly sensitive to blue, retains the blue and increases the effect of the yellow light rays. So called yellow — green screens have the same effects upon the orthochromatic emulsions and in case of panchromatic films having increased green and reduced red sensitivity ensure a reproduction in correct tone values.

The Green Screen serves for reproducing the green tints correctly if panchromatic films particularly sensitive to red are used.

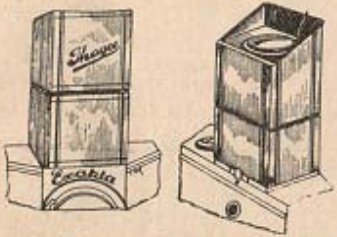
The Blue Screen in case of exposures made by artifical light on panchromatic material highly sensitive to red light rays. Retards the red light rays present in large numbers in most artificial light sources and prevents a too light reproduction of red tints.

The Red Screen for panchromatic or infra-red material increases the effect of the red light rays to an enormous degree. Particularly suited for distant exposures (also for night effects by daylight, as the blue appears much too dark in the picture).

For the various diametres of the lenses light filters with corresponding attachable mounts are available. When ordering please state the name and the aperture of the optical system concerned. The filters absorb a portion of the light passing through them, so that the time of exposure must

be somewhat increased. This depends of course on the transparency of the filter and the colour sensitiveness of the material used for exposures. Approximately, the extra time required is as follows:

Yellow screen, light	= double exposure time
Yellow screen, medium	= 4-fold exposure time
Yellow screen, dark	= 6-fold exposure time
Yellow-green screen	= 3-fold exposure time
Green screen	= 4-fold exposure time
Blue screen	= double exposure time
Red screen	= 8-fold exposure time for panchromatic film
	= 30-fold exposure time for infra-red film



Plain type

Light hood Extension with magnifier

Light Hood Extensions

These two accessories are intended to keep extraneous side-light away from the image on the focussing screen and thus increase the brightness of the finder image. Both extensions, on being taken out of their cases, automatically spring into operating position and are placed over the opened light hood of the "Exakta". They can be closed by folding. These practical aids to photography can be used not only for open air exposures in bright sunlight but for all exposures to facilitate focussing and to obtain a better screen image.

The Sun Shade

is also supplied for all lenses. When ordering please state name and aperture of the objective. The sun Shade serves the important purpose of keeping trouble-some front or side-light (not only sunlight but also artificial light) away from the lens. The sun Shade is indispensible for charming exposures by contrasting lights. It is easily attached to the front of the lens mount, or upon the mount of a light filter if one of these is interposed.

Attachment Lenses

Our attachment lenses serve for two kinds of exposures. One group is intended for giving larger pictures of distant objects (Tele-lenses) and the other shortens the focal length, so that it becomes possible to approach the object more closely, which is particularly useful if exposures of insects, coins, stamps, flowers etc. are to be made. The lens is simply attached with its mount to the front lens of the Exakta objective, and the screen image is decisive for focussing.

The Tele-lens increases the focal length. Greater focal lengths require a longer exposure. The Exakta Tele-lens requires the double of the ascertained exposure time. When an attachment lens is added to the optical lens system, a corresponding stopping down is necessary to obtain sharply defined pictures (at least to F/8 or F/11) and consequently another increase of the time of exposure must be considered. The standard focussing mount of Exakta does not suffice, however,

for increasing the focal length, so that the tele-lens requires the interposition of an extension tube. Unscrew the Exakta lens. The mount of the focussing helix takes the tube, and the lens is screwed into the upper worm of the tube, when the image can be sharply focussed in the light hood.

The attachment lens for near exposures shortens the focal length of the Exakta lens, so that it is possible to approach the object more closely with the standard focussing mount alone. Although shortening of the focal length involves also a reduction of the time of exposure, this time must nevertheless be prolonged, since we are working with a long extension. As a rule, it suffices to prolong the time of exposure about 2 times.

This attachment for near work is also secured to the front lens of the objective. As shown in the table below, the focussing range of this attachment lens alone amounts to approximately 52—38 cm. (or 135—60 cm. in a night Exakta). The object to be photographed must therefore be placed at this distance. If it is desired to come still closer to the object, use is made of the practical:

Exakta Extension Tubes

which can be had in different lengths to increase the extension of the Exakta at will.

The objective is screwed out as usual.

The extension tube is screwed into its place, and the objective screwed into the tube. The longer extension thus produced makes it possible to reduce the distance between the object and the camera. The effect of the two available tubes (A = 1½ cm. and B = 3 cm.) which may be combined as required is given in the table below. For example, two tubes B will produce pictures of actual size (scale 1 : 1). The effect of these intermediate pieces can also be supplemented by the use of the attachment lens for near work. Possibilities of combination are extremely great, and the table shows best how tubes and attachment lens can be combined in the most favourable manner. Owing to the considerably increased extension, when tubes are used the time of exposure must be prolonged approximately 2 to 4 times.

For "Primoplan" and "Biotar" objectives the small tube A alone cannot be used, as the lens panel is too long and strikes an edge inside the tube. Tubes A and B can be used, however, together, the longer tube B receiving the objective and tube A being positioned on the focussing mount of the camera.

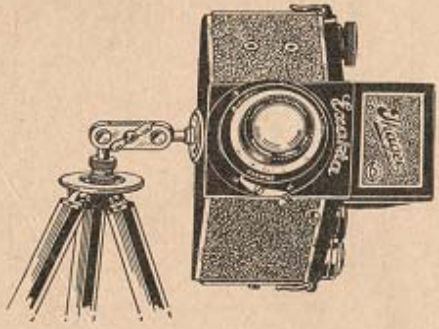
Near Exposures with Exakta

Table of distances. (All distances measured from subject to plane of film.) The two measurements state for focussing distances; the larger measurement involves focussing on infinity; the smaller one, focussing on shortest distance with the focussing mount screwed out.

Objectives	With attachment lens for near work	With Tube A	With Tube B	With Tubes A and B	With attachment lens for near work and Tube A	With attachment lens for near work and Tube B	With attachment lens for near work and Tubes A and B
Exaktar F/3.5	52—38 cm.	58—43 cm.	36 —33 cm.	32—31 cm.	33—30 cm.	28—27 cm.	27—26.5 cm.
Cassar F/3.5	52—38 cm.	62—44 cm.	37 —34 cm.	33—31.5 cm.	35—30 cm.	29—28 cm.	27.5—27 cm.
Cassar F/2.9	52—38 cm.	62—44 cm.	37 —34 cm.	33—31.5 cm.	35—30 cm.	29—28 cm	27.5—27 cm.
Xenar F/3.5	53—40 cm.	65—50 cm.	38.5—36 cm.	34—33 cm.	35—32 cm.	29—28 cm.	28—27.5 cm.
Xenar F/2.8	53—38 cm.	65—45 cm.	38 5—35 cm.	34—32.5 cm.	35—31 cm.	29—28 cm.	28—27.5 cm.
Primotar F/3.5	52—38 cm.	57—43 cm.	36 —34 cm.	32—31 cm.	33—30 cm.	28—27 cm.	27—26.5 cm.
Makro-Plasmat F/2.7	53—38 cm.	60—44 cm.	36 —33 cm.	32—31 cm.	34—30.5 cm.	28—27 cm.	27—26.5 cm.
Tessar F/3.5	53—38 cm.	57—44 cm.	36 —34 cm.	33—32 cm.	33—30 cm	28—27 cm.	27—26.5 cm.
Tessar F/2.8	58—40 cm.	60—44 cm.	36 —33 cm.	32—31 cm.	36—31.5 cm.	29—28 cm.	27.5—27 cm.
Xenon F/2	133—61 cm.	87—54 cm.	43 —38 cm.	37—35 cm.	60—45 cm	38—35 cm.	34.5—33 cm.
Biotar F/2	136—58 cm.	cannot be used.	39 —36 cm.	34.5—33 cm.	cannot be used.	36—33 cm.	32.5-31.5 cm.
Primoplan F/1.9	134—58 cm.		41 —37 cm.	36—34 cm.		36—34 cm.	33—32 cm.
Exakta-Junior							
Ihagee-Anastigmat F/4.5	52—32 cm.	58—36 cm.	35 —29 cm.	31—27 cm.	34—27 cm.	27.5-24.5 cm.	26.5—24 cm.
Ihagee-Anastigmat F/3.5	52—42 cm.	58—47 cm.	35 —33 cm.	31—30 cm.	33—31 cm.	27.5-26.5 cm.	26—25.5 cm.

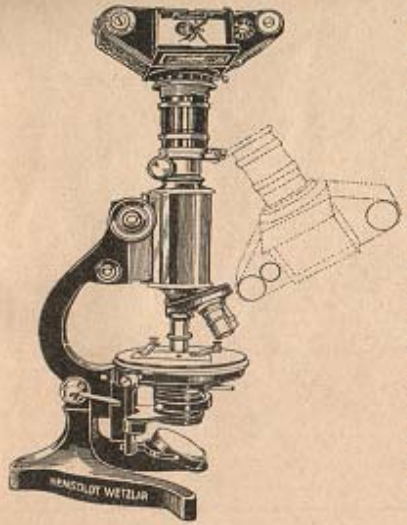
The Focussing Pin

The focussing mount of "Exakta" is provided with a small threaded hole for the reception of the focussing pin which facilitates focussing.



Ball-joint for Vertical Stand Pictures

It is advisable to make all exposures exceeding $^1/_{25}$th sec. upon a tripod. "Exakta" has a bush for horizontal pictures, and even for this purpose a ball-joint is useful, as the camera on the stand can then be turned, inclined and swung about at will. For vertical stand work a ball-joint is indispensable. The camera can then be instantly tilted into the desired vertical position. To change the position of the camera, loosen the thumb-screw in the centre of the ball-joint and make the desired change whereupon the screw is tightened again to hold the camera in position.



The Finger Release Knob

can be screwed into the release knob to increase the pressure surface so that release is facilitated (even with thick gloves).

Exakta Vacu-Flash

couples in an ingenious manner the release of the shutter and the burning of the vacu-flash, Detailed directions are furnished with the device.

Adapter for Micro work

This article is for connecting the Exakta with a microscope. There is a folding intermediate section which is connected with the Exakta by two extension tubes. The extension section can of course be used alone for making near exposures. (Compare the section entitled "Extension tubes".)

For micro-exposures remove the objective from the camera, as only the eye-piece and the magnifying lens of the microscope are used. Screw the thread of the top tube into the mount of Exakta. In case of microscopes having an extending tube a rubber ring is slipped over it to prevent a change in

he adjustment of the microscope due to the camera weight. Should the microscope be too easily adjusted, motion must be made more difficult by the tightening of screws the position of which is indicated in the directions for use of the microscope. The clamping screw of the micro-adapter is then loosened, the eye-piece from the tube of the microscope, the lower portion of the intermediate section is placed over the tube of the microscope and the eye-piece inserted again after clamping it up. While the light hood is open focus by the screen image. Be sure that the entire image field is illuminated with **uniform** brightness, the brightness of the screen image determines the time of exposure. If the object to be taken does not fit into the picture, this can be remedied. If the object does not fill the picture, a more powerful eye-piece must be chosen, and the opposite effect can be attained by inserting a weaker eye-piece.

In illuminating with the mirror of the microscope take care that the light falls only upon the slide of the microscope, otherwise this leads to fogged exposures.

To be able to vary at will the scale of enlargement during working it is only necessary to exchange the eye-pieces. The hinge makes it possible to turn down "Exakta" laterally without unscrewing any part. After placing another eye-piece in the tube turn up the camera.

EXPOSURE TABLE

A. Month and Hour

A. M.	P. M.	July June	August May	September April	October March	November February	December January
12	—	1	1	2	2	3	4
11	1	1	1	2	3	4	5
10	2	1	2	2	3	4	5
9	3	2	2	3	4	5	6
8	4	2	3	4	5	6	—
7	5	3	4	5	6	—	—
6	6	4	5	6	—	—	—
5	7	6	6	—	—	—	—

B. Subject

Water or Snow without foreground	Water or Snow with dark foreground	Beach and Shore Distant views	Dunes	Broad Squares, Landscapes with bright foreground	Bright broad Streets
1	4	2	3	4	4
Streets of medium width	Narrow dark Streets	Large and bright gardens without trees	Smaller gardens and landscapes with dark foreground	Under trees with little foliage	Under trees with dense foliage
6	8	5	8	10	14

Portraits by diffused light					Indoors		
In the open air	Indoors distance from window				Bright rooms	Well-lighted indoor rooms with dark walls	Dark rooms and corridors
	0	1	2	3 metres			
9	12	14	16	18	20	24	30

C. Illumination

Sun without clouds	Sun with white clouds	Heavily clouded sky	Medium clouded sky	Cloudy weather	Very cloudy or fog
1	0	2	3	4	5

D. Sensitivity of Films

DIN°	$\frac{10}{10}$ — $\frac{11}{10}$	$\frac{12}{10}$ — $\frac{13}{10}$	$\frac{14}{10}$ — $\frac{15}{10}$	$\frac{16}{10}$ — $\frac{17}{10}$	$\frac{18}{10}$ — $\frac{19}{10}$	$\frac{20}{10}$ — $\frac{21}{10}$
	8	6	4	2	0	-2

E. Diaphragm = Lens aperture

Rel. aperture:	F/1.9	F/2.8	F/3.5	F/4	F/5.6	F/8	F/11	F/16	F/22
	-3	-1	0	2	3	5	7	9	11

F. Exposure time

Seconds:	1/1000	1/800	1/600	1/400	1/250	1/200	1/125	1/100	1/60	1/50	1/30	1/25
Total:	4	5	6	7	8	9	10	11	12	13	14	15
Seconds:	1/15	1/12	1/8	1/6	1/4	1/3	1/2	3/4	1	1.5	2	3
Total:	16	17	18	19	20	21	22	23	24	25	26	27
Seconds:	4	6	8	12	15	25	30	50	Minutes:	1	1.5	2
Total:	28	29	30	31	32	33	34	35		36	37	38
Minutes:	3	4	6	8	12	15	25	30	50	60	90	120
Total:	39	40	41	42	43	44	45	46	47	48	49	50

Set shutter to speed closest to the exposure time ascertained.

Directions for use

In column A look for the month and hour respecting the exposure concerned. In column B you find the number for the object to be photographed or for the subject concerned, in table C the number for lighting, in table D the number for the sensitivity of the film, and in column E the number of aperture stated above the lens of the Exakta. The sum of these figures states in table F the time of exposure*.

Example: To make an exposure at 11 o'clock A. M. in May of a street of medium width at slightly clouded sky on a normally sensitive film of $\frac{10^{0}}{10}$ DIN at a diaphragm opening of F/8, one will find:

Table A: May 11 A. M. number 1.
Table B: for streets of medium width number 6.
Table C: for slightly clouded sky number 2.
Table D: for a film of $\frac{10^{0}}{10}$ DIN number 8.
Table E: for the diaphragm number 5.

The sum of these numbers is 22 equal to 1/2 sec. exposure time in column F.

* Negative figures like −1, −2 etc. must be deducted during addition.

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