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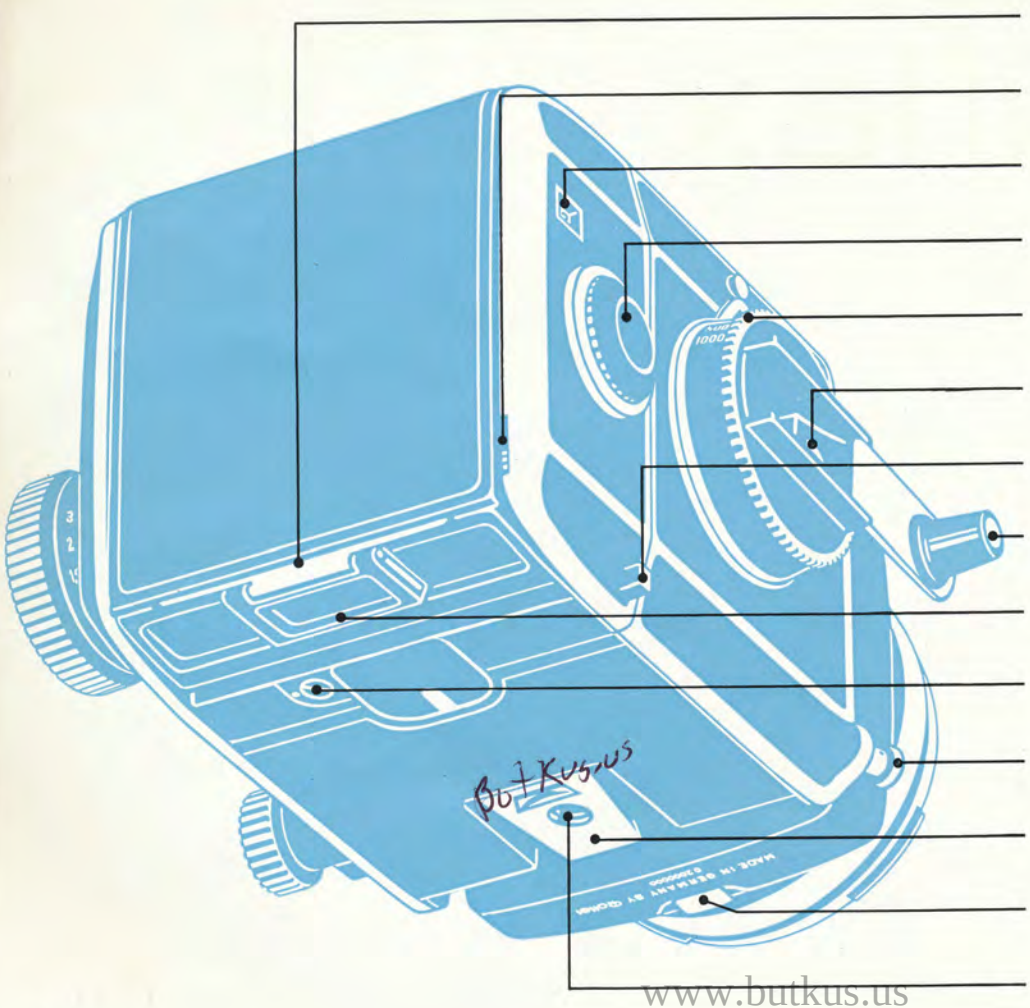
Rolleiflex SL66

In Practical Use

Rollei



Storage compartment of magazine slide

Change-over control for 12 or 24 exposures

Counter for 12 or 24 exposures

Magazine knob

Shutter speed setting

Film transport release for multiple exposures

Magazine lock

Shutter tensioning and film transport crank

Window handle (film type indicator) of magazine slide

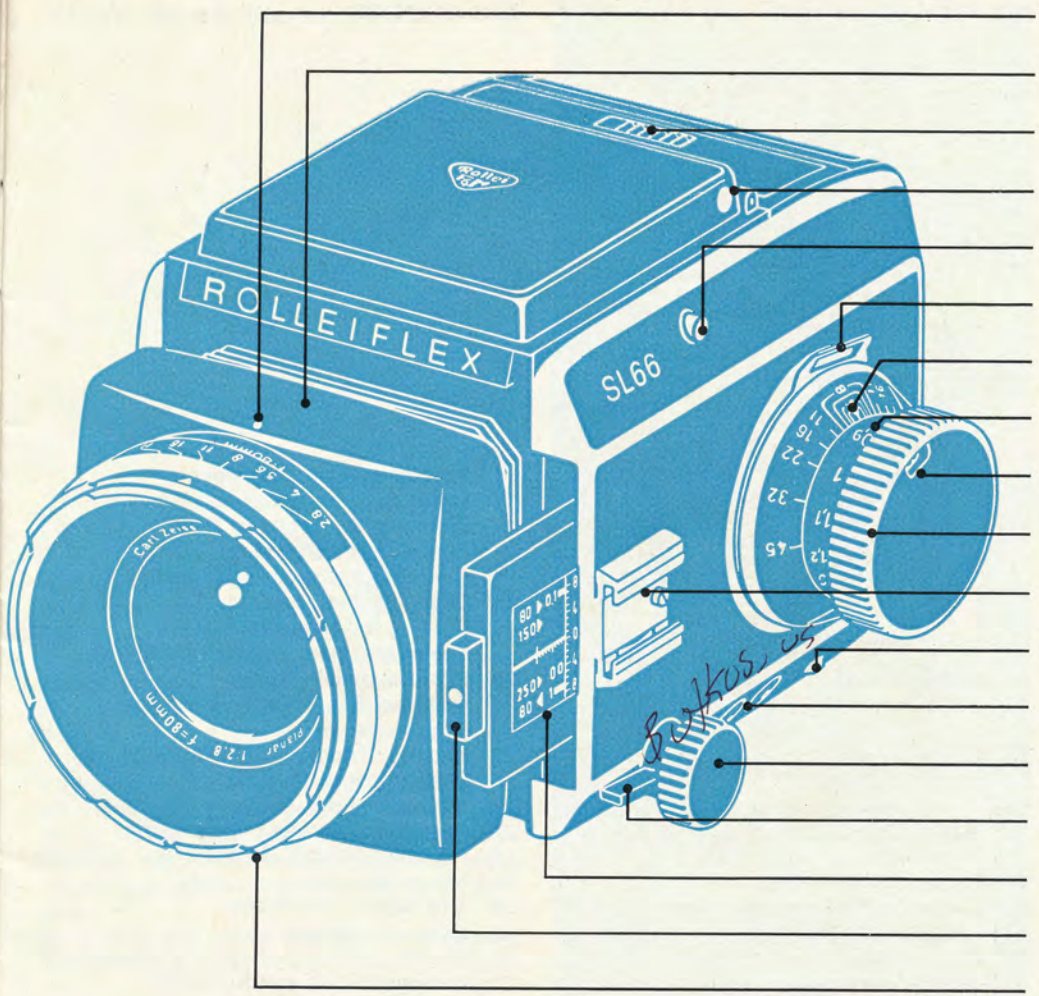
Magazine loading indicator

Release button with cable release thread

Fitting for tripod quick coupling

Lens change catch

Tripod Bush



Lens locating mark

Lens panel

Catch of magazine back

Cover of focusing hood

Focusing hood release

Strap holder

Depth of field scale

Distance scale

Focal length indication for distance scale

Focusing knob

Accessory shoe (for flash gun)

Flash plug release

Flash sockets

Locking knob for lens tilt from 0° to 8°

Release lever for lens tilt at 0° and 8°

Scales for extension, image scale and lens tilt

Stopping down control

Double bayonet ring for optical attachments

Rolleiflex SL 66

A camera for experts, designed for you:
we congratulate you on your choice!

We take it for granted that as an owner of the SL 66 you know all about the basic technicalities of photography. So we have kept the instructions concise. Taking, the extended scope of the camera and interchangeable components are covered in three chapters. The tabular sections sum up all important data to show you at a glance the facts about the range of focal lengths and camera extensions.
We are sure of your photographic success with the Rolleiflex SL 66. If you have any further photographic or technical queries, your Rollei Dealer — you can recognise him by the blue/grey Rollei service placard — or our own technical service is fully at your disposal.

Rollei Werke Franke & Heidecke

Contents

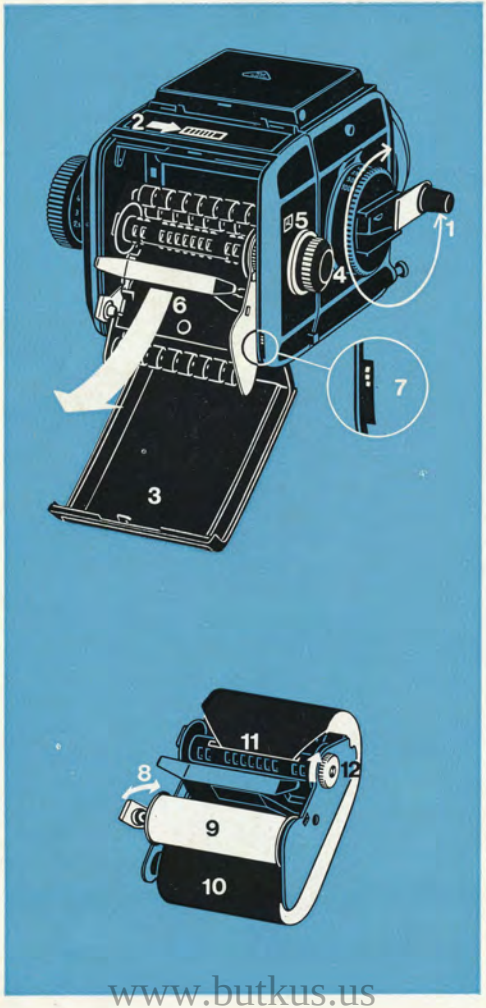
Your First Rule

Before you load or unload a film,
Before you remove or fit the magazine,
Before you press the release —
always check that the crank is unfolded and blocked.
For this purpose swing the crank fully forward as far as it will go (**1**) and back again to its stop (**2**).
This tensions the shutter. It also sets up the automatic safety interlocks to prevent film waste during film changing or magazine changing. Accidental double exposures, blank frames and overlapping pictures are impossible.
Once the crank locks, you know immediately that the camera is ready for correct operation.

Shooting Practice

You will find everything on the next four pages: from loading the fresh film to unloading the exposed film.
You can also practice the individual steps on a camera without film. For this the camera must be in its standard shooting state — with the magazine attached and the slide pulled out (push it into the storage compartment in the back).

Loading the Magazine

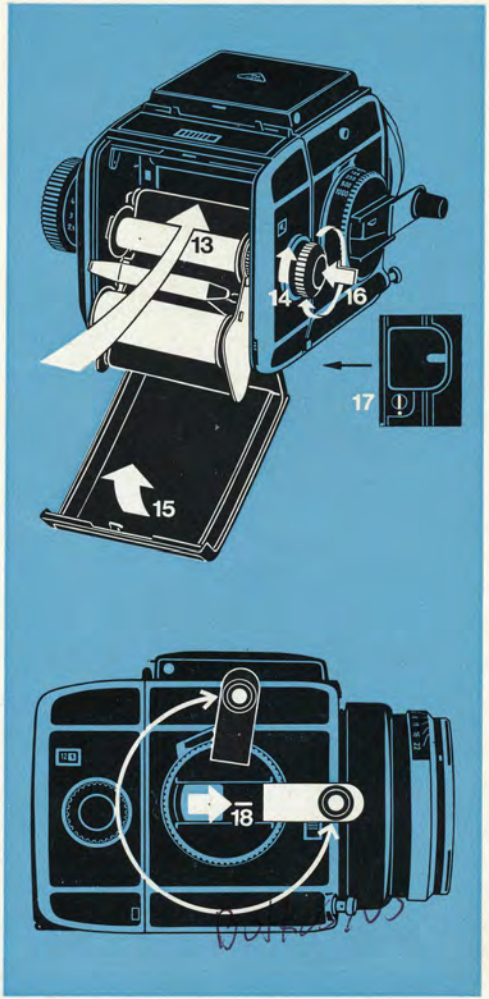


The procedure for loading the magazine is the same wether it is on the camera or off the camera. When only one magazine is in use, there is no need to remove it from the camera. In this case the magazine slide remains permanently in the storage compartment in the rear of the magazine.

Basic rule: Unfold the crank (**1**) and turn it forward and backward until it locks.
To open the magazine: Unlock the back (**2**) and swing open (**3**). This also makes the magazine knob (**4**) jumb out; the exposure counter (**5**) now indicates No. 1. Grip the film insert by the central bar (**6**) and swing it out of the magazine.

Setting the film counter to 12 or 24 exposures: Switch over the setting lever (**7**). The film counter (**5**) shows by its number — 12 or 24 — whether the magazine is set for No. 120 or 220 roll film.
You can switch over even when the magazine is closed, as long as the film counter still shows No. 1.
Loading a roll film: Swing open the spool holder (**8**). Remove the seal of the roll film (**9**) and fit the spool between the fixed and the hinged shaft pins so that the black inside surface of the backing paper (**10**) faces outwards. Run the backing paper round the film insert and thread it into the slot (**11**) of the empty spool. Tighten the paper leader by one or two turns of the gear wheel (**12**).

Checking for Readiness to Shoot



Grip the film insert by its centre bar and slide it into the magazine with the take-up spool first, so that the gear wheels on the insert and inside the magazine engage (**13**). Check the film advance by a short turn of the magazine knob (**14**). Then swing the magazine back closed and check that it locks.

Advancing the film to exposure No. 1: Turn the magazine knob until it locks and then push in (**16**). The backing paper is now spooled up and the film feeler mechanism has locked any further film transport: the film is ready for the first exposure. For subsequent exposures the crank advances the film.

The loading indicator (**17**) in the underside of the magazine shows a dot and a dash in line like an exclamation mark: "The magazine is loaded!". When the magazine is empty, the dash is at right angles to the dot.

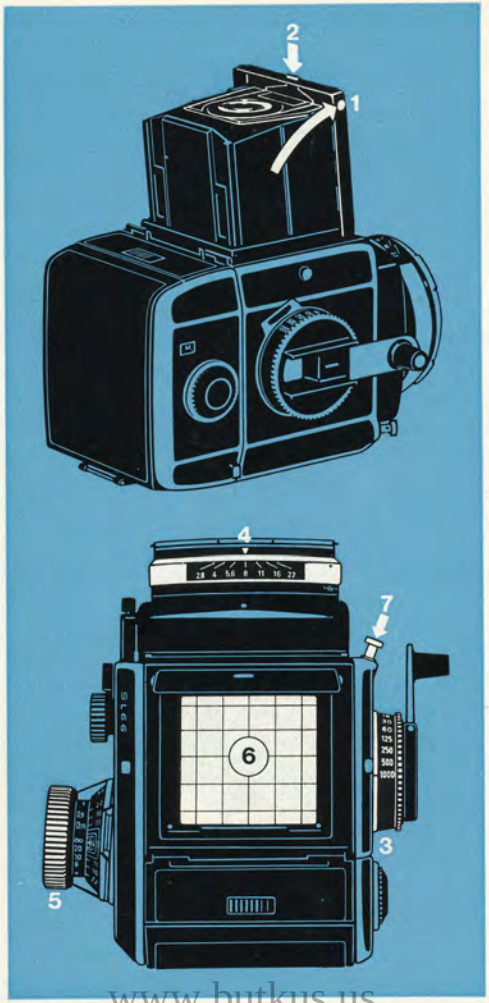
The Rolleiflex SL 66 is now ready to shoot.

If in doubt, it is possible to check with the crank lock even after loading the film whether the camera is correctly set: push the lever (**18**) in the direction of the crank handle and at the same time try to turn the crank. If the crank is not locked, swing it down, let go of the lever (**18**) and complete the crank movement forward and back again. The camera is now ready to shoot.

If you notice that you forgot to wind the crank only when pressure on the release has no effect, the same procedure still avoids wasting a film frame.

You can lose the first picture — and in fact wind the film through completely — only if the cranking movement was not complete and the crank is not pointing forward. While this in no way harms the camera, you can avoid it by making a habit of checking the locking of the crank before loading the camera.

Shooting



Turn the lens cap to the left and remove. Open the focusing hood (**1**). To close, push in the side panels.
To raise the magnifier press the key (**2**). To fold it back again, press down the magnifier frame between magnifier and hinge until it engages.

1. The Shutter Speed
Turn the knob (**3**) to engage the appropriate shutter speed. The figures 1000 to 1 are fractions of a second, B is the setting for time exposures of any duration. Intermediate speeds cannot be set.
Shutter speeds for flash: see page 13.
Exposure value correction: see page 24.

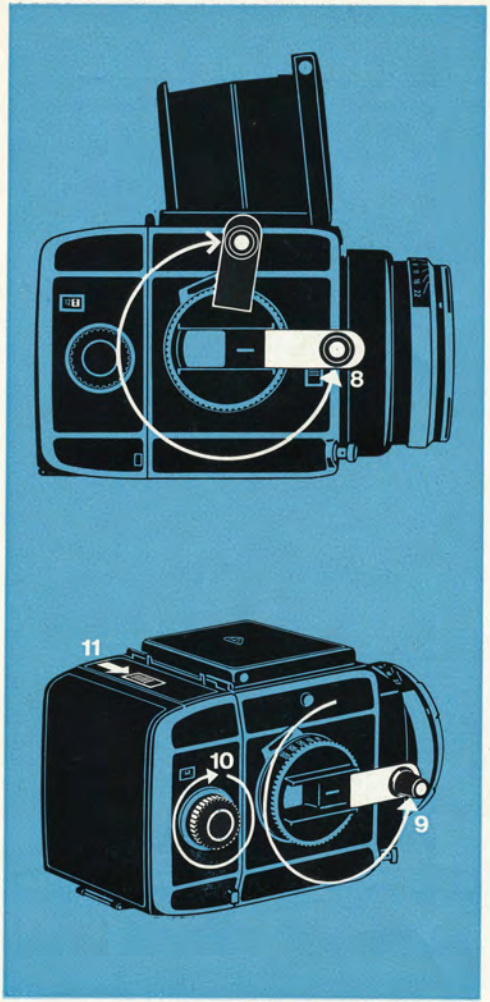
2. The Aperture
Turn the aperture ring (**4**). It engages at full and half stop settings.
The 50 mm, 80 mm, 120 mm, 150 mm and 250 mm lenses have a fully automatic spring loaded iris diaphragm. The lens remains fully open until the moment of exposure. The aperture closes down to the pre-selected value only on pressing the release.
For other lenses: see page 20.

3. Focusing
Turn the focusing knob (**5**) until the picture appears sharpest on the screen (**6**).
With lenses of very long focal length and when using extreme depth tilt the mirror may cut off a strip near the top of the screen image. The film in every case still records the full picture area.
Distance scale: see page 10.
Depth of field: see page 11.
Depth tilt: see page 12.

4. Releasing
Unlock the release button (by turning) and press (**7**). When the red dot is visible from above, the release is locked. When the red dot is not visible from above, the release is free.
Time exposures at the B setting: Press down the release button for the duration of the required exposure time or keep it in the depressed position by the locking collar. The shutter only closes on unlocking or letting go of the release.
The release button incorporates a cable release thread.

Film Transport and Shutter Tensioning

After every exposure unfold the crank and turn it fully forward and back again until it locks (**8**). The forward swing tensions the shutter while the return swing to its final position advances the film. The camera is then ready for the next exposure. During shooting the crank may remain unfolded for immediate operation.



Unloading the Magazine

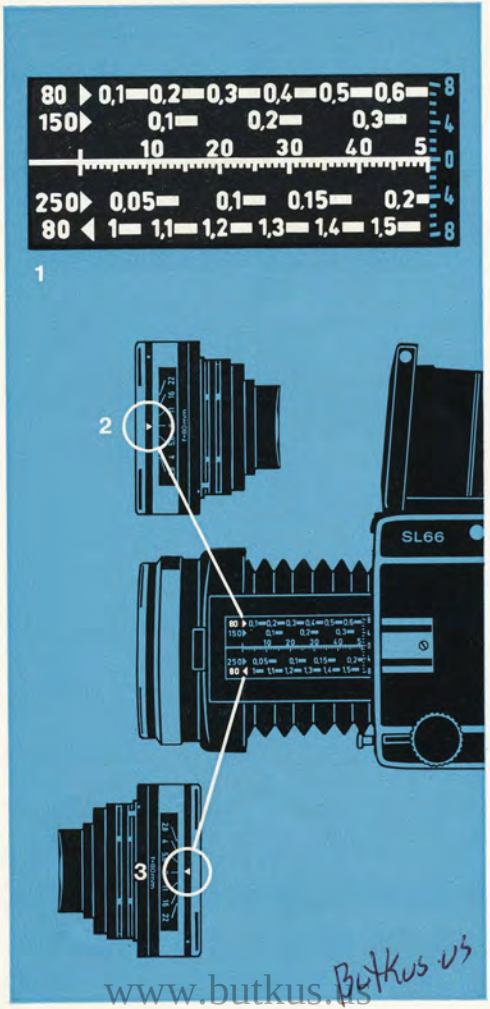
After the last exposure the magazine knob springs out when you turn the crank — an audible and visible sign that the film is finished.

Always complete the forward and back swing of the crank (**9**).

Turn the magazine knob (**10**) until the remainder of the backing paper is spooled up and the knob turns freely without resistance.

Open the magazine (**11**) remove the insert. Swing away the spool pin and take out the exposed roll.

Transfer the now empty feed spool to the take-up end from which the exposed spool was removed. This now becomes the take-up spool for the next film.



Distance Scale

At every subject distance the Rolleiclear focusing screen with central micro prism provides a direct and precise check on the image sharpness.

The distance scale on the focusing knob is normally used only for depth of field estimation, for zone focus settings and when using flash.

The figures on the distance scale apply only to the first complete turn of the focusing knob (with the lens mounted the right way round). The distances are measured from the film plane to the subject.

To adapt the scale to the interchangeable 50, 80, 150 and 250 mm lenses the focusing knob contains stored in it four distance scales. The focal length corresponding to the scale in use is shown on the face of the knob. For changing the scale see page 16.

The bellows extension of 2 inches (50 mm) can be further increased by extension tubes of 40 and 80 mm used either singly or in combination. This yields still nearer focusing distances with all lenses.

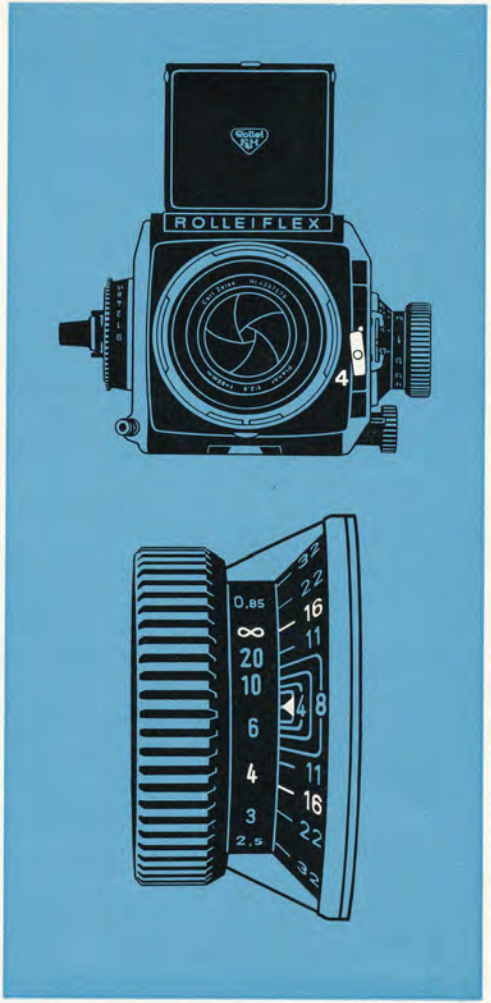
With the lens mounted in "retro" position (reversed, front element facing the film) the subject distance can be further reduced for still larger scales of reproduction.

Focusing ranges: see pages 21—25.

Scale of Reproduction

In close-up work the scale of reproduction is more important than the subject distance. With the aid of the scales (for three focal lengths) on the bellows rail you can set the camera directly to the required scale of reproduction. In this case the best way of getting the subject sharp is to bring the camera nearer to or farther away from it.

The scale (**1**) gives the following data:
Alongside the focal length figure (left) a triangular mark indicates the position of the aperture setting index to signify normal (**2**) and „retro" (**3**) mounting of the lens. (The bottom row thus applies to the 80 mm lens mounted back-to-front.)
The scale of reproduction is the ratio of the image size on the film to the size of the original object. For example 0.2 = 1/5 natural size. Every figure applies to the bar next to it.
The figures are set and read off along the common scale limit (the degree scale).
The centre line indicates the length of the bellows extension in millimetres. For the scales of reproduction with different bellows extensions for all focal lengths, including the use of extension tubes, see page 21.
The centre line also acts as the index for the degree scale when tilting the lens (depth tilt: see page 12).



Depth of Field

You can check the extent of the depth of field directly on the focusing screen or indirectly on the focusing knob.
1. For lenses with spring loaded iris diaphragm press the stopping-down key (**4**). This can be locked by inclining it and released in the same way. The lens then stops down to the pre-selected value. The ground glass screen is particularly suitable for this check on the final image appearance.
2. Opposite the distance scale index lines with appropriate aperture figures show the extent of the depth of field (for a circle of confusion of 56 microns or 0.0022 inch). Either estimate the actual subject distances or measure by accurate focusing of the screen image.
Beyond the first full turn of the focusing knob or when using the depth tilt the figures act as index values for the measured distances.
At increased extensions the effective aperture of the lens changes. When the bellows extension is more than half the focal length, the effective aperture (which is what matters for the exposure and the depth of field) no longer corresponds to the f-number engraved on the lens scale. For actual depths of field under these conditions see page 25.

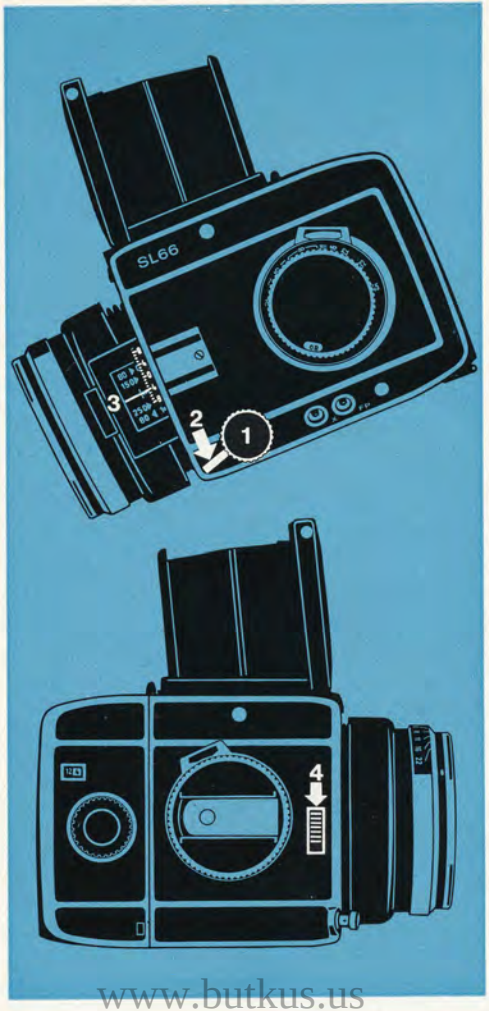
Extended Depth

You can gain extended depth by tilting the lens axis according to „Scheimpflug condition" when the subject is confined to one plane at an angle to the camera. By tilting the camera and in addition tilting the lens axis it becomes possible to extend the zone of sharp reproduction over a large distance range even at full aperture. You can increase this zone further by the depth of field gained on stopping down.

Tilting the lens: Release the locking knob (**1**) by turning to the left. Press down the lever (**2**) and raise or lower the lens to set the centre line of the scale (**3**) to the required value on the degree scale. Then tighten the locking knob (**1**) again.
The lever (**2**) engages at the two maximum tilt positions as well as in the centre position of 0°. The locking knob should however also be tightened when the camera is used normally with zero tilt.
When the lens is tilted the infinity limit of the bellows movement is also displaced. **Never try to force** the focusing knob beyond this limit.

"Scheimpflug Indicator". Extended depth by tilting depends on three parameters:
1. The distance setting to the centre of the field;
2. The vertical height of the camera above the object plane, and
3. The angle of tilt of the lens.

In practice you can determine these three values in every case with the aid of the indicator (see page 26).



Pre-releasing the mirror

The movement of the instant return mirror is mechanically and pneumatically braked during releasing. The mirror starts to swing slowly, accelerates and then slows down again. The gentle conclusion of the swing movement helps to keep the camera steadier.
In addition you can pre-release the mirror, for example when using a not very rigid tripod, for shots with long focal lengths or in the extreme close-up range.

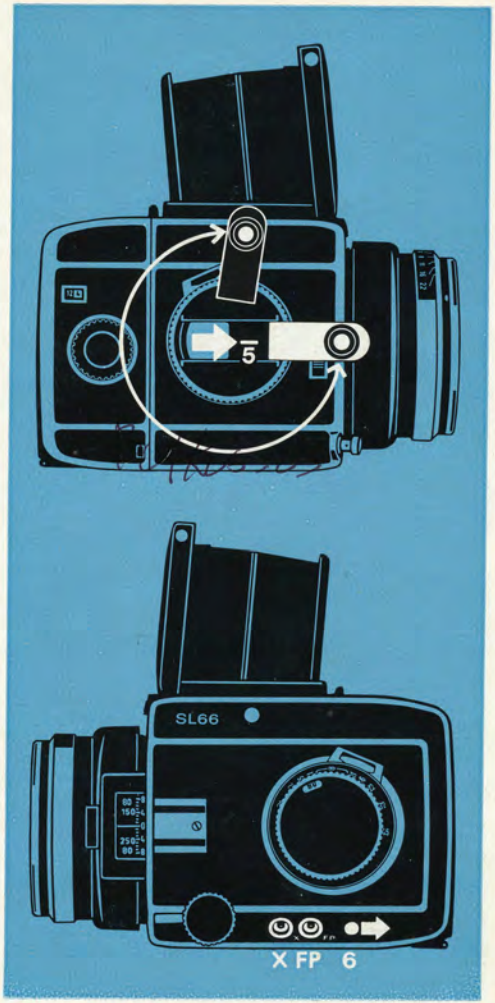
To pre-release the mirror: Press down the sliding key (**4**). Release the shutter in the usual way. After the exposure the mirror returns into its viewing position.
To bring the mirror back again without taking a picture, cover the lens with the lens cap, release the shutter and retension it with the film transport disengaged (see Multiple Exposures, page 13).

Multiple Exposures

After the first exposure press the lever (**5**) inside the unfolded crank in the direction of the crank handle and at the same time start turning the crank. Let go of the lever (**5**) and complete the normal to-and-fro crank movement.

This tensions the shutter without advancing the film. As a check, note that the magazine knob does not turn.

This procedure can be repeated after every exposure to make any number of exposures on the same film frame.



Flash Shots

All types of flash can be used. The flash cable plugs into the outlets X and FP. To release the Rollei flash cable plug, push the button (**6**) to the right and pull out the plug.

X-Synchronisation

In a focal plane shutter two blinds run down one after the other. With flashes of very short firing delay the entire image is exposed only if both blinds fully uncover the film. Therefore such flashes can only be used up to a certain shutter speed. At unsuitable speed settings (i. e. 1/60 to 1/1000 second) the flash does not fire either.

Shutter Speeds for X-Synchronisation

Electronic flash: 1/30 to 1 second and B.
Flash bulbs (such as AG 1, Osram XM 5, Philips PF 5): 1/15 to 1 second and B.

FP-Synchronisation

Long peak FP (focal plane) flash bulbs are available specially for focal plane shutters. They yield a uniform light output over a longer period. These flash bulbs can be synchronised with the fastest shutter speeds. Their maximum light output is utilised at about 1/60 second.

Shutter Speeds for FP-Synchronisation

FP bulbs (such as GE 31, Philips PF 45): 1/1000 to 1/60 second.

Exposures with Filters

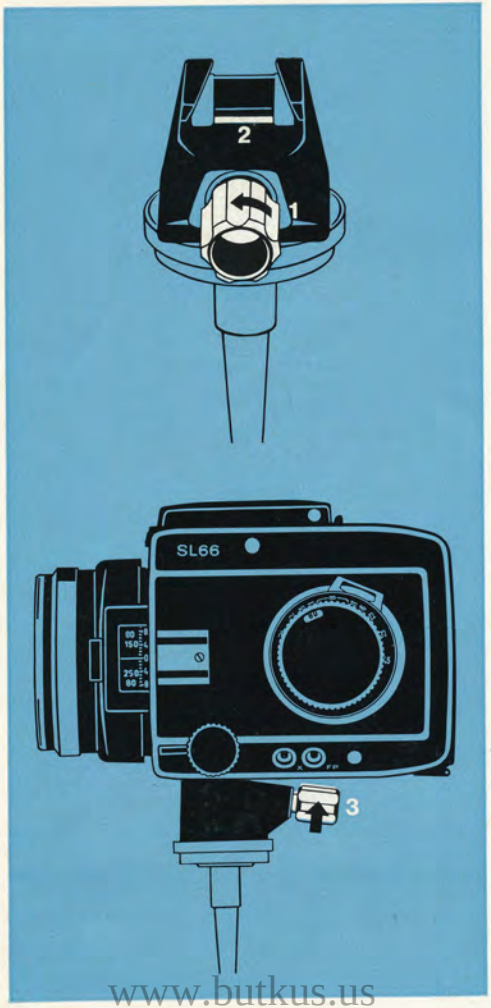
The 50 mm, 80 mm, 120 mm, 150 mm and 250 mm lenses have the same size VI front bayonet mount and use the same filters.

To fit the filter: Insert the filter in the inner bayonet ring of the lens and secure by turning fully to the right.
The 500 mm Tele-Tessar uses its own screw-in filters.
The 1000 mm Mirotar requires special filters which are inserted from the side in the optical path of the lens.
The filter mounts carry, where applicable, a correction value for the exposure value (for example —1.5 for the medium yellow filter). This correction value is deducted from the measured exposure value.

Exposures with the Lens Hood

The same lens hood fits lenses of 80, 120, 150 and 250 mm. Only the wide-angle Distagon requires a shorter lens hood.

To fit the hood: Place the lens hood in any position over the outer bayonet ring and secure by turning to the right.



Tripod Quick Coupling

The camera can be mounted on a tripod either via the tripod bush or — still more conveniently — with the tripod quick coupling. This utilises the dovetail guide in the camera base.

To prepare the quick coupling: Screw the coupling unit to the tripod and turn the knob (**1**) fully to the left. The locking latch (**2**) is now swung out of the way and the dovetail guide unobstructed.
Mounting the camera: Place the camera in the dovetail guide, push forward and then tighten the knob (**3**) by turning to the right. This swings up the locking latch and presses the camera firmly into the dovetail guide.
To remove the camera proceed in the reverse order, first turning the knob (**1**) fully to the left.

Neck Strap

To hang the camera round the neck, hook the broad snap hooks of the neck strap (**4**) into the two strap eyelets at the side of the camera.
The eyelets rotate freely, so that the camera can swing in any shooting direction and also hangs down naturally when carried over the shoulder.
To release the neck strap press the spring lock and push obliquely underneath the eyelet. The snap hook comes free on pressing against the camera side.

Film Type Indicator

To mark the film type loaded in the magazine, tear off the tab of the film box, fold it in half and push sideways into the window handle of the magazine slide (**6**). This direct indication of the film packing, featuring both its lettering and characteristic colour, avoids mix-ups when switching between several magazines.

Lens Changing

The instructions for lens changing apply equally to lenses mounted normally and reversed, and also for the Luminar adapter and the extension tubes.

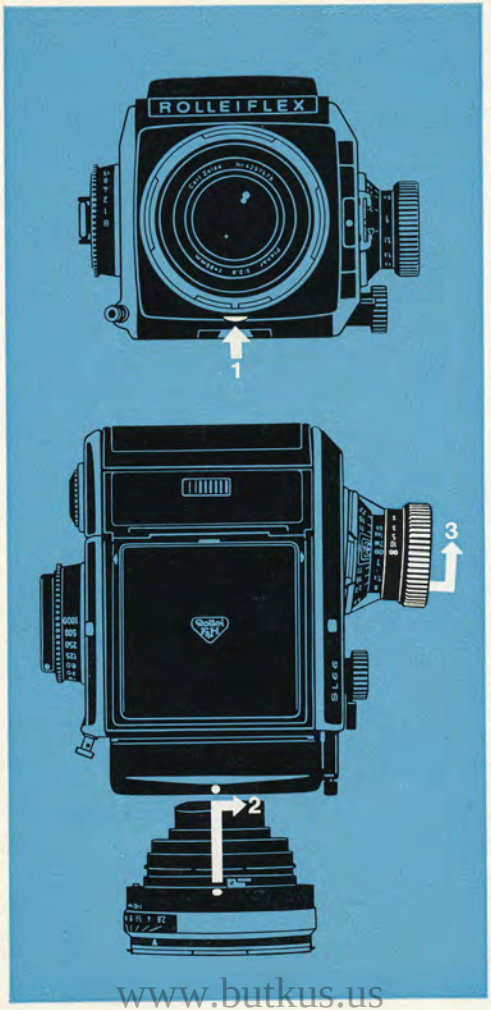
To remove the lens: Press the key (**1**) and at the same time turn the lens to unlock it from its bayonet mount and lift off. When using extension tubes, press the corresponding key on the extension tube.

To fit a lens: Line up the red marks on the lens and on the lens panel opposite each other (**2**), insert the lens in the bayonet mount and turn to secure until it engages with an audible click.

When fitting the lens in "retro" position (reversed, the front element facing the film) use the red mark on the front bayonet mount. With the lens mounted in this way, and also when using extension tubes, the automatic diaphragm control is disengaged and you have to set the apertures by hand.

When using the Mirotar mirror lens follow the instructions enclosed with this lens.

To change the distance scale: Fully pull out the focusing knob and turn it in this position (**3**) until the required focal length appears in the cut-out window (50, 80, 150 and 250 mm). The easiest way of changing the focal length is to turn the pulled-out knob to the right when set to the infinity stop.



Changing the Focusing Hood

The focusing hood and focusing screen can always be changed irrespective of the operating state of the camera.

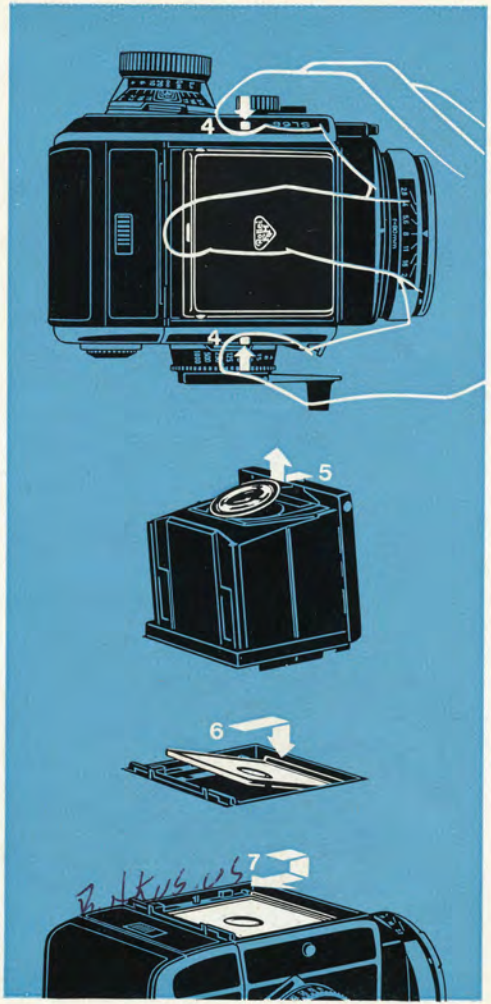
To remove the focusing hood: Press the two buttons (**4**) at the side with the thumb and second finger of the hand while holding the latter over the closed hood from the front. At the same time lift the rear edge of the hood with the index finger.

To fit the hood: Insert the hood (with the magnifier release at the back) and engage it by pressing home.

The folding focusing hood can be changed against other special hoods. These are fitted and removed in the same way.

Changing the Magnifier

If You Wear Glasses:
For sharp focusing without glasses you can replace the magnifier in the folding hood by alternative magnifiers to suit individual eyesight defects within a range of +3 and —3 dioptres (to match the prescription for reading glasses).
Press the magnifier backwards from the front edge of the mount and lift (**5**). Push the replacement magnifier backwards into the magnifier frame and press down to secure.



Changing the Focusing Screen

New!
(on page 17)

To remove the frame with the focusing screen: Raise the two retaining springs at the sides, slide the frame forward and lift off.
To refit the frame: Insert the frame in contact with the inside of the name-plate, push down along both ledges at the side and pull the frame backwards until the retaining springs engage.

various special screens, which are all inserted in the same way. The embossed (rough) side of the screen being inserted must face the camera.
To refit the frame: Insert the frame and push the protruding ledge forward. Push down the frame along both ledges at the side and pull it backwards (**7**) as far as it will go. The frame is now firmly fixed in the camera.

Available Alternative Screens:
Rolleiclear with central micro prism. A bright central area serves for checking the image sharpness.
Rolleiclear with prism rangefinder for specially precise observation of the sharpness of the vertical image lines.
Rolleiclear with full area micro-prism pattern. Ground glass screen with very fine grain for universal application.
The line grid aids in levelling the camera.

Changing the Magazine

The magazine on the camera is firmly locked to the body once the slide is pulled out. To avoid double exposures and blank frames it can only be removed or fitted when the shutter is tensioned (after working the crank) and the slide pushed in. Automatic interlocks ensure that the magazine can only be changed under the correct conditions.

Removing the Magazine

Check that the crank is locked (if not, swing it fully forward and back).

Pull out the slide from its storage compartment (**1**) and fully push it in its guides from above (**2**). The magazine lock (button **3**) is now free.

Press the button (**3**) and at the same time lift off the magazine.

As a safety measure, the slide cannot be pushed fully home if the crank was not fully tensioned. If this happens, pull out the slide halfway and operate the crank.

Attaching the Magazine

Check that the crank is locked (if it is not, fully swing it forward and back).

Hook in the magazine from above (**4**) and press it against the back (**5**) until it engages and locks.

Pull out the slide and store in the rear compartment.

Safety interlocks:

1. The magazine will not go on if you omitted to tension the crank. Remedy: Remove the magazine again and swing the crank fully forward and back.
2. With the magazine in place and the slide pulled out, the release button is locked if you did not fully tension the crank. Remedy: Before turning the crank, push the slide in again, remove the magazine and complete the crank movement.

To change over to a different film type, you can switch two loaded magazines at any time and irrespective of the position of the film counter on either magazine. Since pulling out the slide at the same time double locks the magazine on the camera, it is best to close the magazine with the slide only when it is to be removed.

Loading the Spare Magazine

Separate magazines are supplied with a protective cover. This is always used on the free magazine. To fit the magazine to the protective cover or to detach it, proceed as with the camera (**6**).

When the magazine is off the camera it is closed light-tight by the slide; you can load it in the same way as a magazine on the camera.

If you have pulled out the slide of a spare empty magazine and accidentally moved the outer cog wheel of the magazine, the slide will not go in fully. Remedy: Half pull out the slide (**7**), turn the cog wheel in the direction of the arrow (**8**) until it locks, and push back the slide.

Lens	Aperture	Focal Length mm	Aperture Range f/	Diaphragm System *	Angle of View		No. of Elements	No. of Components	Overall Length mm	Overall Length in.	Weight g	Weight oz.
Planar	f/2.8	80	2.8—22	A	52°	38°	7	5	63	2 1/2	300	11
Distagon	f/4	50	4 —32	A	75°	57°	7	7	93	3 1/2	555	20
Sonnar	f/5.6	150	4 —32	A	29°	21°	5	3	94.5	3 3/4	545	19
Sonnar	f/5.6	250	5.6—45	A	18°	13°	4	3	143	5 1/2	665	23
Tele-Tessar	f/5.6	500	5.6—45	V	9°	6°	6	5	308	12	1640	58
Mirotar	f/5.6	1000	5.6	—	4 1/2°	3°	Mirror lens		407	16	16500	580
Special Lenses:												
S-Planar	f/5.6	120	5.6—45	A	36°	26°	6	4	90.5	3 1/2	435	15
Luminar	f/4.5	63	4.5—36	E	—	—	3	3	32**	1 1/4**	135**	5**
Luminar	f/4.5	40	4.5—25	E	—	—	3	3	22**	7/8**	75**	3**
Luminar	f/3.5	25	3.5—14	E	—	—	4	3	36**	1 1/2**	105**	4**
Luminar	f/2.5	16	2.5—10	E	—	—	5	4	41**	1 5/8**	120**	4**

Interchangeable Lenses

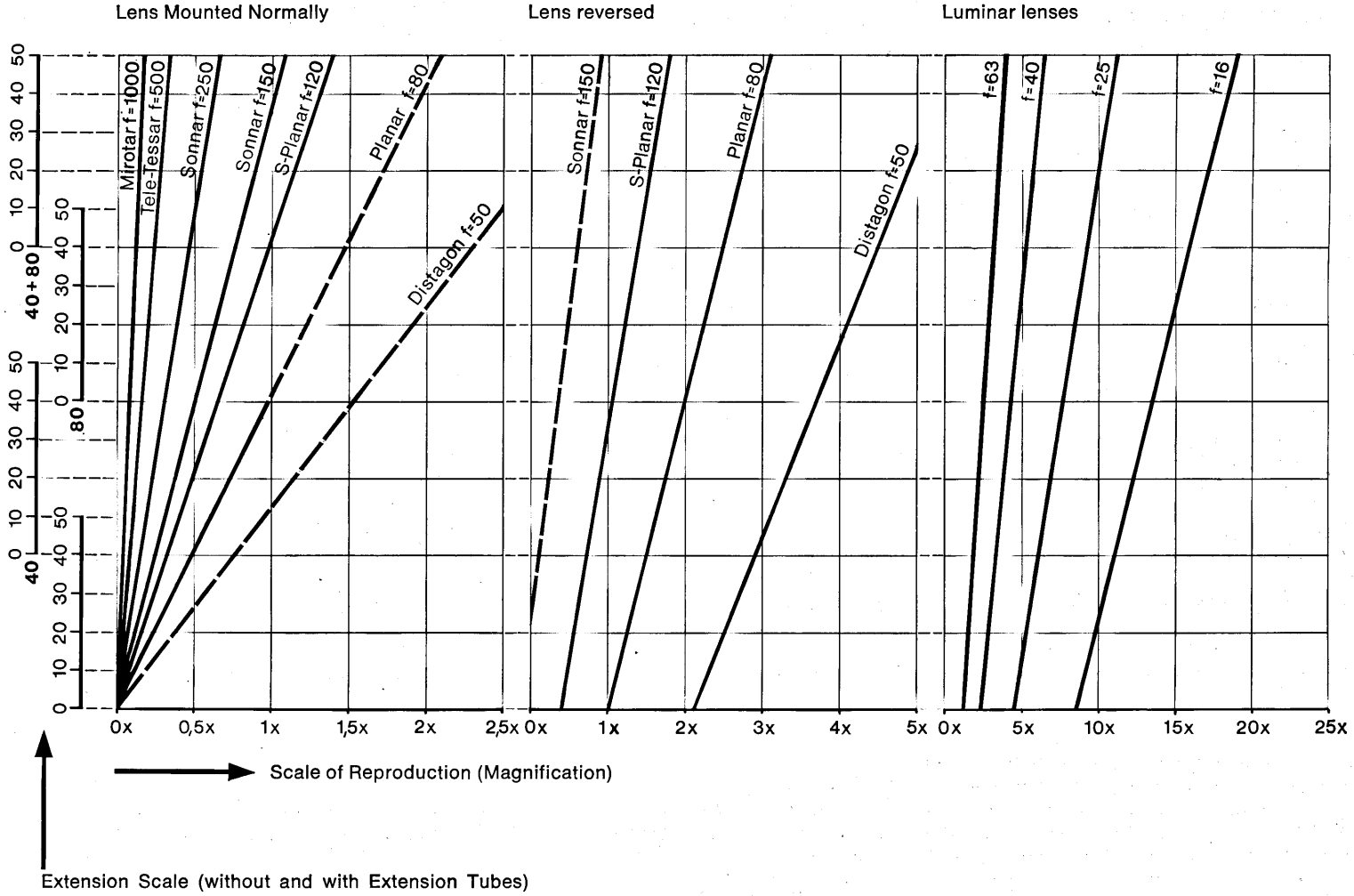
* Diaphragm systems:

A — Fully automatic spring-loaded diaphragm. The iris is always fully open. When you release, it closes down to the pre-selected aperture just for the duration of the exposure.
V — Pre-selector aperture. The diaphragm closes down to the pre-selected value when you rotate the setting ring to its stop.
E — Geometric aperture scale, shown in relative exposure factors. With the Luminar lenses the scale starts at 1 for the full aperture engraved on the lens; each succeeding value corresponds to an exposure interval of one lens stop. The factors indicated facilitate the calculation of the exposure increase over the exposure at full aperture.
The Mirotar mirror optical system has no diaphragm and is always used at its full aperture of f/5.6. Here the exposure may be controlled by altering the shutter speeds or if necessary by fitting special neutral density filters.

**Luminar lenses: The data apply in every case to the Luminar without adapter. The Luminar lenses use the same adapter with microscope thread.

Scales of Reproduction and Lens Extensions

The diagram shows the necessary lens extension (on the vertical scale) for any required scale of reproduction (magnifications shown on the horizontal axis) and for any lens (inclined lines). The four-fold extension scale (0 to 50 mm) applies to exposures without and with the various extension tubes.
Example: The 120 mm S-Planar, mounted normally, is to be used for a scale of reproduction of 0.5 x. Tracing upwards from 0.5 x until this line intersects the line for the 120 mm S-Planar, and then tracing horizontally to the left-hand scale, gives an extension of 20 mm for an exposure with the 40 mm extension tube.


Lens Mounted Normally
Lens reversed
Luminar lenses
Mirotar f=1000
Tele-Tessar f=500
Sonnar f=250
Sonnar f=150
S-Planar f=120
Planar f=80
Distagon f=50
Sonnar f=150
S-Planar f=120
Planar f=80
Distagon f=50
f=63
f=40
f=25
f=16
40+80
80
40
0x 0,5x 1x 1,5x 2x 2,5x
0x 1x 2x 3x 4x 5x
0x 5x 10x 15x 20x 25x
Scale of Reproduction (Magnification)
Extension Scale (without and with Extension Tubes)

Subject Distances, Subject Fields and Scales of Reproduction

The two tables show for every lens, used by itself and with extension tubes, three sets of data: the subject distance, the subject field and the scale of reproduction. The first figure applies always for the bellows fully closed and the second figure to the bellows fully extended.

The parameters are:

A = distance of subject (measured in this case from the front of the lens mount to the subject)

O = Subject field (height and width in inches of the subject area covered)

V = scale of reproduction (magnification).

Normal or "Retro" Lens Mounting?

Normal lenses are optimally corrected for distant subjects (subject distance greater than image distance).

Where these conditions are inverted (when the image distance becomes greater than the subject distance) the lens yields better image quality when mounted in "retro" position.

So follows this rule: When the scale of reproduction exceeds 1 : 1 (same-size, where the image distance is equal to the object distance) mount the lens reversed.

Lens	A, O, V*	Extension Tubes: None	40 mm	80 mm	40 + 80 mm
80 mm f/2.8 Planar	A	∞ — 16 cm	19 — 10 cm	10,8 — 7,7 cm	8,1 — 6,5 cm
	O	∞ — 9 cm □	11 — 5 cm □	5,6 — 3,5 cm □	3,7 — 2,7 cm □
	V	0 — 0,6 x	0,5 — 1,1 x	1 — 1,6 x	1,5 — 2,1 x
	A	∞ — 6¼″	7½″ — 3⅞″	4¼″ — 3″	3⅛″ — 2½″
	O	∞ — 3½″ □	4½″ — 2″ □	2¼″ — 1⅜″ □	1½″ — 1″ □
50 mm f/4 Distagon	A	∞ — 5 cm	6 — 2,5 cm	2,8 — 1,6 cm	1,7 — 1,1 cm
	O	∞ — 6 cm □	7 — 3 cm □	3,5 — 2,2 cm □	2,4 — 1,7 cm □
	V	0 — 1 x	0,8 — 1,8 x	1,6 — 2,5 x	2,3 — 3,3 x
	A	∞ — 2″	2½″ — 1″	1″ — ⅝″	⅝″ — ½″
	O	∞ — 2¼″ □	2¾″ — 1¼″ □	1⅜″ — ⅞″ □	1″ — ⅝″ □
120 mm f/5.6 S-Planar	A	∞ — 35 cm	42 — 22 cm	24 — 17 cm	18 — 14 cm
	O	∞ — 13 □	17 — 7,3 cm □	8,5 — 5,1 cm □	5,2 — 4 cm □
	V	0 — 0,4 x	0,3 — 0,8 x	0,7 — 1,1 x	1,1 — 1,4 x
	A	∞ — 1′2″	1′4″ — 8½″	9½″ — 6⅝″	7″ — 5⅝″
	O	∞ — 5½″ □	6½″ — 3″ □	3¼″ — 2″ □	2¼″ — 1½″ □
150 mm f/4 Sonnar	A	∞ — 60 cm	70 — 38 cm	42 — 31 cm	32 — 26 cm
	O	∞ — 17 cm □	21 — 10 cm □	11 — 7 cm □	7 — 5 cm □
	V	0 — 0,3 x	0,3 — 0,6 x	0,5 — 0,8 x	0,8 — 1,1 x
	A	∞ — 1′11″	2′3″ — 1′3″	1′4″ — 1′	1′ — 10″
	O	∞ — 7″ □	8″ — 4″ □	4″ — 2½″ □	2¾″ — 2″ □
250 mm f/5.6 Sonnar	A	∞ — 155 cm	185 — 100 cm	107 — 78 cm	82 — 66 cm
	O	∞ — 28 cm □	35 — 16 cm □	17 — 11 cm □	12 — 8 cm □
	V	0 — 0,2 x	0,16 — 0,36 x	0,32 — 0,53 x	0,48 — 0,67 x
	A	∞ — 5′	6′ — 3′3″	3′6″ — 2′6″	2′8″ — 2′2″
	O	∞ — 11″ □	14″ — 6″ □	7″ — 4″ □	4½″ — 3¼″ □
500 mm f/5.6 Tele-Tessar	A	∞ — 6 m	7 — 4 m	4 — 3 m	3 — 2,5 m
	O	∞ — 56cm □	67 — 31 cm □	35 — 22 cm □	24 — 17 cm □
	V	0 — 0,1 x	0,08 — 0,18 x	0,16 — 0,26 x	0,24 — 0,33 x
	A	∞ — 20′	24′ — 12′	13′ — 10′	10′ — 8′
	O	∞ — 1′10″ □	2′4″ — 1′ □	1′2″ — 8½″ □	9″ — 6½″ □
1000 mm f/5.6 Mirotar	A	∞ — 22 m	27 — 13 m	14 — 9 m	10 — 7,5 m
	O	∞ — 110 cm □	140 — 62 cm □	67 — 43 cm □	47 — 33 cm □
	V	0 — 0,05 x	0,04 — 0,09 x	0,08 — 0,13 x	0,12 — 0,17 x
	A	∞ — 72′	88′ — 42′	46′ — 31′	32′6″ — 24′6″
	O	∞ — 3′8″ □	4′7″ — 2′ □	2′4″ — 1′5″ □	1′6″ — 1′1″ □

Lens	A, O, V*	Extension Tubes: None	40 mm	80 mm	40 + 80 mm
80 mm f/2.8 Planar retro	A	16 — 12 cm	12,5 — 10,8 cm	11 — 10 cm	10,2 — 9,5 cm
	O	6 — 3,5 cm □	4 — 2,8 cm □	2,9 — 2,2 cm □	2,3 — 1,8 cm □
	V	1 — 1,6 x	1,5 — 2 x	2 — 2,6 x	2,5 — 3 x
	A	6 1/8" — 4 3/4"	4 7/8" — 4 1/4"	4 3/8" — 3 7/8"	4" — 3 3/4"
	O	2 1/4" — 1 1/2" □	1 1/2" — 1" □	1 1/8" — 7/8" □	7/8" — 3/4" □
50 mm f/4 Distagon retro	A	9,4 — 8,6 cm	8,8 — 8,3 cm	8,4 — 8,1 cm	8,1 — 7,9 cm
	O	2,7 — 1,8 cm □	2 — 1,5 cm □	1,5 — 1,2 cm □	1,3 — 1 cm □
	V	2 — 3 x	2,8 — 3,8 x	3,6 — 4,6 x	4,4 — 5,4 x
	A	3 3/4" — 3 3/8"	3 1/2" — 3 1/4"	3 1/4" — 3 1/8"	3 1/8"
	O	1" — 11/16" □	3/4" — 9/16" □	5/8" — 1/2" □	1/2" — 3/8" □
120 mm f/5.6 S-Planar retro	A	34 — 17 cm	19 — 13 cm	13,5 — 10,3 cm	10,8 — 8,8 cm
	O	16 — 7 cm □	8 — 5 cm □	5,5 — 3,8 cm □	4 — 3,1 cm □
	V	0,4 — 0,8 x	0,7 — 1,1 x	1 — 1,5 x	1,4 — 1,8 x
	A	1'1" — 6 3/4"	7 1/2" — 5"	5 1/2" — 4"	4 1/4" — 3 1/2"
	O	6" — 3" □	3" — 2" □	2" — 1 1/2" □	1 1/2" — 1 1/4" □
63 mm f/4.5 Luminar	A	10,4 — 8,2 cm	8,5 — 7,4 cm	7,6 — 7 cm	7 — 6,6 cm
	O	4,7 — 2,8 cm □	3,1 — 2,2 cm □	2,2 — 1,7 cm □	1,8 — 1,4 cm □
	V	1,2 — 2 x	1,8 — 2,6 x	2,5 — 3,2 x	3,1 — 3,9 x
	A	4 1/16" — 3 1/4"	3 3/8" — 3"	3" — 2 3/4"	2 3/4" — 2 5/8"
	O	1 7/8" — 1 1/8" □	1 1/4" — 7/8" □	7/8" — 11/16" □	3/4" — 9/16" □
40 mm f/4.5 Luminar	A	4,7 — 4,1 cm	4,2 — 3,9 cm	3,9 — 3,7 cm	3,8 — 3,6 cm
	O	24 — 16 mm □	17 — 12 mm □	13 — 10 mm □	11 — 9 mm □
	V	2,3 — 3,5 x	3,3 — 4,5 x	4,3 — 5,6 x	5,3 — 6,5 x
	A	1 7/8" — 1 5/8"	1 5/8" — 1 9/16"	1 9/16" — 1 1/2"	1 1/2" — 1 7/16"
	O	1" — 5/8" □	5/8" — 1/2" □	1/2" — 3/8" □	7/16" — 5/16" □
25 mm f/3.5 Luminar	A	1,9 — 1,7 cm	1,8 — 1,7 cm	1,7 — 1,6 cm	1,6 cm
	O	12 — 9 mm □	9 — 7 mm □	7 — 6 mm □	6 — 5 mm □
	V	4,5 — 6,5 x	6,1 — 8 x	7,7 — 9,7 x	9,3 — 11,2 x
	A	3/4" — 11/16"	11/16" — 5/8"	5/8"	5/8"
	O	1/2" — 5/16" □	3/8" — 1/4" □	5/16" — 1/4" □	1/4" — 3/16" □
16 mm f/2.5 Luminar	A	1 cm	1 cm	1 cm	1 cm
	O	7 — 5 mm □	5 — 4 mm □	4,5 — 3,5 mm □	3,5 — 3 mm □
	V	8 — 11 x	11 — 14 x	13 — 16 x	16 — 19 x
	A	3/8"	5/8"	3/8"	5/8"
	O	9/32" — 3/16" □	7/32" — 5/32" □	3/16" — 5/32" □	5/32" — 1/8" □

Focusing Correction for Infra-Red

The change in focal length when taking pictures through an infra-red filter calls for a focusing correction if the lens was focused without the filter.

The necessary extension increase depends on the maximum spectral sensitivity of the infra-red emulsion used. The aperture index marks of the forward part of the depth of field indicator (showing the far limits of the depth of field) are used as auxilliary marks for infra-red focusing. The table below gives the aperture mark to be used as infra-red focusing index for common infra-red emulsions and for the different lenses.

Lens	Infra-red index for 7200 A	8400 A
50 mm Distagon f/4	f/5.6	f/8
80 mm Planar f/2.8	f/4	f/5.6
120 mm S-Planar f/5.6	f/5.8	f/8
150 mm Sonnar f/4	f/8	f/11
250 mm Sonnar f/5.6	f/11	f/16
500 mm Tele-Tessar f/5.6	f/16	f/32
1000 mm Mirotar f/5.6	No correction needed	

To correct the distance setting: Focus the image sharply on the screen without the infra-red filter. Read off the distance figure opposite the focusing index. Turn the focusing knob forward (to increase the lens extension) until the distance value read off is opposite the aperture mark given above.

When setting distances by estimation, use the required aperture mark directly as the focusing index.

Focusing Ranges Summed Up

The chart (page 25) contains all the necessary data for close-ups as well the adjoining macro-photographics and photomicrographic ranges. The supplementary chart (page 24) shows the corresponding inch values for subject size and depth of field.

Lenses: The focusing range is shown as a bar for every lens. The working ranges with extension tubes are shown by different types of shading. In every case the sections enclosed in a bold frame indicate the combination for optimum optical quality. This indication is omitted for the normal range, since the choice of lens is here determined by the required angle of view.

Scales of reproduction are shown on a dual scale, as a decimal magnification and as an image to object size ratio.

Subject size: The figures show the height and width of the square subject area covered.

Exposure value correction: Since the effective aperture is given by the ratio of the optical lens diameter to the image distance, this effective aperture deviates at increased lens extensions from the engraved aperture value. The scale shows the required correction in exposure values (equivalent to the number of lens stops by which the diaphragm must be opened).

Exposure factor: If the exposure correction is to be made by increasing the exposure time instead of by opening the aperture, use the factors along this scale.

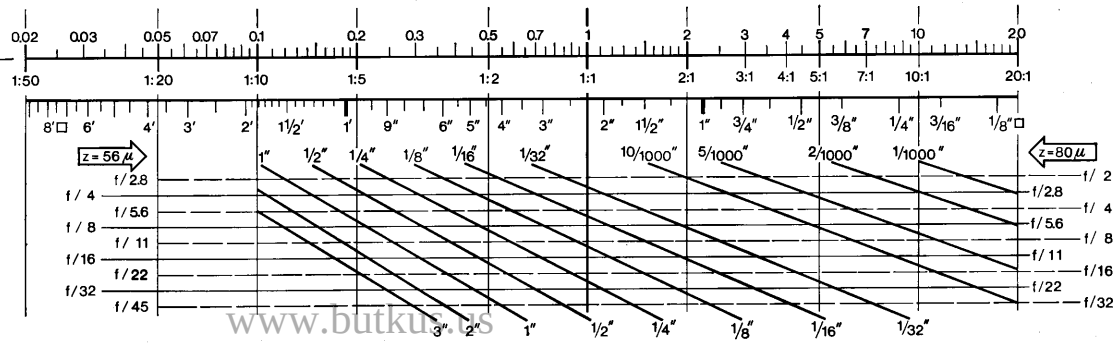
Depth of Field: To read off depth of field zones (oblique lines) the apertures are given along the horizontal lines at the left and right. The aperture values at the left apply to a circle of confusion of 56 microns or 0.0022 inch (1/1400 of the diagonal of the image format), the aperture values at the right for a circle of confusion of 80 microns or 0.0032 inch (1/1000 of the image diagonal). The aperture values are the figures engraved on the aperture scale of the lens, with the change of effective aperture already taken into account.

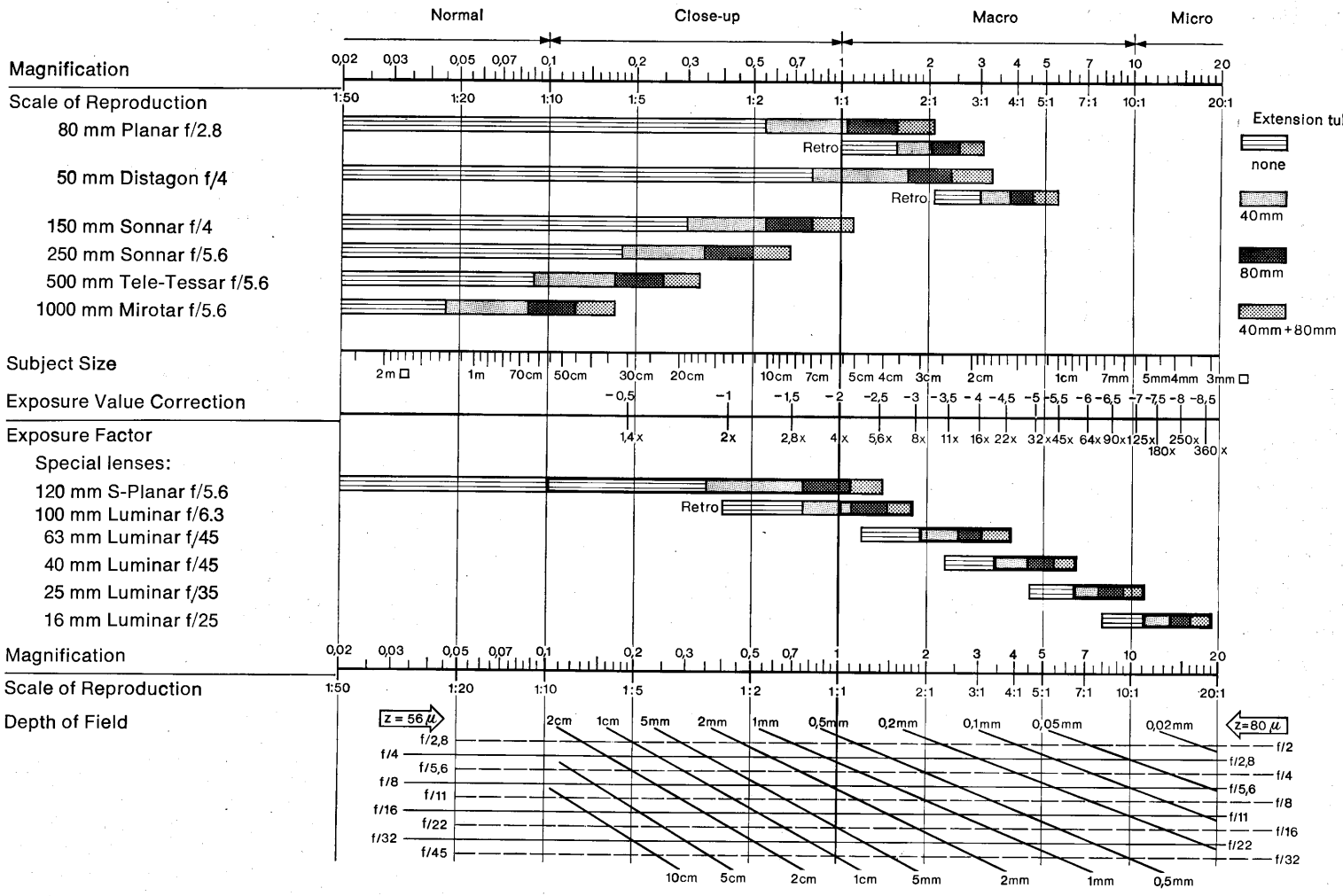
The depth of field is the total zone of sharpness. For close-ups the plane of maximum sharpness can be taken as being in the middle of this zone.

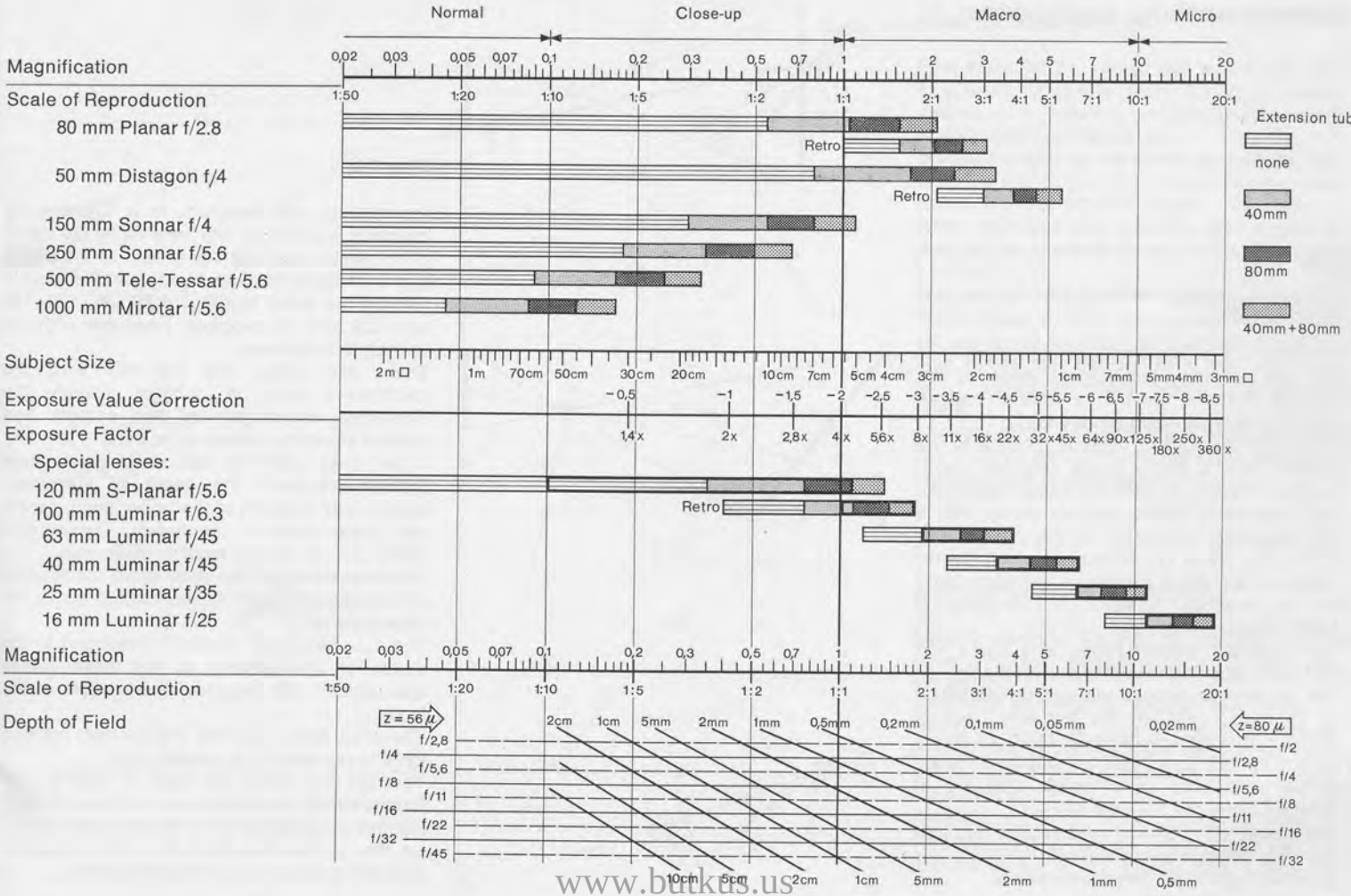
Reading the values: All values shown vertically below each other belong together. On both the scales for the scale of reproduction a vertical line connects equal values. Where this line cuts any other scale, the appropriate values can be read off. (Fold the last page over the left-hand part of the chart and use the edge of the page for reading off.)

Reading the inch valus: Transfer the magnification factor to the chart on this page.

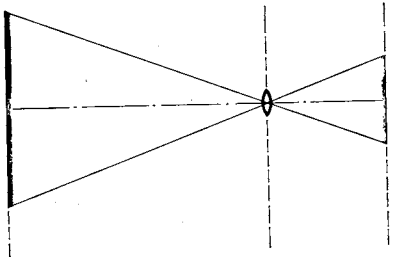
Example: Same size reproduction (scale 1.0 or 1:1) with the S-Planar mounted reversed (retro) on a 40 mm extension tube. The size of the subject field is seen to be just under 5,6 x 5,6 cm, the exposure value correction —2 (equivalent to a 4 x exposure time increase). The total depth of field at f/8 is 2 mm. Inch values: Subject size $2^1/_4$" x $2^1/_4$", total depth of field at f/8 approx. $^3/_{32}$".




Normal
Close-up
Macro
Micro
Magnification
0,02 0,03 0,05 0,07 0,1 0,2 0,3 0,5 0,7 1 2 3 4 5 7 10 20
Scale of Reproduction
1:50 1:20 1:10 1:5 1:2 1:1 2:1 3:1 4:1 5:1 7:1 10:1 20:1
80 mm Planar f/2.8
50 mm Distagon f/4
150 mm Sonnar f/4
250 mm Sonnar f/5.6
500 mm Tele-Tessar f/5.6
1000 mm Mirotar f/5.6
Retro
Retro
Extension tubes:
none
40mm
80mm
40mm+80mm
Subject Size
2m 1m 70cm 50cm 30cm 20cm 10cm 7cm 5cm 4cm 3cm 2cm 1cm 7mm 5mm 4mm 3mm
Exposure Value Correction
-0,5 -1 -1,5 -2 -2,5 -3 -3,5 -4 -4,5 -5 -5,5 -6 -6,5 -7 -7,5 -8 -8,5
Exposure Factor
1,4x 2x 2,8x 4x 5,6x 8x 11x 16x 22x 32x 45x 64x 90x 125x 180x 250x 360x
Special lenses:
120 mm S-Planar f/5.6
100 mm Luminar f/6.3
63 mm Luminar f/45
40 mm Luminar f/45
25 mm Luminar f/35
16 mm Luminar f/25
Retro
Magnification
0,02 0,03 0,05 0,07 0,1 0,2 0,3 0,5 0,7 1 2 3 4 5 7 10 20
Scale of Reproduction
1:50 1:20 1:10 1:5 1:2 1:1 2:1 3:1 4:1 5:1 7:1 10:1 20:1
Depth of Field
z = 56 µ
z=80 µ
2cm 1cm 5mm 2mm 1mm 0,5mm 0,2mm 0,1mm 0,05mm 0,02mm
f/2,8 f/4 f/5,6 f/8 f/11 f/16 f/22 f/32 f/45
f/2 f/2,8 f/4 f/5,6 f/8 f/11 f/16 f/22 f/32
10cm 5cm 2cm 1cm 5mm 2mm 1mm 0,5mm



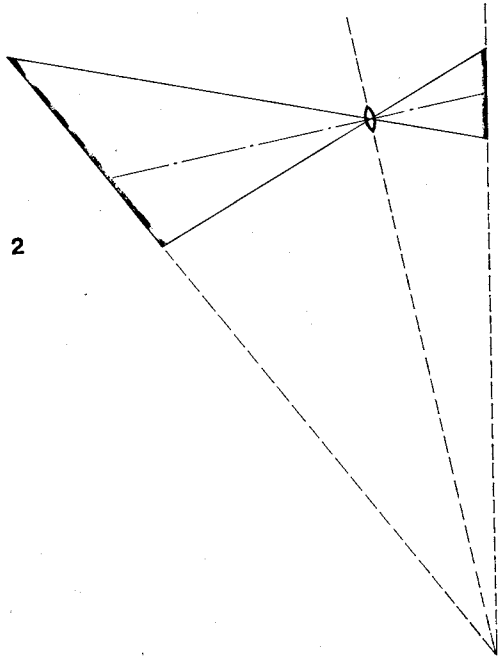
Scheimpflug Indicator



1

What it is for

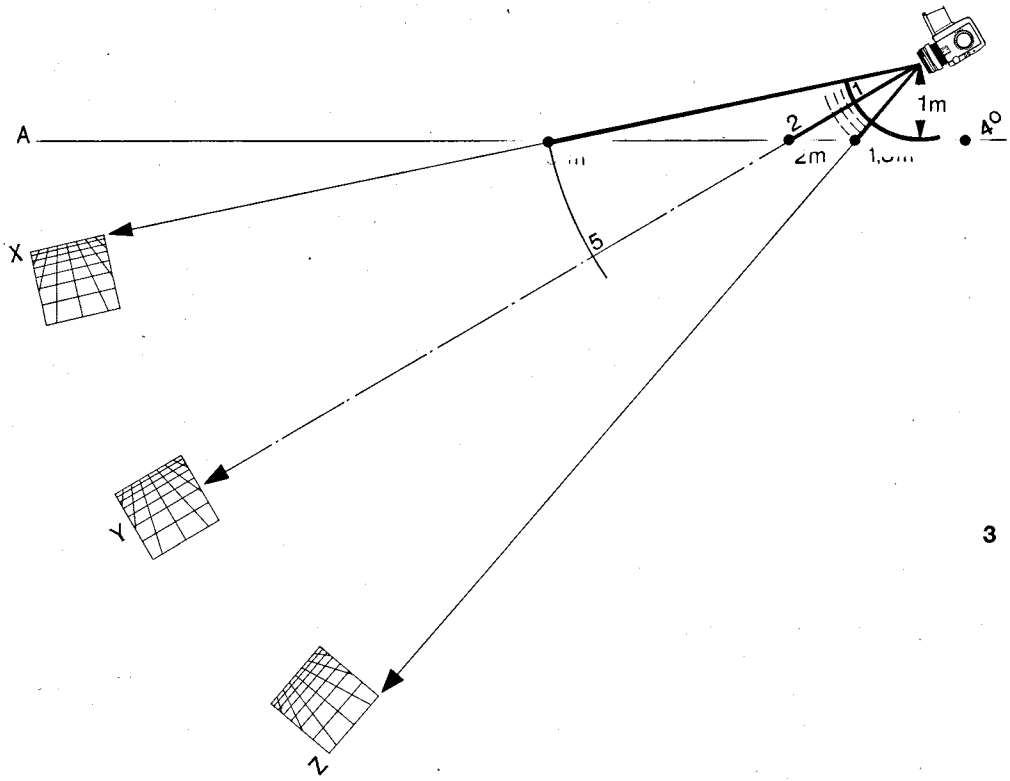
To reproduce a flat surface perfectly sharply at full lens aperture, the subject plane at the focused distance must in a normal camera set-up be parallel to the film plane (**1**).
If however the subject plane is inclined to the camera axis, a sharp image requires simultaneous focusing on different subject distances. This involves a special camera set-up with a corresponding inclination of the optical axis to the film plane (**2**). A rule for sharp reproduction under these conditions was formulated by the Austrian surveyor, T. Scheimpflug (1865—1911):
The extended subject plane, lens plane and film plane must intersect in a common point.
The depth of sharpness can thus be increased by tilting the lens. At the full lens opening (without utilising any depth of field) all points on a common plane can be sharply focused at the same time even though they are at different distances from the camera.
The depth tilt indicator shows the required practical settings and distances to satisfy this Scheimpflug rule for overall sharpness.



2

What it is

Included in this brochure is a Scheimpflug indicator for the 80 mm lens (with distances in metres on one side and in feet on the other) and a transparent plate. Every interchangeable lens of the focal lengths of 50, 80, 120, 150 and 250 mm is supplied complete with an appropriate indicator.
When you cover the indicator with the transparent plate, it conveys visually the directions and angles of the camera and subject set-up on a reduced scale.
Three lines radiating out from the camera symbol represent the angle of view and optical axis in terms of the upper edge, centre and lower edge of the image. The subject distances are marked by concentric arcs.
The extensions of the arcs serve for reading off the vertical height of the camera above the object plane.
The dots below the camera correspond to the points of inter-section of the three planes and indicate the required tilting angle of the lens.
The blue line A of the transparent plate is used to represent the subject plane.
You can also check the depth of field in conjunction with the aperture curve of the indicator. For this purpose the lower three radiating lines on the transparent plate are used, together with the small circle and the star symbol.



3

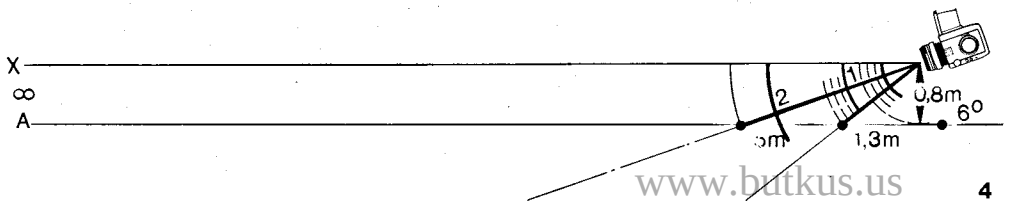
Using the Indicator

First example (3): The 80 mm lens is used for a subject extending from 1.3 to 5 metres (measured by focusing the near and far points of the subject on the screen).

Distance setting for the centre of the field: Use the blue line to join the 5 metre mark on the line X with the 1.3 metre mark on the line Z. Where the blue line cuts the optical axis Y, read off the required distance setting — here 2 metres.

The vertical height of the camera above the object plane: read off the distance value of the arc which just touches the blue line (1 metre). This shows that the centre of the lens must be 1 metre vertically above the subject plane.

Angle of tilt of the lens: Trace along the blue line to where it cuts the degree scale. As shown here, the lens must be tilted by 4°.



4

A Special Case: Far Limit at Infinity

Second example (4): The 80 mm lens has to cover a subject extending from 1.3 metres to infinity.

With the far limit at infinity, the point of intersection of the lines X and A is also at infinity. This is the condition for parallel lines, so the line A on the indicator must be also parallel to X.

Reading off under these conditions gives a distance setting of 2.5 metres, a vertical camera height of 0.8 metres and a lens tilt of 6°.

Depth of Field

With the lens simultaneously set to a number of subject distances we get an equal number of different depth of field zones. When using the depth tilt these zones cannot therefore be tabulated. However, the indicator shows visually the depth of field at one selected aperture.

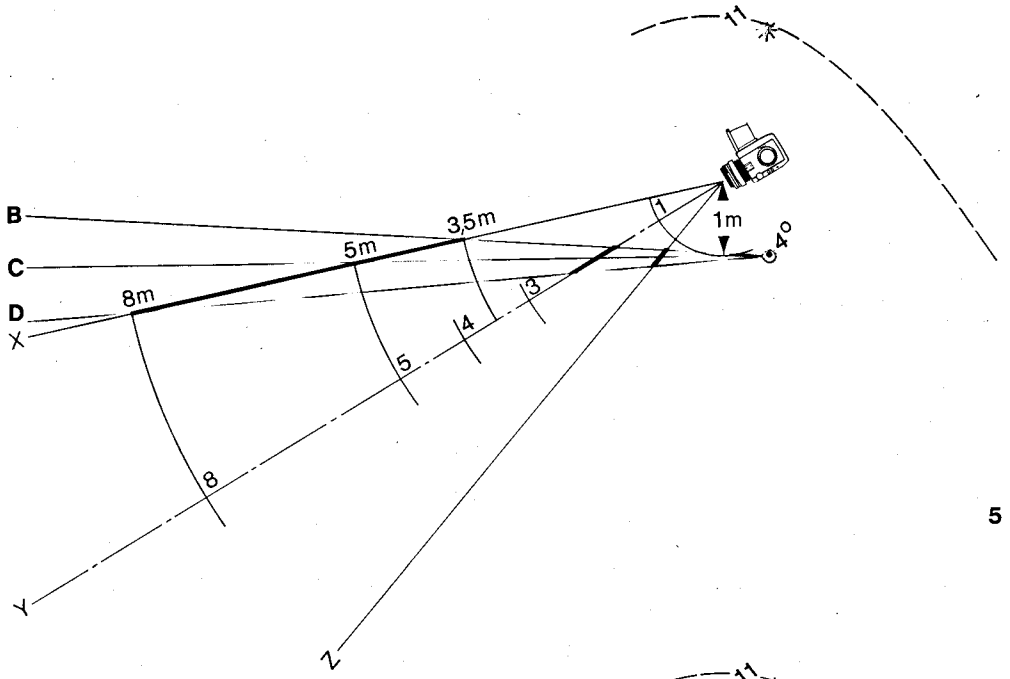
Instead of the line A, use the centre line C to represent the subject plane. Place it over the indicator in such a way that the circle covers the point representing the required tilt in degrees. The lines B and D then show the limit of the depth of field in front of and behind the subject plane. The aperture for which this is valid is shown by the small star.

Third example (5): The conditions are the same as for example No. 1, i. e. the 80 mm lens covers a subject extending from 1.3 to 5 metres.

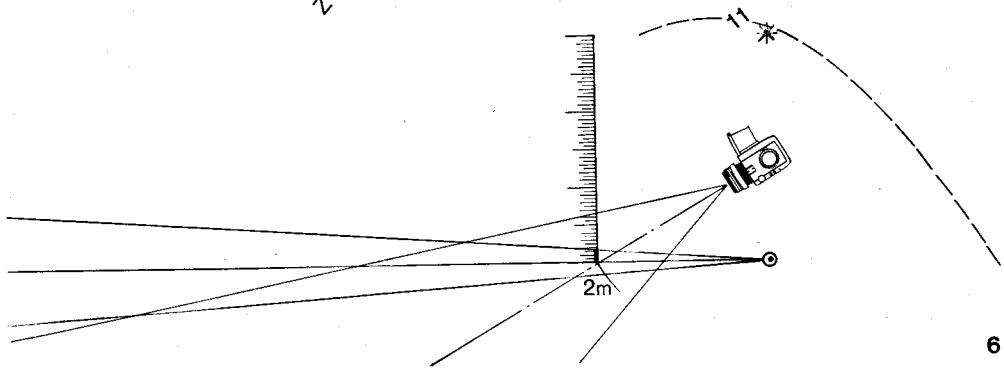
Aligning and reading off the line C gives the values already obtained. The circle covers the point for a 4° lens tilt. The small star touches the curve for an aperture of f/11. The lines B and D therefore show the limit of the depth of field at f/11.

As shown by the location of these lines, the depth of field zone is also inclined together with the sharply focused subject plane. The depth of field limit encloses the subject plane in space and increases with increasing distance. The direction and distance at which this depth of field gain is most useful will depend on the subject.

Depth of field gain along the camera direction (5): The different increases in the depth of field for the upper edge, centre and lower edge of the image can be read off directly, for example along line X: 3.5 to 8 metres.



5



6

Depth of field gain at right angles to the subject plane (6): More significant in practice is the maximum height of a subject (i. e. standing at right angles to the object plane) which will be reproduced sharply. Exact values are here obtained with a ruler, utilising the scale of reduction of the indicator:
Look up the base point of the object on the blue line C (for example for the centre of the field). Place the ruler at this point at right angles to the subject and read off the distance to the point of intersection with the line B (approximately 1.6 mm in the example). Multiplied with the reduction factor of 100 of the indicator this gives an admissible height of 16 cm for sharp reproduction. (With the indicator for the 250 mm lens the factor is 200.)

Depth of field at other apertures: The lines B and D of each indicator always define the zone of sharpness for one aperture (shown by the small star). To estimate the zone of sharpness at other apertures, double the angle between the lines B and D for double the f/number (for example when using f/22 instead of f/11).

Determining other distances: Since the visual arrangement of the indicator shows all distances reduced to the same scale, you can work out any other distance of the camera set-up by measuring with a ruler and multiplying by the reduction factor. (For example you get 4 metres for the overall length of the subject plane covered.) For every job the indicator therefore facilitates the choice of the best camera set-up.

Practical Applications

This procedure of extending the depth of sharpness is applicable to suitable subjects irrespective of their location in space: the floor, a table top, ceiling decorations, looking up or down at vertical house fronts, or a row of houses taken obliquely from the side. In this last case the camera is held sideways and the screen image observed from the side.
The ideal case is a completely flat plane. The (imaginary) subject plane can also be determined by individual significant points of a three-dimensional subject. Parts of the subject to either side of this plane are reproduced with acceptable sharpness as long as they lie within the depth of field zone.

When using the depth tilt, the lens is always tilted towards the subject plane. Also be sure to use the correct value for the vertical distance of the camera from the subject plane. When photographing a table top this distance is the camera height above the surface of the table; when photographing a ceiling it is the vertical distance from the camera to the ceiling. The camera height becomes equal to the height of the tripod on which it is mounted only when shooting obliquely down on to the floor.
To get an idea of the use of the indicator, practice first finding the correct settings for imaginary subject conditions. This will also give an idea of the scope of this procedure. You will find for instance that with the 80 mm lens, maximum lens tilt and a vertical distance of about 0.6 metres, the sharpness at full aperture can extend from infinity down to as near as 1 metre.
After some practice with actual subjects you will soon gain sufficient experience to control the coverage in depth even without the indicator. For example:

Focusing with the depth tilt: Select the subject field to be covered on the focusing screen. Focus the lens sharply on the subject in the centre of the image. Keep this distance setting fixed. Slowly tilt the lens and adjust the camera position so that the sharply focused centre of the subject remains in the centre of the screen. When the subject appears fully sharp also at the upper and lower edges of the screen, you have the correct lens tilt. Now turn the focusing knob slightly to and fro to check whether you really have the entire image focused for maximum sharpness.

Care of the Camera

The Rolleiflex SL 66 calls for the same care as any camera of which you expect long-term reliability. For cleaning use the following well-tried methods:
Remove dust with a soft camel hair brush or a rubber blower bulb. To clean lens surfaces, breathe on them and remove persistent dirt with a soft, dry and fluffless (frequently washed) rag. As an anti-static protection breathe on the glass surface but then let the deposited mistiness evaporate on its own.
Use special care in cleaning the Rolleiclear focusing screen: the embossed underside must only be treated with a soft brush or air blower. Protect this side especially against soiling and finger marks.
Protect the camera against the constant influence of harmful vapours or moisture.
The increased atmospheric humidity in tropical and sub-tropical areas represents a corrosion risk to metal parts, and can give rise to mould on leather surfaces and to fungus growth on glass surfaces. If at all possible, dry the camera frequently by fresh air and bright sun. Keep the magazine and surfaces in contact with the emulsion specially clean (gelatine fragments rubbed off the film are particularly likely to breed fungus). When not in use for longer periods keep the camera in a light-tight container together with silica gel cartridges. Store the leather eveready case separately. Particularly protect the camera against every kind of dirt.

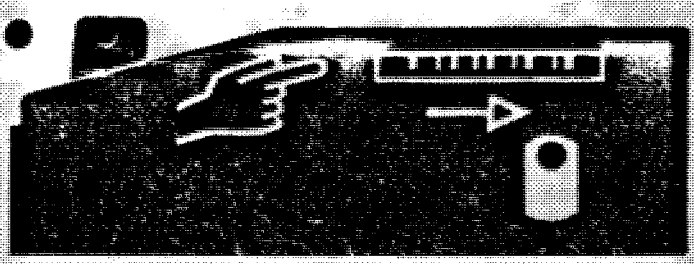
The Rolleiflex SL 66 and Accessories

We reserve the right to make any technical changes in the camera and its accessories.

Order No.	
560 014	Rolleiflex SL 66 with 80 mm Carl Zeiss Planar f/2.8, lens cap, No. 120/220 magazine, Rolleiclear with central micro prism, neck strap
560 010	Rolleiflex SL 66 body
560 012	Rolleiflex SL 66 body with No. 120/220 magazine
560 020	Rollei magazine No. 120/220 with protective cover
560 030	Ground glass focusing screen with case
560 040	Rolleiclear with case
560 050	Rolleiclear with prism rangefinder, in case
560 060	Spare Rolleiclear with central micro prism, in case
560 070	Spare neck strap
950 407	Eveready case
970 480	Outfit case for the Rolleiflex SL 66
979 210	50 mm Carl Zeiss Distagon f/4
979 220	80 mm Carl Zeiss Planar f/2.8
979 230	120 mm Carl Zeiss S-Planar f/5.6
979 240	150 mm Carl Zeiss Sonnar f/4
979 250	250 mm Carl Zeiss Sonnar f/5.6
979 260	500 mm Carl Zeiss Tele-Tessar f/5.6 (in preparation)
979 270	1000 mm Carl Zeiss Mirotar f/5.6
206 010	Lens hood for Distagon lens
206 020	Lens hood for Planar, S-Planar and Sonnar lenses
206 030	Medium yellow filter size VI
206 040	Green filter size VI
206 050	Orange filter size VI
206 060	Light red filter size VI
206 070	Infra-red filter size VI
206 080	R 1.5 colour conversion filter size VI
208 700	Tripod quick coupling
	Further accessories in preparation

Handling Faults and Remedies

Fault	Cause	Remedy
The slide of the magazine off the camera will not push in fully	Gear wheel (on the front of the magazine) moved with the slide pulled out	Half pull out the slide, and turn the gear wheel in the direction of the arrow until it locks
The magazine back will not close	Film insert wrongly located	Swing the insert into the magazine so that the two gear wheels match (see illustration on page 7)
The magazine will not attach to the camera	Crank not tensioned	Remove the magazine, and swing the crank fully forward and back
The magazine will not release from the camera	Slide not fully pushed in	Push the slide home to its full extent
The release button blocks After attaching the magazine: After advancing the loaded film to No. 1:	1. Release lock engaged 2. Magazine slide pushed in 3. Shutter not tensioned 4. Swing movement of crank only partially completed 5. Crank not tensioned before film loading	1. Turn the lock to free the release button 2. Pull out the slide 3. Move the crank forward and back 4. Remove the magazine (with the slide pushed in) and complete the crank operation 5. Press the lever near the crank base towards the crank handle and swing the crank fully forward and back
With the magazine on the camera the crank movement blocks before it is complete	Incomplete forward movement of the crank before attaching the magazine (result is loss of film frame)	Remove the magazine (with the slide pushed in) and complete the crank movement
The magazine knob will not turn after loading the film	Magazine knob pressed in too soon	Slightly open the magazine back (the knob springs out)
The to-and-fro crank movement cannot be completed	Magazine knob not pushed in after turning to stop	Push in the magazine knob and complete the crank movement
The screen image is not visible	Mirror pre-released	Either release to take the shot or return the mirror (page 12)
Lens will not swing up to the full 8°	Focusing screen frame protrudes forward	Remove focusing hood, push down the screen frame and slide it to its rear stop
Flash does not fire from the X outlet	Too fast shutter speed	Note the recommended shutter speeds (page 13)



Achtung
Bei abgenommenem Magazin und gezogenem Magazinschieber:
Am Zahnrad nicht drehen.
Vor Einsetzen des Schiebers und vor Ansetzen des Magazins an die Kamera muß Zahnrad stets in Pfeilrichtung bis zum Anschlag gedreht sein.

Caution
When the magazine is removed and the slide pulled out:
Do not turn the cog-wheel.
Before pushing in the slide and before attaching the magazine to the camera, the cog-wheel must always be turned in the direction of the arrow until it locks.

Attention
Si le chargeur est enlevé et le volet retiré:
Ne pas tourner la roue dentée.
Avant d'introduire le volet et d'appliquer le magasin à l'appareil, la roue dentée doit toujours être tournée en direction de la fleche jusqu'a la butée.

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