

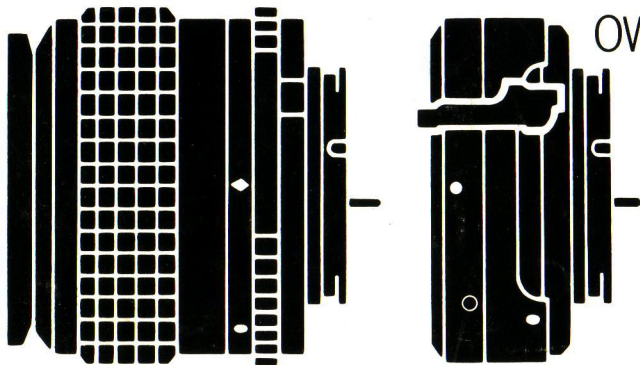
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MINOLTA 50MM F3.5
MC MACRO ROKKOR
ROKKOR-X



OWNER'S MANUAL



MAIN FEATURES

- This extremely useful lens focuses all the way from infinity to half-life-size images simply by turning its focusing ring. Used with the Life-Size Adapter, it produces images from half life size to life size (1:1). With extension tubes or bellows, it is fine for photomacrography at higher magnifications; using the lens reversed by means of the optional reverse ring, photomacrographs up to several times life size can be obtained.
- The 50mm f/3.5 MC Macro Rokkor (Rokkor-X) is designed for maximum resolution and minimum residual aberrations.
- It is fully coupled for full-aperture focusing and light measurement (with or without Life-Size Adapter) and automatic diaphragm operation.

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NAMES OF PARTS

2

Aperture compensation scale
(without Life-Size Adapter)

Aperture compensation index

Magnification scale
(without Life-Size Adapter)

Magnification scale
(using Life-Size Adapter)

Aperture compensation scale
(using Life-Size Adapter)

Focusing grip

Distance scale

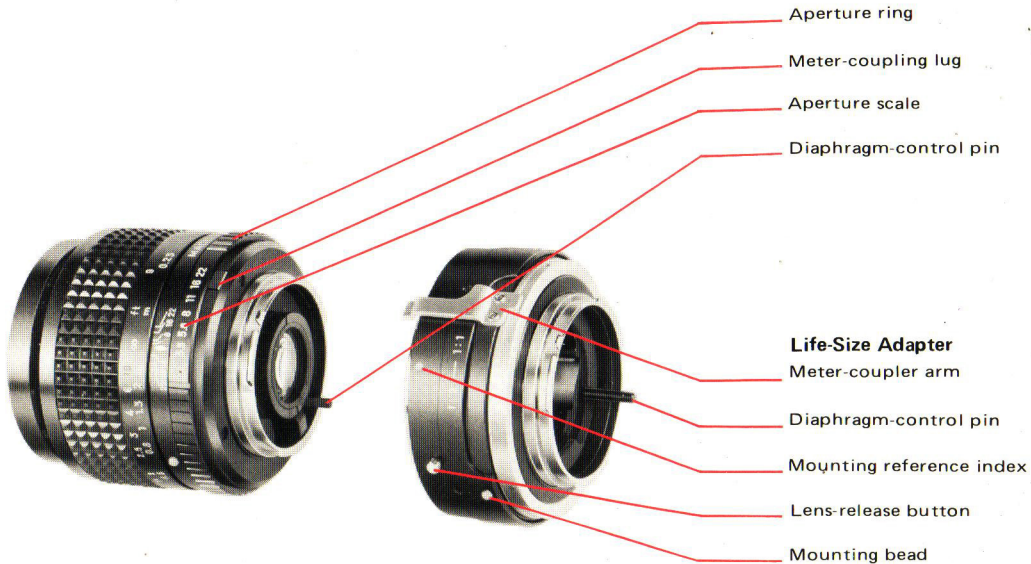
Mounting bead



Reverse Ring (Optional)

Mounting index





SPECIFICATIONS

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Type:	Meter-coupled Gauss-type macro lens
Construction:	6 elements in 4 groups
Angle of view:	47°
Coating:	Minolta Achromatic
Minimum focusing distance:	0.23m (9 in.) without Life-Size Adapter 0.20m (8 in.) with Life-Size Adapter
Magnification:	Lens only: Infinity to 0.5X Lens with Life-Size Adapter: 0.5X to 1X
Diaphragm:	Fully automatic, meter-coupled
Aperture scale:	3.5, 5.6, 8, 11, 16, 22 with intermediate click stops Aperture compensation indications (for use when not using TTL metering)
Focusing:	Double helicoid system
Filter thread diameter:	55mm
Dimensions and weight:	Lens: $\phi 64.5\text{mm} \times 55.5\text{mm}$ ($\phi 2\text{-}1/2'' \times 2\text{-}3/16''$) 220g (7-3/4 oz.) Life-Size Adapter: $\phi 64.5 \times 25.8\text{mm}$ ($\phi 2\text{-}1/2'' \times 1''$) 105g (3-7/10 oz.)

MAGNIFICATIONS OBTAINABLE WITH VARIOUS COMBINATIONS

Magnification	0X*	0.5X	1X	2X	3X	4X
Exposure factor (stops**)	1(0)	2(1)	4(2)	9(3)	16(4)	25(5)
Camera + Lens						
Camera + Lens + Life-Size Adapter						
Camera + Auto Bellows I + Lens		0.76X				3.48X
Camera + Auto Bellows I + Reverse Ring + Lens			1.64X			3.85X
Camera + Bellows III + Lens		0.70X				3.51X
Camera + Bellows III + Reverse Ring + Lens			1.58X			3.89X

* Camera focused at infinity (∞) setting

** i.e., number of stops lens must be opened over metered exposure

ATTACHING AND REMOVING (LENS, ADAPTER, AND RING)

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Like all Minolta SLR interchangeable lenses, the 50mm Macro Rokkor (Rokkor-X) is attached to the camera by aligning the red mounting index on lens and flange, inserting the bayonet into the socket, and turning the lens clockwise until it locks with a click.

Removal is accomplished by pushing the lens release button, turning the lens counterclockwise until the index are aligned again, and lifting it out of the socket.

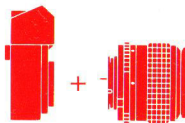
The same procedures are used in connecting and separating Life-Size Adapter and camera, lens and adapter, or lens or adapter and extension tubes or bellows, etc.

The reverse ring is first screwed into the threaded filter mount on the front of the lens barrel. Then the bayonet mount on the other side of the ring is installed and remove as above.

CAMERA + MC MACRO LENS

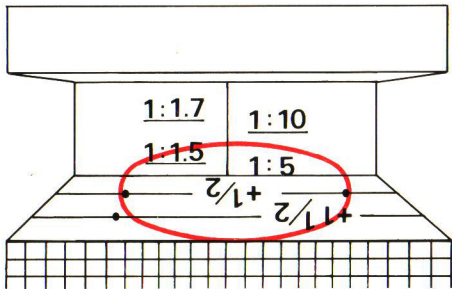
General photography from infinity (∞) and close-ups up to 1/2 life size (0.5X) are possible with this macro lens mounted on the camera in the usual way. It is thus convenient to photograph at usual magnifications and make pictures of such subjects as flowers or book pages at closer-than-usual distances simply and without any attachments.

With such through-the-lens-metering Minoltas as the SR-T 101, light is metered at full aperture and exposure set in the usual way. No compensation for the additional extension for close-ups is necessary.



CAMERA + LIFE-SIZE ADAPTER + LENS

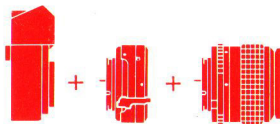
For such non-TTL cameras as the SR-1s, give the number of stops' extra exposure indicated by the white aperture compensation scale on the front rim of the focusing collar. For example, if the aperture-compensation index line between the magnification scales on the inner lens barrel comes between the two dots delimiting the "+1/2" zone on the white scale, open the lens by one half stop from the correct value as metered.



Attaching the Life-Size Adapter between the lens and camera permits taking close-ups at magnifications from 0.5X (1/2 life size) to 1:1 (life size) as easily as with only the lens alone.

Metering and exposure setting are done in the usual way with Minolta TTL SLR cameras, and no close-up compensation are necessary.

With non-TTL Minoltas, the normal lens opening for correct exposure is increased by the number of stops indicated by the orange aperture compensation scale at the focus setting to be used. See example at left page.



CAMERA + AUTO BELLOWS I OR BELLOWS III + LENS

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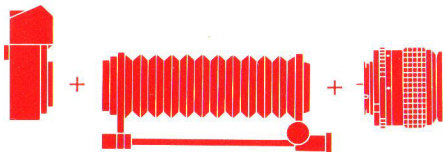
With one or the other of these bellows attached between lens and camera, close-ups and photomacrographs from about 0.7X to over 3X magnification can be made (with focus set at infinity).

With TTL-metering Minoltas, light is measured by pushing the camera's diaphragm stop-down button and taking a stop-down reading in the usual way after focusing. With the Auto Bellows I, the lens may then be reopened to full aperture to check focus, and diaphragm will close down automatically to the preset aperture at the moment of exposure. With the Bellows

III, diaphragm operation is not automatic, and lens must be left closed down to the aperture for proper exposure. Compensation for greater-than-normal lens-to-film distance is made automatically by the camera.

With non-TTL Minolta models, the same respective procedures as above are followed, but it is further necessary to adjust the normal lens opening as metered to compensate for the greater-than-normal extension of the lens.

The exposure factor used to do this is found by dividing the distance in millimeters between the front lens mount surfaces of camera body



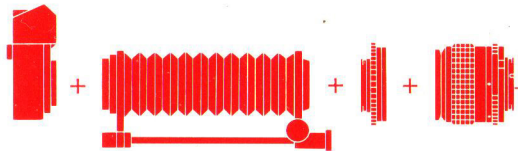
and bellows by 50, adding 1 to the result, and squaring this figure. For example, if the distance between the two mount surfaces measures 100mm, dividing this by 50 yields 2. Adding 1 to this equals 3, the square of which is 9, the number of times' the metered exposure necessary to produce proper exposure at this extension. Since each larger lens opening doubles the amount of light passed, the compensation needed can be supplied by opening the lens approximately 3 stops.

CAMERA + BELLOWS + REVERSE RING + LENS

For maximum image quality, the 50mm Macro Rokkor (Rokkor-X) should be turned end for end and used with the optional reverse ring whenever possible at magnifications greater than 1X. (For attaching and removing instructions, see page 6.)

Used with either the Bellows III or Auto Bellows I in its reversed position, the lens' auto diaphragm cannot operate, and it must thus be stopped down to the shooting aperture for proper exposure.

With Minolta TTL SLR's, exposure compensation is automatic, as indicated before. With non-TTL Minolta SLR's, the applicable exposure factor must be calculated and the aperture set accordingly; see example on the preceding page.



DEPTH-OF-FIELD TABLE

IN FEET

10

F.No. Dist. ft.	3.5	4	5.6	8	11	16	22
∞	74' 12"	65' 7"	46' 5"	32' 11"	23' 4"	16' 6"	11' 9"
10	11' 6" 8' 10 1/2"	11' 8" 8' 8 7/8"	12' 7" 8' 3 3/8"	14' 2" 7' 9 1/8"	17' 1" 7' 1 1/4"	24' 3" 6' 4 1/4"	60' 0" 5' 6 1/4"
6	6' 5 3/4" 5' 7 1/8"	6' 6 5/8" 5' 6 1/2"	6' 9 3/4" 5' 4 3/8"	7' 2 5/8" 5' 1 3/4"	7' 10 5/8" 4' 10 1/4"	9' 1 1/4" 4' 5"	11' 7" 4' 0"
4	4' 2 3/8" 3' 9 7/8"	4' 2 3/4" 3' 9 5/8"	4' 3 3/8" 3' 8 5/8"	4' 5 3/4" 3' 7 3/8"	4' 8 5/8" 3' 5 3/4"	5' 1 1/4" 3' 3 5/8"	5' 9 1/4" 3' 1"
3	3' 1 1/4" 2' 10 1/8"	3' 1 1/4" 2' 10 3/4"	3' 2" 2' 10 1/4"	3' 3" 2' 9 1/2"	3' 4 3/8" 2' 8 1/2"	3' 6 5/8" 2' 7 1/4"	3' 10 1/4" 2' 5 5/8"
2.5	2' 6 3/4" 2' 5 1/4"	2' 6 7/8" 2' 5 1/4"	2' 7 3/8" 2' 4 3/4"	2' 8" 2' 4 1/4"	2' 8 7/8" 2' 3 5/8"	2' 10 1/4" 2' 2 3/4"	3' 3/8" 2' 1 5/8"
2	2' 1 1/2" 1' 11 1/2"	2' 5/8" 1' 11 3/8"	2' 7/8" 1' 11 1/4"	2' 1 1/4" 1' 10 7/8"	2' 1 7/8" 1' 10 3/8"	2' 2 3/4" 1' 9 7/8"	2' 4 1/4" 1' 9"
1.75	1' 9 3/8" 1' 8 5/8"	1' 9 3/8" 1' 8 5/8"	1' 9 5/8" 1' 8 3/8"	1' 9 7/8" 1' 8 1/4"	1' 10 3/8" 1' 7 7/8"	1' 11" 1' 7 3/8"	1' 11 7/8" 1' 6 3/4"
1.5	1' 6 1/2" 1' 5 3/4"	1' 6 1/4" 1' 5 1/4"	1' 6 3/8" 1' 5 5/8"	1' 6 5/8" 1' 5 3/8"	1' 6 7/8" 1' 5 1/4"	1' 7 3/8" 1' 4 7/8"	1' 8" 1' 4 3/8"
1.25	1' 3 7/8" 1' 2 7/8"	1' 3 1/8" 1' 2 5/8"	1' 3 1/4" 1' 2 3/4"	1' 3 3/8" 1' 2 5/8"	1' 3 5/8" 1' 2 1/2"	1' 3 7/8" 1' 2 1/4"	1' 4 1/4" 1' 2"
1	1 11 7/8"	1 11 7/8"	1 11 1/8"	1 11 3/4"	1 11 1/4"	1 11 1/2"	1 11 5/8"
10(in.)	10" 10"	10" 10"	10 1/8" 9 7/8"	10 1/8" 9 7/8"	10 1/8" 9 7/8"	10 1/4" 9 3/4"	10 3/8" 9 3/8"
9(in.)	9" 9"	9" 9"	9" 9"	9 1/8" 8 7/8"	9 1/8" 8 7/8"	9 1/8" 8 7/8"	9 1/4" 8 3/4"

IN METERS

F.No. Dist. m	3.5	4	5.6	8	11	16	22
∞	30^{∞}	20^{∞}	14^{∞}	10^{∞}	7^{∞}	5^{∞}	3.6^{∞}
3	3.4 2.7	3.5 2.6	3.8 2.5	4.2 2.3	5.1 2.1	7.1 1.9	16.6 1.7
2	2.2 1.9	2.2 1.8	2.3 1.8	2.5 1.7	2.7 1.6	3.2 1.5	4.3 1.3
1.3	1.4 1.2	1.4 1.2	1.4 1.2	1.5 1.2	1.7 1.1	1.7 1.1	1.9 1.0
1	1.0 0.96	1.0 0.96	1.1 0.94	1.1 0.92	1.1 0.89	1.2 0.86	1.3 0.81
0.8	0.82 0.78	0.83 0.78	0.84 0.77	0.86 0.75	0.88 0.73	0.92 0.71	0.98 0.68
0.6	0.61 0.59	0.62 0.59	0.62 0.58	0.63 0.57	0.65 0.56	0.68 0.55	0.70 0.53
0.5	0.51 0.49	0.51 0.49	0.51 0.49	0.52 0.49	0.53 0.48	0.54 0.46	0.56 0.45
0.4	0.41 0.40	0.41 0.39	0.41 0.39	0.41 0.39	0.42 0.38	0.43 0.38	0.44 0.37
0.35	0.354 0.346	0.354 0.346	0.356 0.344	0.359 0.342	0.363 0.338	0.368 0.334	0.376 0.328
0.3	0.303 0.298	0.303 0.297	0.304 0.296	0.306 0.294	0.308 0.292	0.312 0.289	0.317 0.285
0.25	0.251 0.249	0.252 0.248	0.252 0.248	0.253 0.247	0.255 0.245	0.257 0.244	0.260 0.241
0.23	0.231 0.229	0.231 0.229	0.232 0.228	0.233 0.228	0.234 0.227	0.235 0.225	0.237 0.223

ACCESSORIES FOR CLOSE-UPS AND PHOTOMACROGRAPHY

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Extension Tube Set II

This set of five tubes can be used in various combinations to increase magnification by lengthening the lens-to-film distance.

MC Auto Extension Tubes

When these fully coupled tubes are used with Minolta TTL SLR's and MC Rokkor (Rokkor-X) Lenses, metering and focusing are at full aperture, and the lens stops down only at the instant of exposure.

Bellows III

Continuous calibrated extension between lens and film at higher magnifications is provided by this bellows.

Auto Bellows I

Diaphragm operation with MC Lenses is automatic with this deluxe, double-track bellows, which enables magnifications similar to the one above.

Angle Finder V

This unit rotates to allow focusing from any point around a full circle at right angles to the usual viewing position.

Magnifier V

This accessory is useful to obtain the precise focusing required in making close-ups, copies, and photomacrographs.

Copy Stand II

A rigid camera support that assures maximum stability, this unit is highly recommended when photographing either flat or three-dimensional objects.

Cable Release

This very flexible release threads directly into the shutter-release button.

CARE AND STORAGE

Whisk loose matter off lens surfaces with a blower lens brush and then wipe them with a soft, clean cloth if necessary.

Store away from heat, high humidity, and harmful chemicals and vapors. Always keep the lens capped and in its case when not in use.

NOTE:

In doing close-ups and photomacrography, it is particularly important to focus precisely and to use a steady camera support and cable release to avoid camera movement.

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