



NIPPON KOGAKU K.K.

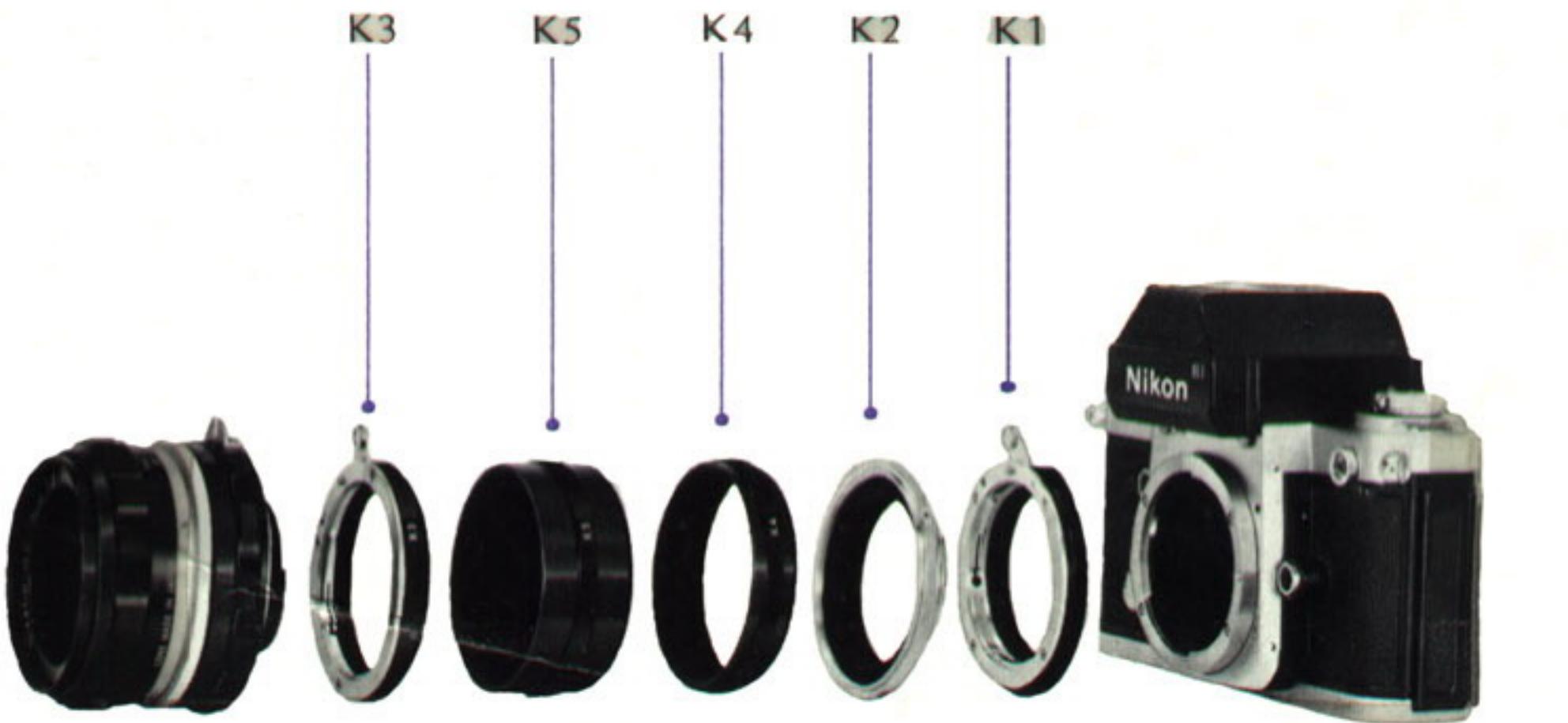
Printed in Japan (77.3.C)&-20

Nikon
**EXTENSION
RING
Set**

A large, bold, dark blue letter "K" is positioned to the right of the main title, partially overlapping it. The "K" has a thick, slightly slanted stroke and a white interior.

INSTRUCTION MANUAL

Nomenclature



Contents

Foreword	3
Ranges of reproduction ratio	4
Choosing the right combination	5
Mounting the rings	8
Exposure determination	12
With built-in TTL meter	
With non-TTL meters	
Combining the rings with other accessories	14
Tips for better closeups	15
Features/specifications	30

Foreword

The extension ring set K consists of five rings of different lengths which fit between the camera and lens either singly or in combination to provide a choice of nine different lens extensions ranging from 5.8mm to 46.6mm. This lets you take closeup shots at reproduction ratios ranging from 1:8.9 to 1:1 lifesize (with the Nikkor Auto 50mm f/2 lens). The rings can be used with any Nikkor lens and can be combined with other closeup equipment for higher magnifications.

Ranges of Reproduction Ratio

The K Ring set can be used with any Nikkor lens, but reproduction ratio increases as the focal length of the lens decreases and the lens-to-film distance increases. The tables on pages 16-29 show the ranges of reproduction ratio, focused distance and subject field possible with different lenses and ring combinations.

The ranges of reproduction ratios possible with the nine different ring combinations are determined by the focusing movement of the lens. Lower ratios are obtained when the lens is focused at infinity and higher ones when it is focused at its closest focusing distance.

Reproduction Ratio

Reproduction ratio is the ratio of the image size recorded on film to the actual size of the subject. At life-size reproduction, for example, it is 1:1. Furthermore, the subject and image sizes are proportional to their respective distances from the lens. If lens-to-film distance increases, lens-to-subject distance decreases.

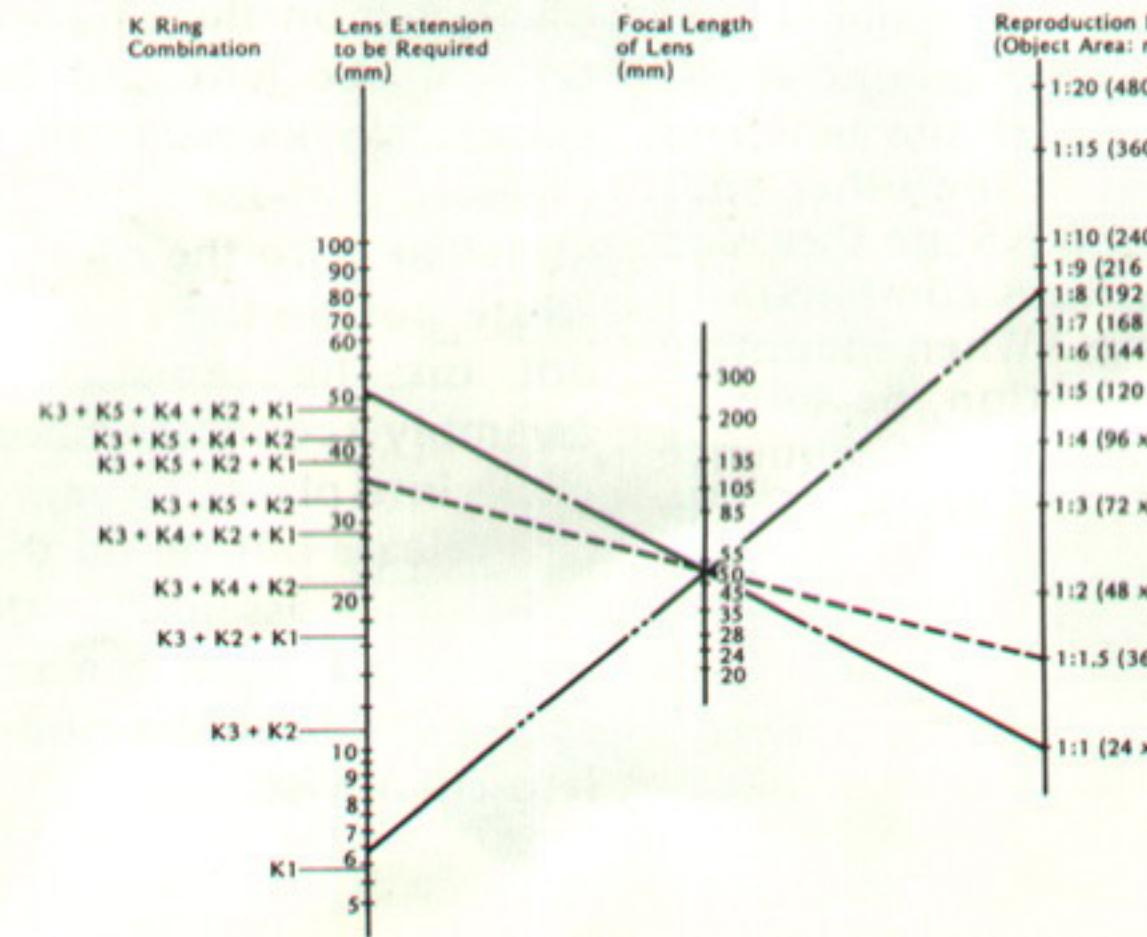
Choosing the Right Combination

Once you have decided on the approximate reproduction ratio you want to shoot at, the nomograph on page 7 will help you find the right combination of rings to use with your lens. First draw a line from the desired reproduction ratio in the right-hand column to the focal length of your lens (middle column). Extend the line into the left-hand column to find the amount of lens-to-film extension required for the desired reproduction ratio. Then select the ring or combination of rings indicated for that extension value in the left-hand column.

Choosing the Right Combination—continued

Slight losses in ring extension can be made up by turning the focusing ring on the lens. For example, if you want to take a photograph at a reproduction ratio of 1:1.5 using the 50mm f/2 lens, the required lens extension is found to be 34mm. A combination of K3, K5 and K2 gives a total extension of 30.8mm. To compensate for the slight loss of 3.2mm in the ring extension, turn the focusing ring of the lens.

Nomograph for a proper K Ring combination when the reproduction ratio and the lens used are known



Mounting the Rings

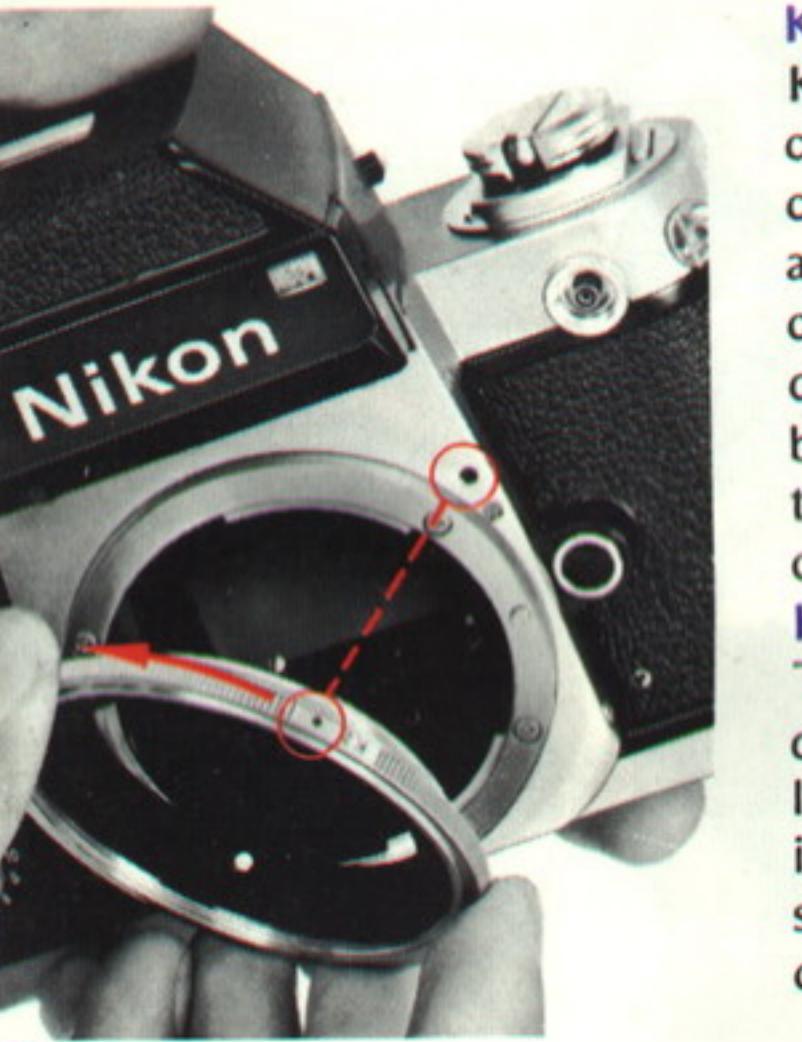
The set consists of five rings. K1 has a bayonet mount at either end for mounting between the camera and lens. K2 has a bayonet mount at the camera end and K3 at the lens end, with screw threads at the other ends. Both ends of K4 and K5 are threaded for mounting in various combinations with the other rings. When mounting the rings in combination, be sure to line them up in the correct sequence as shown in the tables on pages 16–29.

K1 Ring

To attach K1 to the lens, align the black dot on the ring with the black dot on the lens and twist the lens counterclockwise until it clicks into place. To mount the lens with K1 attached onto the camera, line up the white dot on the ring with the black dot on the camera and twist the assembly counterclockwise until it clicks into place. To remove, press the lens release button on the camera and twist the assembly clockwise. To remove K1 from the lens, press the spring catch on the ring and twist the lens clockwise.



Mounting the Rings -continued



K2 Ring

K2 has three holes to fit the pin on the camera (or on the K1 ring) so that the lens can be positioned for easy reading of the aperture scale. When mounting K2 on the camera body or on K1, line up the indicator dot nearest the appropriate holes with the black dot on the camera (or K1 ring) and twist the ring counterclockwise until it clicks into place.

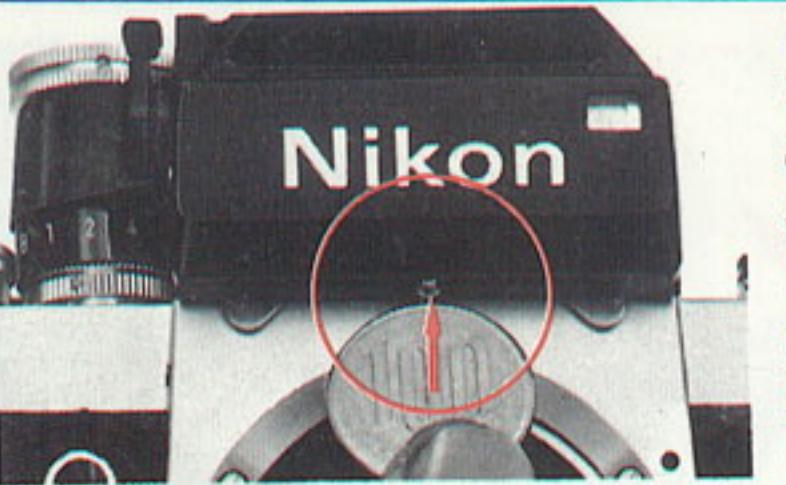
K3 Ring

To attach K3 to the lens, line up the black dot on the ring with the black dot on the lens and turn the lens counterclockwise until it clicks into place. To remove, depress the spring catch on K3 and turn the lens clockwise.



Note: When storing the K Rings in the leather case, line them up so that the spring catches point in the same direction.

Exposure Determination



For Photomic-series cameras



For Nikkormat cameras

With Built-In TTL Meter

When the K rings are mounted between the camera and lens, direct coupling of the lens diaphragm with the meter is lost. However, Nikkormat or Photomic-series TTL meters can still be used for exposure determination by the stop-down method. First, push the coupling pin up into the Photomic finder with a coin or similar object (with Nikkormat cameras, push the coupling pin to the right as far as it will go). Mount the lens/ring combination on the camera and switch on the meter in the usual way. The next procedure for each camera is as follows:

Nikon F2 Photomic, Nikon Photomic FT_N, Nikkormat FT2 and Nikkormat FT_N cameras

Select the desired shutter speed and stop down the lens manually until the meter needle in the viewfinder is centered.

Nikon F2S Photomic camera

Select the desired shutter speed and stop down the lens manually until the two signal lights glow.

Nikkormat EL camera

Set the shutter-speed dial at "A" (Automatic) and turn the aperture ring until the black needle in the viewfinder indicates a shutter speed appropriate to the subject.

With Non-TTL Meters

If a separate light meter is used, exposure compensation will be necessary at reproduction ratios greater than 1:10. Exposure factors can be obtained from the close-up tables on pages 16~29.

Combining the Rings with Other Accessories



For greater reproduction ratios, the K Ring set can be combined with other closeup accessories such as bellows focusing attachments, E2 Ring etc. For example, the E2 Ring not only gives an extra 14mm lens extension but also permits semi-automatic diaphragm control with Nikkor Auto lenses. The close-up attachment lenses can also be screwed onto the front of the lens. However, the lens should be stopped down for critical work.

Tips for Better Closeups

- In closeup and macrophotography every camera vibration is magnified many times. Even the slightest camera movement results in blurred images. For best results, mount the whole setup on a rigid tripod or support and use a cable release to trip the shutter. Also screw each ring tight.
- At extremely close working distances, depth of field decreases to the actual focused distance. This can be partially compensated for by stopping down the lens. But at very close distances an extremely narrow depth of field is inevitable. Careful placement of the subject, if it has depth, will be necessary to ensure that the important surfaces will be in the same zone of sharpness.
- For critical work, stop down the lens to at least f/8 for better depth of field.

Nikkor 20mm f/4

Left figures: Lens set at ∞

Right figures: Lens set at the closest focusing distance

Extension ring	Reproduction ratio	Subject area in. cm	Subject distance in. cm	Exposure factor
None	1/ ∞ – 1/11X	$\infty \times \infty$ – 10.4 x 15.5 $\infty \times \infty$ – 26.3 x 39.4	∞ – 11.8 ∞ – 30.0	1.0 – 1.1
K1	1/3.5 – 1/2.7	3.3 x 5.0 – 2.5 x 3.8 8.4 x 12.7 – 6.4 x 9.6	5.9 – 5.2 15.1 – 13.3	1.3 – 1.3
K3 + K2	1/1.9 – 1/1.6	1.8 x 2.7 – 1.5 x 2.3 4.5 x 6.8 – 3.9 x 5.8	4.8 – 4.6 12.2 – 11.7	1.5 – 1.6
K3 + K2 + K1	1/1.2 – 1/1.1	1.2 x 1.7 – 1.0 x 1.6 2.9 x 4.4 – 2.7 x 4.0	4.5 – 4.4 11.5 – 11.2	1.8 – 1.9
K3 + K4 + K2	1.0 – 1.1	0.93 x 1.4 – 0.85 x 1.3 2.4 x 3.5 – 2.2 x 3.2	4.5 – 4.5 11.4 – 11.5	2.1 – 2.2
K3 + K4 + K2 + K1	1.3 – 1.4	0.72 x 1.1 – 0.68 x 1.0 1.8 x 2.8 – 1.7 x 2.6	4.5 – 4.6 11.5 – 11.7	2.4 – 2.5
K3 + K5 + K2	1.5 – 1.6	0.62 x 0.94 – 0.59 x 0.88 1.6 x 2.4 – 1.5 x 2.2	4.6 – 4.7 11.7 – 11.9	2.7 – 2.8
K3 + K5 + K2 + K1	1.8 – 1.9	0.52 x 0.79 – 0.50 x 0.75 1.3 x 2.0 – 1.3 x 1.9	4.8 – 4.8 12.1 – 12.3	3.1 – 3.2
K3 + K5 + K4 + K2	2.0 – 2.1	0.47 x 0.71 – 0.45 x 0.68 1.2 x 1.8 – 1.1 x 1.7	4.9 – 5.0 12.4 – 12.6	3.4 – 3.5
K3 + K5 + K4 + K2 + K1	2.3 – 2.4	0.41 x 0.62 – 0.40 x 0.60 1.1 x 1.6 – 1.0 x 1.5	5.1 – 5.1 12.9 – 13.1	3.8 – 4.0

Nikkor 24mm f/2.8

Left figures: Lens set at ∞

Right figures: Lens set at the closest focusing distance

Extension ring	Reproduction ratio	Subject area in. cm	Subject distance in. cm	Exposure factor
None	1/ ∞ – 1/9.1X	$\infty \times \infty$ – 8.5 x 12.8 $\infty \times \infty$ – 21.7 x 32.6	∞ – 11.8 ∞ – 30.0	1 – 1.1
K1	1/4.1 – 1/2.8	3.9 x 5.9 – 2.7 x 4.0 9.9 x 14.9 – 6.8 x 10.2	7.3 – 6.2 18.5 – 15.7	1.2 – 1.3
K3 + K2	1/2.2 – 1/1.8	2.1 x 3.1 – 1.7 x 2.5 5.3 x 8.0 – 4.3 x 6.4	5.7 – 5.3 14.4 – 13.6	1.4 – 1.5
K3 + K2 + K1	1/1.5 – 1/1.3	1.4 x 2.0 – 1.2 x 1.8 3.5 x 5.2 – 3.0 x 4.5	5.2 – 5.1 13.1 – 12.9	1.6 – 1.7
K3 + K4 + K2	1/1.2 – 1	1.1 x 1.7 – 0.98 x 1.5 2.8 x 4.2 – 2.5 x 3.7	5.1 x 5.1 12.9 x 12.8	1.8 – 1.9
K3 + K4 + K2 + K1	1.1 – 1.2	0.87 x 1.3 – 0.79 x 1.2 2.2 x 3.2 – 2.0 x 3.0	5.1 – 5.1 12.8 – 12.9	2 – 2.1
K3 + K5 + K2	1.3 – 1.4	0.75 x 1.1 – 0.67 x 1.0 1.9 x 2.8 – 1.7 x 2.6	5.1 – 5.2 13.0 – 13.1	2.2 – 2.3
K3 + K5 + K2 + K1	1.5 – 1.6	0.63 x 0.94 – 0.59 x 0.87 1.6 x 2.4 – 1.5 x 2.2	5.2 – 5.2 13.2 – 13.3	2.5 – 2.6
K3 + K5 + K4 + K2	1.7 – 1.8	0.55 x 0.83 – 0.51 x 0.79 1.4 x 2.1 – 1.3 x 2.0	3.3 – 5.4 13.5 – 13.7	2.7 – 2.9
K3 + K5 + K4 + K2 + K1	1.9 – 2.1	0.47 x 0.75 – 0.47 x 0.71 1.2 x 1.9 – 1.2 x 1.8	5.4 – 5.6 13.8 – 14.2	3 – 3.1

Nikkor 28mm f/2, 28mm f/2.8, 28mm f/3.5, 28mm f/4 PC

Left figures: Lens set at ∞

Right figures: Lens set at the closest focusing distance

Extension ring	Reproduction ratio	Subject area in. cm	Subject distance in. cm	Exposure factor
None	1/ ∞ – 1/7.2X	$\infty \times \infty$ – 6.8 x 10.1 $\infty \times \infty$ – 17.2 x 25.7	∞ – 11.6 ∞ – 29.6	1 – 1.2
K1	1/4.9 – 1/2.9	4.7 x 7.0 – 2.8 x 4.1 11.8 x 17.8 – 7.0 x 10.5	9.4 – 7.1 23.8 – 18.1	1.2 – 1.3
K3 + K2	1/2.7 – 1/1.9	2.5 x 3.8 – 1.8 x 2.7 6.4 x 9.5 – 4.7 x 7.0	7.0 – 6.2 17.8 – 15.8	1.3 – 1.5
K3 + K2 + K1	1/1.7 – 1/1.4	1.6 x 2.4 – 1.3 x 2.0 4.1 x 6.2 – 3.3 x 5.0	6.2 – 5.8 15.8 – 14.8	1.6 – 1.7
K3 + K4 + K2	1/1.4 – 1/1.2	1.3 x 1.9 – 1.1 x 1.6 3.3 x 5.0 – 2.8 x 4.2	6.0 – 5.7 15.2 x 14.5	1.7 – 1.9
K3 + K4 + K2 + K1	1/1.1 – 1.1	1.0 x 1.5 – 0.88 x 1.3 2.6 x 3.9 – 2.2 x 3.4	5.9 – 5.7 14.9 x 14.5	1.9 – 2.1
K3 + K5 + K2	1.1 – 1.2	0.87 x 1.3 – 0.77 x 1.2 2.2 x 3.3 – 2.0 x 3.0	5.9 – 5.7 14.8 x 14.6	2.1 – 2.3
K3 + K5 + K2 + K1	1.3 – 1.4	0.74 x 1.1 – 0.66 x 0.99 1.9 x 2.8 – 1.7 x 2.5	5.9 – 5.8 15.1 – 14.8	2.4 – 2.6
K3 + K5 + K4 + K2	1.4 – 1.6	0.66 x 0.99 – 0.60 x 0.90 1.7 x 2.5 – 1.5 x 2.3	6.0 – 5.9 15.2 – 15.1	2.6 – 2.7
K3 + K5 + K4 + K2 + K1	1.6 – 1.8	0.57 x 0.87 – 0.53 x 0.79 1.5 x 2.2 – 1.4 x 2.0	6.1 – 6.1 15.6 – 15.4	2.8 – 3.0

Nikkor 35mm f/1.4

Left figures: Lens set at ∞

Right figures: Lens set at the closest focusing distance

Extension ring	Reproduction ratio	Subject area in. cm	Subject distance in. cm	Exposure factor
None	1/ ∞ – 1/5.6X	$\infty \times \infty$ – 5.3 x 7.9 $\infty \times \infty$ – 13.4 x 20.1	∞ – 11.5 ∞ – 29.4	1 – 1.1
K1	1/6.2 – 1/2.9	5.8 x 8.6 – 2.8 x 4.1 14.8 x 21.9 – 7.0 x 10.4	12.8 – 8.0 32.6 – 20.4	1.1 – 1.2
K3 + K2	1/3.3 – 1/2.1	3.1 x 4.6 – 2.0 x 2.9 8.0 x 11.7 – 5.0 x 7.4	8.9 – 7.0 22.7 – 17.9	1.2 – 1.4
K3 + K2 + K1	1/2.2 – 1/1.5	2.0 x 3.0 – 1.5 x 2.2 5.2 x 7.7 – 3.7 x 5.5	7.5 – 6.6 19.1 – 16.7	1.3 – 1.5
K3 + K4 + K2	1/1.7 – 1/1.3	1.6 x 2.4 – 1.2 x 1.8 4.2 x 6.1 – 3.1 x 4.7	7.0 – 6.4 17.9 – 16.2	1.4 – 1.6
K3 + K4 + K2 + K1	1/1.4 – 1/1.1	1.3 x 1.9 – 1.0 x 1.5 3.2 x 4.8 – 2.6 x 3.9	6.8 – 6.3 17.2 – 16.0	1.6 – 1.7
K3 + K5 + K2	1/1.2 – 1.1	1.1 x 1.6 – 0.90 x 1.4 2.8 x 4.1 – 2.3 x 3.4	6.7 – 6.3 16.9 – 16.1	1.7 – 1.8
K3 + K5 + K2 + K1	1.0 – 1.2	0.93 x 1.4 – 0.78 x 1.2 2.4 x 3.5 – 2.0 x 3.0	6.6 – 6.3 16.8 – 16.2	1.8 – 2.0
K3 + K5 + K4 + K2	1.1 – 1.3	0.83 x 1.2 – 0.71 x 1.1 2.1 x 3.1 – 1.8 x 2.7	6.7 – 6.4 16.9 – 16.3	1.9 – 2.1
K3 + K5 + K4 + K2 + K1	1.3 – 1.5	0.72 x 1.1 – 0.63 x 0.94 1.9 x 2.7 – 1.6 x 2.4	6.7 – 6.5 17.1 – 16.6	2.1 – 2.3

Nikkor 35mm f/2, 35mm f/2.8

Left figures: Lens set at ∞

Right figures: Lens set at the closest focusing distance

Extension ring	Reproduction ratio	Subject area in. cm	Subject distance in. cm	Exposure factor
None	1/ ∞ – 1/5.7X	$\infty \times \infty$ – 5.4 x 8.0 $\infty \times \infty$ – 13.6 x 20.4	∞ – 11.8 ∞ – 30.0	1 – 1.2
K1	1/6.2 – 1/3	5.9 x 8.8 – 2.8 x 4.2 14.9 x 22.3 – 7.1 x 10.7	12.5 – 8.5 31.9 – 20.8	1.2 – 1.4
K3 + K2	1/3.3 – 1/2.1	3.1 x 4.7 – 2.0 x 3.0 8.0 x 12.0 – 5.0 x 7.6	8.7 – 7.2 22.0 – 18.2	1.4 – 1.7
K3 + K2 + K1	1/2.2 – 1/1.6	2.0 x 3.1 – 1.5 x 2.2 5.2 x 7.8 – 3.8 x 5.6	7.3 – 6.7 18.4 – 16.9	1.6 – 1.9
K3 + K4 + K2	1/1.7 – 1/1.3	1.7 x 2.4 – 1.3 x 1.9 4.2 x 6.2 – 3.2 x 4.8	6.8 – 6.5 17.3 – 16.5	1.8 – 2.1
K3 + K4 + K2 + K1	1/1.4 – 1/1.1	1.3 x 1.9 – 1.0 x 1.5 3.2 x 4.9 – 2.6 x 3.9	6.5 – 6.4 16.5 – 16.2	2.1 – 2.4
K3 + K5 + K2	1/1.2 – 1	1.1 x 1.7 – 0.91 x 1.4 2.8 x 4.2 – 2.3 x 3.5	6.4 – 6.4 16.3 – 16.2	2.3 – 2.6
K3 + K5 + K2 + K1	1 – 1.2	0.94 x 1.4 – 0.83 x 1.2 2.4 x 3.5 – 2.0 x 3.0	6.4 – 6.4 16.2 – 16.3	2.6 – 2.9
K3 + K5 + K4 + K2	1.1 – 1.3	0.83 x 1.3 – 0.71 x 1.1 2.1 x 3.2 – 1.8 x 2.7	6.4 – 6.5 16.2 – 16.4	2.8 – 3.2
K3 + K5 + K4 + K2 + K1	1.3 – 1.5	1.75 x 1.1 – 0.63 x 0.95 1.9 x 2.8 – 1.6 x 2.4	6.5 – 6.6 16.4 – 16.7	3.2 – 3.5

Nikkor 50mm f/1.4

Left figures: Lens set at ∞

Right figures: Lens set at the closest focusing distance

Extension ring	Reproduction ratio	Subject area in. cm	Subject distance in. cm	Exposure factor
None	1/ ∞ – 1/6.8X	$\infty \times \infty$ – 6.5 x 9.6 $\infty \times \infty$ – 16.4 x 24.6	∞ – 17.4 ∞ – 45.0	1.0 – 1.2
K1	1/8.9 – 1/3.9	8.4 x 12.6 – 3.7 x 5.5 21.4 x 32.0 – 9.3 x 13.9	21.8 – 11.6 55.4 – 29.4	1.1 – 1.3
K3 + K2	1/4.8 – 1/2.8	4.5 x 6.8 – 2.7 x 4.0 11.4 x 17.2 – 6.8 x 10.1	13.6 – 9.6 34.6 – 24.5	1.3 – 1.4
K3 + K2 + K1	1/3.1 – 1/2.1	2.9 x 4.4 – 2.0 x 3.0 7.5 x 11.1 – 5.1 x 7.7	10.5 – 8.5 26.6 – 21.6	1.4 – 1.6
K3 + K4 + K2	1/2.5 – 1/1.8	2.3 x 3.5 – 1.7 x 2.6 6.0 x 8.9 – 4.4 x 6.6	9.4 – 8.0 23.8 – 20.4	1.5 – 1.7
K3 + K4 + K2 + K1	1/1.9 – 1/1.5	1.8 x 2.7 – 1.4 x 2.1 4.7 x 7.0 – 3.6 x 5.4	8.5 – 7.6 21.6 – 19.3	1.7 – 1.9
K3 + K5 + K2	1/1.7 – 1/1.3	1.6 x 2.4 – 1.3 x 1.9 4.0 x 6.0 – 3.2 x 4.9	8.1 – 7.4 20.6 – 18.9	1.8 – 2.0
K3 + K5 + K2 + K1	1/1.4 – 1/1.2	1.3 x 2.0 – 1.1 x 1.7 3.4 x 5.1 – 2.8 x 4.2	7.8 – 7.3 19.8 – 18.6	2.0 – 2.2
K3 + K5 + K4 + K2	1/1.3 – 1/1.1	1.2 x 1.8 – 1.0 x 1.5 3.0 x 4.6 – 2.6 x 3.8	7.7 – 7.3 19.5 – 18.5	2.1 – 2.4
K3 + K5 + K4 + K2 + K1	1/1.1 – 1.1	1.0 x 1.6 – 0.90 x 1.4 2.7 x 4.0 – 2.3 x 3.4	7.4 – 7.3 19.3 – 18.5	2.3 – 2.6

Nikkor 50mm f/2

Left figures: Lens set at ∞

Right figures: Lens set at the closest focusing distance

Extension ring	Reproduction ratio	Subject area in. cm	Subject distance cm	Exposure factor
None	1/ ∞ – 1/6.7X	$\infty \times \infty$ – 6.3 x 9.5 $\infty \times \infty$ – 16.1 x 24.2	∞ – 17.4 ∞ – 45.0	1.0 – 1.3
K1	1/8.9 – 1/3.8	8.4 x 12.6 – 3.6 x 5.4 21.4 x 32.0 – 9.2 x 13.8	22.1 – 11.8 56.1 – 29.9	1.2 – 1.5
K3 + K2	1/4.8 – 1/2.8	4.5 x 6.8 – 2.6 x 3.9 11.4 x 17.2 – 6.7 x 10.0	13.8 – 9.8 35.3 – 25.0	1.4 – 1.7
K3 + K2 + K1	1/3.1 – 1/2.1	2.9 x 4.4 – 2.0 x 3.0 7.4 x 11.1 – 5.1 x 7.6	10.7 – 8.7 27.2 – 22.2	1.6 – 2.0
K3 + K4 + K2	1/2.5 – 1/1.8	2.3 x 3.5 – 1.7 x 2.6 6.0 x 8.9 – 4.3 x 6.5	9.6 – 8.3 24.4 – 21.0	1.8 – 2.2
K3 + K4 + K2 + K1	1/1.9 – 1/1.5	1.8 x 2.7 – 1.4 x 2.1 4.7 x 7.0 – 3.6 x 5.4	8.7 – 7.9 22.2 – 20.0	2.1 – 2.5
K3 + K5 + K2	1/1.6 – 1/1.3	1.6 x 2.4 – 1.3 x 1.9 4.0 x 6.0 – 3.2 x 4.8	8.4 – 7.7 21.3 – 19.5	2.3 – 2.7
K3 + K5 + K2 + K1	1/1.4 – 1/1.2	1.3 x 2.0 – 1.1 x 1.6 3.4 x 5.1 – 2.8 x 4.2	8.1 – 7.6 20.5 – 19.2	2.6 – 3.0
K3 + K5 + K4 + K2	1/1.3 – 1/1.1	1.2 x 1.8 – 1.0 x 1.5 3.0 x 4.6 – 2.6 x 3.8	8.0 – 7.5 20.2 – 19.1	2.8 – 3.3
K3 + K5 + K4 + K2 + K1	1/1.1 – 1.1	1.0 x 1.6 – 0.90 x 1.4 2.7 x 4.0 – 2.3 x 3.4	7.9 – 7.6 19.9 – 19.2	3.2 – 3.6

Nikkor 55mm f/1.2

Left figures: Lens set at ∞

Right figures: Lens set at the closest focusing distance

Extension ring	Reproduction ratio	Subject area in. cm	Subject distance cm	Exposure factor
None	∞ – 1/7.3X	$\infty \times \infty$ – 6.9 x 10.2 $\infty \times \infty$ – 17.5 x 26.2	∞ – 19.4 ∞ – 49.2	1.0 – 1.2
K1	1/9.5 – 1/4.1	9.0 x 13.4 – 3.9 x 5.8 22.8 x 34.1 – 9.9 x 14.8	24.4 – 12.8 61.9 – 32.4	1.1 – 1.3
K3 + K2	1/5.1 – 1/3	4.8 x 7.2 – 2.8 x 4.2 12.2 x 18.3 – 7.2 x 10.7	15.0 – 10.5 38.2 – 26.7	1.2 – 1.4
K3 + K2 + K1	1/3.3 – 1/2.3	3.1 x 4.7 – 2.1 x 3.2 8.0 x 12.0 – 5.5 x 8.2	11.4 – 9.2 29.0 – 23.3	1.4 – 1.6
K3 + K4 + K2	1/2.6 – 1/1.9	2.5 x 3.7 – 1.8 x 2.7 6.3 x 9.5 – 4.7 x 7.0	10.2 – 8.6 25.8 – 21.9	1.5 – 1.7
K3 + K4 + K2 + K1	1/2.1 – 1/1.6	2.0 x 2.9 – 1.5 x 2.3 5.0 x 7.4 – 3.9 x 5.8	9.1 – 8.1 23.2 – 20.7	1.7 – 1.9
K3 + K5 + K2	1/1.8 – 1/1.4	1.7 x 2.5 – 1.4 x 2.0 4.3 x 6.4 – 3.4 x 5.2	8.7 – 7.9 22.1 – 20.1	1.8 – 2.0
K3 + K5 + K2 + K1	1/1.5 – 1/1.2	1.4 x 2.1 – 1.2 x 1.8 3.6 x 5.4 – 3.0 x 4.5	8.3 – 7.8 21.1 – 19.7	2.0 – 2.2
K3 + K5 + K4 + K2	1/1.3 – 1/1.1	1.3 x 1.9 – 1.1 x 1.6 3.2 x 4.9 – 2.7 x 4.1	8.1 – 7.7 20.6 – 19.5	2.1 – 2.3
K3 + K5 + K4 + K2 + K1	1/1.2 – 1.0	1.1 x 1.7 – 0.96 x 1.4 2.8 x 4.2 – 2.4 x 3.7	8.0 – 7.6 20.3 – 19.4	2.3 – 2.5

Nikkor 85mm f/1.8

Left figures: Lens set at ∞

Right figures: Lens set at the closest focusing distance

Extension ring	Reproduction ratio	Subject area in. cm	Subject distance in. cm	Exposure factor
None	1/ ∞ – 1/8X	$\infty \times \infty$ – 7.6 x 11.3 $\infty \times \infty$ – 19.2 x 28.8	∞ – 33.0 ∞ – 85.0	1.0 – 1.3
K1	1/15 – 1/5.2	13.9 x 20.8 – 4.9 x 7.3 35.2 x 52.8 – 12.4 x 18.6	55.5 – 23.8 141 – 60.5	1.2 – 1.5
K3 + K2	1/7.9 – 1/4	7.4 x 11.1 – 3.7 x 5.6 18.8 x 28.3 – 9.5 x 14.2	33.0 – 20.0 83.9 – 50.7	1.3 – 1.7
K3 + K2 + K1	1/5.1 – 1/3.1	4.8 x 7.2 – 2.9 x 4.4 12.2 x 18.4 – 7.5 x 11.2	24.0 – 17.4 61.1 – 44.1	1.5 – 1.9
K3 + K4 + K2	1/4.1 – 1/2.7	3.9 x 5.8 – 2.6 x 3.8 9.8 x 14.7 – 6.5 x 9.7	20.7 – 16.1 52.7 – 41.0	1.7 – 2.1
K3 + K4 + K2 + K1	1/3.2 – 1/2.3	3.0 x 4.5 – 2.2 x 3.2 7.7 x 11.5 – 5.5 x 8.2	18.0 – 14.9 45.7 – 37.9	1.9 – 2.4
K3 + K5 + K2	1/2.8 – 1/2.1	2.6 x 3.9 – 1.9 x 2.9 6.6 x 9.9 – 4.9 x 7.4	16.7 – 14.3 42.4 – 36.4	2.1 – 2.6
K3 + K5 + K2 + K1	1/2.3 – 1/1.8	2.2 x 3.3 – 1.7 x 2.6 5.6 x 8.4 – 4.3 x 6.5	15.5 – 13.7 39.3 – 34.8	2.3 – 2.8
K3 + K5 + K4 + K2	1/2.1 – 1/1.7	2.0 x 3.0 – 1.6 x 2.3 5.0 x 7.5 – 4.0 x 6.0	14.8 – 13.4 37.7 – 34.0	2.5 – 3.0
K3 + K5 + K4 + K2 + K1	1/1.8 – 1/1.5	1.7 x 2.6 – 1.4 x 2.1 4.4 x 6.6 – 3.6 x 5.3	14.2 – 13.1 36.0 – 33.2	2.8 – 3.3

Nikkor 105mm f/2.5

Left figures: Lens set at ∞

Right figures: Lens set at the closest focusing distance

Extension ring	Reproduction ratio	Subject area in. cm	Subject distance in. cm	Exposure factor
None	1/ ∞ – 1/9.3X	$\infty \times \infty$ – 8.8 x 13.1 $\infty \times \infty$ – 22.2 x 33.3	∞ – 47.2 ∞ – 120	1 – 1.4
K1	1/18.1 – 1/6.1	17.1 x 25.7 – 5.9 x 8.7 43.4 x 65.2 – 14.7 x 22.0	82.0 – 32.8 208 – 83.3	1.2 – 1.6
K3 + K2	1/9.7 – 1/4.7	9.2 x 13.8 – 4.5 x 6.7 23.3 x 35.0 – 11.4 x 17.1	47.7 – 27.3 121 – 69.3	1.4 – 1.8
K3 + K2 + K1	1/6.3 – 1/3.8	6.0 x 9.0 – 3.5 x 5.3 15.2 x 22.8 – 9.0 x 13.5	32.6 – 23.4 85.4 – 59.5	1.6 – 2.2
K3 + K4 + K2	1/5 – 1/3.3	4.8 x 7.1 – 3.1 x 4.6 12.1 x 18.1 – 7.8 x 11.7	28.5 – 21.6 72.3 – 54.8	1.8 – 2.3
K3 + K4 + K2 + K1	1/4 – 1/2.8	3.7 x 5.6 – 2.6 x 4.0 9.5 x 14.2 – 6.6 x 9.9	24.2 – 19.7 61.4 – 50.1	2 – 2.6
K3 + K5 + K2	1/3.4 – 1/2.5	3.2 x 4.8 – 2.4 x 3.5 8.2 x 12.2 – 6.0 x 9.0	21.7 – 18.8 56.1 – 47.7	2.2 – 2.8
K3 + K5 + K2 + K1	1/2.9 – 1/2.2	2.7 x 4.1 – 2.1 x 3.1 6.9 x 10.3 – 5.3 x 7.9	20.0 – 17.8 51.0 – 45.1	2.5 – 3.1
K3 + K5 + K4 + K2	1/2.6 – 1/2	2.4 x 3.7 – 1.9 x 2.8 6.2 x 9.3 – 4.8 x 7.2	19.1 – 17.2 48.4 – 43.7	2.7 – 3.3
K3 + K5 + K4 + K2 + K1	1/2.3 – 1/1.8	2.1 x 3.2 – 1.7 x 2.6 5.4 x 8.1 – 4.3 x 6.5	18.0 – 16.6 45.6 – 42.1	3 – 3.6

Nikkor 135mm f/2.8, 135mm f/3.5

Left figures: Lens set at ∞

Right figures: Lens set at the closest focusing distance

Extension ring	Reproduction ratio	Subject area in. cm	Subject distance in. cm	Exposure factor
None	1/ ∞ – 1/7.5X	$\infty \times \infty - 7.1 \times 10.6$ $\infty \times \infty - 18.0 \times 27.0$	$\infty - 51.2$ $\infty - 130$	1.0 – 1.5
K1	1/23 – 1/5.7	22.0 x 33.0 – 5.4 x 8.0 55.8 x 83.7 – 13.6 x 20.4	135 – 41.7 342 – 106	1.1 – 1.6
K3 + K2	1/13 – 1/4.7	11.8 x 17.7 – 4.4 x 6.6 30.0 x 45.0 – 11.2 x 16.8	77.5 – 36.7 197 – 93.3	1.3 – 1.8
K3 + K2 + K1	1/8.1 – 1/3.9	7.7 x 11.5 – 3.7 x 5.5 19.5 x 29.2 – 9.3 x 14.0	54.5 – 32.7 139 – 83.2	1.4 – 2.0
K3 + K4 + K2	1/6.5 – 1/3.5	6.1 x 9.2 – 3.3 x 4.9 15.5 x 23.3 – 8.3 x 12.5	46.0 – 30.7 117 – 77.9	1.6 – 2.1
K3 + K4 + K2 + K1	1/5.1 – 1/3	4.8 x 7.2 – 2.8 x 4.3 12.1 x 18.2 – 7.2 x 10.8	38.7 – 28.5 98.3 – 72.4	1.7 – 2.3
K3 + K5 + K2	1/4.4 – 1/2.8	4.1 x 6.2 – 2.6 x 3.9 10.5 x 15.7 – 6.6 x 9.9	35.1 – 27.3 89.3 – 69.3	1.9 – 2.5
K3 + K5 + K2 + K1	1/3.7 – 1/2.5	3.5 x 5.2 – 2.3 x 3.5 8.8 x 13.2 – 5.9 x 8.9	31.7 – 25.9 80.5 – 65.9	2.1 x 2.7
K3 + K5 + K4 + K2	1/3.3 – 1/2.3	3.1 x 4.7 – 2.2 x 3.2 7.9 x 11.9 – 5.5 x 8.2	29.8 – 25.1 75.8 – 64.0	2.2 – 2.9
K3 + K5 + K4 + K2 + K1	1/2.9 – 1/2.1	2.7 x 4.1 – 2.0 x 3.0 6.9 x 10.4 – 5.0 x 7.5	27.9 – 23.9 70.9 – 61.8	2.4 – 3.1

Nikkor 180mm f/2.8

Left figures: Lens set at ∞

Right figures: Lens set at the closest focusing distance

Extension ring	Reproduction ratio	Subject area in. cm	Subject distance in. cm	Exposure factor
None	1/ ∞ – 1/8.2X	$\infty \times \infty - 7.8 \times 11.6$ $\infty \times \infty - 19.7 \times 29.5$	$\infty - 71.2$ $\infty - 181$	1 – 1.4
K1	1/31 – 1/6.5	29.3 x 43.9 – 6.1 x 9.2 74.4 x 112 – 15.5 x 23.3	233 – 59.2 592 – 151	1.1 – 1.6
K3 + K2	1/17 – 1/5.5	15.7 x 23.6 – 5.2 x 7.8 40.0 x 60.0 – 13.2 x 19.8	132 – 52.4 334 – 133	1.2 – 1.7
K3 + K2 + K1	1/11 – 1/4.7	10.5 x 15.4 – 4.4 x 6.6 26.0 x 39.0 – 11.2 x 16.8	90.5 – 46.7 230 – 119	1.3 – 1.8
K3 + K4 + K2	1/8.7 – 1/4.2	8.1 x 12.2 – 4.0 x 5.9 20.7 x 31.1 – 10.1 x 15.1	75.1 – 43.7 191 – 111	1.4 – 1.9
K3 + K4 + K2 + K1	1/6.8 – 1/3.7	6.4 x 9.6 – 3.5 x 5.2 16.2 x 24.3 – 8.9 x 13.3	62.0 – 40.3 158 – 103	1.5 – 2.1
K3 + K5 + K2	1/5.8 – 1/3.4	5.5 x 8.3 – 3.2 x 4.8 14.0 x 21.0 – 8.2 x 12.2	57.6 – 38.4 141 – 97.6	1.6 – 2.2
K3 + K5 + K2 + K1	1/4.9 – 1/3.1	4.7 x 7.0 – 2.9 x 4.4 11.8 x 17.7 – 7.4 x 11.1	49.3 – 36.3 125 – 92.1	1.8 – 2.3
K3 + K5 + K4 + K2	1/4.4 – 1/2.9	4.1 x 6.2 – 2.7 x 4.1 10.5 x 15.8 – 6.9 x 10.3	45.8 – 34.9 117 – 88.8	1.9 – 2.4
K3 + K5 + K4 + K2 + K1	1/3.9 – 1/2.6	3.6 x 5.5 – 2.5 x 3.7 9.3 x 13.9 – 6.3 x 9.5	42.2 – 33.5 107 – 85.0	2 – 2.6

Nikkor 200mm f/4

Left figures: Lens set at ∞

Right figures: Lens set at the closest focusing distance

Extension ring	Reproduction ratio	Subject area in. cm	Subject distance in. cm	Exposure factor
None	1/ ∞ – 1/7.4X	$\infty \times \infty$ – 6.9 x 10.5 $\infty \times \infty$ – 17.7 x 26.6	∞ – 78.6 ∞ – 200	1.0 – 1.7
K1	1/34 – 1/6.1	32.5 x 48.8 – 5.7 x 8.6 82.7 x 124 – 14.6 x 21.9	291 – 68.5 739 – 174	1.1 – 1.8
K3 + K2	1/19 – 1/5.3	17.5 x 26.2 – 5.0 x 7.5 44.4 x 66.9 – 12.6 x 19.0	165 – 62.4 420 – 158	1.2 – 2.0
K3 + K2 + K1	1/12 – 1/4.6	11.4 x 17.0 – 4.3 x 6.5 28.9 x 43.3 – 11.0 x 16.5	114 – 57.0 291 – 145	1.4 – 2.2
K3 + K4 + K2	1/9.6 – 1/4.2	9.1 x 13.6 – 3.9 x 5.9 23.0 x 34.6 – 10.0 x 15.0	95.7 – 54.0 243 – 137	1.5 – 2.3
K3 + K4 + K2 + K1	1/7.5 – 1/3.7	7.1 x 10.7 – 3.5 x 5.3 18.0 x 27.0 – 9.0 x 13.4	79.4 – 50.6 201 – 128	1.7 – 2.5
K3 + K5 + K2	1/6.5 – 1/3.5	6.1 x 9.2 – 3.3 x 4.9 15.5 x 23.3 – 8.3 x 12.4	71.5 – 48.7 181 – 123	1.8 – 2.6
K3 + K5 + K2 + K1	1/5.5 – 1/3.1	5.2 x 7.7 – 2.9 x 4.4 13.1 x 19.6 – 7.5 x 11.3	63.7 – 46.5 162 – 118	1.9 – 2.8
K3 + K5 + K4 + K2	1/4.9 – 1/2.9	4.6 x 6.9 – 2.8 x 4.2 11.7 x 17.6 – 7.1 x 10.6	59.4 – 45.0 151 – 115	2.1 – 3.0
K3 + K5 + K4 + K2 + K1	1/4.3 – 1/2.7	4.1 x 6.1 – 2.6 x 3.9 10.3 x 15.4 – 6.5 x 9.8	54.8 – 43.5 139 – 111	2.3 – 3.2

Nikkor 300mm f/4.5

Left figures: Lens set at ∞

Right figures: Lens set at the closest focusing distance

Extension ring	Reproduction ratio	Subject area in. cm	Subject distance in. cm	Exposure factor
None	1/ ∞ – 1/10X	$\infty \times \infty$ – 9.8 x 14.6 $\infty \times \infty$ – 24.8 x 37.2	∞ – 157 ∞ – 400	1.0 – 1.5
K1	1/52 – 1/8.6	48.8 x 73.2 – 8.1 x 12.2 124 x 186 – 20.7 x 31.0	643 – 135 1634 – 342	1.1 – 1.7
K3 + K2	1/28 – 1/7.5	26.2 x 39.3 – 7.1 x 10.7 66.6 x 99.9 – 18.0 x 27.1	360 – 122 916 – 310	1.2 – 1.8
K3 + K2 + K1	1/18 – 1/6.6	17.0 x 25.5 – 6.2 x 9.3 43.3 x 65.0 – 15.7 x 23.6	246 – 110 626 – 281	1.3 – 1.9
K3 + K4 + K2	1/14 – 1/6	14.3 x 20.4 – 5.7 x 8.5 34.6 x 51.9 – 14.4 x 21.6	203 – 104 517 – 265	1.4 – 2.0
K3 + K4 + K2 + K1	1/11 – 1/5.4	10.6 x 15.9 – 5.1 x 7.6 27.0 x 40.5 – 12.9 x 19.4	166 – 97.4 423 – 247	1.5 – 2.1
K3 + K5 + K2	1/9.7 – 1/5	9.2 x 13.8 – 4.7 x 7.1 23.3 x 35.0 – 12.0 x 18.0	148 – 93.1 378 – 236	1.6 – 2.2
K3 + K5 + K2 + K1	1/8.2 – 1/4.6	7.7 x 11.6 – 4.3 x 6.5 19.6 x 29.4 – 10.9 x 16.4	130 – 88.1 332 – 223	1.7 – 2.4
K3 + K5 + K4 + K2	1/7.4 – 1/4.3	6.9 x 10.4 – 4.1 x 6.1 17.6 x 26.4 – 10.3 x 15.4	121 – 85.0 307 – 216	1.8 – 2.5
K3 + K5 + K4 + K2 + K1	1/6.4 – 1/4	6.1 x 9.1 – 3.8 x 5.6 15.4 x 23.1 – 9.5 x 14.3	111 – 81.5 280 – 206	1.9 – 2.6

Features/Specifications

Camera to be used

Nikon F, F2 or Nikkormat

Lens to be used

Any Nikkor interchangeable lens

Reproduction ratio

1:8.9 to 1:1 (with Nikkor 50mm f/2)

Weight

100g (4 oz.)

Lens extension

K1 5.8mm

K2 5mm

K3 5.8mm

K4 10mm

K5 20mm

Total 46.6mm