LENSES FOR CLOSE-UPS

Close-up photography possesses a positive fascination for the photographer with its revelation of the wonders and secrets of the subvisible world normally unperceived by the human eye.

The three Nikkor close-up lenses are designed for extremely critical work and are capable of meeting to the full the varying requirements of close-up photography. They all provide outstanding performance with the broadest effective range of magnification and reduction.

The 55mm f/3.5 Micro-Nikkor, with outstanding resolving power, is an ideal choice for close-ups to record the captivating colors and rich details of flowers, insects, coins, artifacts, etc.

Featuring a ringlight and a focusing light, the 200mm f/5.6 Medical-Nikkor is especially suited for close-up work in surgery, dentistry and for other scientific and industrial applications.

The 105mm f/4 Bellows-Nikkor, designed exclusively for use with the Bellows Focusing Attachments, enables the photographer to obtain sharp images in close-ups with ample working distances.

55mm f/3.5 Micro-Nikkor-P Auto

Code No. 108-03-115

Originally designed for close-up photography, this lens features continuous focusing from infinity to 1:2 magnification.

It shows optimum resolving performance at 1:10 reproduction ratio, but since its superb resolution remains virtually unchanged throughout its entire focusing range, the lens can be used for general photography as well. The excellent image quality, great flatness of image plane, high image contrast and fine color rendition make the lens especially ideal for photographing close-up subjects such as insects, flowers and other small objects or for critical copying of flat subjects such as documents, drawings, stamps, etc.

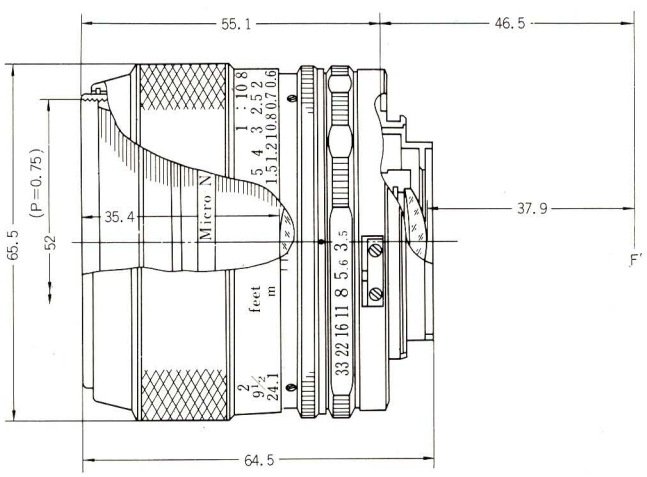
The M2 Extension Ring is used in combination with the lens for close-up work of the 1:2 to 1:1 reproduction ratios. The automatic diaphragm functions equally well with the M2 Ring.

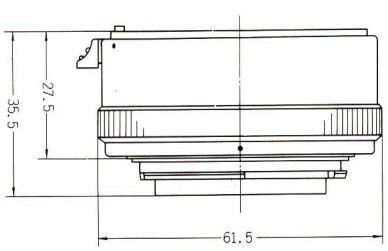
Reproduction ratios are marked on the lens barrel vis-à-vis the focused distance.

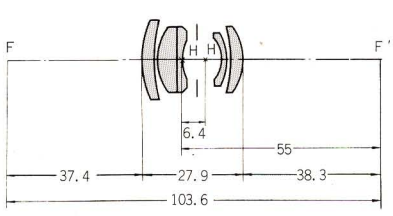
When an image greater than 1:1 reproduction ratio is desired, various close-up accessories are available for use with this lens. For example, when Bellows Focusing Attachment Model PB-4 is used, the lens reproduction ratio extend from 1:1.3 to 3.4:1.

Focal length:	55m
Maximum aperture:	1 : 3.5
Lens construction:	5 elements in 4 groups
Picture angle:	43° at infinity
Distance scale:	Graduated both in meters and feet up to 24.1cm and 9-1/2in.
Aperture scale:	f/3.5 – f/32
Aperture diaphragm:	Fully automatic
Meter coupling prong:	Integrated (fully open exposure metering)
Attachment size:	52mm (P=0.75)
Filter:	52mm screw-in
Dimensions:	65.5mm dia. X 64.5mm length (2-19/32 in. X 2-17/32 in.)
Weight:	235g (8.3oz)
Accessories:	52mm snap-on front cap (108-00-400), rear cap type F (108–00–401), 52mm screw-in lens hood (108–01–203), leather case CL-8 (108–02–309)*, plastic case type L (108-02-300) flexible pouch No. 52 (108–02–302)

* Accepts the lens with M2-ring (108–03–604) attached.







(m/m)

200mm f/5.6 Medical-Nikkor Auto

Code No. 108-03-107

Incorporating a ringlight unit around its front element, the Medical-Nikkor is ideal for close-up work in the field of medicine, and has numerous other applications in science and industries.

It consists of a prime lens, a set of six auxiliary lenses and an AC or a battery power source for operating the lighting units.

The lens offers a choice of eleven different magnification ratios in combination with the six auxiliary lenses. (The prime lens alone gives the reproduction ratio of 1/15X and the auxiliary lenses, attached singly or in varied combinations, provide a range of magnification ratios from 1/8X to 3X).

The Medical-Nikkor is self-compensating, eliminating all bothersome calculations for setting the diaphragm in relation to film speed and reproduction ratio.

All that is required of the photographer is to set the lens for the ASA speed of the film used, attach the auxiliary lens or lenses in accordance with the desired magnification ratio, focus by moving the camera toward or away from the subject and release the shutter.

The automatic lens diaphragm stops down to correct aperture at the moment of exposure.

Two illumination units are built into the lens: an electronic ringlight and pilot lamps.

The ringlight surrounds the front element of the lens to produce even and shadowless illumination. It may be removed from the lens for servicing and for providing special lighting angles. The color temperature of 6000° K permits the use of daylight color film. The flash duration is 1/500 second. The Medical-Nikkor ringlight synchronizes with the Nikon F2 at the shutter speed of 1/60 second, with the Nikon F at 1/30 second, and the Nikkormat at 1/60 second.

Positioned behind the ringlight are four incandescent bulbs that comprise the pilot lamps. These facilitate precise focusing in the dark.

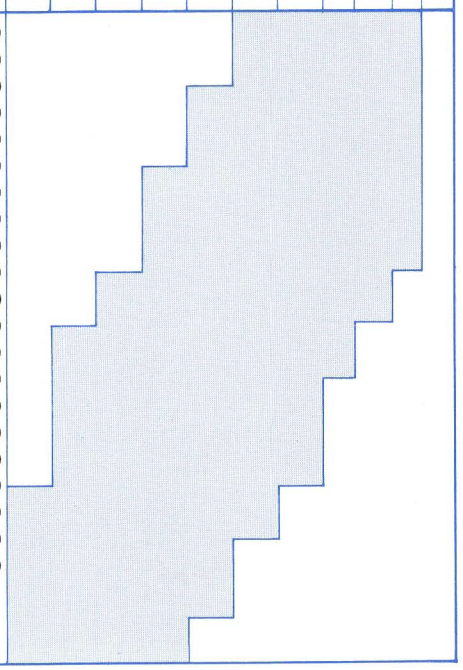
The lens also incorporates a device for printing an identification number (1 to 39) or magnification ratio (1/15X to 3X) in the lower right-hand corner of each frame by making use of a small fraction of the ringlight output or "leak" flash.

These figures serve as references, key numbers or as a guide to "right-side-up" projection. The intensity of the "leak" flash can be adjusted in three steps, as indicated by "A", "B" and "C" on the Identification Number/Reproduction Ratio Adjuster. When an unnumbered negative is required, the imprinting device can be blocked off by setting the adjuster to "D".

The Photomic series finders function solely as a viewfinder when used with the Medical Nikkor. The self-compensating feature of the lens diaphragm eliminates the need for exposure metering.

Focal length:	200mm
Maximum aperture:	1 : 5.6
Lens construction:	4 elements in 4 groups
Picture angle:	12°20′
Aperture scale:	f/5.6 – f/45
Aperture diaphragm:	Fully automatic
Attachment size:	38mm (P=0.75)
Dimensions:	80mm dia. X 176mm length (3-5/32 in. X 6-15/16 in.)
Weight:	670g (23.6oz)
Accessories:	38mm screw-in front cap (109–00–226), rear cap type F (108–00–401), safety camera shoe cover (109–05–039), 6 auxiliary lenses: 1/8X (109–05–034), 1/6X (109–05–033), 1/4X (109–05–032), 1/2X (109–05–031), 1X (109–05–035), 2X (109–05–036), AC power unit (108–03–601), DC power unit (108–03–602), synch cord (109–05–038), 1.5m power source cord (109–05–037), 1.6m power source cord (108–03–603), leather compartment case (108–03–302), 2.5V light bulb (109–05–040)

Black & white	Color	1/15	1/8	1/6	1/4	1/3	1/2	2/3	1	1.5	2	3
4 (7)	8 (10)											
5 (8)	10 (11)											
6.4 (9)	12 (12)											
8 (10)	16 (13)											
10 (11)	20 (14)											
12 (12)	25 (15)											
16 (13)	32 (16)											
20 (14)	40 (17)											
25 (15)	50 (18)											
32 (16)	64 (19)											
40 (17)	80 (20)											
50 (18)	100 (21)											
64 (19)	125 (22)											
80 (20)	160 (23)											
100 (21)	200 (24)											
125 (22)	250 (25)											
160 (23)	320 (26)											
200 (24)	400 (27)											
250 (25)	500 (28)											
320 (26)	650 (29)											
400 (27)	800 (30)											
500 (28)												
650 (29)												
800 (30)												

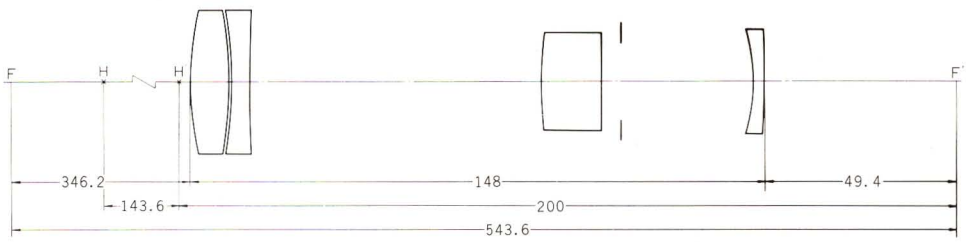


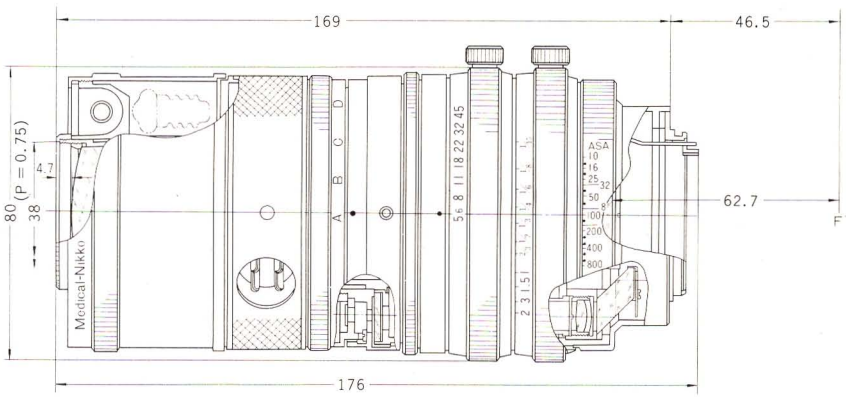
The range of film speed that can be used varies with the chosen magnification ratio.

Reproduction ratio	Combination of lenses	Distance of subject from front surface of lens (inch)	(mm)	Subject field (inch x inch)	(mm x mm)
1/15X	Master lens	10′ 11.89″	3,350	14.17 x 21.26	360 x 540
1/8X	1/8X + Master lens	5′ 10.08″	1,780	7.56 x 11.34	192 x 288
1/6X	1/6X + Master lens	4′ 4.64″	1,337	5.67 x 8.50	144 x 216
1/4X	1/4X + Master lens	2′ 11.04″	890	3.78 x 5.677	96 x 144
1/3X	1/4X + 1/6X + Master lens	2′ 1.0″	635	2.72 x 4.06	69 x 103
1/2X	1/2X + Master lens	1′ 5.32″	440	1.89 x 2.83	48 x 12
2/3X	1/2X + 1/4X + Master lens	1′ 0.72″	323	1.38 x 2.09	35 x 53
1X	1X + Master lens	8.66″	220	0.94 x 1.42	24 x 36
1.5X	1X + 1/2X + Master lens	5.98″	152	0.67 x 0.98	17 x 25
2X	2X + Master lens	4.17″	106	0.47 x 0.71	12 x 18
3X	2X + 1X + Master lens	2.76″	70	0.33 x 0.50	8.4 x 12.6

Film speed ASA (DIN) / Marking	Black & white	Color
A	32 (16) or lower	64 (19) or lower
B	40 (17) – 200 (24)	80 (20) – 400 (27)
C	250 (25) or higher	500 (28) or higher

Caution: The camera is provided with a body earth. To avoid receiving an electric shock when using the Nikon F, attach the safety cover on the camera accessory shoe so that the photographer's hand will not touch the synch contact near the rewind crank.





1. Electronic ring flash
2. Combinations of auxiliary lenses
3. Power source socket
4. Signal neon lamp
5. Printed figure brightness adjustment
6. Figure to be printed
7. F-number scale
8. Reproduction ratio scale
9. Film speed (ASA) scale

(m/m)

105mm f/4 Bellows-Nikkor

Code No. 108-03-113

The Bellows-Nikkor has been designed exclusively for use with the Nikon Bellows Focusing Attachments PB-4 and PB-5.

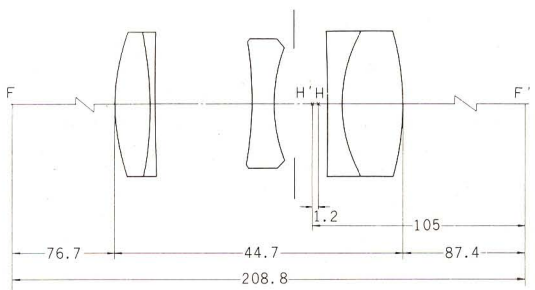
It offers continuous focusing from infinity to 1.3X reproduction ratio with the PB-4 and PB-5. The lens gives superb resolution for close-ups and macro-photography.

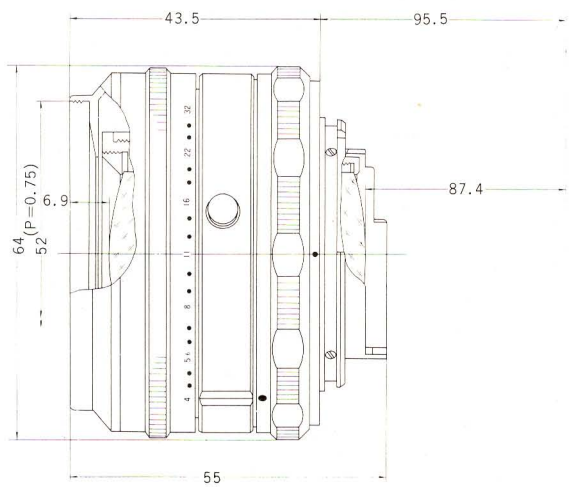
The Bellows-Nikkor has no focusing device of its own—it is focused by the extension or contraction of the bellows focusing attachment.

The manually preset lens diaphragm can be stopped down to f/32 with 1/3 intermediate click-stop settings. (Black dots between the inscribed f-numbers indicate the two intermediate settings between the inscribed f-numbers.)

With the long focal length of 105mm, the lens offers natural reproduction of perspective, while affording the photographer greater working distance for better subject handling and illumination.

Focal length:	105mm
Maximum aperture:	1 : 4
Lens construction:	5 elements in 3 groups
Picture angle:	23°20′
Distance scale:	Not integrated
Focusing:	By means of Bellows Focusing Attachment
Aperture scale:	f/4 – f/32; black dots between f-numbers indicate intermediate settings
Aperture diaphragm:	Manual preset
Magnification:	∞ – 1.3X (w/PB-4 or PB-5 attachment)
Attachment size:	52mm (P=0.75)
Filter:	52mm screw-in
Dimensions:	64mm dia. X 55mm length (2-1/2 in. X 2-3/16 in.)
Weight:	230g (8.1oz)
Accessories:	52mm snap-on front cap (108–00–400), plastic case type L (108–02–300), rear cap type F (108–00–401), 52mm screw-in (108–02–200) or snap-on (108–02–202) lens hood





(m/m)