## **EL-NIKKOR LENSES**

El-Nikkor lenses are designed primarily for photographic enlargers. Eight different El-Nikkor lenses are available. The correct choice depends upon the working distance and the subject size involved. The design of enlarging lenses is quite different from that of general photographic lenses. One of the factors which must be considered is magnifying power. When a 35mm negative is enlarged to sizes of 3 1/4" x 4 1/4" and 10" x 12", the lens must be designed to have an accurate magnification of 3 or 10 times, respectively. Another factor to be considered is the spectral sensitivity of the printing material, that is, of the photosensitive paper. The El-Nikkor has been designed and manufactured with all these factors fully considered to do the best possible job. It is a lens of the highest quality and ensures faithful reproduction of details and adequate image contrast exactly as found in the negative film. Today, it is acclaimed as the best enlarging lens available on the market. The El-Nikkor lenses also have two large f-number scales, click-stops at each marking, etc., for usage convenience.

#### Features of El-Nikkor

#### 1. Brightness

El-Nikkor lenses are designed to have a sufficiently large aperture which is advantageous for enlargement. They are designed so that the front and rear elements of the lens have a large diameter and competent light can be taken, not only at the center part, but also on the peripheries and edges of the picture field. Therefore, uniform image brightness can be produced throughout the entire picture area. Since the image is bright and the depth of focus is small, focusing can be done easily even for dark negatives.

#### 2. Aberration Correction

The aberration of the El-Nikkor lenses have been corrected for a short focusing distance corresponding with their standard magnifying power, and differs from photographing lenses which are corrected for infinity. Aberrations are corrected to cover an area slightly larger than the size of the original negative. Thus, even if the negative gets slightly displaced, no blurring will occur at the picture corners. In addition, distortion aberration has been fully corrected so faithful reproduction of the negative film image can be obtained.

El-Nikkor lenses produce a flat image plane which does not shift focus even when the lens is stopped down or lights of different wavelengths are used. The lens has a higher resolution than the emulsion of negative film even when in fully opened condition. Thus, the El-Nikkor lenses give perfect enlargement results.

In order to achieve utmost enlargement results, it would be preferable to use the lens with the diaphragm set 3 or 4 stops before the full aperture.

#### 3. Correction of Near Ultraviolet Rays

There is a considerable divergence between the focusing points of the light perceived by the human eye, namely visible light, and the light range to which black-and-white photographic printing paper is sensitive. Our eyes are almost entirely insensitive to near ultraviolet rays of  $350 \text{m} \mu$ -  $450 \text{m} \mu$  which is the main light range printing paper is sensitive to. Consequently, if focusing is performed by the naked eye, there is no way of telling whether the focusing has been adjusted correctly for the light to which the printing paper is sensitive. El-Nikkor lenses are corrected against chromatic aberration, not only for visible light rays, but also for near ultraviolet rays, so that the image formed of the visible light exactly coincides with that of the ultraviolet ray and focusing can be adjusted perfectly whether in color or in black-and-white.

Another important point is that special type of glass is not used for making these lenses as such glasses are apt to absorb ultraviolet rays resulting in producing an enlarging lens with a rather deficient brightness. In addition, an anti-reflection coating for the wavelength of  $400m\mu$  is applied to increase the transmission of ultraviolet ray. Thus, the lens performs uniform spectral transmission covering the range from visible light to ultraviolet ray.

#### 4. Barrel of El-Nikkor

The El-Nikkor lens elements are housed in a black barrel and an aperture ring is provided on the front side of the barrel. Large f-number figures are engraved in white and equidistantly spaced. These figures are marked on both sides of the lens confronting each other and permit easy reading from either side of the lens when attached to the enlarger. In addition, there is a click-stop at each marking and facilitates lens settings in dark rooms by touch feeling. Not only do El-Nikkor lenses faithfully reproduce negative images on printing papers but they completely fulfill the basically important requirement of handling ease.

#### 5. Mount of El-Nikkor

El-Nikkor lenses are designed to fit any type of enlarger with screw-in mounting (d:39mm, p:1/26"). The 80mm, 105mm and 135mm lenses can further be attached to a Durst enlarger or fitted to the seat plate of an Omega enlarger. In either case, adapter rings which are supplied with the lenses must first be removed. 150mm and 210mm lenses provide base plates which are useful for attaching to the process camera.

#### Other Applications

El-Nikkor lenses can also be used for specific projection and close-up photography as they possess high resolution throughout a wide range of wavelength. They are ideal for taking photographs under near ultraviolet ray which is emitted from cathode ray tubes and fluorescent screens. In addition, they can be used as an optical system for transmission of television pictures and also as a relay lens in combination with other lens groups.

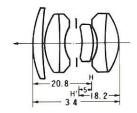
#### 50mm f/2.8 El-Nikkor

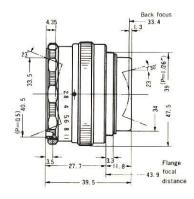
#### $[24mm \times 36mm (1'' \times 1.5'') format]$

Focal length 51.6mm Max. aperture Construction 6 elements 4 groups Standard magnification 8X 2X - 20XRange of magnification ratio Picture angle 46° Correction wavelength range 370mµ - 700mµ Subject size 24mm X 36mm Overall working distance 522.5mm 0% at f/4 Vignetting -0.1%Distortion

Aperture scale . 2.8, 4, 5.6, 8, 11, 16
Mounts Screw







#### 50mm f/4 El-Nikkor $[24mm \times 36mm (1'' \times 1.5'') format]$

50mm Max. aperture 4 elements Construction 3 groups Standard magnification 8X 2X - 20XRange of magnification ratio Picture angle 46°  $370m\mu - 700m\mu$ Correction wavelength range

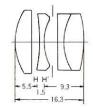
24mm X 36mm Subject size 522.5mm Overall working distance

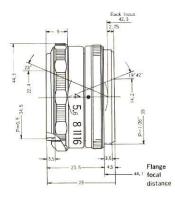
0% at f/8 Vignetting Distortion -0.17%2.8, 4, 5.6, 8, 11, 16 Aperture scale

Mounts Screw (d=39mm p=1/26")

Dimensions: max. diameter 44.5mm 28mm max, length Weight 63g







## 63mm f/3.5 El-Nikkor $(32mm \times 45mm (1-5/8" \times 1-3/4"))$ format)

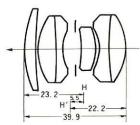
63mm Focal length f/3.5 Max. aperture 6 elements Construction 4 groups 8X Standard magnification Range of magnification ratio 2X - 20X46° Picture angle  $350m\mu - 700m\mu$ Correction wavelength range 32mm X 45mm Subject size 637.9mm Overall working distance Vignetting 0% at f/4 +0.4% Distortion 3.5, 4, 5.6, 8, 11, 16 Aperture scale

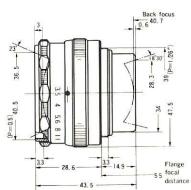
Mounts (d=39mm p=1/26") 47.5mm Dimensions: max. diameter

Screw

43.5mm max. length 130g Weight







## 80mm f/5.6 El-Nikkor

# $[60mm \times 70mm (2-1/4'' \times 2-1/4'') for-$

Focal length 80mm Max. aperture f/5.6 Construction 6 elements 4 groups Standard magnification 5X 2X -10X Range of magnification ratio Picture angle 57°40'  $370 \text{m}\mu - 700 \text{m}\mu$ Correction wavelength range

56mm X 72mm Subject size Overall working distance 576mm

0% at f/8 Vignetting Distortion -0.035%

Aperture scale 5.6, 8, 11, 16, 22, 32, 45

Mounts Screw

(d=39mm p=1/26") &

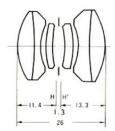
Screw

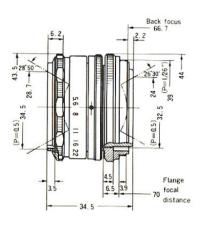
(d=32.5mm p=0.5mm) Plate (i.d.=33mm)

attachable

44mm Dimensions: max. diameter max. length 34.5mm Weight 150g







## 105mm f/5.6 El-Nikkor

## $[65mm \times 90mm (2-1/4'' \times 2-1/4'')]$ format

Focal length 105mm f/5.6 Max. aperture Construction 6 elements 4 groups Standard magnification 5X Range of magnification ratio 2X - 10XPicture angle 56°

Correction wavelength range  $380m\mu - 700m\mu$ Subject size 65mm X 90mm Overall working distance 756mm Vignetting 0% at f/8

Distortion +0.009%

5.6, 8, 11, 16, 22, 32, 45 Aperture scale

Mounts Screw

(d=39mm p=1/26") &

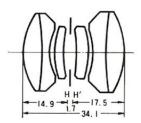
Screw

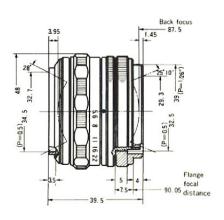
(d=32.5mm p=0.5mm) Plate (i.d.=33mm)

attachable

Dimensions: max. diameter 48mm max. length 39.5mm Weight 150g







#### 135mm f/5.6 El-Nikkor

## $[90mm \times 120mm (4'' \times 5'') format]$

135mm Focal length f/5.6 Max. aperture 6 elements Construction 4 groups Standard magnification 5X 2X - 10XRange of magnification ratio Picture angle 54° 380mµ-700mµ Correction wavelength range Subject size 90mm X 120mm

Overall working distance 972mm
Vignetting 0% at f/8
Distortion +0.025%

Aperture scale 5.6, 8, 11, 16, 22, 32, 45

Mounts Screw

(d=39mm p=1/26") &

Screw

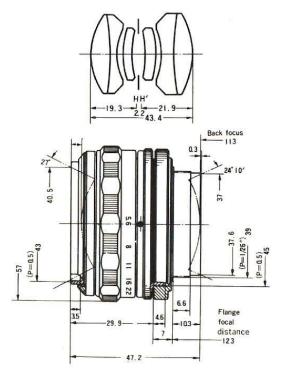
(d=45mm p=0.5mm) Plate (i.d.=45.5mm)

attachable

Dimensions: max. diameter 57mm 47.2mm

Weight 200g





## 150mm f/5.6 El-Nikkor

## $[100mm \times 130mm (4'' \times 5'') format]$

Focal length 150mm Max. aperture f/5.6 Construction 6 elements 4 groups Standard magnification 4X Range of magnification ratio 2X - 8X. Picture angle  $54^{\circ}$ 

Correction wavelength range  $380m\mu - 700m\mu$ Subject size  $100mm \times 130mm$ Overall working distance 937.5mm

 Vignetting
 0% at f/8

 Distortion
 +0.001%

Aperture scale 5.6, 8, 11, 16, 22, 32, 45

Mounts Screw

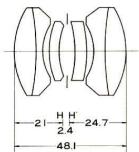
(d=53mm p=0.75mm)

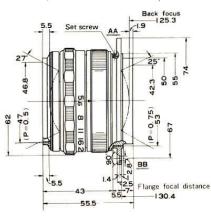
Base plate (o.d.=74mm) with

6 countersinks (2.6p)

Dimensions: max. diameter 62mm 55.5mm Weight 300g







## 210mm f/5.6 El-Nikkor

## $[130mm \times 180mm (5'' \times 7'') format]$

210mm Focal length Max. aperture f/5.6 Construction 6 elements 4 groups Standard magnification 4X 2X - 8X 54° Range of magnification ratio Picture angle

Correction wavelength range

Subject size

1312.5mm Overall working distance Vignetting 0% at f/8 +0.01%

Distortion Aperture scale 5.6, 8, 11, 16, 22, 32, 45 Mounts Screw

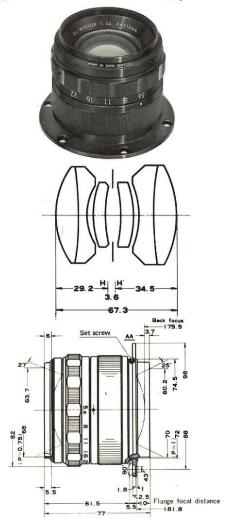
(d=72mm p=1mm) Base plate (o.d.=98mm) with 6 countersinks

380m $\mu - 700$ m $\mu$ 130mm X 180mm

(4p) 82mm

Dimensions: max. diameter max. length 77mm 630g

Weight



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Nishikawa Bldg., Nihonbashi, Tokyo, Japan Telex: 0222-2950