

Nikkor lenses.
They can open up new worlds.



NIKKOR NORMAL

A normal lens, by definition, is one whose focal length is roughly equal to the diagonal of the negative. In practical terms, it is the most useful single lens for the majority of photographers.

One reason is that the perspective produced with the normal lens closely matches that of the human eye. Pictures taken with it generally look natural, without the perspective distortions created by wide angle and telephoto optics.

High speed is another reason. Their extra-large maximum apertures make the normal Nikkors equally suitable for available-light photography and for daylight shooting. And, as the aperture is stopped down, they provide considerable depth-of-field.

But, the chief distinction of these

lenses is their sheer, magnificent picture quality. They are incredibly sharp, and their color correction approaches perfection. Many a Nikon and Nikkormat owner, in fact, has chosen his camera as much for its incomparable Nikkor optics as for the facilities offered by the camera itself.

The Nikon system provides five lenses of normal focal length. In addition to three conventional types,



LENSES

they include the unique GN Auto-Nikkor, offering automatic flash exposure control, and the famous Micro Auto-Nikkor with its surpassing sharpness and focusing range from infinity to 1:1. All are equipped with automatic-reopen diaphragm and couple to camera meter systems for thru-the-lens exposure control at full aperture.





Auto Nikkor 50mm f1.4

This is unquestionably the most wanted normal lens in the entire realm of 35mm slr photography. Obviously, it offers exceptional speed for successful picture-taking under virtually any and all light conditions and for action shots even with slow color films.

More important, however, is the superb center-to-edge definition the 50mm f1.4 offers even at full aperture. It is actually sharper than most slower normal lenses when they are stopped down! No wonder it enjoys a truly legendary reputation among knowledgeable photographers throughout the world. As one test report put it, "the superb 50mm f1.4 Nikkor should be owned by every Nikon and Nikkormat user".

Auto Nikkor 50mm f2

For those who do not require the extra speed of the f1.4, the 50mm f2 offers advantages of compactness, light weight and cost economy. Its performance is that of a true Nikkor: critically sharp, brilliant and superbly corrected in every respect. An excellent lens for conventional all-around photography, it also performs exceptionally well when reversed for closeup and macro work (using the Nikon BR-2 reversing ring). Normal focusing range extends from infinity to 24 inches.





Auto Nikkor 55mm f1.2

Fastest of all Nikkor lenses, the 55mm f1.2 is designed to produce great pictures under all-but-impossible light conditions. Its ultra-high speed — 36% faster than the f1.4 — often means a vital extra margin for available light photography, in color as well as black and white. Anyone interested in this type of work will find the f1.2 a valuable additional lens for use primarily in such dim-light situations.

The 55mm f1.2 is one of the first Nikkor lenses featuring multi-layer-coated glass-air surfaces. This helps the lens achieve its impressive performance quality which is truly remarkable in view of its fantastic speed. It accepts the same 52mm diameter filters as most other Nikkors and focuses as close as 24 inches.



GN Auto Nikkor 45mm f2.8

Another example of Nikon ingenuity in lens design, the unique GN Auto-Nikkor reduces flash exposure to automatic accuracy and simplicity.

The GN has a special scale on which you can preset the flash guide number of the film you are using, from 32 to 320. This simple adjustment activates a precision linking system that couples the focusing mechanism to the lens diaphragm. Once the guide number is set, the diaphragm adjusts automatically as you focus, assuring correct flash exposure at all subject distances.

This method of flash automation is superior to computer flash units in several ways. One; the lens aperture changes as you focus, giving you greater depth-of-field at close distances. Two; the flash duration is constant and always within the capacity of color films, avoiding the risk of reciprocity failure which results from extremely short flash durations and may cause faulty color reproduction. And, of course, the GN provides automation with any flash unit.

With guide number scale disengaged for non-flash photography, the GN Auto-Nikkor couples to Nikon and Nikkormat meter systems. Its fine optical quality and speed make it an excellent choice for either application. The GN is also extremely compact, extending just 3/4 of an inch from the front of the camera, and weighs a mere 5-1/3 ounces. It accepts 52mm filters.



Micro Auto Nikkor-P 55mm f3.5

This is probably the sharpest lens available for 35mm photography, with center-to-edge resolving power exceeding that of the finest of fine-grain emulsions. And it is equally remarkable for its extreme flatness of field, high image contrast and superlative color correction. What's more, the lens provides a built-in close-up system with which to apply its matchless optical performance up to 1:1 reproduction.

The helical mount of the Micro Auto-Nikkor has an extra-long extension range. You can focus it continuously from infinity to 9.5" (film plane to subject) where it produces a 1/2-life size image. Use of the M2 ring, furnished as standard equipment, provides a second focusing range from 1/2-life size to 1:1. The automatic diaphragm remains operative throughout the entire range even when using the M2 ring. Without this ring, the lens is meter-coupled for open-aperture exposure control; with the M2 ring, the stop-down method is used.

The Micro Auto-Nikkor is also ideal for photomacrography, using bellows attachments or extension tubes. With the Nikon Bellows IV or V, for example, magnification to 4.3x can be obtained. Slide copying, using one of the appropriate Nikon attachments, is another prime application for this unique lens.

For easy reference, the lens barrel is engraved with scales for both distance and reproduction settings, with and without the M2 ring.

No wonder the Micro Auto-Nikkor is selected by knowledgeable photographers for their most critical work, conventional as well as closeup.



NIKKOR WIDE ANGLE LENSES

Every photographer encounters situations where the normal lens does not take in all of the desired picture area. Here the wide angle lens, as the name indicates, provides a perfect and simple solution. No wonder that most camera owners choose a "wide angle" as their first additional lens to supplement the normal camera optics.

The imaginative photographer, however, also realizes the value of the wide angle lens as a creative tool. He uses its tendency to increase the apparent distance between near and far objects to produce a dramatic impression of depth bordering on the three-dimensional. He takes advantage of its great depth-of-field to impart foreground-to-background

sharpness that seems to defy perspective. Also, when shooting action, he can prefocus his wide angle lens for the approximate subject distance and, relying on its depth-of-field, be sure of sharp pictures without constant refocusing.

Nikon acknowledges the importance of wide angle optics by offering what is probably the greatest variety in all of 35mm. As owner of any Nikon or Nikkormat slr, you can choose among focal lengths from



15mm to 35mm, with picture coverage ranging from 110° to 62°.

All but one have automatic — reopen diaphragms and couple to camera meter systems for thru-the-lens exposure control at full aperture. Whichever you select, you enjoy superlative definition and color correction, freedom from distortion and the incomparable picture quality that is recognized as the hallmark of Nikkor optics.



15mm f5.6 Auto Nikkor

Using an entirely new optical design, Nikon has succeeded in producing a lens that provides unprecedented 110° picture coverage without the optical distortion associated with ultra-wide angle optics. Furthermore, the 15mm f5.6 has a back focus 2.45 times greater than its focal length. This means that it permits the automatic mirror and diaphragm to function as they do with all Auto-Nikkor lenses. Also, it couples to camera meter systems. Four filters (Skylight, medium yellow, orange and red) are built into the lens, mounted on a turret with external selector/indicator.



20mm f3.5 Auto Nikkor

The combination of 94° picture coverage, all-over sharpness and f3.5 speed makes this a favorite of serious Nikon and Nikkormat users, both hobbyist and professional.

Fully automatic and meter-coupled, it enables you to shoot as rapidly as the situation requires while keeping the subject clearly in view through the reflex finder. The lens may be focused as close as 12 inches. Depth-of-field is so great that with aperture set at f8 and distance at 7 feet everything is sharp from less than 3 feet to infinity.



24mm f2.8 Auto Nikkor

In addition to its 84° picture coverage and excellent speed, the 24mm f2.8 offers exceptional resolving power and correction at all shooting distances. Its special formula embodies an independent rear lens group movement that dramatically improves image quality at close focusing distances. In fact, it is widely acknowledged to be the sharpest wide-angle lens for any slr 35. Compact size is another advantage of this lens design which achieves great light-gathering power without an extra-large front element.





28mm f3.5 Auto Nikkor

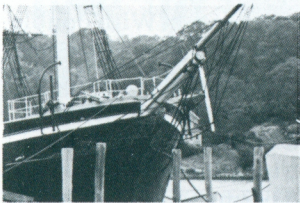
This is the focal length most photographers choose as the first to supplement their normal lens. But, the 28mm Auto-Nikkor offers more than versatile 74° picture coverage.

Its surpassing sharpness and image brilliance has led experts to term it the finest in its focal length. The automatic diaphragm and provision for meter coupling add further advantages. Closest focusing distance is 24 inches.

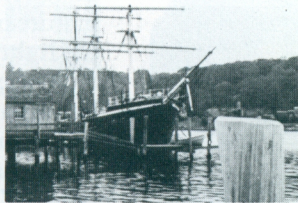
28mm f2 Auto Nikkor

The tremendous speed of this lens marks one of numerous optical breakthroughs for Nikon. Its value for available-light photography is self-evident. Equally important, the shallow depth-of-field at f2 means easier and more positive focusing under all light conditions.

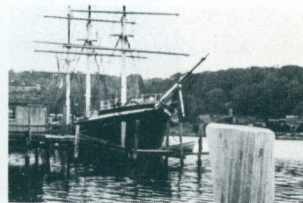
All glass-air surfaces of the 28mm f2 are multi-layer-coated, a special process whose superior effectiveness in improving light transmission and contrast and reducing flare is considered a milestone in development of high-speed quality optics. Another special feature is the independent rear lens group movement which produces markedly improved image quality at close distances.



50mm



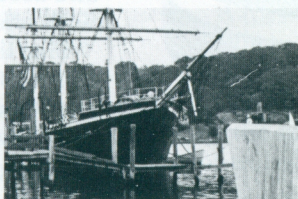
15mm



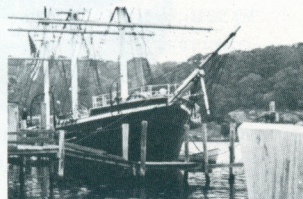
20mm



24mm



28mm



35mm



35mm f2.8 Auto Nikkor

This is perhaps the finest example of the classic 35mm wide angle. It is exceptionally well corrected and exhibits outstanding center-to-edge resolution and freedom from distortion. Encouraged by this optical quality, many find the 62° picture angle and great depth-of-field of the 35mm f2.8 so versatile that they often use it in place of the normal lens.

Other advantages include focusing down to 12 inches, automatic-reopen diaphragm, meter coupling and compact, lightweight design.

35mm f2 Auto Nikkor

The great speed of this lens, added to the other advantages it shares with the 35mm f2.8, has earned it the highest respect of knowledgeable Nikon and Nikkormat users. Remarkably sharp, even at full aperture, it can be focused quickly and accurately thanks to the reduced depth-of-field. Closest focus is 12 inches.



35mm f1.4 Auto Nikkor

In creating this fastest wide-angle lens ever produced for any slr, Nikon designers opened up a new world of picture opportunities. With double the light transmission of the 35mm f2, it offers truly fantastic speed for low-light situations, using color as well as black and white. Equally important, its minimal depth-of-field at f1.4 permits focusing speed and accuracy never before possible with wide angle optics.

Like the 24mm f2.8 and 28mm f2, this lens employs an independent rear lens group movement to assure exceptional picture quality at close focusing distances.

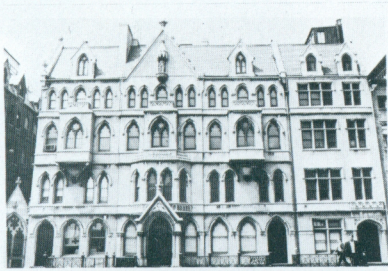


35mm f2.8 PC-Nikkor

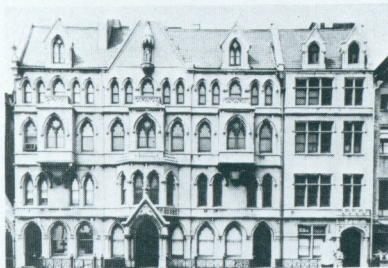
It was Nikon that brought perspective correction to 35mm by means of the ingenious PC-Nikkor lens.

Perspective Distortion

Normally, when photographing a building, the camera may have to be tilted to include the upper part of the structure. This causes the vertical lines to converge toward the top and gives the building the appearance of leaning or falling back. With view cameras, the back or film plane would be kept parallel to the building, and the upper part of the building included by raising the lens.



Camera tilted and lens on axis.



Camera back parallel to building - lens shifted

Lens Shifts 11mm

In the PC-Nikkor, a micrometer lead-screw permits shifting the optics off-axis by as much as 11mm. An mm-calibrated scale shows the extent of the shift. This 11mm shift in the PC-Nikkor is equivalent to a 3-inch shift on a view camera equipped with a $9\frac{1}{2}$ -inch lens.



For example, shooting a building from a distance of about 200 feet, an 11mm upward shift of the lens will bring about 72 feet more of the upper structure into the picture.

Lens Rotates 360°

Because the entire lens mount of the PC-Nikkor rotates, the effect of the shift can be applied vertically (up or down), horizontally (either side), or diagonally. There are 12 click-stop positions at 30° intervals.

"Wide Field" Pictures

The PC-Nikkor may also be used to produce "wide-field" pictures with uniform perspective (unlike those made with rotating pan heads). Two pictures, each taken with the lens shifted the full 11mm in the opposite extreme, can be joined where they overlap to produce a single extended photograph. The technique can be used on vertical or horizontal subjects.

In its normal position, the PC-Nikkor is an excellent intermediate (62°) wide angle lens with focusing range as close as 12 inches.

With Nikon slr cameras, use of the Type E finder screen is recommended. Its pattern of vertical and horizontal lines is helpful in aligning the subject image for precise control of parallels.

NIKKOR

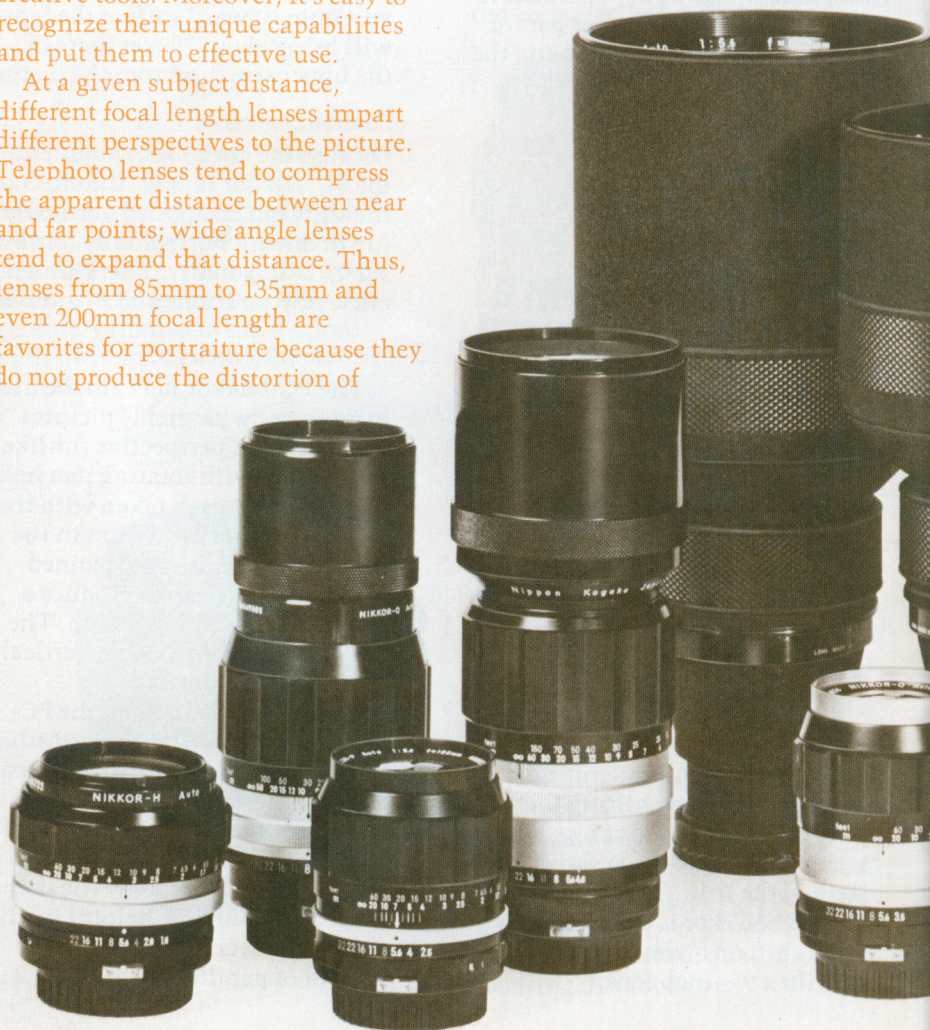
The ability of telephoto lenses to bring far-away objects within arm's length makes them plainly essential parts of any camera outfit. Where subject distance, inaccessibility or hazardous conditions make it impossible to obtain a large image with the normal lens, the telephoto provides a simple and practical solution.

But, for the serious photographer, these optics also represent important creative tools. Moreover, it's easy to recognize their unique capabilities and put them to effective use.

At a given subject distance, different focal length lenses impart different perspectives to the picture. Telephoto lenses tend to compress the apparent distance between near and far points; wide angle lenses tend to expand that distance. Thus, lenses from 85mm to 135mm and even 200mm focal length are favorites for portraiture because they do not produce the distortion of

facial features typical of shorter lenses. The extremes of this perspective-compression effect of telephoto lenses are often seen in photos of rows of buildings that seem to have no depth at all or of traffic jams in which cars appear to be pasted one in front of the other. Keep in mind that, in any given situation, only one specific focal length will produce the desired perspective.

The shallow depth-of-field of



TELEPHOTO LENSES

telephoto lenses not only makes them very easy to focus accurately. It also lets you throw distracting backgrounds or foregrounds out of focus and concentrate attention on the subject or create sharpness contrast between different areas in the picture.

Many of the medium long Nikkors are compact and light enough for hand-held shooting at 1/125th or faster shutter speeds. Use of a tripod is recommended to assure optimum results, especially with the longer focal lengths.

The Nikon system provides an unmatched variety of long lenses, from 85mm to 2000mm focal length, to satisfy the needs of any picture situation. Many of them accept the same 52mm screw-in filters as normal and wide-angle Nikkors. Like all Nikkors, they are designed to produce exceptional picture quality and may be used with all Nikon and Nikkormat SLR cameras.

Lens hoods are supplied with all Nikkors of 105mm and greater focal length.





85mm f1.8 Auto-Nikkor

The extremely high speed of this long-focus lens makes it an ideal choice for such available-light applications as stage photography, sports and other action shots as well as candid portraiture. Weighing less than 15 ounces, it is easy to use handheld and focuses as close as 3 feet. It has an auto-reopen diaphragm and couples to camera meter systems for full-aperture exposure control.

105mm f2.5 Auto-Nikkor

Most popular of all longer-than-normal Nikkors, the 105mm produces about 2x magnification compared to the normal lens. It is exceptionally sharp and well corrected, with more than enough speed for available-light work. With its combination of favorable perspective and image size, the 105mm is particularly suited for portraiture in addition to its general qualities as a superb medium-long focus objective. An excellent lens for travel, compact and less than 16 ounces in weight. Offers auto-reopen diaphragm and couples to camera meter systems. Focuses to within less than 4 feet.





135mm f2.8 Auto-Nikkor

Many consider this the ideal telephoto combination of high speed and 2.7x magnification over the normal lens. Focusing as close as 5 feet, it is equally suitable for portraits and sports as for general telephotography. Resolution and color correction meet the highest standards. Weighs just under 22 ounces, has sliding lens hood and accepts 52mm filters. Features automatic diaphragm and couples to camera meter systems.

135mm f3.5 Auto-Nikkor

An excellent all-round telephoto, providing the same performance as the f2.8 except, of course, for the maximum aperture. Offers advantages of less weight (under 16 ounces), and lower cost. Automatic and meter coupled, includes separate lens hood.





180mm f2.8 Auto-Nikkor

Provides truly remarkable picture capabilities by virtue of its surpassing speed, 3.6x magnification and outstanding optical quality. Unequaled for professional stage and sports photography along with general available-light work. Focuses within 6 feet. Fully automatic, coupled to camera meter systems. With sliding lens hood.

200mm f4 Auto-Nikkor

Long a favorite for true telephotography, providing 4x magnification over the normal lens. Remarkably compact and light (22¼ oz.), may be used hand-held for successful sports and wildlife shots, among many applications. Focuses as close as 7 feet. Features include sliding lens hood, automatic diaphragm, and coupling to camera meter systems.





300mm f4.5 Auto Nikkor

An exceptionally fine telephoto, offering 6x magnification compared to the normal lens. All-over resolution and corrections are excellent even at full aperture. Ideal for nature and wildlife work as well as general telephotography. Closest focus is 13 feet. Automatic diaphragm and meter coupling are added advantages, as is the sliding lens hood.

400mm f5.6 Auto-Nikkor

Recent design refinements make possible the compact size and light weight (barely over 3 lbs.) of this high-power telephoto which magnifies 8 times over the normal 50mm lens.

Because it uses a newly developed type optical glass, chromatic aberration is more highly corrected than ever in a lens of this focal length. It offers excellent characteristics for long-range sports and wildlife photography, with the advantages of automatic diaphragm action and full-aperture meter coupling. Closest focus is 16 feet.



TELE NIKKOR SYSTEM

These are the lenses professionals use to obtain "closeup" coverage of sports events and space shots, among others, from hundreds of yards away. In addition to enormous magnification and superb optical quality, they offer an ingenious design feature.

Each consists of an optical unit that is fitted to the Nikon or Nikkormat slr by means of a separate focusing unit which also contains the diaphragm. The same focusing unit is used with all four

lenses, resulting in substantial cost economy for anyone requiring more than one of them. This two-piece construction also means greater convenience in carrying the lenses.

The diaphragm reopens automatically except with the 1200mm. Thru-the-lens metering with all four is done by the stop-down method. All accept 122mm screw-in filters and have built-in lens hoods. Use of a sturdy tripod is a must with these lenses which have a tripod socket built-into a rotatable collar.

400mm f4.5 Tele Auto-Nikkor

8x magnification. Auto-reopen diaphragm. Closest focus 16 feet. Weight 6.8 lbs., plus focusing mount (3 lbs.).



600mm f5.6 Tele Auto-Nikkor

12x magnification. Auto-reopen diaphragm. Closest focus 35 feet. Weight 7.9 lbs., plus focusing mount.



800mm f8 Tele Auto-Nikkor

16x magnification. Auto-reopen diaphragm. Closest focus 66 feet. Weight 7.7 lbs., plus focusing mount (shown attached)



1200mm f11 Tele Nikkor

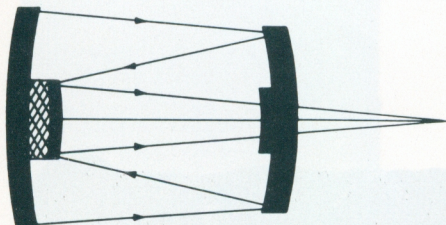
24x magnification. Manual diaphragm. Closest focus 139 feet. Weight 9.5 lbs plus focusing mount.

REFLEX NIKKOR LENSES

Imagine being able to shoot handheld with a lens giving 10x and even 20x magnification over the normal lens! Reflex Nikkors make it not just possible but also practical bringing an exciting new sense of freedom to telephotography.

These lenses are based on catadioptric design principles as used in large astronomical telescopes. Nikon has built many such telescopes for leading observatories.

In conventional lenses, the light travels a straight path. In Reflex Nikkors, it doubles back and forth through a system of mirrors and lenses which is why they are also called folded optics. This leads to remarkable reductions in size and weight compared to other lenses of similar focal length.



Like all catadioptric lenses, Reflex Nikkors have no diaphragm. Light transmission is regulated by filters built-into the rear of the lens or by varying the shutter speed. Each has a built-in tripod socket and a spring catch that permits rotating the camera body for either horizontal or vertical shots.

500mm f8 Reflex Nikkor

Provides 10x magnification, yet weighs a mere 2.2 lbs. and measures

just 5½ inches long. Focuses as close as 13 feet. Includes 5 filters (UV haze, yellow, orange, red, neutral density), lens hood, and case.



1000mm f11 Reflex Nikkor

Magnifies image 20 times, weighs only 4.2 lbs., measures only 9-3/8 inches in length. Closest focus is a remarkable 25 feet. Four filters (UV haze, yellow, orange, red) are mounted on built-in turret with external selector. Includes lens hood and case.

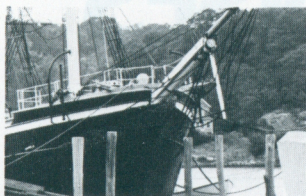


2000mm f11 Reflex Nikkor

Most powerful lens in the Nikon system, offers 40x magnification. Conventional design would require a length of 6 feet; Nikon catadioptric design squeezes it into just 23½ inches. Grip handle embodies alignment finder to help locate subject. Closest focus is 60 feet. Built-in turret contains four filters: UV haze, yellow, orange, red. Weight is 38.6 lbs. Special mount is available which provides effortless rotation and elevation.

COMPARATIVE MAGNIFICATION PRODUCED WITH VARIOUS NIKKOR TELEPHOTO LENSES

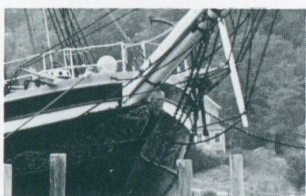
All photos shown below were taken from the same camera position. The picture made with the normal 50mm lens is included for comparison purposes.



50mm



400mm



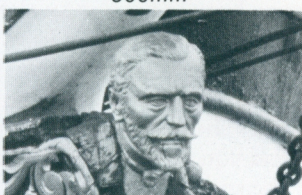
85mm



500mm



105mm



600mm



135mm



800mm



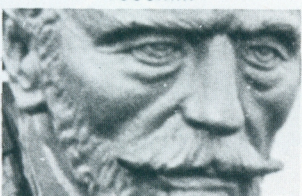
200mm



1000mm



300mm



2000mm

NIKKOR ZOOM LENSES

You are framing your picture in the camera finder, and you're not satisfied with the composition. The subject image is too large, or too small. Or the perspective just isn't right. So, you move closer, or farther away. You try other lenses of various focal lengths. Eventually you may come up with the desired effect, provided your subject is still there.

It's a lot easier and faster when you put a Nikkor Zoom lens on your Nikon or Nikkormat slr. You simply slide the large, knurled collar on the lens mount forward or back and observe the changing image in the viewfinder. Within seconds you can obtain precisely the pictorial effect you want. And you never have to move from the spot or take your eye off the finder.

How does a Nikkor Zoom perform its seeming magic?

While in conventional lenses the focal length is fixed, in Nikkor Zooms it is continuously variable through a given range. You choose the focal length by means of the sliding collar which shifts part of the optics back and forth. Thus a single Nikkor Zoom can be any lens from semi-wide angle to long focus, or from normal to telephoto, or from medium long to super telephoto. It is literally countless lenses in one, giving you a measure of pictorial variety and control not available with any number of other lenses.



There are other, unique advantages you enjoy with a Nikkor Zoom. Once focused sharply at any focal length setting, it is automatically in focus throughout its entire range. What's more, on all but one of today's Nikkor Zooms the same control collar does both: simply slide it to select the focal length, twist it to focus. Its movement is so smooth you can actually "follow-zoom" moving action to keep the image size uniform for the entire sequence.

Considering these unique capabilities, it's easy to see why quality zoom lenses are the most difficult of all to design and manufacture. The optics involved are enormously complex. Infinitesimal precision is essential to ensure 100% alignment

accuracy of the moving components at any of innumerable settings. The axiom that high quality lenses cannot be cheap thus is especially true for zoom optics.

Not surprisingly, Nikon was first to produce a practical zoom lens for 35mm that met professional quality requirements. From this headstart, through years of improvement and refinement, Nikon has developed today's incomparable array of four Nikkor Zoom lenses whose sharpness and correction are considered the quality standard for zoom optics. You'd need only three of them to command a continuous range of focal-lengths from 43mm through 600mm telephoto. All have automatic-reopen diaphragms, and all but one couple to the Nikon and Nikkormat meter systems.



Auto Nikkor Zoom 43-86mm f3.5

When you have to limit yourself to one lens but don't want to limit your picture capabilities, there's nothing like the 43-86 Nikkor Zoom. It gives you any focal length from semi-wide angle to semi-telephoto, a range that covers most picture situations from interiors to portraits to scenic shots. Yet it is remarkably light and compact, with excellent speed and all-over definition.

The 43-86 is such a popular travel companion that special, compact eveready cases are available for Nikon or Nikkormat slr's with this lens attached. Many team it up with a 24 or 28mm Auto Nikkor wide angle and 135 or 200mm telephoto for an excellent all-round picture-taking combination. The 43-86mm Nikkor Zoom has an automatic-reopen diaphragm and couples for thru-the-lens exposure control at full aperture. It can be focused as close as 4 feet using the combined zoom/focus collar.

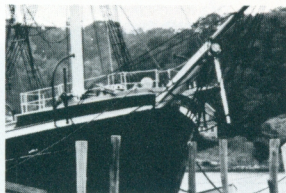


Auto Nikkor Zoom 200-600mm f9.5

Because of its versatile 4x to 12x magnification range, the 200-600 Nikkor Zoom has long been a favorite for long-range sports, wild-life and bird photography. The latest version, based on a newly developed optical design, offers truly exceptional performance along with significantly reduced size and easier handling. The lens maintains not only its maximum aperture at f9.5 throughout the focal length range but optimum resolution and correction as well.

Special facilities include a revolving tripod socket with click stops providing a ready choice of vertical or horizontal format. The lens is equipped with auto-reopen diaphragm and permits thru-the-lens metering at the "taking" aperture. A single collar serves for focusing and zooming. Closest focus is 13 feet.

Normal 50mm lens



Nikkor Zoom at 200mm

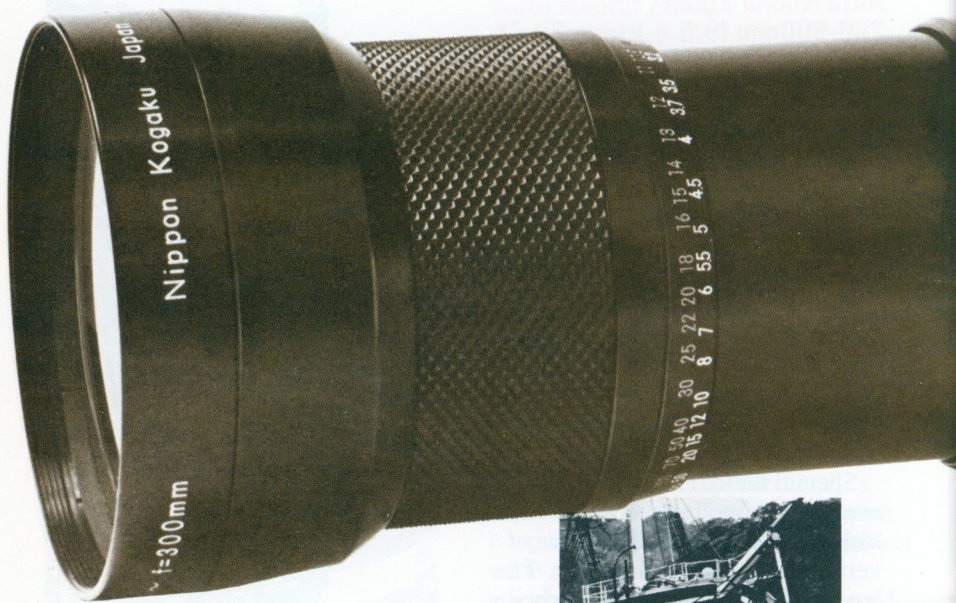


at 400mm



at 600mm

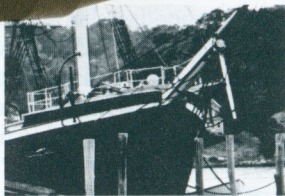




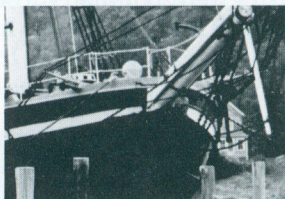
Auto Nikkor Zoom 50-300mm f4.5

Imagine being able to choose any of hundreds of focal lengths from normal through 6x telephoto without having to switch lenses! That's the flexibility you enjoy with the 50-300 Nikkor Zoom — the widest range in all 35mm. Equally remarkable is its superb optical quality at any and all focal length settings. The precision-smooth transition encourages many to seek new effects not possible with other still camera optics.

With excellent speed added to its many other qualities, the 50-300 Nikkor Zoom has found acceptance among photojournalists, sports and nature photographers. Fully automatic and meter-coupled to Nikon and Nikkormat systems, it may be focused as close as 8½ feet. This lens provides separate control collars for focusing and zooming.



at 50mm



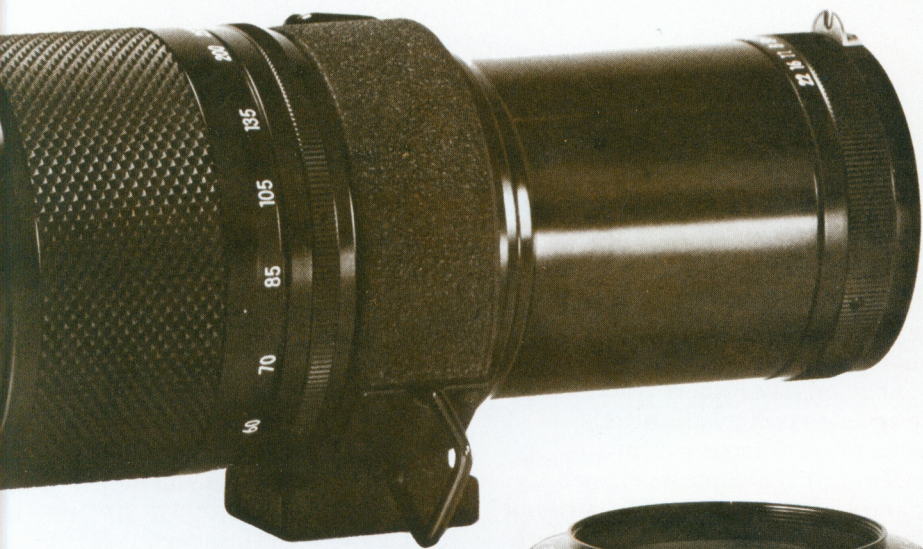
at 80mm



at 200mm



at 300mm



Auto Nikkor Zoom 80-200mm f4.5

In its test report on the 80-200 Nikkor Zoom, *Modern Photography* magazine described it as "the best zoom lens we have ever tested... Optically, it is incredibly good, bettering many performances of good single focal length lenses. Mechanically, it operates with...silken smoothness and convenience..."

A mere 6¼" long and weighing just 29 ounces, the lens fairly demands to be used hand-held. It provides an infinite variety of focal lengths spanning the most widely used range for anything from portraits to true telephoto. Combined zoom/focus collar, automatic-reopen diaphragm and coupling for full-aperture exposure metering are added advantages. Closest focusing distance is 6 feet.



NIKKOR

Imagine a lens so unique that it can give you an entirely new way of seeing — a perspective different from any obtainable with any other photographic optics.

That lens is a Fisheye Nikkor. It's designed to portray an entire hemisphere. Shooting from a doorway, it encompasses everything in the room, including the doorframe. There are even Fisheye Nikkors with 220° picture coverage — lenses that actually see objects behind the camera!

With their extremely short focal lengths, Fisheye Nikkors also exhibit truly enormous depth-of-

field, extending from infinity to within inches of the camera.

Fisheye Nikkors were originally intended for such scientific purposes as recording cloud patterns and measuring azimuth and zenith angles. They are also invaluable for industrial uses — picturing interiors of boilers or pipe lines and for surveillance, among others. But, the spectacular pictorial effects they produce also inspired photographers to explore fascinating new picture



FISHEYE LENSES

dimensions. The magic of the Fisheye Nikkor can transform the most ordinary, everyday object with dramatic impact. Today, there is hardly an area of photography where these lenses are not being used with striking effectiveness.

This universal acceptance of Fisheye Nikkors is due in large measure to the surpassing quality that is evident in their performance. Their sharpness and color correction

meet every professional standard, as do all lenses in the Nikon system.

Like other revolutionary Nikkor lens designs, the Fisheye Nikkors are widely imitated. Unlike other, so-called "fisheye lenses" which may cover only 140° or 160°, Fisheye Nikkors provide the full 180° or greater coverage of true Fisheye optics.

All Fisheye Nikkors have built-in filter turrets with external selector dials. They produce a circular composition on the film, from 20mm to 23mm diameter, depending on the lens.



7.5mm f5.6 Fisheye Nikkor (180°)

With a nominal picture angle of 180°, this lens takes in literally everything in front of the camera — even areas above, below and to the sides. It produces the famous circular Fisheye composition as a 23mm diameter image. Apertures range from f5.6 to f22, with click stops. Six filters are contained on a built-in turret. Because of the great depth-of-field, no focusing is needed nor provided. Resolving power and color correction are excellent over the entire field.

The lens is used with camera mirror locked in “up” position and fits Nikon and Nikkormat cameras offering that facility. It is supplied with optical 160° centering finder and case.



8mm f2.8 Fisheye Auto-Nikkor (180°)

Extra speed, reflex viewing, and thru-the-lens metering — those are the advantages the 8mm f2.8 adds to the unique Fisheye Nikkor pictorial qualities. Since it retains the benefits of automatic mirror and diaphragm action, you compose the picture on the finder screen, aided by the large f2.8 aperture.

Meter-coupled exposure settings are made at full aperture. Five filters are provided on a built-in turret. Image on film measures 23mm in diameter. This lens can be focused as close as 12 inches. It fits all Nikon and Nikkormat slr cameras.





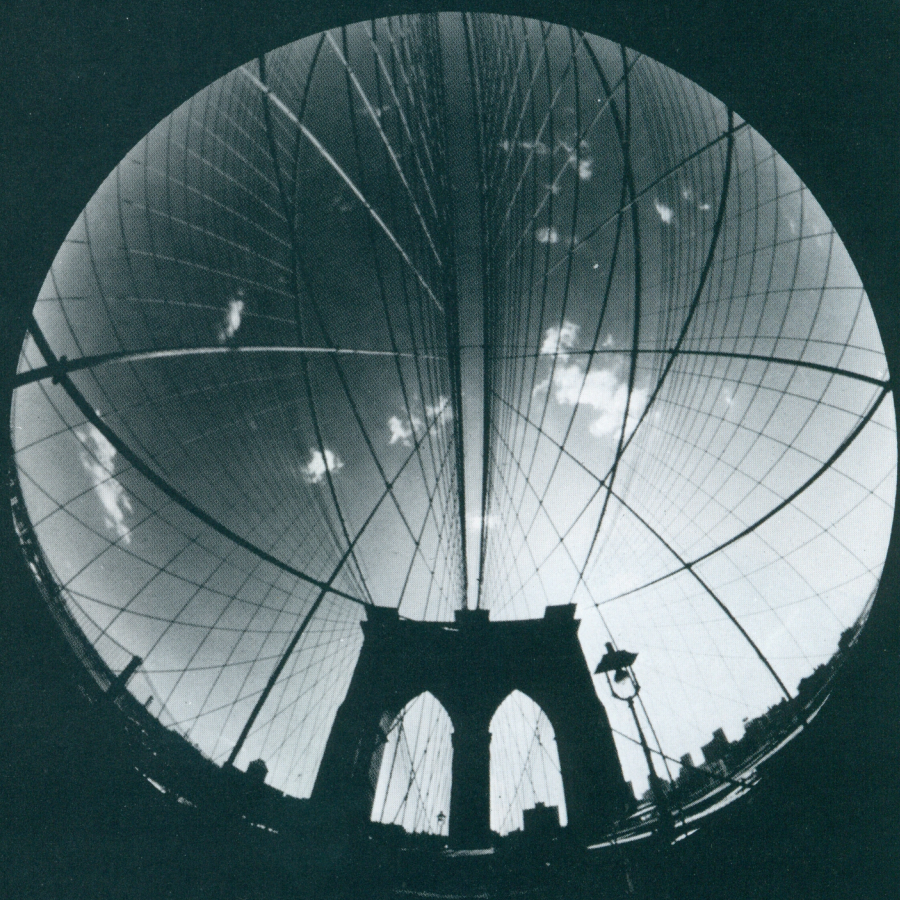
6mm f5.6 Fisheye Nikkor (220°)

An even more spectacular achievement than the 180° Fisheye Nikkors, the 6mm actually "sees" behind itself. It is the first commercially available lens to provide this extremely wide picture coverage. In other respects, it offers the same performance and fits the same cameras as the 7.5mm f5.6 Fisheye Nikkor. A 160° optical centering finder and case are supplied as standard equipment.

6mm f2.8 Fisheye Auto-Nikkor (220°)

It is downright startling to observe the incredible 220° coverage of this lens through the Nikon or Nikkormat reflex finder system. As in the case of all Auto-Nikkors, it is meter-coupled and provides open-aperture exposure readings. It can be focused as close as 10 inches, aided by a convenient focusing lever. The built-in filter turret contains 6 filters, selected by an external dial. A tripod socket is also provided.





10mm f5.6 OP Fisheye Nikkor (180°)

A highly specialized lens, the OP (Orthographic Projection) resembles the other Fisheye Nikkors in its general performance but also offers two additional characteristics.

The special OP design provides for no brightness falloff and no change in color values toward the edges. Objects of equal brightness are reproduced with equal image density regardless of their location in the picture area. Furthermore, the unique OP formula, which embodies an aspheric element, is designed to permit easy determination of the so-called configuration factor for the camera's location. This factor simplifies the study of interior and exterior illumination and heat radiation patterns.

Applications for the OP Fisheye Nikkor include architectural design, civic improvement, street lighting and fire safety studies, among others. The lens produces a 20mm diameter image and is used with the camera mirror locked in "up" position. Six filters are provided on a built-in turret. It is supplied with optical 160° centering finder and case.



WHY NIKKOR?

What makes a lens great? "Sharpness" or "resolution" might seem logical replies. But they are far from the only factors contributing to lens quality. As every reader of test reports knows, some relatively inexpensive lenses can perform very well indeed. But there are at least a dozen other good reasons why anyone who has invested in a Nikon or Nikkormat camera shouldn't settle for less than a Nikkor lens.

Unsurpassed Technology

From computerized lens design to sheer brilliant originality, Nikon designers have kept Nikkor lenses in the forefront of optical innovation. For example, Nikkor pioneered multi-layer coatings. This technique increases light transmission for greater lens efficiency and greatly reduces flare, even in strongly backlit situations. Only recently has anyone else offered multi-layer coatings. But, unlike others, Nikon uses multi-layer coatings only where necessary for superior lens performance and, in fact, integrates this process into the design of the lens.

Companies less committed to optical research, without Nikon's advanced facilities, simply cannot hope to be anything but imitators.

220 Types of Optical Glass

Nikon is one of the few lens makers in the world who produce their own optical glass. More than 220

varieties, in fact. Nikon designers can count on precisely the glass they need. If the glass works doesn't have it, they'll make it. They select only the choicest part of each glass melt; the rest is sold.

Most other manufacturers must depend on what an outside supplier can come up with.

The Lens Mount

Nikon cameras and lenses feature a big, rugged bayonet mount which is safe and sure — yet permits twist-of-the-wrist changing. You'll never find a Nikkor lens mount that feels loose or shaky. There are no threads to wear, no add-on adapters to go out of line or loosen when you most need precision and dependability. Mounting lugs are made of stainless steel and phosphor bronze, so your Nikkor lenses always fit like new even after attaching and removing them thousands of times. Manufacturing specifications guarantee that lens-to-film-plane alignment will remain constant. You can shoot at maximum aperture, with depth-of-field virtually non-existent, knowing that you'll get all the available sharpness.

There are many other types of mounts — laborious screw mounts with threads that wear out, chancy, time-consuming breech-locks, wiggly add-on adapters to go out of line or loosen. None compare to Nikon for accuracy, security and speed.

Auto-Nikkor Lens Design

On the back of any auto lens is a moving lever or pin whose alignment is vital — the automatic diaphragm actuator. This lets you compose and focus at maximum aperture. With Auto-Nikkors, it's perfectly safe to take the lens off the camera and set it down, because the actuator is protected by a projecting collar.

On a surprising number of other lenses — even expensive ones — it's the pin that projects. There's constant danger of damage and of less than accurate diaphragm action.

Lens Assembly

Externally, lenses look pretty much the same. You'd have to see a Nikkor being assembled to appreciate the difference. Where, for instance, inner and outer rings are held together by screws, the screw goes through *both* rings. And the hole is drilled before the lens is assembled, so no metal particles are left inside.

Especially on inexpensive lenses (which can sometimes achieve high optical performance), mechanical shortcuts include screws which go through one ring only, holding the second ring with pressure. When the screw loosens, you've got an unsharp lens or, worse yet, a two-piece lens.

Close Tolerances

A Nikkor and another lens may feel equally smooth and precise *when*

new. With the Nikkor it's because of incredibly precise tolerances — closely spaced and finely grooved helical threading on the focusing mount. The silky action is not affected by extremes of high or low temperatures. And, after years of use, it will still be just as smooth. The automatic diaphragm employs a ball-bearing raceway to achieve the same smoothness and avoid sticking.

Inexpensive lenses get their smoothness by a much simpler method: grease. But, as heat and cold affect the consistency of grease, erratic diaphragm action results. Eventually, grease dries out and can't be replaced, causing the diaphragm to stick.

Lens Element Placement

Here's where accuracy really counts. Advanced computer design means nothing without meticulous care in seeing that every element or group of elements is precisely where it belongs. Even a tiny misalignment means loss of sharpness. One reason you can depend on Nikkor lenses for a lifetime of performance is that threaded retaining rings, backed up by precision-turned screws, anchor every element permanently and precisely in place.

Other lenses use a variety of less expensive and less reliable methods to position the elements — coarse screws, cement, and plain ordinary friction.

Lens Handling

A lot of things contribute to fast, precise handling of a lens. Aperture and footage scales must be readable at a glance — even in low available light. Nikkor lenses have white numerals on a black background for high legibility. Depth-of-field scales aren't just a hard-to-read ornament but a real working tool that you can read and use quickly and easily.

With Nikkor lenses, you won't make a mistake and grab the aperture scale when it's the focusing ring you need. The two controls are spaced purposely far enough apart to prevent errors, even under the most difficult conditions. When you grip the knurled surface of the focusing ring, you are in control. And you sense the fine balance that cannot exist unless the camera and lens are made only for each other.

Check other lenses for these essential conveniences. Some literally don't give you anything to hold on to. And watch out for breech-lock rings which, if unintentionally turned, can drop the lens to the ground.

Standard Filters

All Nikkor lenses from 24 to 200mm except 180mm f2.8 and Medical Nikkor, use the same 52mm screw-in filters and accessories. You never have to guess or experiment. It also keeps your filter costs down.

Other lens makers, unaccountably, use a different filter size for almost every lens. A bagful of lenses requires another bagful of filters and other attachments.

More than 40 Nikkor Lenses

From the 220° viewing 6mm Fisheye to the super-powerful 2000mm telephoto, there are more than 40 Nikkor lenses to choose from. It's hard imagine anyone needing all of them, but whatever lens you want is available as part of the Nikon system.

No one else offers a comparable range or number of lenses.

World-Wide Warranty

Wherever you go with your Nikkor lens and Nikon or Nikkormat camera you're covered by the Nikon world-wide warranty.

To our knowledge, no other manufacturer offers such a warranty.

Nikon Total System Resolution

The same care and originality, the same painstaking quality control which go into Nikkor lenses are integral parts of every Nikon and Nikkormat Camera. But a camera is only as good as the lens. And the lens is only as good as the camera. Both are only as good as the perfection with which they are mated. Both are elements of the most complete system in 35mm photography. A comprehensive, unbreakable chain of perfectly matched components that add up to a concept we call *Nikon Total System Resolution*. The idea that Nikon System components will work together better because they're *made* to work together. Total System Resolution: it's the one sure way to get the matchlessly great photographs you want. We've got a name for that, too: *Nikon Results*.

LENSES		Product Number	Diaphragm Action	Minimum Aperture	Picture Angle	Closest Focus	No. of Elements	Filter Size	Weight
FISHEYE NIKKORS	6mm f5.6 Fisheye	227	Manual (1)	f22	220°	fixed focus	9	6 built-in filters	15.3 ozs.
	6mm f2.8 Fisheye		Automatic (2)	f22	220°	10"	12	6 built-in filters	11 lbs. 8 ozs.
	7.5mm f5.6 Fisheye	229	Manual (1)	f22	180°	fixed focus	10	6 built-in filters	11.2 ozs.
	8mm f2.8 Fisheye	226	Automatic (2)	f22	180°	12"	10	5 built-in filters	2 lbs. 2 ozs.
	10mm f5.6 OP Fisheye	228	Manual (1)	f22	180°	fixed focus	10	6 built-in filters	14.3 ozs.
WIDE ANGLE NIKKORS	15mm f5.6		Automatic (2)	f22	110°	12"	15	4 built-in filters	19.8 ozs.
	20mm f3.5	233	Automatic (2)	f22	94°	12"	11	72mm	13.75 ozs.
	24mm f2.8	232	Automatic (2)	f16	84°	12"	9	52mm	10 ozs.
	28mm f3.5	237	Automatic (2)	f16	74°	24"	6	52mm	8 ozs.
	28mm f2	236	Automatic (2)	f22	74°	12"	9	52mm	12.2 ozs.
	35mm f2.8	240	Automatic (2)	f16	62°	12"	7	52mm	7 ozs.
	35mm f2	239	Automatic (2)	f16	62°	12"	8	52mm	9.9 ozs.
	35mm f1.4	238	Automatic (2)	f22	62°	12"	9	52mm	14.6 ozs.
NORMAL NIKKORS	45mm f2.8 GN	234	Automatic (2)	f32	50°	36"	4	52mm	5.3 ozs.
	50mm f2	245	Automatic (2)	f16	46°	24"	6	52mm	7.3 ozs.
	50mm f1.4	246	Automatic (2)	f16	46°	24"	7	52mm	11.5 ozs.
	55mm f1.2	247	Automatic (2)	f16	43°	24"	7	52mm	15 ozs.
LONG FOCUS & TELEPHOTO NIKKORS	85mm f1.8	260	Automatic (2)	f22	28°30'	3'	6	52mm	15 ozs.
	105mm f2.5	265	Automatic (2)	f32	23°20'	3'4"	5	52mm	15.2 ozs.
	135mm f3.5	271	Automatic (2)	f32	18°	5'	4	52mm	15.9 ozs.
	135mm f2.8	270	Automatic (2)	f22	18°	5'	4	52mm	21.8 ozs.
	180mm f2.8	280	Automatic (2)	f32	13°40'	6'	5	72mm	29.3 ozs.
	200mm f4	175	Automatic (2)	f32	12°20'	7'	4	52mm	22.1 ozs.
	300mm f4.5	278	Automatic (2)	f22	8°10'	13'	5	72mm	2 lbs. 3 ozs.
	300mm f2.8		Manual (1)		8°10'				
	400mm f5.6		Automatic (2)	f32	6°	16'	5	72mm	3 lbs. 1 oz.
	400mm f4.5	189	Automatic (4)	f22	6°	16'	4	122mm	6 lbs. 12 ozs. (4)
	600mm f5.6	191	Automatic (4)	f22	4°	35'	5	122mm	7 lbs. 9 ozs. (4)
	800mm f8	194	Automatic (4)	f64	3°	60'	5	122mm	7 lbs. 11 ozs.
1200mm f11	196	Manual (4)	f64	2°	130'	5	122mm	9 lbs. 5 ozs. (4)	
REFLEX NIKKORS	500mm f8	190	(5)	(5)	5°	13'	Mirror Lens System	39mm	2 lbs. 4 ozs.
	1000mm f11	197	(5)	(5)	2°30'	25'	Mirror Lens System	4 built-in filters	3 lbs. 8 ozs.
	2000mm f11	(5)	(5)	(5)	1°10'	60'	Mirror Lens System	4 built-in filters	38 lbs. 9 ozs. Mt. 16 lbs. 8 ozs.
ZOOM NIKKORS	43-86mm f3.5	275	Automatic (2)	f22	53° to 28°30'	4'	9	52mm	14 ozs.
	50-300mm f4.5	274	Automatic (2)	f22	46° to 8°10'	8½'	14	95mm	5 lbs.
	80-200mm f4.5	276	Automatic (2)	f32	30°10' to 12°20'	6'	15	52mm	29.3 ozs.
	200-600mm f9.5	277	Automatic	f32	12°20' to 4°	13'	19	82mm	5 lbs. 2 ozs.
SPECIAL NIKKORS	35mm f2.8 PC	243	Pre-set	f32	62°	12"	8	52mm	11.8 ozs.
	55mm f3.5 Micro	250	Automatic (2)	f32	43°	1:1	5	52mm	8 ozs. (with M-ring, 12.5 ozs.)
	105mm f4 Bellows	166	Pre-set (3)	f32	23°20'	∞ to 1.3x	5	52mm	8.5 ozs.
	200mm f5.6 Medical	296/297	Automatic	f45	12°20'	3:1	4	38mm	22.8 ozs.

(1) Cannot be used with Photomic system on Nikon F. Fits only cameras with independent mirror control. Supplied with optical centering finder. (2) Couples to exposure meter and Photomic systems. (3) For use only with bellows. (4) Requires focusing mount adapter No. 199 (weighs 3 lbs.) (5) Reflex Nikkors have no diaphragms but use filters to control light transmission.

All lenses are supplied with front caps. Telephoto lenses from 105mm up include lens hoods./Nikkor "F" mount lenses can be used on "C" mount movie and TV cameras by means of Nikon "C" mount adapters./For highest quality black & white and color enlarging, EI Nikkor 50mm f2.8 offers maximum resolving power and flatness of field./Specifications subject to change without notice.

