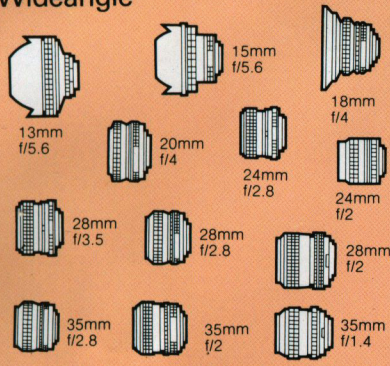
Nikkor Lenses

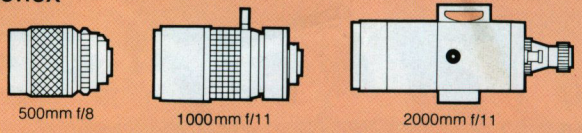
Nikon

Wideangle

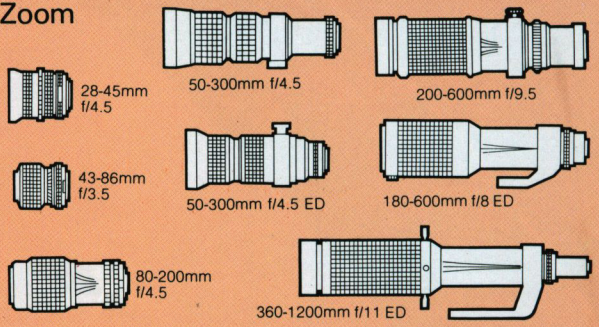


Normal

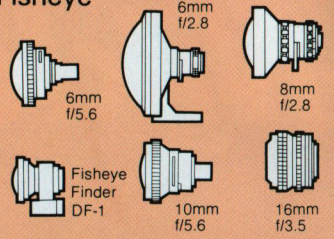
Reflex



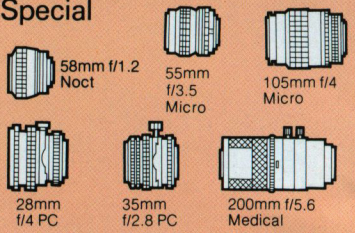
Zoom



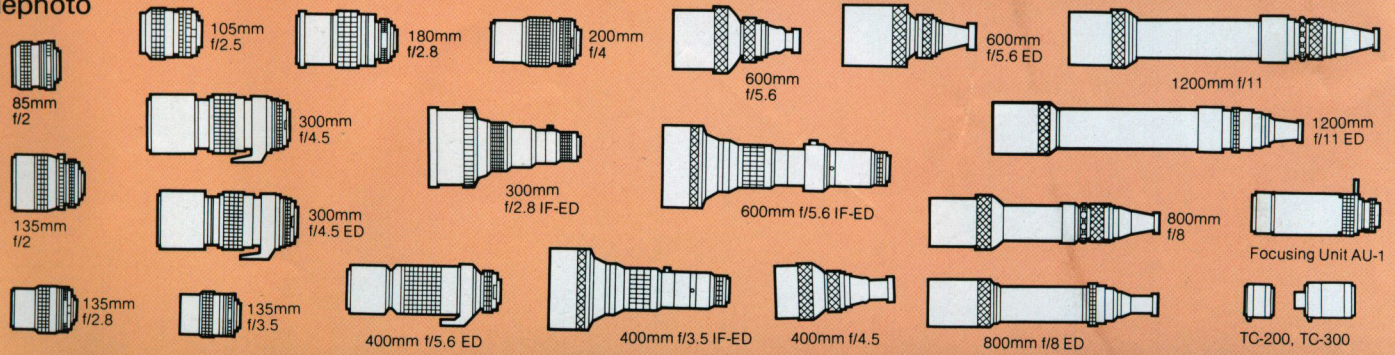
Fisheye



Special



Telephoto



Nikkor Lenses by Nikon

For decades, Nikkor lenses have signified leadership in optical excellence. Through innovative optical design, Nikon engineers have created advanced lens types of enormous significance to 35mm photography, particularly in the fields of Zoom, Fisheye, and Reflex lenses. The acceptance of Nikkor optics in every area of 35mm photography is today so overwhelming that, visually, the history of our time has been inscribed with Nikkor lenses . . .

Nikon and Nikkormat owners can choose from more than *fifty* Nikkor lenses, encompassing the entire spectrum from 6mm Fisheye to 2000mm ultra-telephoto. Within the Nikon system, no photographer is ever limited in developing his creativity or in pursuing specialized areas of photography; the required lens is always available. In more than fifty ways, Nikkor lenses become virtually an extension of your eye . . . seeing and recording your world with unerring precision.

Why Nikkor?

For the most logical reason in the world: if you own a Nikon or Nikkormat camera, Nikkor is the only lens in the world specifically and solely made for your camera. All Nikkor lenses are precisely, perfectly mated — in optics, design and engineering — to the camera bodies and accessories in the Nikon System. Which means that no other lens can work as well with your camera as a Nikkor lens.

There is yet another reason, acknowledged by professional photographers throughout the world: optically and mechanically, Nikkor lenses are indisputably the finest ever created for 35mm photography. They are the only optics designed to permit the Nikon or Nikkormat owner to realize the full potential of his camera — today *and* tomorrow.

From the initial manufacture of optical glass to the final assembly of lens elements — every production process is subject to a series of rigid tests and inspections.

Nikon's Own Optical Glass

Nikon is one of the few camera makers in the world which makes its own optical glass, giving its designers full freedom of choice and a wide scope for experimentation with new lens designs. Whatever the requirement, Nikon engineers can select the exact type of glass desired — without compromise.

Many unique types of optical glass have been developed by Nikon scientists. Characteristic of such glasses is the new ED (Extra-low Dispersion) type, providing an improvement in color correction and image contrast to a degree long believed unattainable in telephoto lenses. This leadership and continuing improvement in optical glass technology assures state-of-the-art optics in all Nikkor lenses.

Uncompromising Quality Control

Paramount to Nikon quality is the selection of only the finest optical glass from each melt — completely free of striae and other imperfections. The glass is then re-melted, cast, ground, polished, and hard-coated, and individual lens elements are carefully mounted within lens barrels, collimated, and aligned. Throughout the entire process, individual lens elements and assemblies are subjected to a seemingly endless series of tests and inspections, culminating in vibration and temperature-resistance analysis to insure that every Nikkor lens will perform faultlessly under the most strenuous professional use. The result of these stringent tests is remarkable quality and consistency in the finished product — quality so dependable that randomly selected Nikkor lenses have actually been employed in outer space with complete success.

Functional Design

Superior mechanical performance as well as optics is inherent in every Nikkor lens . . . so unmistakably that, today, Nikkor lenses are the standard to which all others are compared.
Hold a Nikkor lens in your hand. Immediately, you sense the quality and precision with which it is built. It's rugged, clearly capable of withstanding hard professional use. All controls are conveniently positioned and distinctively finished for accurate, comfortable operation even when wearing gloves! The result: split-second response, enabling you to capture every photographic opportunity as it occurs.
In every Nikkor lens, the mounting flanges are constructed of stainless steel and hardened bronze, metals carefully selected for their rigidity and durability. When you attach the lens to your camera, it is aligned perfectly with the camera's film plane for optimal sharpness — a consideration of vital importance with modern high-speed and ultra-telephoto lenses, where even the smallest impairment of mounting accuracy can substantially degrade image quality. A Nikon lens is literally made to be attached and removed from your camera countless times while remaining in alignment.
Other details of Nikon's functional lens design include the sure-grip, finely-grooved focusing ring that moves just as smoothly and simply after years of use as it did when it was new. And the clear, legible lens markings allow fast, precise handling. Not so noticeable but of prime importance are the precision ball bearings which give long-lasting, accurate diaphragm action.
All Nikkor SLR lenses, from 1959 through the present, have been made with the timeless Nikon bayonet mount . . . your entry into the world of fine photography, and your assurance of complete lens interchangeability with all Nikon and Nikkormat cameras — today *and* tomorrow. Very simply, obsolescence is *not* a feature of the Nikon system!
This concept of interchangeability extends even to Nikon filters and many lens accessories, of which a single size — 52mm — may be used on more than 20 Nikkor lenses from 20mm to 200mm . . . effectively reducing the number of accessories you need, and providing obvious economy as well.
All present Nikkor lenses (except two Fisheye-Nikkors) permit thru-the-lens exposure control with the Nikon and Nikkormat metering system — most of them with full-aperture operation.

Nikon Worldwide Technical Service

There are nearly 45 service facilities in major cities throughout the world where owners of Nikon photographic equipment can receive technical service, advice and information.
And in accordance with the provisions of the Nikon Worldwide Service Warranty (NWSW) which was one of the first of its kind, customers can get service free of charge at these facilities for a period of one year after the date of purchase of a Nikon product. The NWSW is part of Nikon's policy to furnish owners of Nikon products with as thoroughgoing after-service as possible no matter when or where the need arises.

Nikon Innovations

Behind the extensive array of Nikkor interchangeable lenses are Nikon's untiring efforts to bring about ever more significant accomplishments in lens design. The technological developments described here have been acknowledged as major advances in the field of 35mm SLR photography.

Nikon Integrated Coating

Historically, internal reflections within photographic lenses have effectively limited the development of new lens types — particularly sophisticated multi-element lenses such as zooms. To overcome this, Nikon engineers developed a unique multi-layer coating designated Nikon Integrated Coating. In this advanced process, multiple layers of microscopically-thin coatings are applied to individual lens elements according to the specific lens and glass type. The result: a dramatic increase in image contrast and actual light transmission, and a corresponding reduction in flare caused by internal reflections. This advanced coating technology is but another reason for the continued superiority of Nikkor optics.

Nikon's Close-Range Correction System

Most lenses are primarily designed to perform best at medium to long distances. When focused at extremely close distances, their image quality tends to deteriorate.
This was a problem especially with large-aperture wideangle lenses of the retrofocus type — a problem which Nikon solved by introducing the close-range correction system, sometimes called the 'Floating Element' system.
When the lens is focused for close distances, its group of rear elements automatically shifts position in relation to the other elements, and as a result image quality is maintained even at close range. Thus, the wideangle Nikkor lenses to which this design has been applied offer an increased focusing range with exceptional picture quality throughout. These lenses include the 13mm f/5.6, 15mm f/5.6, 24mm f/2, 24mm f/2.8, 28mm f/2 and 35mm f/1.4.

Extra-low Dispersion (ED) Glass

All photographs are made with light, composed of the many colors of the spectrum. With panchromatic black-and-white and all color films, it is essential that both blue and red light rays be brought to focus at the same plane; otherwise, color 'fringing' and unsharpness will be evident. While modern techniques to correct for this 'chromatic aberration' are effective with normal and wideangle lenses, telephoto lenses — particularly those of 300mm or longer focal length — magnify even the slightest variation in focus between red and blue light rays, leading many photographers to assume that no ultra-telephoto lens could equal a 'shorter' lens in sharpness and color correction.
This limitation has been effectively overcome through the Nikon development of a new type of optical glass: Extra-low Dispersion (ED) glass. While providing the superior color correction typical of fluorite-crystal materials, Nikon ED glass maintains uniform transmission characteristics despite changes in temperature, and thus avoids the problem of 'focus shift' inherent in lenses utilizing fluorite-crystal elements. In addition, Nikon ED glass is as hard and scratch-resistant as other optical glass, so that it can be safely employed even in exposed front and rear lens elements.
The Nikon ED-series of ultra-telephoto lenses, ranging from 300mm to 1200mm, demonstrates the many qualities of this advanced glass type by providing images of remarkable sharpness and contrast even at maximum aperture. ED lenses are in fact so highly color-corrected that the traditional infrared focusing index is not engraved on some of them. Sharp focus extends even into the infrared wavelength! An additional benefit of some Nikon ED-series lenses is unusually compact, lightweight construction . . . a welcome advantage in ultra-telephotography.

Nikon's Internal Focusing System

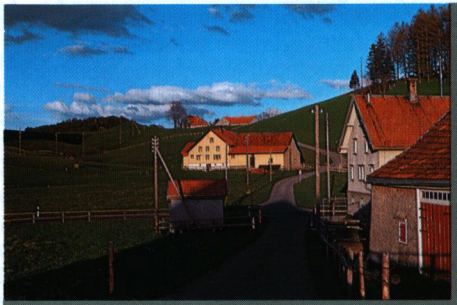
A conventional double helicoid focusing system requires that all lens groups are transported by the lens barrel to either the front or rear during focusing. This mechanism is not only complicated but also bulky, more so in the case of telephoto lenses where the extra physical length of the lens requires the use of heavier gauge metal with a consequent increase in weight and bulk. Specifically, lens length change when focusing results in unbalanced hand-held shooting. In order to achieve a compact telephoto lens without the length change by the helicoid-type focusing, Nikon developed the Internal Focusing (IF) system. With the IF System only the central lens group shifts during focusing with no change in the lens' physical length — new design freedom that leads to compact, lightweight construction and a closer minimum focusing distance for telephoto lenses. Additional benefits include faster focusing and a reduced diameter of the lens' focusing ring due to a simplified focusing mechanism. The final result — significant new design improvements that usher in a new era of hand-held super-telephoto shooting.

Nikkor Lenses: 50 Ways to Creative Photography

What makes one photograph more interesting, more attractive, than another? Often, nothing more — or less — than the selection of the Nikkor lens best suited to your subject. For, with the surpassing variety of Nikkor optics, you can almost magically control distance, even command depth and perspective to get precisely the effect you want in the finished photograph. No other photographic system gives you such complete creative freedom . . . as limitless as your imagination.

15 mm

28 mm



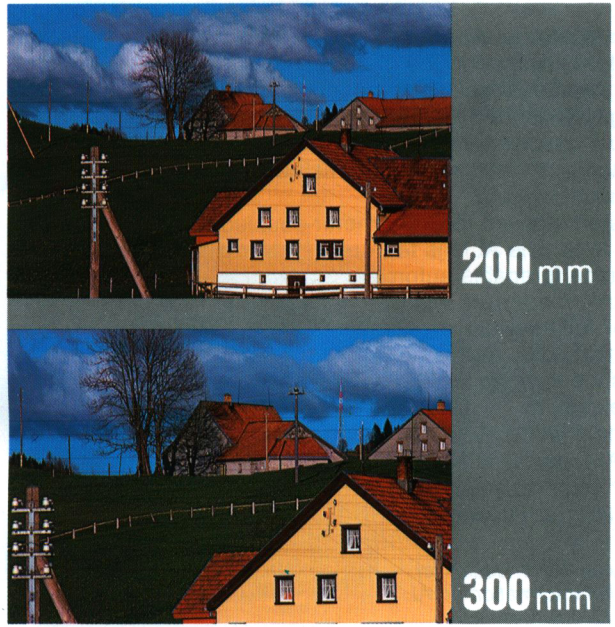
50 mm

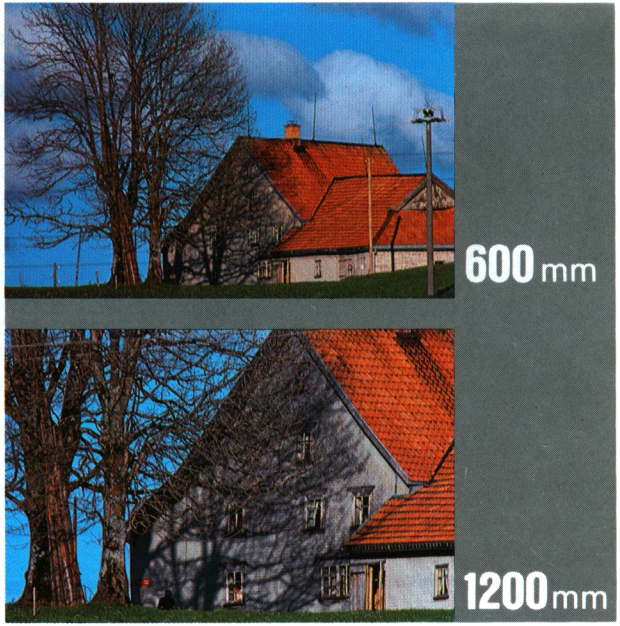
135 mm

Basic Characteristics of Nikkor Lens Types

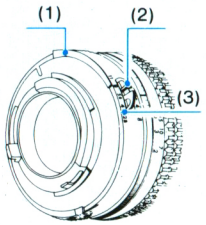
Nikkor Lens Type	Focal Length Range	Image Size vs. Normal Lens	Depth-of-Field	Apparent Perspective	Typical Applications
Fisheye and Wideangle	6 mm — 35 mm	0.12 x — 0.7 x	Very Great	Expands Distance	Landscapes, Interiors, Photojournalism, Special Effects, Scientific
Normal	50 mm — 55 mm	1x	Moderate	Normal—Similar to eye	Universal, General Purpose
Telephoto	85 mm — 2000 mm	1.7 x — 40 x	Shallow	Compresses Distance	Sports, Wildlife, Nature, Portrait, Candid Photography

The photographs on these two pages (all taken from the same spot) demonstrate the varying effects produced with Nikkor lenses of different focal lengths.





Automatic Maximum Aperture Indexing (AI)
Nikon's latest advance in the camera meter/lens coupling system for rapid lens mounting and interchange. Reflecting the Nikon tradition of progress which shuns obsolescence, this has been achieved without changing the rugged, time-tested Nikon bayonet mount system.
The AI system applies to every meter-coupled automatic lens. The AI lens features: (1) a meter coupling ridge to enable automatic indexing of the lens' maximum aperture with the meter of any AI-type camera for full-aperture exposure measurement; (2) a meter coupling shoe to enable full-aperture exposure measurement with any earlier (i. e. non-AI-type) Nikon or Nikkormat camera; and (3) an ADR lens aperture scale.



Note: Ask your Nikon dealer for detailed information on AI.

13mm f/5.6 Nikkor

Nikon's challenge to ultra-wideangle optics! With its sweeping 118° picture angle, the 13mm Nikkor offers the widest coverage in 35mm SLR photography without the image distortion common to fisheye lenses. Exceptional image sharpness is assured even at the closest focusing distance of 0.3m (1′) due to the Nikon 'Floating Element' system. Superior Nikon lens technology has virtually eliminated light falloff and distortion in frame corners typical in an ultra-wideangle lens of this kind.
A truly unique ultra-wideangle for use in special commercial or creative assignments, the 13mm Nikkor comes with an integral lens hood and rapid mount bayonet type filters (yellow, orange, red, plain glass).

15mm f/5.6 Nikkor

Offering the serious photographer ultra-wideangle effects with virtually no distortion, the 15mm f/5.6 features a dramatic 110° picture angle for spectacular results in the confined space of indoor photography, and also for landscape, architectural or special effects shooting. Relatively compact, the 15mm's enormous depth-of-field practically eliminates the need to focus at smaller f/stops, moderate or greater distances. Crisp, edge-to-edge sharpness in close-range shots assured with Nikon 'Floating Element' system and Nikon Integrated Coating for superior color rendition. Also equipped with integral lens hood and filter turret (yellow, orange, red, plain glass).

18 mm f/4 Nikkor

Covers a panoramic 100° area with edge-to-edge sharpness. Weighing just 325g (11.5 oz.) its compact construction makes it a welcome addition to any Nikon or Nikkormat system. The relatively high speed simplifies focusing and composing even in dim lighting. An innovative 13-element optical system provides remarkably even illumination right to the edges, even at maximum aperture.
The extremely wide field coverage, depth-of-field, and freedom from distortion typical of this lens render it an excellent choice for architectural and scenic photography as well as picture taking in cramped quarters. An accessory lens hood (supplied with the lens) is computed specifically for this lens, and is recommended for optimal performance; the hood also serves as a retaining ring for Series 9 filters.

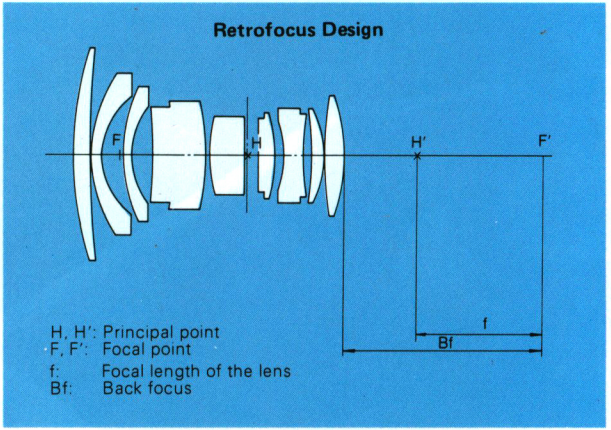
⑩ *Wideangle Lens*

20 mm f/4 Nikkor

The "basic" ultra-wide angle of many professional photographers, this versatile lens offers a wealth of picture-taking possibilities. Despite the wide 94° angle of view, it accepts standard Nikon 52mm filters — a remarkable achievement in a 20mm lens! The highly corrected optical system virtually eliminates coma aberration, once considered inevitable in wideangle lenses of this design.
Ideally suited to scenic, architectural, and interior photography, the 20mm lens is also employed in closeups, in conjunction with bellows and BR-2 ring, to get magnification up to 12X — the highest of all Nikon system lenses. Its exceptional depth-of-field makes it a natural choice for fast-moving subjects and candid "grab" shots where critical focusing is not always possible.

24 mm f/2 & f/2.8 Nikkor

With a highly versatile 84° picture angle, the 24mm lens is a perfect compromise between ultra and regular wideangles — ideal for landscape, travel, candid and architectural photography.
Given its high speed, the 24mm f/2 lens features unusually compact and lightweight construction, optimum image flatness and uniform edge-to-edge brightness due to its improved optical system. With relatively good speed, the 24mm f/2.8 is slightly lighter and equally well corrected for distortion. In both Nikkors, Nikon 'Floating Element' system is applied for exceptional image quality even at their closest focusing distance of 0.3m (1').



In the retrofocus design, the back focus is designed longer than the lens' focal length to allow clearance for the movement of the camera-mirror. It consists of front diverging and rear converging lens groups, — the opposite of telephoto design — and is therefore also called the inverted telephoto design.

28mm f/2, f/2.8 & f/3.5 Nikkor

The 28mm lens is considered today to be the standard wideangle lens by an increasing number of photographers. It is a favorite choice because the typical wideangle effects become obvious at this particular focal length and it has a wide variety of applications including commercial, industrial, architectural, travel, landscape and news photography. Because of the growing popularity of the 28mm lens, Nikon offers three models in different maximum lens speeds. The 28mm f/2 has the fastest lens speed of the Nikkor wideangles with picture angles of 74° and over. This speed permits easy, accurate focusing and facilitates picture taking indoors or under unfavorable lighting conditions. It features the floating element system to achieve excellent results in close-range photography.

Compared with the f/2, the newly-designed 28mm f/2.8 and f/3.5 Nikkors are smaller and more lightweight to ensure easy handling and mobility. In all three lenses, spherical and coma aberrations are well corrected, ensuring uniform sharpness — edge-to-edge — even at full-aperture.

35mm f/1.4, f/2 & f/2.8 Nikkor

Of all the wideangle lenses, the 35mm focal length is the closest to that of the normal lens. It therefore produces an almost natural perspective, making it ideal for photographers who are just beginning with wideangle photography. Because of its wider coverage, the 35mm lens is often used for general photography in place of a normal lens. In addition, this lens is convenient for flash photography since most flash units are designed to cover a picture angle up to about 60°. Three 35mm models in different lens speeds are available. The 35mm f/1.4 is the fastest of all Nikkor wideangle lenses, ensuring an easy, bright viewfinder image for quick, accurate focusing and is especially suited for picture taking indoors or in dim-light situations. Even at extremely close range, this lens gives sharp edge-to-edge pictures because it incorporates the floating element system.

The 35mm f/2 lens also offers high speed, enabling the photographer to work under a wide range of lighting conditions. Coma and other aberrations are well corrected to provide sharp pictures of high contrast.

The Nikkor 35mm f/2.8 is exceptionally compact and light, and prized by photographers throughout the world for its superb contrast and resolving power.

Hiro Munetomo

50mm f/1.4 & f/2 55mm f/1.2 Nikkor

Nikkor normal lenses cover a picture angle of approximately 45°, corresponding closely to the angle of view of the human eye. They give pictures of natural (*i.e.*, normal) perspective, making them the most versatile lenses for a wide range of applications. They are most popular for general photography: scenery, children, groups, and landscapes, and provide excellent resolution, contrast, and color rendition even at their fast maximum apertures.

The 50mm f/1.4 Nikkor is the most widely selected normal lens because of its high speed and renowned optical performance. It provides a brilliant, crisp viewfinder image for fast, highly accurate focusing and composing.

The 50mm f/2 Nikkor often accompanies a new Nikon or Nikkormat owner into SLR photography. In addition to high speed and excellent performance, its versatility extends even to the world of close-up photography in conjunction with the many accessories available for that purpose.

The 55mm f/1.2 is the fastest of all Nikkor lenses. It is particularly valuable in poorly-lit interior and night scenes, stage and theater photography, and other situations in which little light is available. The ultra-fast f/1.2 maximum aperture and extended 55mm focal length assure ultimate focusing accuracy under all lighting conditions.

Jun Miki

85 mm f/2 Nikkor

Stunningly sharp images are a characteristic of this, the fastest and most compact of all Nikkor telephoto optics. The combination of moderately long focal length and extremely high speed makes this a superb lens for stage photography and available light spots as well as child photography and portraiture in general. The symmetrical design of this lens is essentially similar to that of the 105mm f/2.5 Nikkor and assures excellent resolution and contrast even at the closest focusing distance of 0.85m (33″). Unquestionably the 85mm f/2 Nikkor is one of the most versatile and rewarding components in the Nikon system...

105 mm f/2.5 Nikkor

Professionally acclaimed as one of the finest lenses ever made for 35mm photography, the 105mm f/2.5 Nikkor is a superb instrument for creative portraiture and candid photography. The focal length permits a camera-to-subject distance more than twice that of a normal lens for beautifully natural perspective, and the relatively high speed permits 'available light' photography and critically accurate focusing.
Compact in size, the 105mm f/2.5 is widely selected for sports and general outdoor photography. One of the most prized possessions in any Nikon system...

⓲ *Telephoto Lens*

S. Garcia de la Torre

135 mm f/2, f/2.8 & f/3.5 Nikkor

The most popular of all Nikkor telephotos, these versatile lenses bring distant subjects nearly three times closer, yet are easy to hand-hold. Particularly advantageous in sports, nature, action, candid, and portrait photography because of their pleasing perspective and relatively high speed. A basic advantage of these Nikkors is their ability, particularly at wider aperture, to record the subject very sharply, while throwing distracting backgrounds out-of-focus so that the viewer's eye is concentrated *on the main subject.*

The 135mm f/3.5 Nikkor is exceptionally small and light, particularly convenient for travel. The 135mm f/2.8 offers added speed for action shots and available light and contains a built-in telescopic lens hood. The 135mm f/2 offers relatively compact design combined with even higher speed for sports and action photography. A telescopic lens hood is also incorporated in this lens.

180mm f/2.8 Nikkor

A classic ultra-speed telephoto with significant advantages for sports, action, stage, and news photography. The fast f/2.8 maximum aperture makes accurate focusing easy and use of higher shutter speeds practical even in dim light, with excellent contrast and sharpness at every aperture. With its close focusing to 1.8m (70.9″), tightly-cropped portraits can be taken from a comfortable working distance. The 180mm f/2.8 Nikkor telephoto is composed of 5 elements in 4 groups, and offers lens apertures to f/32 for maximum depth-of-field control. It has a built-in telescopic lens hood and accepts Nikon 72mm filters.

200mm f/4 Nikkor

An amazingly lightweight 530g (18.7 oz.), this compact telephoto provides dramatic 4X magnification compared to your normal lens. Traditionally, the 200mm lens has been most widely used for action, sports, stage, and nature photography, but, the Nikkor 200mm f/4 is also a superior candid and portrait lens because of its remarkably close focusing capability down to 2m (78.7″); at this distance, it gives the same image size as a normal lens at 0.5m (19.7″)! The 200mm f/4 Nikkor contains a built-in telescopic lens hood and accepts Nikon 52mm filters. With superior optical performance at every aperture, the Nikkor 200mm f/4 telephoto is one of the most-used lenses of our time.

300 mm f/2.8 Nikkor IF-ED, f/4.5 Nikkor & Nikkor ED

Suddenly, your world is six times closer! The 300mm Nikkors dramatically exhibit the powerful magnification, minimal depth-of-field and compressed perspective so valuable in creative telephotography. The fastest 300 on the market, the f/2.8 model is a real professional lens incorporating the latest Nikon technology. Nikon Internal Focusing (IF) system assures excellent holding balance while Extra-low Dispersion (ED) glass gives ultimate image sharpness and color correction. The focusing ring of this lens has a special preset ring that is click-stopped to facilitate rapid refocusing to a specific taking distance. The 300mm f/4.5 lens is available both in standard and ED versions. Both lenses are compact and handy 300s and are widely employed in news, nature, sports and surveillance photography. For easy identification, all ED Nikkors are distinguished by a gold ring around the lens barrel.
All of these 300mm lenses have rotating collars with tripod sockets as well as lens hoods for extra protection against extraneous light.

Takeyoshi Tanuma

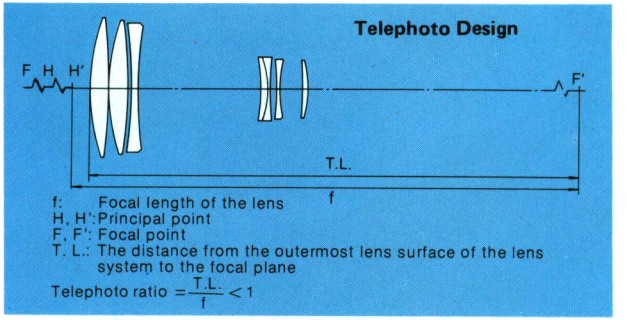
400 mm f/3.5 Nikkor IF-ED & f/5.6 Nikkor ED

Dramatic 8X magnification, plus new super-telephoto performance.Featuring Nikon's Extra-low Dispersion (ED) glass for superior color correction and exceptional image sharpness, these 400mm Nikkors permit even hand-held shooting due to their radically new compact construction — new handling ease that sets a new standard in modern ultra-telephotography. At f/3.5 the 400mm Nikkor IF-ED is the fastest 400 on the market today — incredible speed that makes it ideal for indoor sports or news photography. Nikon's Internal Focusing (IF) system also contributes to its compact, lightweight (2.8 kg) construction and to easier, balanced handling and a closer focusing distance down to 4.5m (14'). This lens has a pre-set focusing ring and a special filter holder for 39mm filters. Featuring half the weight of the IF lens, and relatively good speed, the 400mm f/5.6 ED permits superior field operation with needle-sharp, crisp images — the perfect 400 for outdoor sports or animal photography. Both Nikkors are equipped with a built-in rotating tripod socket and a telescopic lens hood.

600 mm f/5.6 Nikkor IF-ED

Powerful 12X magnification with full-aperture thru-the-lens metering. Nikon's advanced Internal Focusing (IF) system and Extra-low Dispersion (ED) glass have combined to give the 600mm IF Nikkor the best telephoto ratio (0.69) of all Nikkor telephotos (except reflex lens). Lens length measures only 374mm from lens mount. With the IF system, only the central lens group moves back and forth during focusing resulting in balanced, steady handling at all times due to the absence of any lens barrel movement. Focusing is easy and rapid — less than a 180° turn of the focusing ring changes your focusing point from infinity to 5.5m (20′).

Other convenient features include a pre-set focusing ring for faster focus operation and a special filter holder for mounting optional 39mm units in the lens barrel. The 600mm f/5.6 Nikkor IF-ED is a truly rugged, unique ultra-telephoto ready for the most demanding professional coverage of news, wildlife or surveillance photography. Lens is also equipped with a rotatable tripod socket and a built-in telescopic lens hood.



In the telephoto design, the distance from the outermost lens surface to the focal plane is much shorter than the lens' focal length, resulting in light weight and compactness. Incoming light is converged by the front group of lens elements and this convergence is reduced by the rear diverging lens unit to shorten the overall length of telephoto lenses. With the Internal Focusing System only the central lens group shifts during focusing with no change in the lens' physical length.

400 mm f/4.5 Nikkor
600 mm f/5.6 800 mm f/8 1200 mm f/11 Nikkor & Nikkor ED

Seven superior ultra-telephoto Nikkors in focal lengths from 400mm to 1200mm bring new photographic opportunities in sports, wildlife, aerospace, surveillance, and creative scenic photography. For convenience and economy, all seven Nikkors are used with the Nikon Focusing Unit AU-1 which also incorporates automatic diaphragm mechanism plus a special slot accepting Nikon 52mm filters for use with any of these lenses. The 400mm f/4.5 Nikkor provides 8X magnification compared to normal lenses, and features its relatively high speed of f/4.5. The 600mm, 800mm and 1200mm Nikkors magnify 12, 16 and 24 times respectively compared to the normal 50mm lens, and each of them is supplied in both standard and ED versions. (The latter identifiable by the gold ring engraved around the lens barrel.)

The 600mm f/5.6 Nikkors have an exceptionally high speed for this focal length — a welcome convenience in focusing and in permitting use of faster shutter speeds. The 800mm f/8 Nikkors are the most powerful lenses of this speed in the entire Nikon System. The 1200mm f/11 Nikkors have the minimum aperture of f/64 for the maximum control of depth-of-field — avoiding possible blur during any slight movement of the subject after focusing is completed. The diaphragm of both 1200mm Nikkors is operated manually.

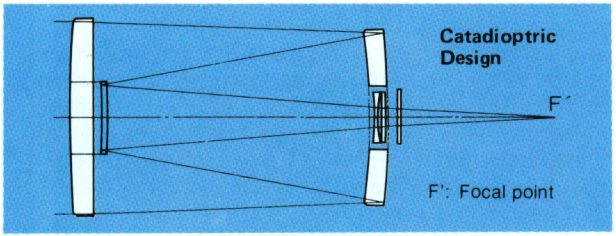
Kojo Tanaka

500mm f/8 1000mm f/11 2000mm f/11 Reflex-Nikkor

Reflex-Nikkors employ a combination of mirrors and lens elements based on the catadioptric (mirror-reflex) principle widely used in modern astronomical telescopes. In Reflex-Nikkors the light path is 'folded' by the mirror surfaces, permitting a significant reduction in size and weight as compared to conventional lenses of equivalent focal lengths. Another benefit of Reflex-Nikkor design is the virtual elimination of chromatic aberration, assuring superior sharpness and contrast with all film types and eliminating refocusing in infrared photography. As no diaphragm can be incorporated in reflex lenses, exposure is controlled by means of the shutter speed of the camera or by neutral density or other filters. The doughnut-shaped blurs of the out-of-focus areas of pictures are a characteristic of reflex lenses and can produce fascinating visual effects.

The Reflex-Nikkor 500mm f/8 actually measures just 14cm (5.5″) in length less than one-third its focal length! Weighing 1 kg (35.0 oz.), it is easily portable and may even be hand-held at high shutter speeds. Exceptionally close focusing to 4m (15.7′) makes possible beautifully-natural photographs of birds, animals, other small, hard-to-approach subjects. The rear-end of the lens accepts 39mm filters. The powerful 1000mm f/11 is distinguished by its excellent ultra-telephoto effects and relatively compact length — measuring only 24cm (9.4″). With a closer focusing distance down to 8m (25′), the 1000mm Nikkor

becomes an extremely mobile ultra-telephoto for outdoor sports, wildlife, and solar photography. 39mm filters can also be attached to its rear end.
The longest of all the Nikkor telephoto lenses, the 2000mm f/11 Reflex-Nikkor offers magnification 40 times that of the normal lens. It can produce close-up coverage of subjects that are so far away that they are invisible or barely visible to the naked eye. The lens comes with four built-in filters on a rotating turret. The carrying handle incorporates a peepsight to help the photographer pre-spot his subject. The Nikon AY-1 Mounting Platform is expressly designed for use with the 2000mm f/11 Reflex-Nikkor and is recommended to facilitate field operation of this lens.



A combination of mirrors and lens elements is used in Reflex-Nikkor lenses. Incoming light is reflected twice on mirror surfaces, making the lenses compact and lightweight in comparison with long telephoto lenses of equivalent focal lengths. Excellent image sharpness is obtained, thanks to the advantages of the reflective light path in suppressing chromatic aberration. Out-of-focus subjects appear as blurred rings or as separated blurred lines.

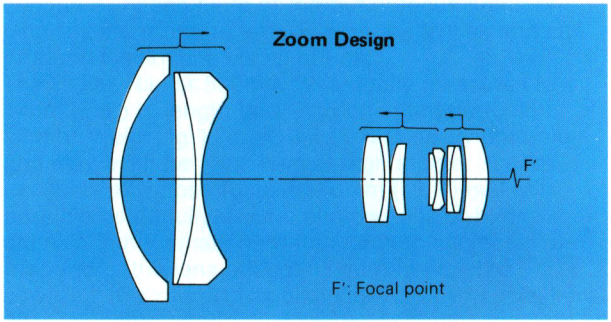
28—45 mm f/4.5 Zoom-Nikkor

Perhaps nowhere is the technological superiority of the Nikkor system so dramatically revealed as in the realm of zoom lenses. Once in sharp focus at any focal length, Zoom-Nikkors retain optimal focus at all focal lengths, eliminating the distracting need to refocusing. All Zoom Nikkors provide the surpassing sharpness and clarity inherent in every Nikkor lens. Through this fundamental principle, Nikon zoom lenses are today universally acknowledged to be the finest optics of their type in existence.

The 28-45mm f/4.5 Zoom-Nikkor represents a historic breakthrough even by Nikon standards. The first zoom lens in photography with a minimum focal length of 28mm, it offers infinite versatility in interior, landscape, travel, candid, and photojournalism applications where often there is not time to change even bayonet-mount lenses!

The 28-45mm Zoom-Nikkor is critically sharp at every aperture and focal length and features distinctively-textured zoom and focus controls for fast operation. Virtually distortion-free, the Zoom-Nikkor 28-45mm f/4.5 again confirms the Nikon position of leadership in SLR optics.

30 *Zoom Lens*



A zoom lens continuously varies its focal length, without shifting the focal plane, by moving part of the optics. While some of the lens groups move to change the focal length, other groups also shift to maintain sharp focus and the selected aperture throughout the zoom range.

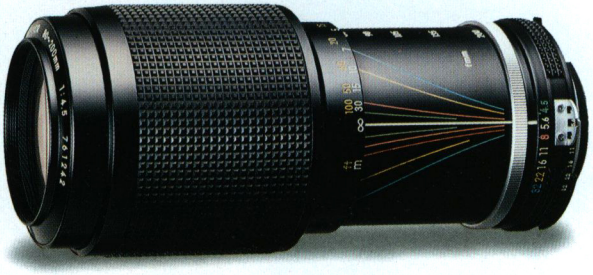
43—86mm f/3.5 Zoom-Nikkor

One of the smallest zoom lenses ever created . . . and one of the most versatile. The wider-than-normal to medium-telephoto focal length range offers obvious advantages in news, candid, sports, travel, and scenic photography; yet the 43-86mm Zoom-Nikkor is so pleasantly compact and lightweight that many photographers employ it as their 'normal' lens! As with all Nikkor Zooms, it retains sharp focus at every focal length.

The single zoom/focus control allows split-second response and is particularly convenient for photography of moving subjects. So compact it accepts Nikon 52mm filters.

80—200mm f/4.5 Zoom-Nikkor

Universally acclaimed as one of the sharpest lenses ever created for 35mm photography. The 80-200mm Zoom-Nikkor is an enormously versatile lens offering the focal lengths from medium to full 4X telephoto. Once in focus, always in focus — at every focal length. Superbly responsive one-hand zoom/focus control for optimal handling speed and precision. The close focusing ability of this lens — to 1.8m (70.9″) from the film plane — further extends its picture-making capabilities. The compact 80-200mm Zoom-Nikkor accepts Nikon 52mm filters. Easy to hold and handle, this lens reaffirms the Nikon commitment to innovation without compromise in optical performance.



50 –300mm f/4.5 Zoom-Nikkor & Zoom-Nikkor ED

With their unique six-to-one zooming ratios, Nikon's standard and ED 50-300mm Zoom-Nikkors are the most versatile in 35mm photography — and the most ideal all-round zooms for photojournalism. The Zoom-Nikkor ED reflects Nikon's latest lens technology — the application of ED glass in its front element has made the lens 45mm shorter than the standard version, while also significantly improving color rendition and image sharpness. And due to its all new internal zooming system (front lens group used only for focusing, and zooming with optical compensation by middle lens group) the ED zoom virtually eliminates any weight shift during zooming for radically new handling ease and holding balance. Closest focusing distance is improved to 2.5m (8.2″). The standard 50-300mm Zoom-Nikkor is a popular choice for many photojournalists because of its versatility plus good resolution and contrast. Both standard and ED zooms come with a built-in rotatable tripod socket and separate zooming and focusing rings. Full-aperture metering/viewing add to the performance of these versatile 6-to-1 Nikkor zooms that are ready to move-in on all the sports or news action.

200—600 mm f/9.5 Zoom-Nikkor

180—600 mm f/8 360—1200 mm f/11 Zoom-Nikkor ED

These lenses are true telephoto zooms, covering the range from 180mm to 1200mm super telephoto. Blending the obvious advantages of the modern zoom lens with the powerful magnification of a whole series of ultra-telephoto lenses ... all in relatively compact, fast-handling optical systems. Despite their long maximum focal length, they have automatic diaphragm mechanisms (no meter coupling device is provided), and convenient single focusing/zooming rings insure extra handling speed. Both the 180-600mm and 360-1200mm lenses feature Nikon ED glass for incredible contrast and color rendition.

These zoom lenses are especially valuable in such extra-long distance shooting situations as outdoor sports events, wildlife photography and scientific research.

With an accessory close-up attachment, the closest focusing distance of the 200-600mm lens — 4m (13′) — is reduced to 2.3m (7.5′), adding to the versatility of this zoom lens. Series 9 filters are used by placing them between the lens and the hood. A tripod socket is provided on the rotating collar, allowing it to be shifted quickly to either horizontal or vertical format. The 180-600mm and 360-1200mm focus to 2.5m (8.5′) and 6m (20′) respectively — incredibly close for ultra telephoto optics.

Kojo Tanaka

6 mm f/2.8 & f/5.6 Fisheye-Nikkor

These Fisheye-Nikkor lenses provide an amazing picture angle of 220° — 40° wider than the standard fisheye lenses. Everything in front of, above, below and to either side of the lenses is recorded on the film as a circular image; they even "see" slightly behind themselves.

The 6mm Fisheye-Nikkors are designed according to the equidistant projection formula like the 8mm f/2.8 Fisheye-Nikkor, but because of their wider picture angle they offer a more dramatic impact. These lenses were originally developed for special scientific and industrial applications in which wider-than-180° coverage is required such as surveillance work, photographing the interiors of pipes, boilers, conduits, cylinder bores and other constricted areas. And in advertising and commercial photography they are used extensively for dramatic effects.

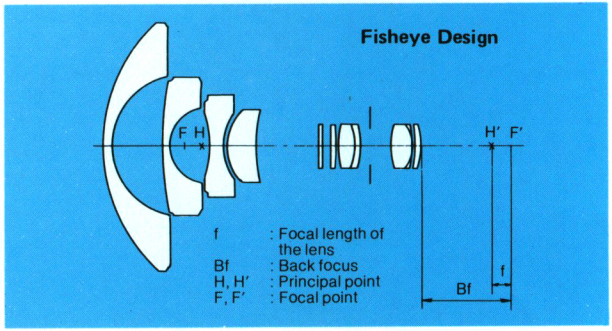
The 6mm f/2.8 Fisheye-Nikkor has an automatic diaphragm, permitting thru-the-lens viewing and focusing, and is meter-coupled for TTL exposure control with all Nikon and Nikkormat models so designed. Its relatively fast f/2.8 speed is a valuable aid in photography under dim lighting conditions, or where faster shutter speeds are imperative. It contains 5 built-in filters.

The 6mm f/5.6 Fisheye-Nikkor is a fixed-focus lens, requiring no focusing because of its immense depth-of-field. The camera mirror must be locked in 'Up' position for mounting and operation. A special 160° Fisheye Viewfinder, supplied with the lens, is used to center the picture field. The lens has 6 built-in filters.

8 mm f/2.8 Fisheye-Nikkor

This is a compact fisheye lens that excels in versatility because of its fast lens speed, reflex viewing and thru-the-lens metering capabilities, as well as the unique fisheye pictorial qualities it delivers. It is excellent for the initial approach to creating fisheye effects in general as well as special-purpose photography. Designed on the equidistant projection formula, this fisheye lens covers an angle of view of 180° and produces a circular image on the film. The automatic diaphragm and the bright f/2.8 aperture facilitate viewing and focusing through the viewfinder. Exposure measurement is done at full aperture. Its compact size and light weight allow hand-held shooting. All these advantages contribute to the ease of handling and the versatile application of this lens in commercial and advertising photography as well as in scientific photography, photojournalism and news and sports coverage. This lens comes with 5 filters on a rotating turret.

㊳ *Fisheye Lens*



Generally speaking, a fisheye lens has a highly curved protruding front element resembling a fisheye which enables it to take in a wide picture angle and yield a circular picture image.
The back focus of the 8mm Nikkor is designed longer than the lens' focal length in order to allow clearance for the movement of reflex mirror in the camera.

10 mm f/5.6 OP Fisheye-Nikkor

This is a highly specialized lens that offers unique orthographic projection (OP) characteristics producing a circular image of 180°. The image reproduced, however, is larger in the center and gradually becomes more compressed toward the periphery than the images produced by other Fisheye-Nikkors.
To meet the exacting OP requirements, an aspherical front lens is employed. This projection formula provides a special configuration through which the luminance of a place is measured. When the light source is photographed with the OP Fisheye-Nikkor, the proportion of the image area of the light source to the total area represents the luminance or brightness of the place. This proportion is called the "configuration factor" or "sky factor" when the light source is the sky. This feature is effectively applied to architectural design, civic improvement, street lighting, fire safety studies and other specialized applications.
The lens is also useful in advertising photography to emphasize the main subject by taking advantage of the OP characteristics.
Another characteristic of the OP design is that subjects of the same brightness are reproduced with equal density, no matter where they are positioned in the picture. Therefore, even with the use of narrow latitude color film, uniform image brightness is obtained over the entire circular field.
Like 6mm f/5.6 Fisheye-Nikkor, this lens also requires no focusing due to its enormous depth-of-field, and is used with the camera's reflex mirror locked in "Up" position. The lens comes with a special 160° viewfinder for centering the subject and six built-in filters on a rotating turret.

16mm f/3.5 Fisheye-Nikkor

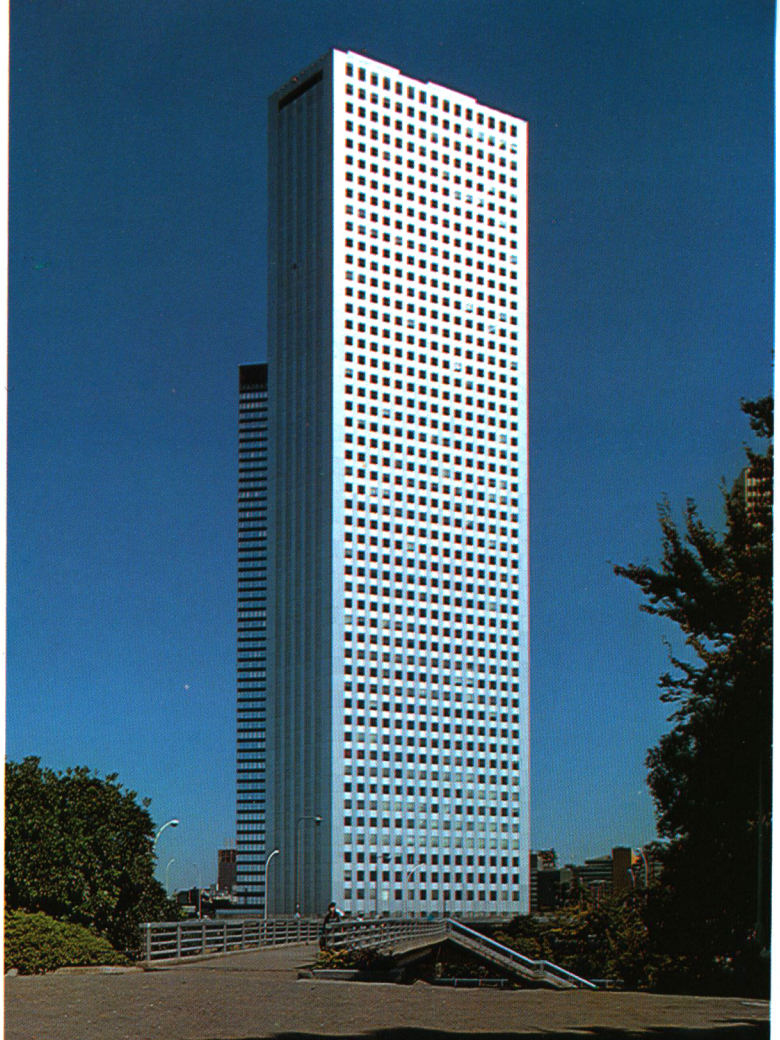
In contrast to other Fisheye-Nikkors which were primarily designed for scientific and industrial applications, this Fisheye-Nikkor has been designed to provide special effects in general photography. Other Fisheye-Nikkors produce a circular image on the film, but this lens delivers an image which fills the entire 24mm x 36mm film format. Its near hemispheric coverage of 170° provides extreme wideangle pictures with the dramatic perspective effect inherent in fisheye lenses.

With the combined effects of this Fisheye-Nikkor, the photographer can enjoy creating special ultra-wideangle effects — in advertising and other commercial photography, photojournalism and art photography. The lens is extremely portable, with its size and weight comparable to a normal lens. It has an automatic diaphragm and permits thru-the-lens viewing and metering. Color aberration is well corrected, providing high contrast images even at full-aperture. The lens has three interchangeable filters plus one plain glass filter built into the lens barrel.

Benn Mitchell

28mm f/4 35mm f/2.8 PC-Nikkor

The two PC-Nikkors incorporate a unique optical 'shift' mechanism for image perspective control previously possible only with large technical and view cameras. Normally, when taking a picture of a building, the camera must be tilted upwards to include the entire subject; this causes the vertical lines of the building to converge . . . and in the finished photograph, the building appears to be falling or leaning back! With PC-Nikkors, the photographer can slide the optics as much as 11mm off-axis to include the entire building, while keeping the film plane parallel to the subject to eliminate apparent distortion and convergence. More, the 360° rotating mount makes it possible to apply the shift in any direction — horizontally, vertically, or even diagonally. At all times, the shift effect is seen in the Nikon or Nikkormat viewfinder for precise composition. Most widely used in architectural, industrial, and commercial photography, PC-Nikkors are also used for 'panoramic' photographs consisting of two individual photographs of the same scene, each taken with the lens at its maximum 'shift' position on each side. And when used in 'center' position, the PC-Nikkors serve as excellent all-purpose wideangle lenses, with continuous focusing from infinity to 0.3m (11.8″). The 35mm f/2.8 PC-Nikkor offers the widest maximum (f/2.8) and minimum (f/32) apertures, and accepts Nikon 52mm filters. The 28mm f/4 PC-Nikkor offers apertures to f/22, and a full 74° field — the widest of all PC lenses for 35mm photography. Diaphragms of both PC-Nikkors are the pre-set type, which permits stopdown (taking-aperture) thru-the-lens metering. For owners of Nikon F2 cameras, the Nikon Type E and Type P focusing screens are recommended for use with the 35mm and 28mm PC lenses respectively because their horizontal and vertical lines aid accurate composition.



58 mm f/1.2 Noct-Nikkor

As the name of Noct-Nikkor implies, this lens was designed specifically for night shooting and low-light photography. The lens' ultra-fast speed — fastest among all Nikkor family — contributes to bright, easy-to-focus finder image even in dim light levels, and permits the use of faster shutter speeds — a definite advantage in hand-held night-time photography with the available light. To allow the fastest possible shutter speed, the Noct-Nikkor is specially corrected for use at full-aperture. Historically, the appearance of comatic aberration has prevented the photographer from using a large aperture lens of this sort 'fully-opened', particularly under conditions such as night scenes which generally include a lot of bright, scattered lights in a dark background. With the Noct-Nikkor, Nikon designers have employed an aspherical lens surface in its front element for optimum comatic correction at full-aperture, thus delivering the image of bright point objects as they are, without flaring away to the frame corners. Inner reflections are further corrected by the black-finished inner metal surfaces, and the application of Nikon Integrated Coating for reduction of flare and ghost images.

Despite its high speed, the improved optical system of the Noct-Nikkor assures virtually distortion-free performance down to the closest focusing distance of 0.5m (1.7') as well as high-contrast images with optimum resolution. The compact size, on the other hand, allows the use of Nikon 52mm screw-on accessories.

Akio Kojima

55 mm f/3.5 105 mm f/4 Micro-Nikkor

Here are two remarkable lenses which offer both ultra-close focusing capability and surpassing image quality at all subject distances from Macro range to infinity! So versatile they are widely employed as 'universal' lenses, both Micro-Nikkors incorporate an extended focusing mount offering continuous operation from infinity to a reproduction ratio of 1:2, here, the entire frame can be filled with a subject measuring just 48 x 72mm (1.9 x 2.8″). By adding the optional automatic extension rings PK-13 (for 55mm lens) or PN-11 (for 105mm), the lenses allow continuous focusing from 1:2 to 1:1 (life size). Dual reproduction ratio scales on each lens permit fast operation at predetermined ratios with or without the extension tube. Each Micro-Nikkor offers a minimum aperture of f/32 to permit maximum depth-of-field — a particular advantage in close-up photographs.

Because of its outstanding optical quality and focal length, the 55mm f/3.5 Micro-Nikkor is ideal for critical copying of flat subjects such as documents, color transparencies, stamps, coins, etc., or for close-ups of insects, flowers and other small subjects. It is also frequently used as a normal lens for candid, landscape and other general purposes. This lens does not usually require a lens hood as the optics are deeply recessed and effectively protected from stray light.

Equaling the image quality of the 55mm f/3.5, the 105mm f/4 Micro-Nikkor features a longer focal length for a much greater working distance and better illumination of elusive subjects (i.e., insects, birds and animals) while maintaining a natural perspective. As a medium telephoto lens, it is also ideal for portrature, sports or general creative photography.

200 mm f/5.6 Medical-Nikkor

Originally designed for precision medical and dental photography, the 200mm Medical-Nikkor is today widely used in industrial and scientific close-up work, because of its unique operating simplicity. It is actually a complete, self-contained close-up system with built-in electronic flash and focusing light.

The Medical-Nikkor lens itself provides an image ratio of 1:15, covering a field size fully 330 x 440mm (13 x 19.5″). By adding (singly or in combination) the 6 supplementary lenses supplied, 10 other image ratios may be obtained, down to 3:1 — thus filling the film frame with a subject just 8 x 12mm (0.3 x 0.45″)! Because of the long focal length of the Medical-Nikkor, ample working distance is assured at every image ratio.

The built-in electronic ringlight flash around the front lens element provides uniform and shadowless illumination of the subject, a distinct advantage when shooting a subject in a cavity or recessed area. Light output can be reduced to 1/4 to prevent over-exposure without changing the film speed. The flash duration of about 1/1000 sec. effectively freezes any subject motion, permitting hand-held shooting. The ''leaklight'' of the flash can be used to imprint the frame number (1 to 38) or the magnification ratio on the corner of the picture. Because the output of the ringlight is constant, the correct aperture is automatically set when the film speed and reproduction ratio are selected.

TC-200 & TC-300 Teleconverters

These teleconverters are capable of doubling a lens' focal length with virtually no loss in optical performance — a dramatic breakthrough in converter performance long believed unattainable. The secret? A combination of Nikon lens technology and superior Nikkor optics, including Nikon Integrated Coating. Lightweight, both teleconverters permit automatic diaphragm operation, plus full-aperture metering with AI cameras.

Specifications	TC-200	TC-300
Lens construction:	7 elements in 5 groups	5 elements in 5 groups
Focal length:	Double that of lens in use	Double that of lens in use
Aperture coupling range:	f/2 - f/32	f/2.8 - f/32
Effective aperture:	f/4 - f/64	f/5.6 - f/64
Diaphragm:	Automatic	Automatic
Metering:	At full aperture exposure measurement	At full aperture exposure measurement
Reproduction ration:	Double that of lens in use	Double that of lens in use
Depth of field:	1/2 that of lens in use	1/2 that of lens in use
Closest focusing distance:	Same as that of lens in use	Same as that of lens in use
Mount-to-mount length:	44mm (1-23/32 in)	84mm (3-5/16 in)
Dimensions:	64.4(Dia) x 52.5(L)mm (2-17/32 x 2-1/16 in)	64.5(Dia) x 115(L)mm (2-17/32 x 4-1/2 in)
Weight:	230g (8 oz)	280g (10 oz)

Notes: ① These teleconverters can only be used in conjunction with lenses having AI features.
② When used with non-AI camera bodies, exposures should be measured by stop-down method.

Specifications of Nikkor Lenses

Description / Lens	Lens Construction (Group-Element)	Picture Angle	Diaphragm Coupling	Minimum f-Stop	Exposure Metering	Closest Marked Focusing Distance	Attachment Size
Wideangle							
13mm f/5.6 Nikkor	12–16	118°	Automatic	f/22	Full-open	0.3m (1 ft)	—
15mm f/5.6 Nikkor	12–14	110°	Automatic	f/22	Full-open	0.3m (1 ft)	—
18mm f/4 Nikkor	9–13	100°	Automatic	f/22	Full-open	0.3m (1 ft)	86mm (P=1)
20mm f/4 Nikkor	8–10	94°	Automatic	f/22	Full-open	0.3m (1 ft)	52mm (P=0.75)
24mm f/2 Nikkor	10–11	84°	Automatic	f/22	Full-open	0.3m (1 ft)	52mm (P=0.75)
24mm f/2.8 Nikkor	9–9	84°	Automatic	f/22	Full-open	0.3m (1 ft)	52mm (P=0.75)
28mm f/2 Nikkor	8–9	74°	Automatic	f/22	Full-open	0.3m (1 ft)	52mm (P=0.75)
28mm f/2.8 Nikkor	7–7	74°	Automatic	f/22	Full-open	0.3m (1 ft)	52mm (P=0.75)
28mm f/3.5 Nikkor	6–6	74°	Automatic	f/22	Full-open	0.3m (1 ft)	52mm (P=0.75)
35mm f/1.4 Nikkor	7–9	62°	Automatic	f/16	Full-open	0.3m (1 ft)	52mm (P=0.75)
35mm f/2 Nikkor	6–8	62°	Automatic	f/22	Full-open	0.3m (1 ft)	52mm (P=0.75)
35mm f/2.8 Nikkor	6–6	62°	Automatic	f/22	Full-open	0.3m (1 ft)	52mm (P=0.75)
Normal							
50mm f/1.4 Nikkor	6–7	46°	Automatic	f/16	Full-open	0.45m (1.5 ft)	52mm (P=0.75)
50mm f/2 Nikkor	4–6	46°	Automatic	f/16	Full-open	0.45m (1.5 ft)	52mm (P=0.75)
55mm f/1.2 Nikkor	5–7	43°	Automatic	f/16	Full-open	0.5m (1.7 ft)	52mm (P=0.75)
Telephoto							
85mm f/2 Nikkor	5–5	28°30′	Automatic	f/22	Full-open	0.85m (3 ft)	52mm (P=0.75)
105mm f/2.5 Nikkor	4–5	23°20′	Automatic	f/22	Full-open	1m (3.5 ft)	52mm (P=0.75)
135mm f/2 Nikkor	4–6	18°	Automatic	f/22	Full-open	1.3m (4.5 ft)	72mm (P=0.75)
135mm f/2.8 Nikkor	4–5	18°	Automatic	f/32	Full-open	1.3m (4.5 ft)	52mm (P=0.75)
135mm f/3.5 Nikkor	4–4	18°	Automatic	f/32	Full-open	1.3m (4.5 ft)	52mm (P=0.75)
180mm f/2.8 Nikkor	4–5	13°40′	Automatic	f/32	Full-open	1.8m (6 ft)	72mm (P=0.75)
200mm f/4 Nikkor	5–5	12°20′	Automatic	f/32	Full-open	2m (7 ft)	52mm (P=0.75)
300mm f/2.8 Nikkor IF-ED	6–8	8°10′	Automatic	f/22	Full-open	4m (13 ft)	122mm (P=1)
300mm f/4.5 Nikkor	5–6	8°10′	Automatic	f/22	Full-open	4m (13 ft)	72mm (P=0.75)
300mm f/4.5 Nikkor ED	4–6	8°10′	Automatic	f/22	Full-open	4m (13 ft)	72mm (P=0.75)
400mm f/3.5 Nikkor IF-ED	6–8	6°10′	Automatic	f/22	Full-open	4.5m (15 ft)	122mm (P=1)
400mm f/5.6 Nikkor ED	3–5	6°10′	Automatic	f/32	Full-open	5m (16 ft)	72mm (P=0.75)
600mm f/5.6 Nikkor IF-ED	6–7	4°10′	Automatic	f/22	Full-open	5.5m (20 ft)	122mm (P=1)
Telephoto (Focusing Unit required)							
400mm f/4.5 Nikkor	4–4	6°10′	Automatic	f/22	Stop-down	5.5m (18 ft)	122mm (P=1)
600mm f/5.6 Nikkor	4–5	4°10′	Automatic	f/22	Stop-down	11m (40 ft)	122mm (P=1)

Notes on TC-200/TC-300:
O: Usable. O★: Usable, but when used at smaller aperture than f/11 with high shutter speeds, there is occasional uneven exposure. △: Usable, but there is occasional vignetting. X: Cannot be used.

*with Focusing Unit AU-1

Filter	Lens Hood	Lens Case	Weight	Dimensions [Diameter x Length (Length from Lens Mount)]	TC-200	TC-300
Special filters are provided	Built-in	CL-14	1,200g (42.4 oz)	115mm x 101mm (88.5mm) [4-17/32 in x 3-31/32 in (3-15/32 in)]	O	x
Built-in	Built-in	CL-26	645g (22.8 oz)	92mm x 88mm (76mm) [3-5/8 in x 3-15/32 in (3 in)]	O	x
Series-9	HN-15	CL-28, No. 54	325g (11.5 oz)	89mm x 58.5mm (46.5mm) [3-1/2 in x 2-5/16 in (1-27/32 in)]	O	x
52mm	HN-14	CL-31, No. 54, CP-1	210g (7.4 oz)	63.5mm x 47.5mm (35.5mm) [2-1/2 in x 1-7/8 in (1-13/32 in)]	O	x
52mm	HK-2	CL-31, No. 54, CP-1	300g (10.6 oz)	63.5mm x 63.5mm (51.5mm) [2-1/2 in x 2-1/2 in (2-1/32 in)]	O	x
52mm	HN-1	CL-31, No. 54, CP-1	270g (9.5 oz)	63.5mm x 58mm (46mm) [2-1/2 in x 2-9/32 in (1-13/16 in)]	O	x
52mm	HN-1	CL-31, No. 54, CP-1	355g (12.5 oz)	64.5mm x 70.5mm (58.5mm) [2-17/32 in x 2-25/32 in (2-5/16 in)]	O	x
52mm	HN-2	CL-31, No. 54, CP-1	245g (8.7 oz)	63.5mm x 56.5mm (44.5mm) [2-1/2 in x 2-7/32 in (1-3/4 in)]	O	x
52mm	HN-2	CL-31, No. 54, CP-1	235g (8.3 oz)	63.5mm x 58.5mm (46.5mm) [2-1/2 in x 2-5/16 in (1-27/32 in)]	O	x
52mm	HN-3	CL-32, No. 54, CP-1	400g (14.1 oz)	67.5mm x 74mm (62.5mm) [2-21/32 in x 2-29/32 in (2-15/32 in)]	O★	x
52mm	HN-3	CL-31, No. 54, CP-1	280g (9.9 oz)	63.5mm x 63.5mm (51.5mm) [2-1/2 in x 2-1/2 in (2-1/32 in)]	O	x
52mm	HN-3	CL-31, No. 54, CP-1	240g (8.5 oz)	63.5mm x 56.5mm (44.5mm) [2-1/2 in x 2-7/32 in (1-3/4 in)]	O	x
52mm	HS-9, HR-1	CL-34A, No. 54, CP-1	255g (9 oz)	64mm x 51.5mm (39.5mm) [2-17/32 in x 2-1/32 in (1-9/16 in)]	O	x
52mm	HS-6, HR-1	CL-34A, No. 54, CP-1	220g (7.8 oz)	63.5mm x 53mm (41mm) [2-1/2 in x 2-3/32 in (1-5/8 in)]	O	x
52mm	HS-7, HR-2	CL-34A, No. 54, CP-1	410g (14.5 oz)	72mm x 61mm (49.5mm) [2-27/32 in x 2-13/32 in (1-15/16 in)]	O★	x
52mm	HS-10	CL-31, No. 54, CP-1	310g (11 oz)	63.5mm x 61mm (52.5mm) [2-1/2 in x 2-13/32 in (2-1/16 in)]	O	x
52mm	HS-8	CL-32, No. 55, CP-2	435g (15.3 oz)	66mm x 78mm (68.5mm) [2-19/32 in x 3-1/16 in (2-11/16 in)]	O	x
72mm	Built-in	CL-15, No. 55, CP-2	860g (30.4 oz)	81mm x 103mm (93.5mm) [3-3/16 in x 4-1/16 in (3-11/16 in)]	O★	x
52mm	Built-in	CL-33A, No. 55, CP-2	430g (15.2 oz)	64.5mm x 91.5mm (83.5mm) [2-9/16 in x 3-19/32 in (3-9/32 in)]	O★	x
52mm	Built-in	CL-33A, No. 55, CP-2	400g (14.1 oz)	65mm x 89.5mm (81.5mm) [2-9/16 in x 3-17/32 in (3-7/32 in)]	O	x
72mm	Built-in	CL-35A, No. 56, CP-2	880g (31.1 oz)	82mm x 141mm (132.5mm) [3-7/32 in x 5-9/16 in (5-7/32 in)]	O★	x
52mm	Built-in	CL-13, No. 56, CP-2	530g (18.7 oz)	68mm x 126mm (118mm) [2-11/16 in x 4-31/32 in (4-21/32 in)]	O	x
39mm	Built-in	CL-63	2500g (88.2 oz)	138mm x 249mm (241mm) [5-7/16 in x 9-13/16 in (9-1/2 in)]	x	O
72mm	Built-in	CL-20A	1,100g (38.9 oz)	78.5mm x 203mm (195mm) [3-3/32 in x 8 in (7-11/16 in)]	△	O★
72mm	Built-in	CL-20A	1,100g (38.9 oz)	78.5mm x 201mm (192mm) [3-3/32 in x 7-29/32 in (7-9/16 in)]	△	O★
39mm	Built-in	CL-61	2,800g (98.9 oz)	134mm x 304mm (296mm) [5-9/32 in x 11-31/32 in (11-21/32 in)]	△	O
72mm	Built-in	CL-27A	1,400g (49.5 oz)	83mm x 263mm (255mm) [3-3/16 in x 10-11/32 in (10-1/32 in)]	△	O★
39mm	Built-in	CL-62	2,700g (95.4 oz)	134mm x 382mm (374mm) [5-9/32 in x 15-1/32 in (14-23/32 in)]	△	O
122mm	Built-in	CE-5	1,900g (67.1 oz)	135mm x 276mm [5-5/16 in x 10-7/8 in]	x	x
			4,300g(151.9oz)*	135mm x 472mm (464mm) [5-5/16 in x 18-19/32 in (18-9/32 in)]*		
122mm	Built-in	CE-5	2,400g (84.8 oz)	135mm x 297mm [5-5/16 in x 11-11/16 in]	x	x
			4,800g(169.6oz)*	135mm x 517mm (509mm) [5-5/16 in x 20-11/32 in (20-1/32 in)]*		

Specifications of Nikkor Lenses

Lens \ Description	Lens Construction (Group-Element)	Picture Angle	Diaphragm Coupling	Minimum f-Stop	Exposure Metering	Closest Marked Focusing Distance	Attachment Size
600mm f/5.6 Nikkor ED	4–5	4°10′	Automatic	f/22	Stop-down	11m (40 ft)	122mm (P=1)
800mm f/8 Nikkor	5–5	3°	Automatic (or Manual)	f/22 (f/64)	Stop-down	20m (70 ft)	122mm (P=1)
800mm f/8 Nikkor ED	4–5	3°	Automatic (or Manual)	f/22 (f/64)	Stop-down	20m (70 ft)	122mm (P=1)
1200mm f/11 Nikkor	5–5	2°	Manual	f/64	Stop-down	50m (150 ft)	122mm (P=1)
1200mm f/11 Nikkor ED	4–5	2°	Manual	f/64	Stop-down	50m (150 ft)	122mm (P=1)
Reflex							
500mm f/8 Reflex-Nikkor	3–5	5°	—	—	Stop-down	4m (13 ft)	88mm (P=0.75)
1000mm f/11 Reflex-Nikkor	5–5	2°30′	—	—	Stop-down	8m (25 ft)	108mm (P=0.75)
2000mm f/11 Reflex-Nikkor	5–5	1°10′	—	—	Stop-down	18m (60 ft)	—
Zoom							
28–45mm f/4.5 Zoom-Nikkor	7–11	74°–50°	Automatic	f/22	Full-open	0.6m (2 ft)	72mm (P=0.75)
43–86mm f/3.5 Zoom-Nikkor	8–11	53°–28°30′	Automatic	f/22	Full-open	1.2m (4 ft)	52mm (P=0.75)
80–200mm f/4.5 Zoom-Nikkor	9–12	30°10′–12°20′	Automatic	f/32	Full-open	1.8m (6 ft)	52mm (P=0.75)
50–300mm f/4.5 Zoom-Nikkor	13–20	46°–8°10′	Automatic	f/22	Full-open	2.5m (8.5 ft)	95mm (P=1)
50–300mm f/4.5 Zoom-Nikkor ED	11–15	46°–8°10′	Automatic	f/32	Full-open	2.5m (8.5 ft)	95mm (P=1)
180–600mm f/8 Zoom-Nikkor ED	11–18	13°40′–4°10′	Automatic	f/32	Stop-down	2.5m (8.5 ft)	95mm (P=1)
200–600mm f/9.5 Zoom-Nikkor	12–19	12°20′–4°10′	Automatic	f/32	Stop-down	4m (13 ft)	82mm (P=0.75)
360–1200mm f/11 Zoom-Nikkor ED	12–20	6°50′–2°	Automatic	f/32	Stop-down	6m (20 ft)	122mm (P=1)
Fisheye							
6mm f/2.8 Fisheye-Nikkor	9–12	220°	Automatic	f/22	Full-open	0.25m (0.9 ft)	—
6mm f/5.6 Fisheye-Nikkor	6–9	220°	Manual	f/22	—	—	89mm (P=0.75)
8mm f/2.8 Fisheye-Nikkor	8–10	180°	Automatic	f/22	Full-open	0.3m (1 ft)	120mm (P=1)
10mm f/5.6 OP Fisheye-Nikkor	6–9	180°	Manual	f/22	—	—	79mm (P=0.75)
16mm f/3.5 Fisheye-Nikkor	5–8	170°	Automatic	f/22	Full-open	0.3m (1 ft)	—
Special							
28mm f/4 PC-Nikkor	8–10	74°	Manual preset	f/22	Stop-down	0.3m (1 ft)	72mm (P=0.75)
35mm f/2.8 PC-Nikkor	7–8	62°	Manual preset	f/32	Stop-down	0.3m (1 ft)	52mm (P=0.75)
58mm f/1.2 Noct-Nikkor	6–7	40°50′	Automatic	f/16	Full-open	0.5m (1.7 ft)	52mm (P=0.75)
55mm f/3.5 Micro-Nikkor	4–5	43°	Automatic	f/32	Full-open	0.241m (9-1/2 in)	52mm (P=0.75)
105mm f/4 Micro-Nikkor	3–5	23°20′	Automatic	f/32	Full-open	0.47m (1.55 ft)	52mm (P=0.75)
200mm f/5.6 Medical-Nikkor	4–4	12°20′	Automatic	f/45	—	—	38mm (P=0.75)

Notes on TC-200/TC-300:
O: Usable. O*: Usable, but when used at smaller aperture than f/11 with high shutter speeds, there is occasional uneven exposure. Δ: Usable, but there is occasional vignetting. X: Cannot be used.

*with Focusing Unit AU-1

Filter	Lens Hood	Lens Case	Weight	Dimensions [Diameter x Length (Length from Lens Mount)]	TC-200	TC-300
122mm	Built-in	CE-5	2,300g (81.3 oz)	133mm x 312mm [5-1/4 in x 12-9/32 in]	x	x
			4,700g(166.1oz)*	133mm x 515mm (506mm) [5-1/4 in x 20-9/32 in (19-29/32 in)]*		
122mm	Built-in	CE-6	2,300g (81.3 oz)	135mm x 510mm [5-5/16 in x 20-1/16 in]	x	x
			4,700g(166.1oz)*	135mm x 712mm (704mm) [5-5/16 in x 28-1/32 in (27-23/32 in)]*		
122mm	Built-in	CE-6	2,900g (102.5 oz)	133mm x 498mm [5-1/4 in x 19-19/32 in]	x	x
			5,300g(187.2oz)*	133mm x 693mm (684mm) [5-1/4 in x 27-9/32 in (26-15/16 in)]*		
122mm	Built-in	CE-7	3,100g (109.5 oz)	135mm x 732mm [5-5/16 in x 28-13/16 in]	x	x
			5,500g(194.3oz)*	135mm x 922mm (914mm) [5-5/16 in x 36-5/16 in (35-31/32 in)]		
122mm	Built-in	CE-7	3,700g (130.7 oz)	133mm x 727mm [5-1/4 in x 28-5/8 in]	x	x
			6,100g(215.5oz)*	133mm x 898mm (889mm) [5-1/4 in x 35-11/32 in (35 in)]		
39mm	Screw-in	CL-23	1,000g (35.3 oz)	93mm x 142mm (135mm) [3-21/32 in x 5-19/32 in (5-5/16 in)]	O	x
39mm	Built-in	CL-29	1,900g (67.1 oz)	119mm x 241mm (233.5mm) [4-11/16 in x 9-1/2 in (9-3/16 in)]	x	x
Built-in	Built-in	Metal	17,500g(618.3oz)	262mm x 598mm (593.5mm) [10-5/16 in x 23-17/32 in (23-3/8 in)]	x	x
72mm	HK-1	CL-33A, No. 55	440g (15.5 oz)	75mm x 91mm (79mm) [2-15/16 in x 3-19/32 in (3-1/8 in)]	O*	x
52mm	HN-3	CL-32, No. 55, CP-2	450g (15.9 oz)	66.5mm x 81.5mm (73.5mm) [2-5/8 in x 3-7/32 in (2-29/32 in)]	O	x
52mm	HN-7	CL-35A, No. 56	750g (26.5 oz)	73mm x 162mm (154mm) [2-7/8 in x 6-3/8 in (6-1/16)]	O	x
95mm	HN-11	CE-2	2,300g (81.3 oz)	98mm x 292mm (284mm) [3-27/32 in x 11-1/2 in (11-3/16 in)]	Δ	x
95mm	HK-5	CE-2	2,200g (77.6 oz)	98mm x 247mm (239mm) [3-27/32 in x 9-23/32 in (9-13/32 in)]	O	x
95mm	HN-16	CZ-1860	3,400g (120.1oz)	105mm x 403mm (395mm) [4-1/8 in x 15-7/8 in (15-9/16 in)]	x	x
Series 9	HN-10	CE-3	2,400g (84.8 oz)	89mm x 382mm (374mm) [3-1/2 in x 15-1/32 in (14-23/32 in)]	x	x
122mm	HN-17	CZ-3612	7,100g (250.8oz)	125mm x 704mm (696mm) [4-29/32 in x 27-23/32 in (27-13/32 in)]	x	x
Built-in	—	Metal (provided)	5,200g (183.7oz)	236mm x 171mm (159mm) [9-9/32 in x 6-23/32 in (6-1/4 in)]	O	x
Built-in	—	Leatherette (provided)	430g (15.2 oz)	92mm x 81mm (43mm) [3-5/8 in x 3-3/16 in (1-11/16 in)]	x	x
Built-in	—	CL-11	1,100g (38.9 oz)	123mm x 139mm (128mm) [4-27/32 in x 5-15/32 in (5-1/32 in)]	O	x
Built-in	—	CL-4	400g (14.1 oz)	84mm x 105mm (74mm) [3-5/16 in x 4-1/8 in (2-29/32 in)]	x	x
Built-in	—	CL-31, No. 54, CP-1	330g (11.7 oz)	68mm x 62mm (51mm) [2-11/16 in x 2-7/16 in (2 in)]	O	x
72mm	HN-9	CL-34A	410g (14.5 oz)	78mm x 67.5mm (63mm) [3-1/16 in x 2-21/32 in (2-15/32 in)]	x	x
52mm	HN-1	CL-34A, No. 54	330g (11.7 oz)	66.5mm x 66mm (61.5mm) [2-5/8 in x 2-19/32 in (2-13/32 in)]	x	x
52mm	HS-7, HR-2	CL-34A, No. 54, CP-1	480g (17.0 oz)	74mm x 63mm (51.5mm) [2-29/32 in x 2-15/32 in (2-1/32 in)]	O*	x
52mm	HN-3	CL-33A, No. 55, CP-2	240g (8.5 oz)	66mm x 64.5mm (55mm) [2-19/32 in x 2-17/32 in (2-5/32 in)]	O	x
52mm	Built-in	CL-35A, No. 56	500g (17.7 oz)	74.5mm x 104mm (96mm) [2-15/16 in x 4-3/32 in (3-25/32 in)]	Δ	O
—	—	Compartment case	700g (24.7 oz)	79mm x 177mm (170mm) [3-1/8 in x 6-31/32 in (6-11/16 in)]	x	x

Specifications and designs shown herein are subject to change without notice.

NIPPON KOGAKU K.K.
Fuji Bldg., 2-3, 3-chome, Marunouchi, Chiyoda-ku, Tokyo 100, Japan ☎(03) 214-5311 Telex: J22601 (NIKON)
NIPPON KOGAKU (U.S.A.) INC.
623 Stewart Avenue, Garden City, New York 11530, U.S.A. ☎(516) 222-0233 Telex: (23) 426539 (NKUS UI)
NIKON EUROPE B.V.
Freeport Bldg., 1118 ZJ Schiphol Airport, The Netherlands ☎(020) 156633 Telex: 13328 (NIKON NL)
NIKON AG
Kaspar Fenner-Strasse 6, 8700 Küsnacht/ZH, Switzerland ☎(01) 910 92 62 Telex: 53208 (NIKON CH)
NIKON GmbH
4 Düsseldorf 30, Uerdinger Strasse 96-102, West Germany ☎(0211) 451061 Telex: 8584019 (NIKO D)

Code No. 8108-03 PEC (7803)
Printed in Japan