

DX Nikkor Lens Overview

DX Nikkor lenses are designed for the 24 x 16 mm (approx) sensor format used in Nikon 'D series' SLR camera range: D2H, D1, D1X, D1H, D100, and D70 and are designed to address the market's need for wider angle-of-view high-performance optics for digital SLR photography. The 24 x 16 mm sensor format is known as the Nikon DX Format.

DX Nikkor lenses are designed for coverage of this sensor format, implemented consistently in all of Nikon's Digital SLR cameras to date. The smaller image circle opens up a variety of exciting opportunities in optical design such as ultra wide focal lengths, larger zoom ratios and smaller and lighter constructions, that were previously impossibly expensive or complicated to achieve in the traditional 135 format. Larger sensor sizes produced by other manufacturers have increased data throughput leading to slower workflow and no major improvement in resolution, DX Nikkor lenses offer better performance for D-series users while keeping data workflow fast and efficient.

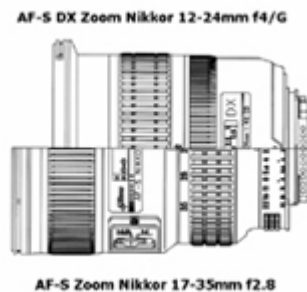


Image 1

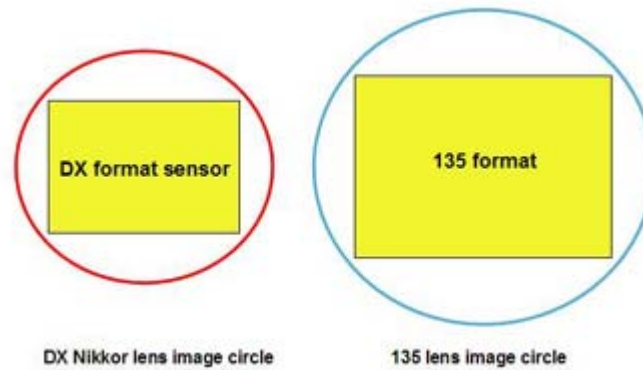


Image 2

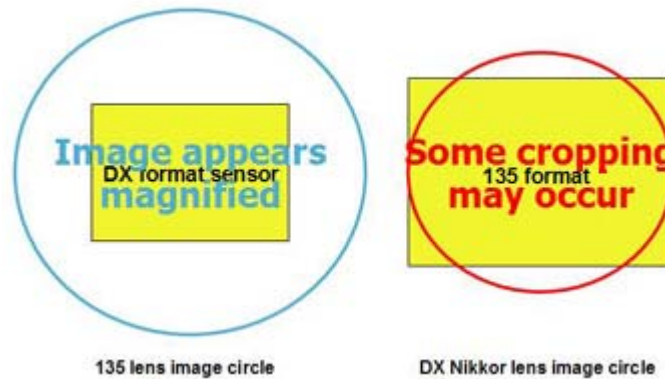
As DX Nikkor lenses are designed for the smaller 24 x 16 mm sensor format the lenses actual physical size is smaller. Image 2 shows a DX Nikkor 12-24mm on a D1X (black lens), also how large the same focal length lens would be if it were designed for a 135 format camera (green lens).

The Nikon F mount is a universal lens mount used by all Nikon SLR cameras, this means that both DX Nikkor and 135 Nikkor lenses are physically interchangeable. However the image circle produced by DX Nikkor lens is smaller than that produced by a lens designed for the 135 format as the Nikon DX Format sensor area is smaller than the 135 film area.

Field of View



The image above shows that light projected through DX Nikkor and 135 lenses produces an image circle to cover the camera format that the lens is designed for.



This diagram shows what happens if a lens designed for the 135 format is used on a DX format sensor camera (D1, D1H, D1X, D100, D70), the image circle produced by the lens is larger than the sensor area, therefore the field of view is cropped and the image appears magnified. This means that the lens has an apparent focal length magnification of 1.5 times the quoted figure, the actual focal length of the lens has not changed. This combination has proved successful with many photographers enjoying the fact that their 135 lenses magnify the image when used on D-series cameras. It can also be seen that if a DX Nikkor lens is used on the 135 format (35mm film camera) that some vignetting may occur at wider angles when the image circle is not large enough to cover the sensor area. For this reason Nikon do not recommend use of DX Nikkor lenses on 135 format cameras.

Field of View (FOV)

Due to the fact that Nikon Digital SLR and Nikon film SLR cameras are using different size sensors the lens FOV for any given lens is different on each camera.

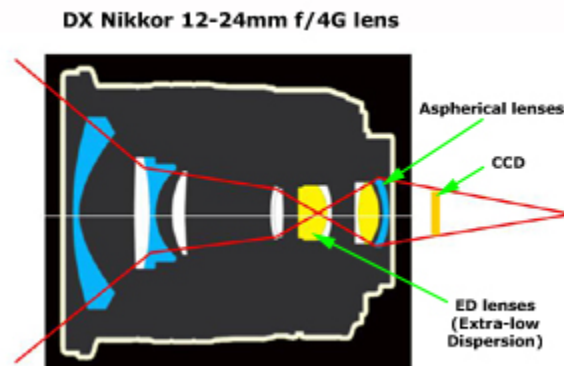
Historically, Nikon have always specified the FOV for 135 Nikkor lenses when used on 135 format cameras, this will continue. However, as DX Nikkor lenses are specifically designed for Nikon DX Format cameras, Nikon will now state the DX Format FOV for these lenses.

For example:

- The AF 24mm F2.8D Nikkor has a quoted FOV of 84° (on a 135 film SLR camera)
- The 12-24mm DX Nikkor has a quoted FOV of 61° (at 24mm on a DX format camera)

Lens Size and Design

Due to the smaller sensor size, DX Nikkor lenses can be designed a smaller physical size than comparative 135 lenses. DX Nikkor lenses will incorporate many well known and trusted Nikon lens technologies, aspherical lenses to significantly reduce distortion, ED (Extra-low Dispersion) glass elements to minimize chromatic aberration and Nikon Super Integrated Coating (SI-C) for excellent color reproduction and flare and ghost repression. Silent Wave Motor Technology (SWM) is also used for ultra quiet auto focus.



The DX Nikkor concept is great news for photographers, not only the legions of Nikon D series SLR customers, but for anyone considering making their first step to digital SLR photography. They solve the limitations of digital wide-angle photography at a stroke, and literally 'widen' the options for great digital photography without the expense and data payload demanded by cameras with larger but slower sensors.

For more technical information on our DX products, please visit our Imaging Support Centre at <http://help.nikon.ca>.