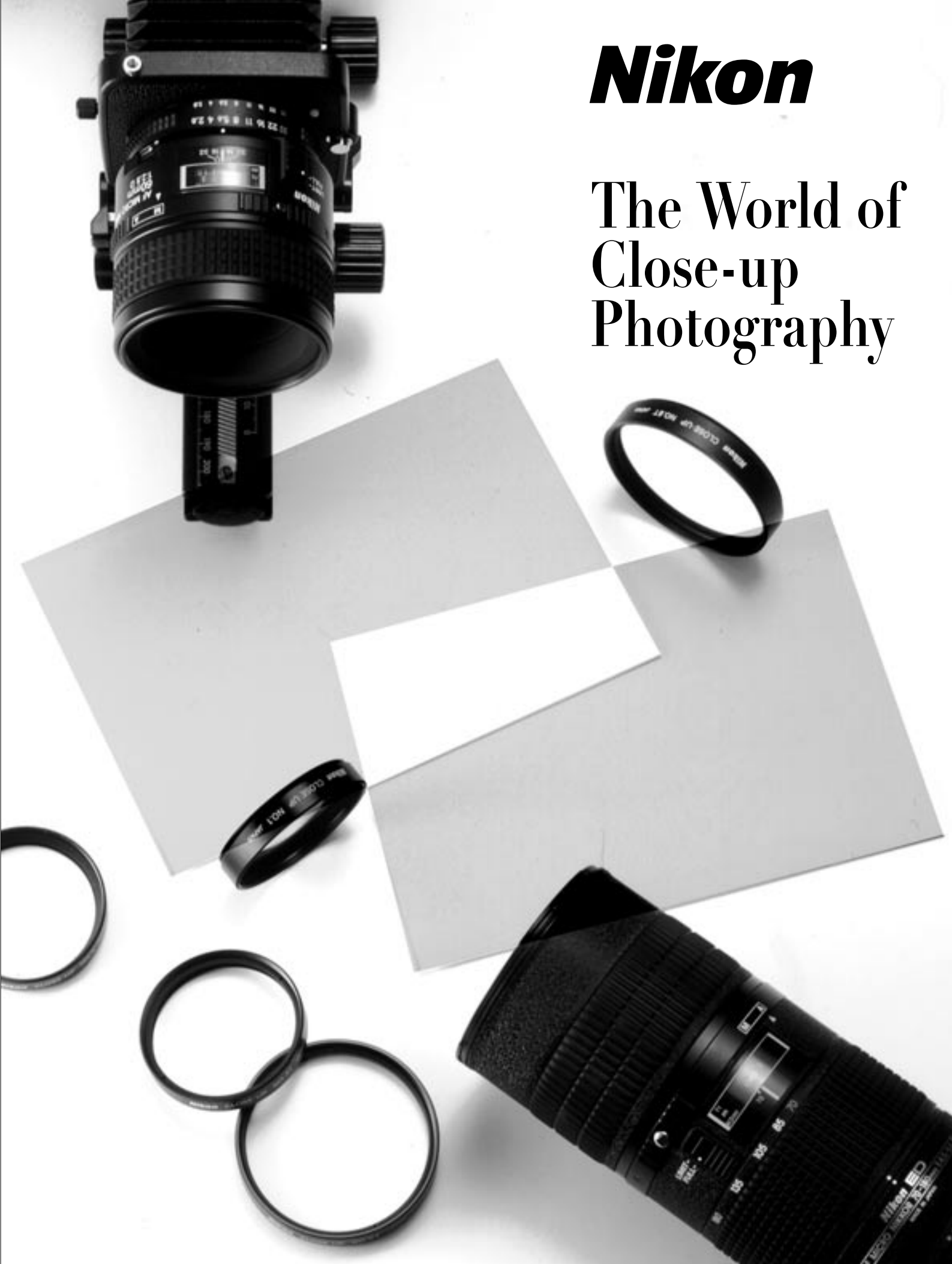
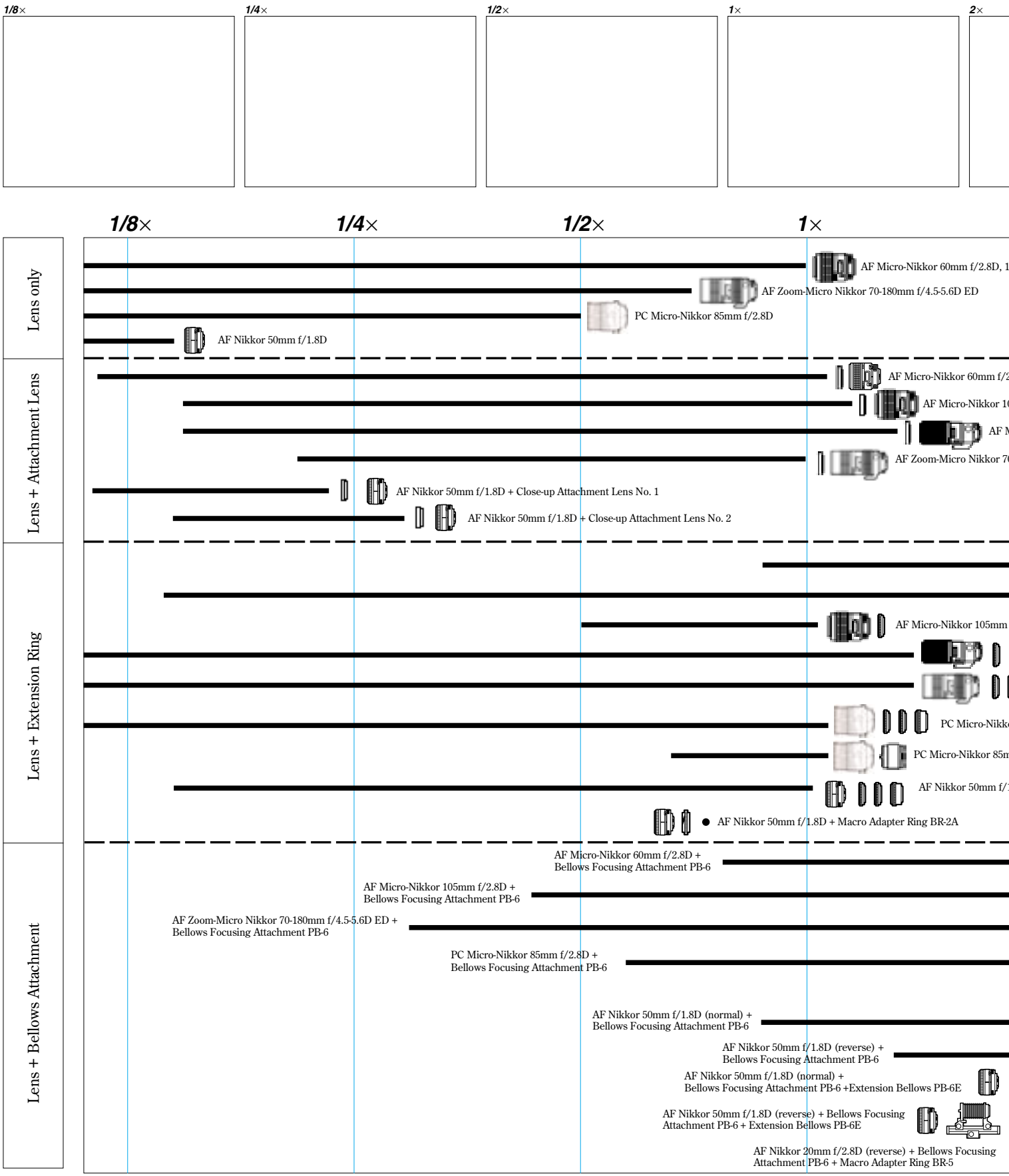
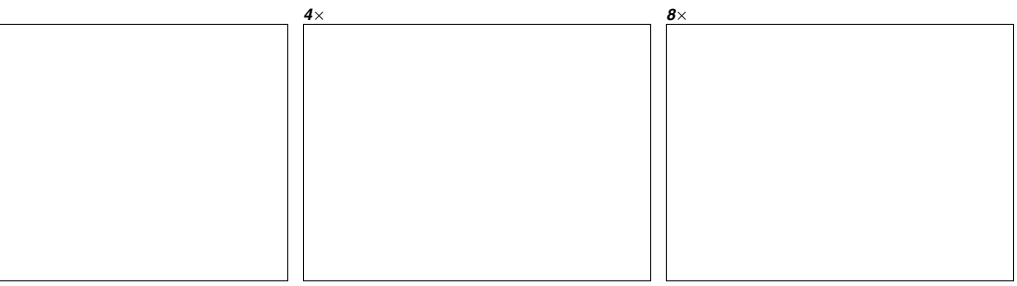
Nikon

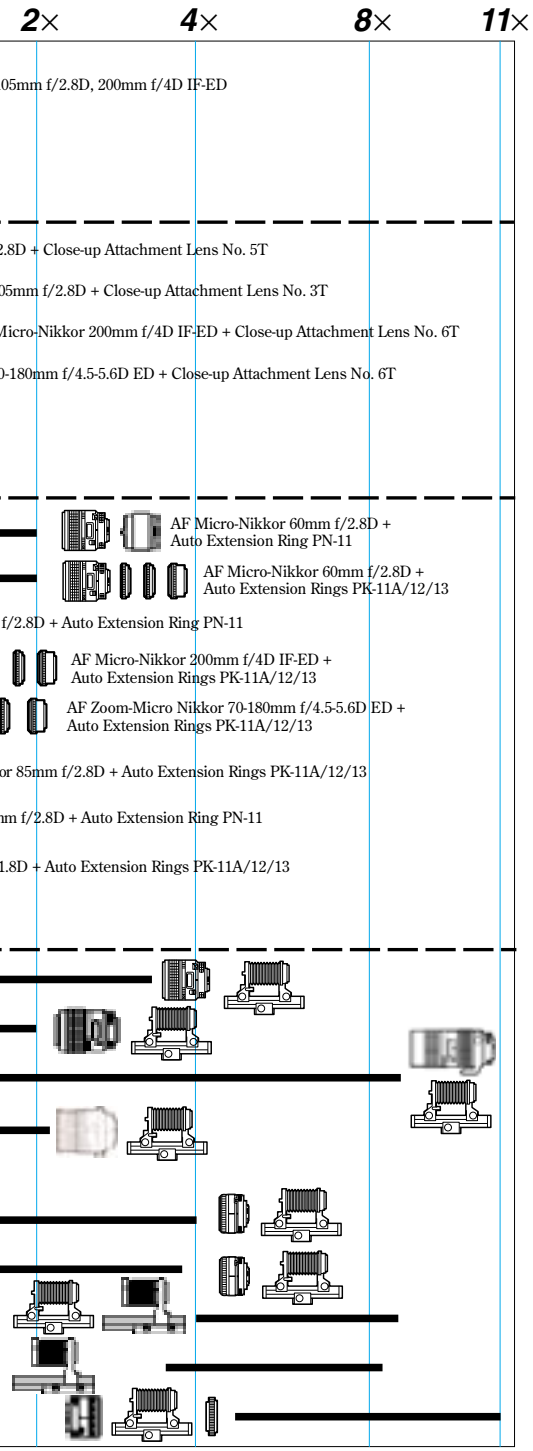
The World of Close-up Photography



A new generation of great close-up photography







With all the recent advances in 35mm Single Lens Reflex technology, it's now possible to take better close-up pictures than you ever imagined. What once was "difficult" is now automatic...what was thought "impossible" now takes just a few minutes!

Nikon is at the forefront of a succession of important technological advances—in 35mm SLR autofocus cameras, lenses, speedlights and accessories—which puts great photography within everyone's reach. By using advanced computer techniques, Nikon equipment takes care of the complex and tedious calculations so you can concentrate on creative ideas.

Some basic information before you begin

In close-up photography, you strive to enlarge the film image of your subject, revealing more details and creating an exciting photograph through the use of a variety of mechanical and optical accessories. To help you get started, here are some special terms you should know.

Reproduction Ratio (RR)

Most close-up photos are referred to by their reproduction ratio. The RR indicates the relationship between subject size and the size of the image on film. It is determined by the distance from the film plane to the subject and by the lens' focus setting. For example, if the film image is the same size as the subject, the RR is one-to-one (1:1 or 1X). If the image is two times larger, the RR is 2:1 or 2X. You'll want to decide first on the RR and then set the lens' focus to achieve it. Nikon close-up equipment provides a very wide range of reproduction ratio capability. Here's a rule of thumb to determine the RR. The 35mm film image is 24mm high and 36mm wide. If your subject is 24mm high and covers the entire finder height, the RR is 1:1. If your subject is 144mm high and covers the entire finder height, the RR is 1:6. (Note: all Nikon F5 and Nikon F3 finders are virtually 100% accurate and can be used for RR determination with assurance. Other finders show less than 100%, generally 92%, so the above method is only approximate.)

Exposure Compensation

Whenever a lens is focused closer, illumination is lost—this is a rule of optics. With general photography, the loss is negligible; but with close-ups, this loss becomes significant and an exposure compensation is needed to overcome it. With Nikon's TTL (through-the-lens) metering system for both available light and flash photography, automation takes care of this compensation.

Depth of Field

This refers to the area of acceptable sharpness, both in front of and behind the focused subject. In close-up work, depth of field is extremely shallow, and it changes in relation to the RR and the lens aperture used. The higher the RR and the wider the aperture is open, the shallower the depth of field. Lower RRs and smaller apertures increase depth of field. The depth-of-field preview system of many Nikon SLRs lets you see this effect.

Reversing the Lens

In general photography, the subject is usually far from the lens while the film is relatively close. As we get closer to the subject, the ratio of distance to subject vs. distance from film to lens changes, affecting performance. When shooting with a lens not specifically designed for close-up work at higher magnification, you can improve lens performance by using a reversing ring to reverse-mount the lens. Nikon offers the BR series of rings, as well as other accessories to use when the lens is reversed.

Free Working Distance

This refers to the distance from the front of the lens to the subject. As you focus closer, this distance becomes progressively shorter, and can hamper lighting the subject. Very close focusing can make live subjects nervous and uncooperative; using longer focal length lenses can be the solution. Nikon offers a wide selection of lenses and accessories that allow you to control the distance to the subject.

Camera Shake

When making close-ups, even slight vibrations can reduce image sharpness. For most close-up work, you'll want to use a tripod or some other device to brace your camera system. We also recommend using a Nikon cable release or electronic release wire for the sharpest results.

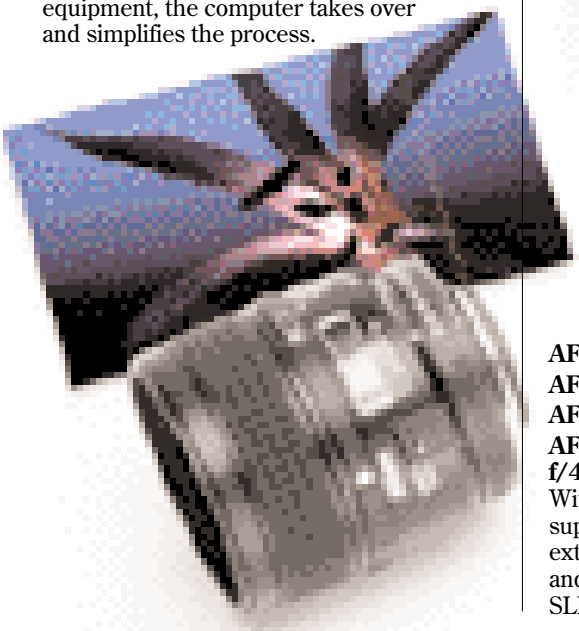
THE CRITICAL DIFFERENCE: MICRO-NIKKOR OPTICS

Today's Micro-Nikkor lenses incorporate the latest Nikon technology, combining the highest standard of mechanical design and construction with precise optics and leading-edge electronics.

Optics: Wide ranging optical performance, optimised for close-ups and consistently high even at infinity focus, makes any Micro-Nikkor the ideal choice for close-up photography. Nikon Super Integrated Coating ensures control of flare and maximises colour performance. Close-Range Correction (CRC) overcomes aberrations. And superb sharpness and critical definition are assured.

Electronics: AF Micro-Nikkor and PC Micro-Nikkor lenses incorporate a built-in 4-bit Central Processing Unit (CPU) which links to the CPU found in the Nikon SLR and Speedlight models. High-performance electronics take care of exposure calculations in mere milliseconds, leaving you to concentrate on creating the image. Even with otherwise complex close-up equipment, the computer takes over and simplifies the process.

Mechanical Design: The triple-claw chrome-plated brass Nikon F lens mount ensures compatibility among Nikon SLR models and lenses...a design standard which verifies Nikon's support of all Nikon photographers. AF Nikkor lenses are more compact, require shorter mechanical movements, focus more smoothly and faster, and exemplify Nikon's leadership in engineering and design.



AF Micro-Nikkor 60mm f/2.8D
AF Micro-Nikkor 105mm f/2.8D
AF Micro-Nikkor 200mm f/4D IF-ED
AF Zoom-Micro Nikkor 70-180mm f/4.5-5.6D ED

With these exceptional lenses, designed for superior performance from infinity to extreme close-up, focusing is fast, accurate and consistent. Choose a Nikon autofocus SLR and get fast, sure automatic operation.

Choose continuous autofocus, single-servo or focus tracking operation and you'll appreciate how pictures you thought were impossible are now easy to make...in light as dim as EV minus 1...with the Nikon F5, F100, F80 and other models! Manual focusing, too, is smooth and precise; large knurled rubber rings help make the image "snap" into focus. A focus range limiter also helps speed the focusing operation. Whether it's an optical focusing system or Nikon's Electronic Rangefinder that you are using, you'll be impressed with the performance of these lenses.

Specifications

	AF Micro-Nikkor 60mm f/2.8D	AF Micro-Nikkor 105mm f/2.8D	AF Micro-Nikkor 200mm f/4D IF-ED
Lens construction	8 elements in 7 groups	9 elements in 8 groups	13 elements in 8 groups
Picture angle	39°40'	23°20'	12°20'
Maximum reproduction ratio	1:1 (life-size)	1:1 (life-size)	1:1 (life-size)
Diaphragm	f/2.8 to f/32	f/2.8 to f/32	f/4 to f/32
Working distance at 1X	72.9mm	136mm	260.5mm
Subject-to-film distance	0.219m (at 1X)	0.314m (at 1X)	0.5m (at 1X)
Attachment size	62mm	52mm	62mm
Dimensions	70mm dia.×74.5mm extension from lens flange; 82.8mm long (overall)	75mm dia.×104.5mm extension from lens flange; 113mm long (overall)	76mm dia.×193mm extension from lens flange; 202mm long (overall)
Weight	455g	555g	1,200g

PC Micro-Nikkor 85mm f/2.8D
The PC Micro-Nikkor 85mm f/2.8D is equipped with a tilt/shift mechanism that lets you manipulate image perspective, distortion and focus.
With 1:2 life-size macro capability, this lens is ideal for commercial photographers who shoot tabletop product photos.
You can stop down the lens' aperture via mechanical push-button operation and it remains stopped down (until the button is pressed again), for easy depth-of-field confirmation. There's also an optional tripod mounting spacer AH-5 that offers smoother tilt/shift operation for tripod use.

Macro function of AF Zoom-Nikkor lenses
All AF Zoom-Nikkor lenses focus from infinity to close-up, using each lens' macro focus capability. With most lenses, it's not necessary to set any special switches for macro; you can continuously focus the lens from infinity to close-up. It's fast and easy, and compatible with both manual and automatic focusing operation. Depending on the lens, the macro range may be as close as about 1:3 (1/3 life-size).
Each lens' built-in computer works together with the computers in the camera and speedlight for full exposure control, enabling the use of Nikon's established Matrix Metering system and Automatic Balanced Fill-Flash control.

AF Zoom-Micro Nikkor 70-180mm f/4.5-5.6D ED	PC Micro-Nikkor 85mm f/2.8D
18 elements in 14 groups	6 elements in 5 groups
34 °20' to 13°40'	28°30'
1:3.2 (70mm) to 1:1.3 (180mm); 1:1 for lens with No. 6T	1:2 (for lens only)
f/4.5 to f/32	f/2.8 to f/45
120mm	210mm
0.37m (at 0.75X)	0.39m (at 0.5X)
62mm	77mm
75mm dia.×167mm extension from lens flange; 175mm long (overall)	83.5mm dia.× 109.5mm extension from lens flange; 118mm long (overall)
990g	770g

A CLOSE LOOK AT NIKON CLOSE-UP ACCESSORIES

Use your imagination and let Nikon help you make the picture. Nikon offers a wide variety of equipment to help you capture close-up images. And with Nikon, you'll get as much enjoyment out of using the sophisticated Nikon system as you will from your photos.

No. 0 No. 1 No. 2 No. 3T No. 4T No. 5T No. 6T

Close-up Attachment Lenses
Used singly or in combination, close-up attachment lenses are an easy, convenient and economical way to get into close-up work. You can use them together with your normal, zoom or telephoto lenses to focus within a fixed close-up range. The attachment lenses screw directly onto the front of your lens, just like a filter, and allow you to focus closer. Because they mount on the front of your lens, all of your camera's automatic functions such as light metering and autofocus operation are maintained. Made with high-quality Nikon optical glass and using Nikon Integrated Coating, these lenses provide crisp and sharp performance. Close-up attachment lenses are numbered from 0 to 6T. Numbers 0, 1 and 2 are for use with lenses with a focal length up to 55mm. Numbers from 3T to 6T are two-element achromats and are for telephoto lenses. In general, the higher the number of the close-up lens, the closer you can focus, so the longer the focal length of the lens in use, the greater the magnification possible.

PK-11A PK-12 PK-13 PN-11

Auto Extension Rings PK/PN
As a lens is extended from the lens mount, the image it makes becomes more magnified. Nikon extension rings, offered in a variety of sizes, can be used singly or in combination to vary the reproduction ratio. Depending on whether they are used singly or in combination determines if full-aperture or stopped-down aperture control will be in operation. Either way, control is through-the-lens and automatically compensates for the lens extension. Operation is possible with both Manual and Aperture-Priority Auto exposure control modes. Focusing is manual only.

Teleconverters TC-301, 201, 14A and 14B

Each of these precision optical accessories can be mounted between compatible lenses and a Nikon SLR camera body, to increase the lens' focal length and, accordingly, its close focusing ability. Auto exposure and TTL operation are possible with compatible models. The accompanying chart lists the lenses compatible with these useful accessories.

Compatibility

TC-301: Lenses 300mm or longer; Micro-Nikkor 200mm f/4 IF
TC-201: Lenses 200mm or less
TC-14A: Lenses 200mm or less
TC-14B: Lenses 300mm or longer

Two-Pin Remote Accessories (for F3 series with MD-4/FM3A with MD-12/FM2 with MD-12)

Terminal Release MR-3
The MR-3 connects to the remote-control terminal to provide an additional trigger button for firing camera in vertical position. It also enables you to trigger the camera with Nikon Cable Release AR-3.

Remote Cord MC-12B (0.8m)*
Enables you to perform remote firing up to 0.8m.

Remote Cord MC-4A (1m)
The plug on one end of the MC-4A connects to the camera's remote-control socket, the other end has both plus and minus banana-type plugs. These banana plugs enable you to simultaneously fire several cameras.

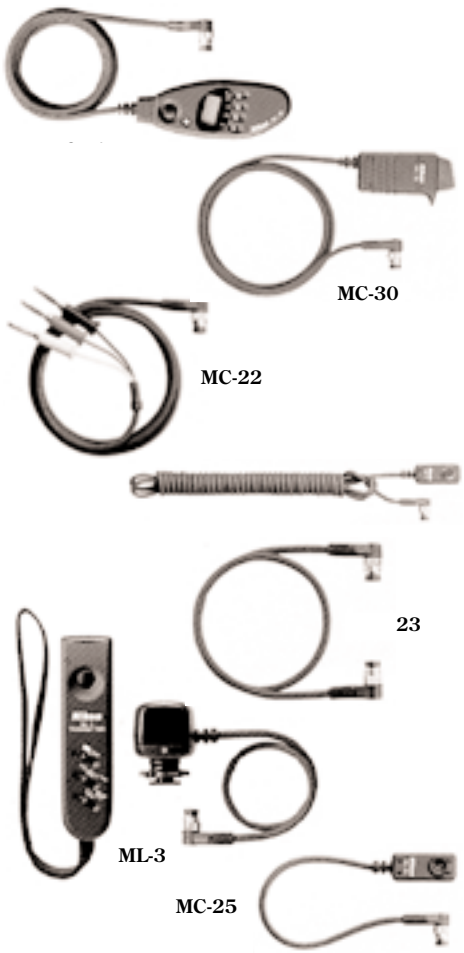
Modulite Remote Control Set ML-2
Provides infrared light remote control for three separate channels to enable automatic operation of motor-driven cameras at distances up to 100m. Compact and easy to handle. Wireless slave flash operation is also possible.

Adapter Cord MC-26 (0.2m)*
Enables use of ten-pin remote cords MC-20, MC-30 and MC-22.

* Function limited when MD-12 mounted; see instruction manual.

Two-Pin Remote Accessories

Ten-Pin Remote Accessories



Remote Cable for Cameras with Release Terminal (for F80/F3 series/FM3A/FM2)

Cable Release AR-3 (0.3m)
Essential for slow shutter speeds, these cable releases ensure one-hand, vibration-free shutter release operation.

Ten-Pin Remote Accessories (for F5/F100)

Remote Cord MC-20 (0.8m)
Enables remote firing of a camera and setting of long time exposure of up to 9 hrs. 59 min. 59 sec.

Remote Cord MC-30 (0.8m)
Enables remote firing of a camera with trigger-lock function.

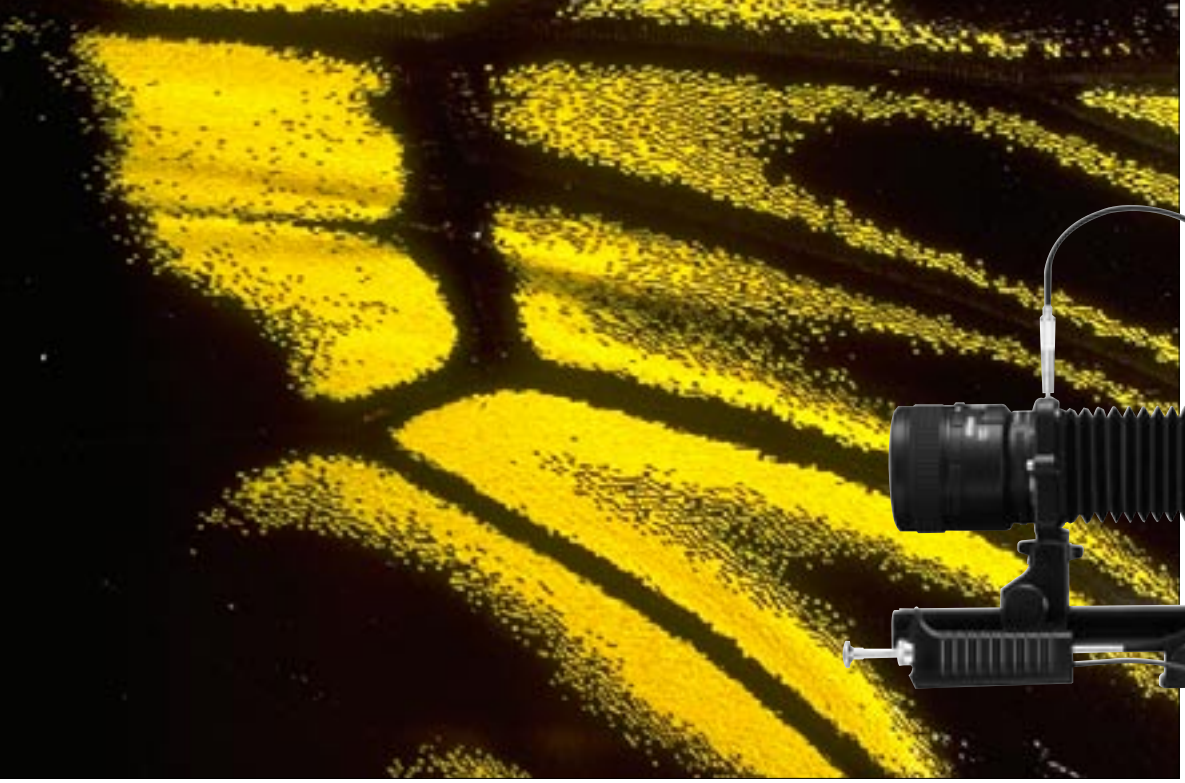
Remote Cord MC-22 (1m)
Useful for connection to shutter triggering device.

Extension Cord MC-21 (3m)
Used with MC-20, MC-30 or MC-22.

Connecting Cord MC-23 (0.4m)
Connects two cameras for simultaneous or synchronized shutter release.

Modulite Remote Control Set ML-3
The ML-3 offers remote control for two separate channels via an infrared LED beam, enabling automatic camera operation from a distance of up to about 8m. Auto triggering, delayed shutter release, single and continuous shooting are possible.

Adapter Cord MC-25 (0.2m)
Enables use of two-pin remote accessories: MC-4A, MC-10, MC-12B, ML-2 and AR-10.



Nikon F5 + AF Micro-Nikkor 60mm f/2.8D + PB-6 + PK-11A + AR-10 + MC-25 + DW-31

Bellows Focusing Attachment and Accessories

Bellows Focusing Attachment PB-6

For maximum magnification you'll want to use bellows. This easy-to-use unit is designed for use with a wide assortment of optics and can render reproduction ratios from about 1:1 to nearly 11X life-size, depending on the lens in use and whether the lens is mounted normally or in the reverse position. Exposure control can be either Manual or Aperture-Priority Auto, and TTL metering and flash control operate with this system. The extension range of PB-6 is 48mm to 208mm.
An Auto Extension Ring is required when the PB-6 is used with the F5 or F100.
The Bellows Spacer PB-6D enables moving a Nikon F5 or F3 with MD-4 on the PB-6 rail without interference. It also allows horizontal/vertical changeover anywhere along the rail. Two PB-6Ds are needed with the PB-6; three are needed when using the PB-6E.

Extension Bellows PB-6E

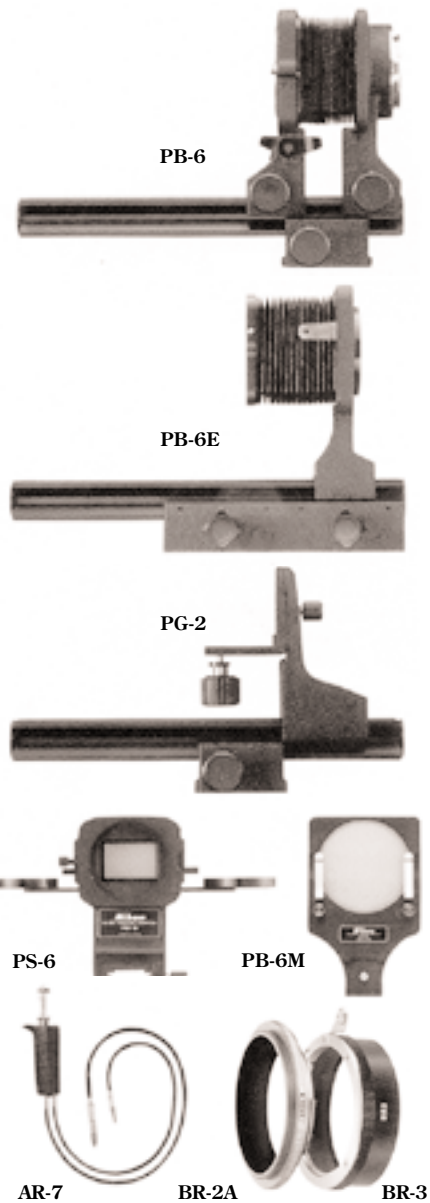
Attach this unit to the PB-6 and you can more than double the reproduction ratio range up to an amazing 24X life-size when using a 20mm lens in reverse position at full bellows extension. Using this combination, the continuously variable extension range is from 83mm to 438mm; other functions are the same as the PB-6.

Slide Copying Adapter PS-6

Used together with the PB-6, this adapter enables you to quickly duplicate and crop 35mm transparencies (with mounts up to 4mm thick). It can also handle uncut rolls of film. Camera TTL exposure control systems operate with this unit.

Macro Copy Stand PB-6M

Securely mounted on the end of the PB-6, this unit is a convenient stage for placing small items. Its surface is 18% grey.



Macro Adapter Ring BR-2A, BR-5

The BR-2A permits a lens with a 52mm front thread to be mounted on the PB-6 in reverse position, increasing reproduction ratio and working distance for normal and wide-angle lenses. The BR-5 allows lenses with 62mm threads to be mounted on the BR-2A.

Focusing Stage PG-2

Once you select the reproduction ratio, you don't want to change either the lens' focus ring or the bellows extension. Therefore, in order to focus, you must move the complete system back and forth until the image appears sharp. Use the Focus Stage PG-2 mounted between the bellows and a tripod to accomplish smooth movement for the sharpest focusing.

Adapter Ring BR-3

This ring is mounted on the bayonet end of a lens which is being used in the reverse position. The BR-3 provides a 52mm thread for use with filters and other lens attachments.

Cable Release AR-7

This double cable release provides the PB-6 with semi-automatic diaphragm control, even when the lens is used in the reversed postion.

With SB-29s

With an ordinary flash unit
using a remote cord.

TTL Macro Speedlight SB-29s

The compact, battery-operated SB-29s for closeups features dual-rotatable flash tubes for choice of flat front or relief lighting. Its main body attaches to the controller, so the SB-29s is compatible with lenses whose filter attachments rotate when focusing. Flexible flash output combinations let you choose to flash either the right or left module, or have them flash simultaneously. You can also set the flash output balance (left:right, right:left) to 1:4. In modeling flash mode, the SB-29s fires a series of weak flashes allowing you to confirm through the viewfinder, before taking the shot, the effect of flash on the scene. You can enhance light even more, using secondary lighting and reflector systems. Exposure control can be completely automatic, so it's simple to use such devices and requires no special calculations. This unit is ideal for all Micro-Nikkor lenses, especially AF Micro-Nikkors. They're fast and convenient to use with any Nikon AF SLR.
SB-29s also provides an M1/32 flash output, which helps assure accurate exposure with current and future generations of high-sensitivity digital cameras.

Nikon SB-80DX AF Speedlight

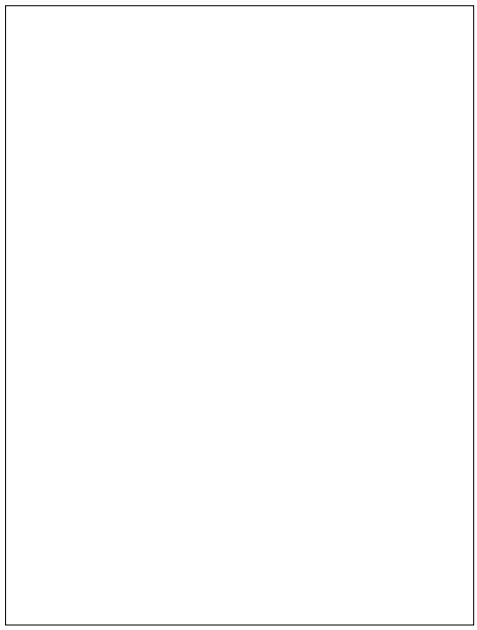
This high-performance speedlight features a wide selection of controls, including non-TTL automatic, strobe effect, variable power manual, and fully automatic TTL control with flash compensation possible. Used off-camera with the accessory SC-17 TTL control cord, it enables you to creatively position the flash for optimum lighting control. A special terminal on the SB-80DX and the SC-17 cord allows use of up to five SB-80DX units with SC-18 and SC-19 extension cords and AS-10 TTL Multi-Flash Adapter to create multi-lighting effects. Operation remains automatic, with TTL control through the camera's computer control system.

TTL Balanced Fill-Flash

Using the Nikon F5, F100, F80 or F65 together with the SB-80DX and accessory cord system, you can achieve dramatic results—such as excellent balance between foreground and background lighting—in your close-up photography.

CREATIVE CLOSE-UPS: NO ONE MAKES THEM EASIER, OR MORE REWARDING, THAN NIKON

1) *Hemerocallis,* 1:5 RR, Fujichrome RD



1) *Anklet*, 1:5 RR, Kodachrome 64

1. F80/F65/F55 + AF Zoom-Nikkor 24-120mm f/3.5-5.6D IF + Attachment Lens No.1

Easily the most convenient and inexpensive way to begin taking close-ups is with Nikon's attachment lenses. Polished to Nikon's world-famous standards of optical precision, they slip on to the lens without hampering automatic functions. With this combination, reproduction ratio is possible up to 1:3.4. Rapid, precise autofocus is assured by the cross-type autofocus sensor, and automatically correct exposure is secured by the multi-sensor light meter.

Camera settings
Focusing: Single-Servo Autofocus
Exposure metering: 3D Matrix
Exposure mode: Auto-Multi Program

2) *Old painted wall*, 1:1 RR, Kodachrome 64

2. F5/F100/F80/F65/F55 + AF Micro-Nikkor 60mm f/2.8D

If you want to concentrate on close-up creativity—without bothering with focusing or exposure calculations—this is the combination for you. Nikon's advanced electronics technology takes care of everything for sharply focused, well exposed shots—you just point and shoot. The advanced focusing system is the result of Nikon's integration of electronic sensors, high-speed microcomputers, and a super-responsive body-mounted coreless motor. Nikon's exclusive Matrix Metering System assures accurate exposure, despite the difficult lighting of many close-up situations.

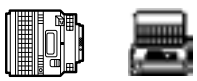
Camera settings
Focusing: Single-Servo Autofocus
Exposure metering:
3D Colour Matrix (F5)
3D Matrix (F100, F80, F65, F55)
Exposure mode:
Programmed Auto (F5, F100)
Auto-Multi Program (F80)
Close Up (F65, F55)

3. F5/F100/F80/F65 + AF Micro-Nikkor 60mm f/2.8D + SB-80DX Speedlight + SC-17 TTL Remote Cord

Combine Nikon's advanced SLRs and AF Nikkor lenses with built-in CPU, plus Nikon's latest flash accessories, and demanding techniques become simple. With Matrix Balanced Fill-Flash using any of the latest Nikon Speedlights, background and TTL flash exposure levels are adjusted, brightening harsh shadows and intensifying subject detail. Flash exposure can also be manually selected from +1 to -3 EV to allow for your personal creativity. And rotating the Speedlight's zoom-bounce-rotating flash head to point the light where you want it will let you vary the flash area coverage to light your subject to best advantage. The TTL Remote Cord enables you to create your own original lighting effects with off-camera automatic TTL flash control.

Camera settings
Focusing: Single-Servo Autofocus
Exposure metering:
3D Colour Matrix (F5)
3D Matrix (F100, F80, F65)
Exposure mode:
Programmed Auto (F5, F100)
Auto-Multi Program (F80, F65)
Speedlight setting
Mode setting: TTL

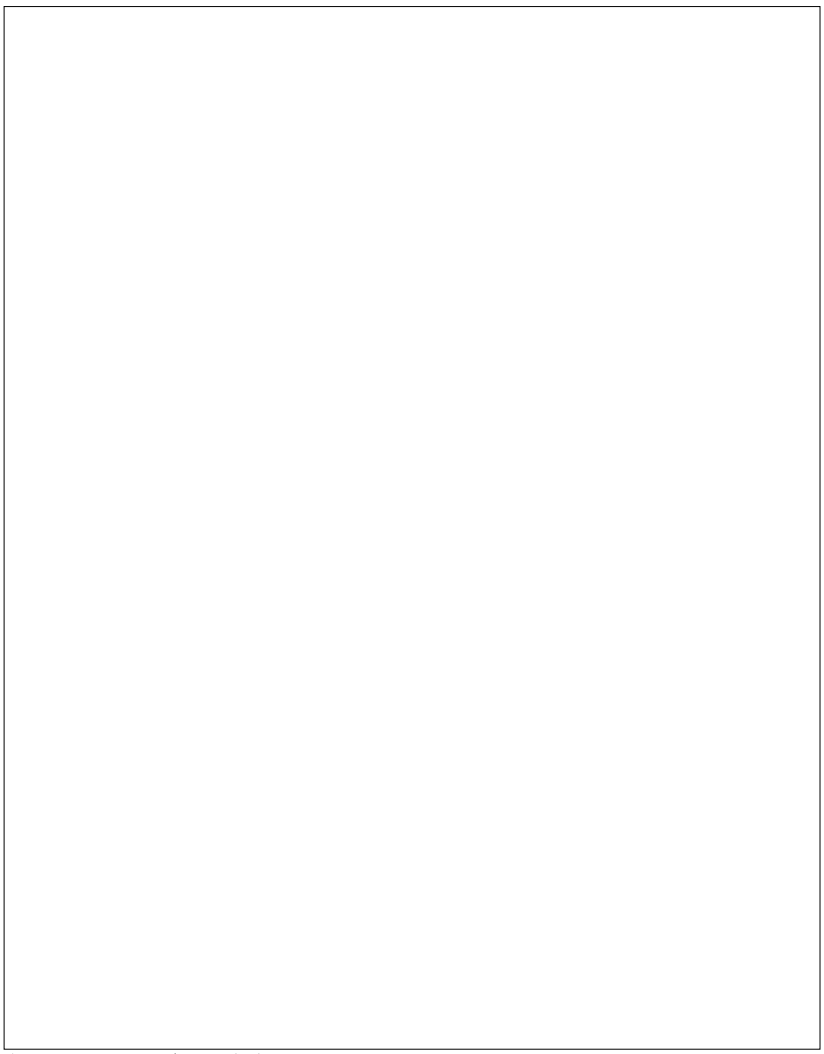
4. F5 + AF Micro-Nikkor 60mm f/2.8D + 6X High-Magnification Finder/Waist-Level Finder



For selective metering of tiny subjects or for advanced manual metering techniques, the F5's Spot Metering system precisely measures an area represented by the 5mm-diameter circle in the centre of the viewfinder. With the F5's interchangeable 6X High-Magnification Finder, you can critically preview everything in the frame, at a magnification of six times life-size. For situations where it is difficult to compose your picture by looking through the viewfinder normally, use the Waist-Level Finder which gives you a 5X magnification. Spot Metering is also available with the Nikon F100 and F80.

Camera settings
Focusing: Single-Servo Autofocus
Exposure metering: Spot
Exposure mode: Aperture-Priority Auto

3) *Dragonfly,* 1:2 RR, Fujichrome RD



4) *Cornet,* 1:2.5 RR, f/11, Kodachrome 64

5. F5 + AF Micro-Nikkor 105mm f/2.8D + SB-80DX Speedlight + MF-28 Multi-Control Back + MC-20/MC-30 Remote Cord

In order not to frighten live close-up subjects, like small animals or insects, it is advantageous not only to use a lens with a long working distance, such as the 105mm, but also to use Freeze Focus. With this feature, available with the Multi-Control Back MF-28 for the F5, all you do is preset a manually focused position, depress the shutter button, and then, when your subject enters that focus plane, the shutter automatically fires. Freeze Focus is also convenient for manual focusing with the camera's Electronic Rangefinder, and works well in remote-control photography, in which case the remote cord activates the light meter and ensures correct electronic operation.

Camera settings
Focusing: Manual
Exposure metering: Centre-Weighted
Exposure mode: Aperture-Priority Auto
Speedlight setting
Flash mode: TTL

6. F5/F100 + PC Micro-Nikkor 85mm f/2.8D + Multi Flash

This combination is ideal for creating outstanding tabletop product photos for commercial photography. The PC Micro-Nikkor 85mm lens gives you both tilting and shifting capabilities. By tilting the lens up or down or left or right (tilt range: ±8.3˚), you can modify the plane of focus to achieve specific effects. Likewise, when you shift the lens (shift range: ±12.4mm), you are sliding the lens parallel to the viewfinder image. This allows you to correct perspective distortion, exaggerate image distortion, and perform other functions not available with conventional lenses. In addition, the lens offers 1:2 life-size macro shooting capability (at 0.39m/1.3 ft.). You can also rotate the lens up to 90˚ (right or left) for versatile tilt/shift effects, or even combine shifting and tilting operations. Multiple flash photography will give your close-ups creative lighting, and with Nikon equipment it is simplicity itself. Several Speedlights are linked to the camera via TTL remote or TTL multi-flash sync cords.

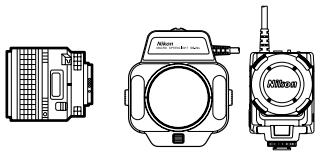
Camera settings
Focusing: Manual
Exposure metering: Centre-Weighted
Exposure mode: Manual
Speedlight setting
Flash mode: Manual

5) *Moth,* 1:2 RR, X-sync, f/8, Fujichrome RD

6) *Wristwatch,* 1:4 RR, 1/250 sec., f/4, Fuji PROVIA (RDP II), (with tilting)

(without tilting)

7. F5/F100 + AF Micro-Nikkor 60mm f/2.8D + SB-29s Macro Speedlight



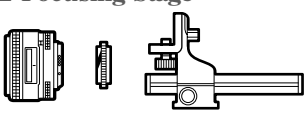
By attaching Nikon's SB-29s to the lens, you can take flawless macro photography. Either try TTL automatic exposure control, enabling you to remove distracting shadows automatically or manually allowing you to experiment with the three levels of flash output using the two flash units on the speedlight, for greater creativity.

Camera settings
Focusing: Single-Servo Autofocus
Exposure metering: Centre-Weighted
Exposure mode: Aperture-Priority Auto
Speedlight setting
Flash mode: TTL

7) Flower, 1:2 RR, 1/250 sec., f/22, Fuji PROVIA (RDP II)

8) *Worm,* 1:1 RR, 1/250 sec., f/4, Fujichrome RD

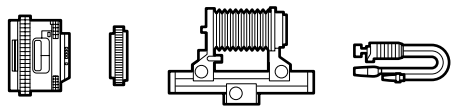
8. F3 + BR-2A Macro Adapter Ring + AF Nikkor 35mm f/2D + PG-2 Focusing Stage



Reversing an asymmetric lens will rearrange the lens' optical corrections and enable you to get fairly good definition in extreme close-ups such as this reproduction ratio of 1.6:1. Use the macro adapter ring to reverse-mount the lens onto the camera body. Because the focusing ring cannot be used with a reverse-mounted lens, focusing is done by moving the camera body and lens back and forth. Therefore, first decide on your reproduction ratio, then mount the camera on the Focusing Stage PG-2 for the greatest degree of stability and security to facilitate sharp focusing.

Camera settings
Focusing: Manual
Exposure mode: Manual

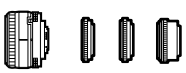
9. F100 + AF Nikkor 20mm f/2.8D + BR-5 Macro Adapter Ring + PB-6 Bellows Focusing Attachment + AR-10 Double Cable Release + Multi Flash



With the Bellows Focusing Attachment PB-6, you can mount the lens on the camera and achieve considerable magnification. But use the BR-5 Macro Adapter and the reproduction ratio grows to a very impressive 11X. Focusing is brighter, thanks to the full-aperture viewing mechanism. And the PB-6 has a stop-down lever so you can use stop-down metering. Usable exposure modes are Aperture-Priority Auto (A) and Manual (M). The double cable release enables one-handed shutter release operation and automatic diaphragm control. Adapter Cord MC-25 is required to connect the AR-10 and F100.

Camera settings
Focusing: Manual
Exposure metering: Centre-Weighted
Exposure mode: Aperture-Priority Auto
Speedlight setting
Flash mode: TTL

10. F5/F100 + AF Nikkor 50mm f/1.8D + Auto Extension Rings PK-11A/12/13

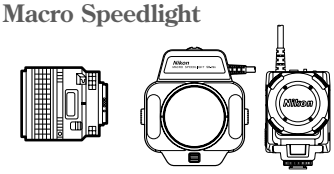


If this is your first time taking close-up photographs, Nikon offers you an inexpensive and easy way to start—the Auto Extension Rings. These rings couple directly with the automatic diaphragm of Nikkor lenses and the camera's exposure meter. This combination puts together all three auto extension rings to give a maximum reproduction ratio of 1X; in all, there are seven different combinations for seven different reproduction ratios. Exposure metering is automatically taken care of in the Aperture-Priority Auto (A) mode, or, of course, you can select Manual (M) exposure to express your own creativity. Focusing is always manual.

Camera settings
Focusing: Manual
Exposure metering: Centre-Weighted
Exposure mode: Aperture-Priority Auto

9) *Butterfly eggs,* 7:1 RR, X-sync, f/16, Fujichrome RD

11. F5/F100/F80/F65 + AF Micro-Nikkor 60mm f/2.8D + SB-29s Macro Speedlight



A series of close-up shots of the same subject but each with a different exposure can add great dramatic interest to your close-up work. Nikon makes auto bracketing easy, and lets you shoot up to three continuous frames to suit your various needs and tastes.
When using the combination of Multi-Control Back MF-28 and the Nikon F5, you can shoot up to 9 continuous frames.

Camera settings
Focusing: Single-Servo Autofocus
Exposure metering:
3D Colour Matrix (F5)
3D Matrix (F100, F80, F65)
Exposure mode: Aperture-Priority Auto

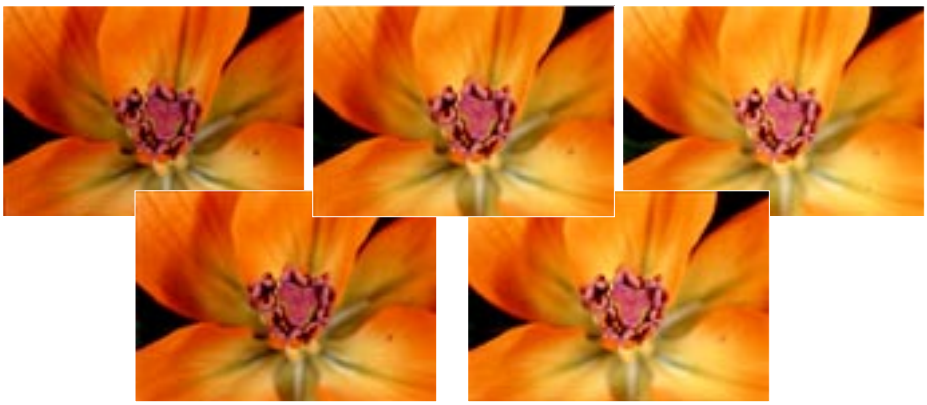
10) *Music box,* 1:1 RR, f/16, Kodachrome 64

12. F5/F100/F80/F65/F55 + AF Micro-Nikkor 60mm f/2.8D

The Nikon cameras allow you to extend the shutter speed range to as slow as 30 seconds. This produces a balanced exposure in which the background and foreground appear beautifully exposed.
When using the Nikon F5 with the Multi-Control Back MF-28, you can extend the exposure duration up to 999 hours.

Camera settings
Focusing: Single-Servo Autofocus
Exposure metering:
3D Colour Matrix (F5)
3D Matrix (F100, F80, F65, F55)
Exposure mode: Shutter-Priority Auto

11) *Flower,* 1:4 RR, 1/250 sec., f/16, Fuji PROVIA (RDP II)



12) *Light-emitting tube,* 1:4 RR, 8 sec., Kodachrome 64

13) *Metallic mobile*, Rear-Curtain Sync; 1:3.5 RR, 1/4 sec., f/5.6: Repeating Flash: 1:6 RR, 1 sec., f/8: Kodachrome 64

13 F5/F100 + AF Micro-Nikkor 105mm f/2.8D + SB-80DX Speedlight

Rear-curtain synchronisation is a special technique which automatically triggers the flash an instant before the rear (second) curtain begins to close. With close-up subjects which are in movement, this turns available light into a stream of light which seems to trail the flash-illuminated subject. Rear-Curtain Sync, which sounds very complicated, is easy to accomplish with the Nikon SLRs like F5 and F100. Since this visual effect is especially effective at a slow shutter speed, Slow Sync is automatically set when Rear-Curtain Sync is set in P or A mode. However, to set a desired shutter speed, set the camera to S or M mode. The SB-80DX offers yet another advanced feature: strobe effect, in which the speedlight emits up to 40 flashes per second, with flash output level and flash intervals all pre-selected. The photo is a double exposure using rear-curtain sync and repeating flash.

Rear-Curtain Sync

Camera settings
Focusing: Single-Servo Autofocus
Exposure metering:
3D Colour Matrix (F5)
3D Matrix (F100)
Exposure mode: Aperture-Priority Auto
Speedlight settings
Flash mode: TTL
Curtain setting: Rear

Repeating Flash

Camera settings
Focusing: Manual
Exposure metering:
3D Colour Matrix (F5)
3D Matrix (F100)
Exposure mode: Manual
Speedlight settings
Flash mode: Repeating

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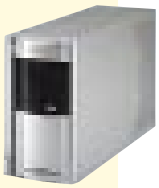

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