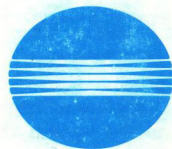
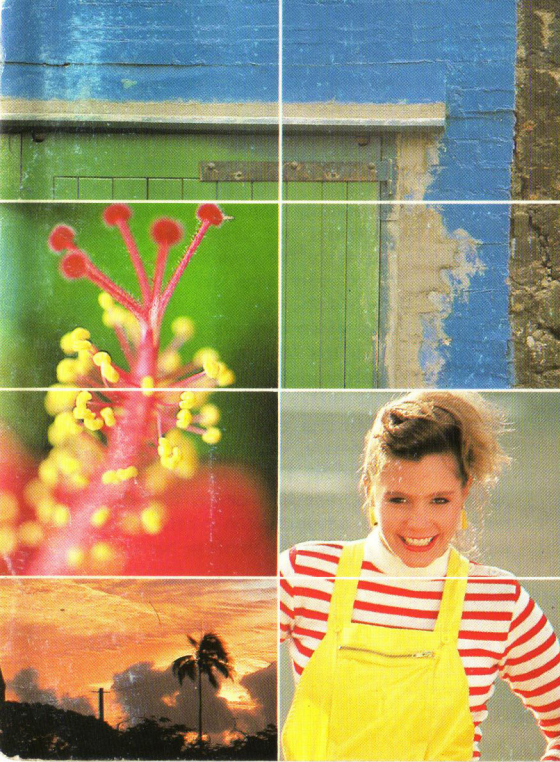


# WILSONWERKS ARCHIVES

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MINOLTA

**A GUIDE TO  
THE MINOLTA SLR SYSTEM OF  
CREATIVE PHOTOGRAPHY**

## THE MINOLTA SLR SYSTEM OF CREATIVE PHOTOGRAPHY

Minolta makes a really complete 35mm photographic system so that you can be a really complete photographer. Now that you own one of the famous Minolta SLR cameras, you have the nucleus of the world's finest system of 35mm photography. Your potential is practically unlimited.

Judged by any standards of photographic excellence, Minolta SLR cameras are thoroughly professional instruments of uncompromising quality. With their versatile complement of specially designed Minolta lenses and many precision Minolta accessories, they are capable of mastering virtually any photographic situation imaginable.

Minolta makes more than 400 lenses, accessories, and attachments for use with Minolta SLR cameras. Encompassed are interchangeable lenses, including many zoom and special-purpose types, from 7.5mm fisheye to 1600mm extreme telephoto plus a full range of accessories and attachments. Most of these are described in this booklet.

Now that you own a Minolta SLR camera, you owe it to yourself to fit it with genuine Minolta accessories and particularly with Minolta interchangeable lenses that match it in quality. These lenses and accessories are made by Minolta expressly for your SLR. To assure best results, be sure you get the genuine products; they are the only ones that will give you maximum performance every time.

The object of the Minolta SLR system is to give every photographer, of no matter what skill, a creative choice in all areas of photography. Your Minolta dealer can demonstrate the full SLR camera, lens, and accessory line and help you choose the equipment that best suits your needs. See him or her for technical help, too. Your adventures in creative photography may very well begin in his or her store.



50mm Macro Lens at f/5.6, camera on "Auto" (1/250 sec.)  
75-200mm Zoom Lens at f/4.5, 5 sec. exposure while zooming

85mm Lens at f/5.6, 1/60 sec.

# MINOLTA INTERCHANGEABLE LENSES



## How Minolta Makes a Lens

Minolta is one of a very few camera companies in the world that make their own optical glass and lenses. This little-known fact becomes very important when you consider that only in this way can a camera company ensure the precise optical and mechanical design properties so vital to advanced photography.

Before a Minolta lens is mounted on a Minolta camera, extensive consumer research first tells us what lenses and features users want most; the concept for each new lens is formed; and design begins.

Minolta engineers then take this basic concept and, using extremely sophisticated computers and programs, refine it into a working lens design. Visual-readout "conversational monitoring system" (photo 1, p. 5) techniques and computerized plotters help decide what types of glass will be used, number of elements, their exact curvatures, and all the many other factors that will result in the best possible lens performance and design. Only after all this has been determined does actual production of a Minolta lens begin.

## The Lens Glass Ingredients

Producing its own lenses from raw materials by latest techniques gives the Minolta lens-engineering staff rare flexibility to experiment with new designs for characteristics considered unattainable only a few years ago. Optical glass can be selected or mixed to meet the requirements of the design—not the other way around. New glasses among more than 150 different types produced by Minolta make for higher image quality with ever more compactness and light weight.

In Minolta's up-to-the-minute optical-glass-making facility, ingredients are first selected and mixed from over 40, which include tantalum pentoxide and rare earths from exotic places. Traditional batch melting in huge earthenware crucibles has been replaced by forming the fused ingredients into glass granules (photo 2); continuous melting of these at over 1,300°C (2,372°F) in electric furnaces after extra-strict index adjustment yields precise control and consistently higher purity. After forming of continuous bars, gob forming of lens blanks was developed; now with Minolta's highly advanced

technique, closely sized lens shapes are formed direct from molten glass by automated equipment. Then without stopping, they are annealed in tunnel ovens on an endless conveyor to relieve internal stresses and further adjust refractive index (3). This continuous process eliminates the many manual operations in selecting, cutting, sizing, tumbling, etc., as well as considerable grinding, all of which formerly had to be done separately.

### Grinding, Polishing, and Achromatic Coating

The shaped glass is then made into finished lenses under continuous computerized production/stock control. Grinding and smoothing with diamond abrasives refines the pressed shapes, and then the lens elements are individually precision polished on automatic machinery with oxides of zirconium or cerium (4). Using Newton-ring gauges, curvature can be checked to an accuracy of 0.0003mm (0.3 micron).

Next comes the important operation of centering, which is crucial for lens performance.

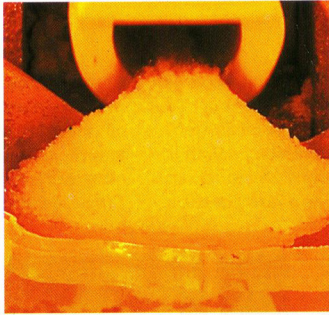
This is done with great speed and accuracy by rows of Minolta-developed automatic machines. Cemented groups of elements are precision centered using ruby-laser equipment (6), then fixed with ultraviolet rays, and cleaned ultrasonically before coating and assembly.

Minolta produced Japan's first coated lens in the 1940s; then in 1958, our Achromatic coating—first ever to employ more than one layer, for dramatic improvement in lens performance—became the forerunner of multi-layer coatings. Today Minolta's exclusive coating process (5) involves up to several layers of the most advanced compounds vacuum-deposited in microscopic thicknesses to meet the specific requirements of each lens design. As a result, Minolta lenses give less flare, better image contrast, and rich, true colors.

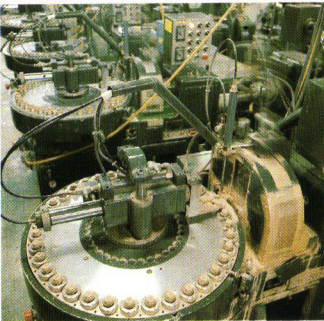
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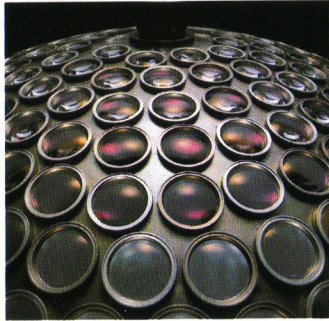
2



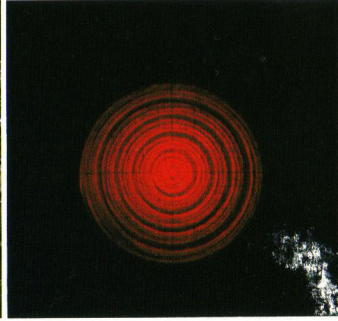
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4



5



6



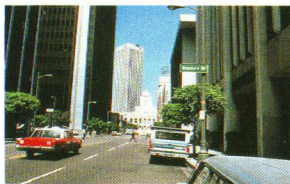
## ANGLE OF VIEW

A major advantage of 35mm SLR cameras is their ability to accept a large number of different focal-length lenses. Each different lens provides a specific degree of coverage, which is called the lens' angle of view and is an extremely important factor in the composition

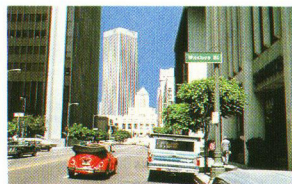
of a photograph. Angle of view is a diagonal measurement in degrees of the area of a scene covered by the lens at a given distance. As focal length increases, the angle of view becomes narrower. A 50mm lens has approximately four times the angle of view of a 200mm lens.



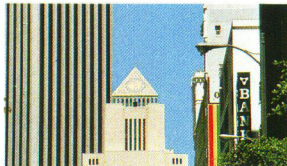
24mm



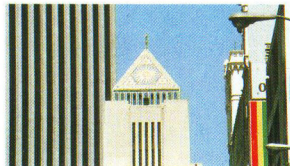
28mm



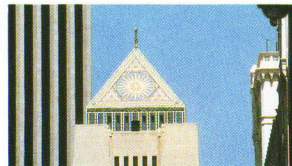
35mm



135mm



200mm



300mm



7.5mm Fisheye



16mm Fisheye



17mm



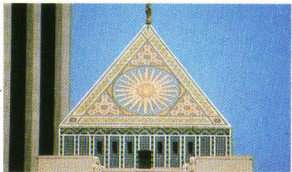
50mm



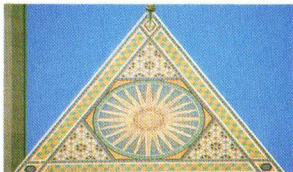
85mm



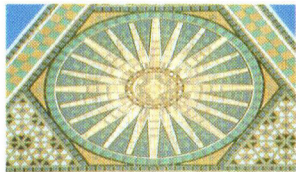
100mm



500mm



800mm



1600mm

## FISHEYE LENSES

The widest of all Minolta lenses, the 7.5mm f/4 and 16mm f/2.8 Fisheye lenses respectively give a circular and full-frame image with a  $180^\circ$  angle of view. For the creative photographer, their unique and unusual perspective can transform the most commonplace subject or scene into extraordinary images with dramatic impact. Their short focal length provides enormous depth of field that can range from a few inches in front of the lens to infinity. And the use of special-index optical glasses assures exceptional image sharpness from edge to edge.

Both lenses feature a complement of built-in filters, and are fully meter-coupled with auto diaphragm for ease of operation.



7.5mm f/4 MD Fisheye

16mm f/2.8 MD Fisheye



16mm Fisheye Lens

## ULTRA WIDEANGLE LENSES

With angle of view approaching fisheye lenses but without their curving perspective, the ultrawide 17mm f/4, 20mm f/2.8, and 24mm f/2.8 lenses give sweeping and dramatic effects for pictorial and commercial photography. Their Minolta "floating" rear-element design provides exceptional edge-to-edge sharpness at minimum focus distance and maximum aperture, and makes them ideal choices when space indoors or outdoors is confined or for dramatic effects.

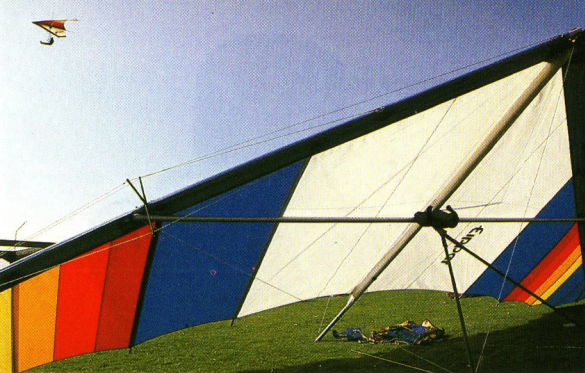
The short focal length of wideangle lenses gives them considerable depth of field even at large apertures or short distances. This inherent extra depth of field can aid in making sharp photos at peak action without the delay needed for adjusting focus.



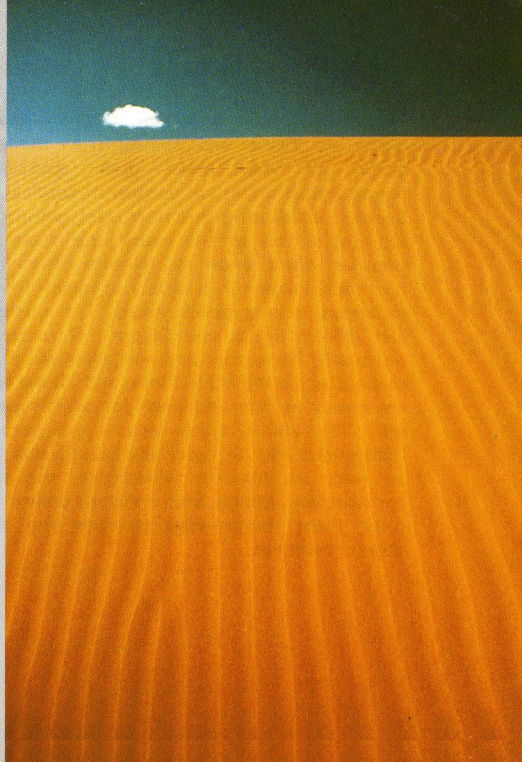
17mm f/4 MD

20mm f/2.8 MD

24mm f/2.8 MD



20mm Lens at f/8, camera on "Auto" (1/125 sec.)



24mm Lens at f/16, 1/60 sec.

## WIDEANGLE LENSES

The most popular and widely used wideangle lenses are 28mm and 35mm. Their moderate angles of view make them appropriate for an almost unlimited number of applications. Scenics, advertising, interiors, and group shots are just a few of the many uses these very popular lenses excel at. Minolta offers these two focal lengths in a variety of speeds to meet individual photographic needs. The extremely fast 35mm f/1.8 and 28mm f/2 lenses are unequaled for indoor and available-light photography, while the f/2.8 35mm and 28mm lenses are nearly as fast and ideal for overall general use. The 28mm f/3.5 lens is exceptionally lightweight and an especially good value. And as with all Minolta wideangles, the finest construction, design, and materials deliver critically sharp images edge to edge and at all aperture settings.

28mm f/2.8 MD

28mm  
f/3.5 MD

28mm f/2 MD

35mm f/1.8 MD

35mm f/2.8 MD





28mm Lens at f/8, camera on "Auto" (1/250 sec.)



## 24MM f/2.8 MD VFC

This is the world's first lens whose field of sharp focus can be varied continuously at will from concave through flat to convex by simply moving a control ring on the barrel. Thus, even if distances from center and edges of objects to the film plane are too different to be covered by depth of field (particularly at close range and/or large apertures), sharp photos having excellent image quality can be obtained of many subjects by appropriately curving the field. On the other hand, this capability can also be used creatively to deliberately render parts of the subject out of focus, or the lens can be used as a conventional flat-field wideangle. Either way, optimum image quality is assured by the "floating" focusing system and Minolta Achromatic coating incorporating the latest techniques.



24mm f/2.8 MD VFC



VFC Lens field curved in "wrong" direction

VFC Lens field curved to conform to subject

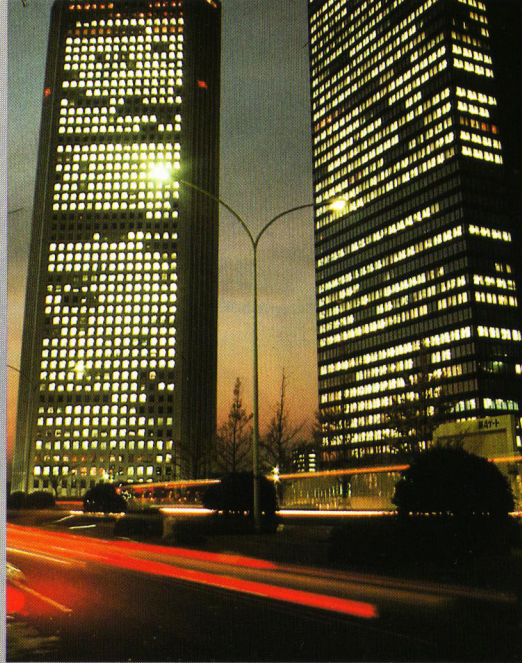


## 35MM f/2.8 SHIFT CA

Minolta's exclusive mechanism for this lens makes full-circle shift very easy without rotating the barrel. Adjustment is conveniently made visually through the finder without watching scales, since movement stops at the range limit in any direction. Vertical shift enables taking in more of a subject without tilting the camera (see right). Lateral or diagonal shift is effective in avoiding intruding foreground elements (e.g., bushes, utility poles) or undesirable reflections (as on paintings, mirrors) without moving the camera, or to make panoramic exposures to be joined later. But further, this lens incorporates Minolta's widened versatility: Shift and VFC functions can also be used together in a wide variety of combinations for unique curve-tilt effects not possible with any other lens. This is the first of its type to have auto-diaphragm operation, for viewing and focusing at full-aperture brightness.



35mm f/2.8 Shift CA



Regular 35mm Lens



35mm Shift CA Lens

## STANDARD LENSES

The Minolta MD 50mm f/2, f/1.7, f/1.4, and f/1.2 lenses are widely known as the "normal" or "standard" lenses for Minolta SLR cameras and are well suited for most general photographic purposes.

All are ideal for available-light photography indoors and for other low-illumination situations.

Light in weight and styled with "human-engineered" waffle-pattern rubber focusing grips, these standard lenses, like other MD lenses, are fitted with automatic iris diaphragms and MC and MD coupling lug rings. They thus provide for proper indexing/readout with Minolta multi-mode models as well as full-aperture light measuring or focusing with the diaphragm always open to maximum aperture except at the instant of exposure.

50mm f/1.7 MD



50mm f/1.4 MD



50mm f/2 MD



50mm f/1.2 MD





50mm Lens at f/4, camera on "Auto" (1/125 sec.)

## TELEPHOTO LENSES

Minolta telephoto lenses are available in a very wide range of focal lengths, starting at 85mm and extending through 1600mm. A lens for virtually any situation, limited only by the photographer's imagination, makes the Minolta telephoto lens system one of the world's largest and most highly respected. Innovative design and use of special Minolta-formulated and produced optical glasses and coatings assure image quality, contrast, and color rendition that is the finest possible. Up-to-the-minute design and engineering also make Minolta telephoto lenses among the most compact and lightweight available.

### Short to Medium Telephoto

The Minolta 85mm, 100mm, and 135mm tele lenses are popular among working professionals. All are ideal for candid or portrait photography, allowing greater working distances from subjects and preventing distortion of features (nose, ears, chin) nearest the lens.





135mm Lens at f/11, camera on "Auto" (1/250 sec.)

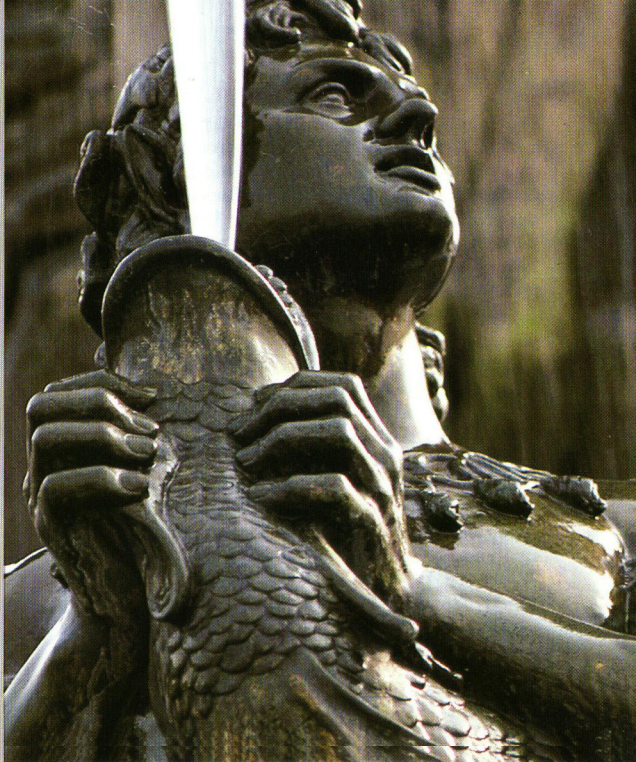


## Medium to Long Telephoto

The Minolta 200mm and 300mm telephotos offer even more optical "reach" for the sports, nature, or human-interest photographer, yet are lightweight and compact enough to be handheld. They are invaluable for photographing unapproachable subjects such as distant landmarks or to keep you a safe distance from dangerous subjects and situations. The 400mm f/5.6 and 600mm f/6.3 Apo Tele lenses incorporate a fluorite element for eliminating the undesirable "secondary spectrum" that impairs images. They are ideal for long-lens work requiring particularly sharp definition, and combined with the optional 2X Tele Converter 300-L, they respectively become top-quality meter-coupled 800mm f/11 and 1200mm f/12.5 super telephotos.



400mm Apo Lens at f/5.6, 1/125 sec.



300mm Lens at f/4.5, camera on "Auto" (1/250 sec.)



## MIRROR LENSES

The catadioptric-type 250mm, 500mm, 800mm, and 1600mm RF lenses utilize precision ground and polished mirrors in combination with conventional refractive lens elements in their designs. Light travels nearly the length of the barrel three times in an overlapping reflex path, resulting in a relatively small bulk for such great focal lengths.

Particularly striking examples of this compactness are the 250mm RF, which is only slightly larger than a standard lens but yields some five times greater magnification, and the 500mm RF, which has 10 times the magnifying power yet can even be used hand-held — rare with optics of this great focal length. Similarly, the actual length of the 800mm and 1600mm RF's measure only a fraction of their focal lengths, which produce images respectively 16 and 32 times larger than a standard lens.

All of these mirror lenses are suited for sports, landscapes, and nature photography at extreme distances. Lens-stop settings are achieved with neutral-density filters, which like their special "sharp-cut" filters, constitute elements in the optical design.



800mm f/8 RF

250mm  
f/5.6 RF

500mm f/8 RF

1600mm f/11 RF



500mm RF Lens, camera on "Auto"

## ZOOM LENSES

26

Each of the Minolta Zoom lenses allows you to select the exact focal length you need within a particularly useful range. At 285g (10.07 oz.), the 24-35mm f/3.5 MD Zoom is one of the lightest and most compact of its kind, yet it provides the spectrum of very-wide to wide-angle versatility so often required. The 24-50mm f/4 MD Zoom covers many of the most useful wideangle to normal focal lengths, and it thus has enormous versatility for photographing in close quarters and for artistic effects. The 28-85mm f/3.5 MD Zoom, with a 3X zoom ratio, has an even wider focal-length range plus macro capability (to 0.25X magnification), allowing the photographer great flexibility for framing the subject. The lightweight 35-70mm f/3.5 MD Zoom, with its wide focal-length range covering wideangle to short-telephoto situations, is an excellent choice for a variable-focal-length "standard" lens. The 35-105mm f/3.5-4.5 MD Zoom offers a broad spectrum of wide-normal-tele plus macro capability, making it ideal for close-ups (to 0.25X magnification) as well as fine portraits and short-telephoto photojournalism purposes. An even more powerful wide-normal-tele lens with macro

capability is the 35-135mm f/3.5-4.5 MD Zoom, designed to give the photographer unlimited framing possibilities from the same position. With its normal to medium-telephoto range, the 50-135mm f/3.5 MD Zoom is valuable for general photography, portraits, journalism, and sports photography.



50-135mm MD Zoom 50mm f/8



50-135mm MD Zoom, 135mm f/8



The 75-150mm f/4 MD Zoom is one of the smallest, lightest short- to medium-telephoto zoom lenses available, its minimum focus distance of 1.2m (3.94 ft.) is one of the closest for this zoom range. The 70-210mm f/4 MD Zoom, useful for all kinds of general telephoto shooting with macro capability (to 0.256X magnification), is one of the most popular zooms. A good buy is the 100-200mm f/5.6 MD Zoom, which offers speed in covering fast action and has multiple uses for photojournalism. The 100-300mm f/5.6 MD Zoom, with its 3X zoom ratio and macro capability (to 0.256X magnification), gives the photographer a great range of focal lengths from short to long telephoto. Thus, it is an excellent choice for photographing sports, people, wildlife, and distant scenes. Most powerful of the zoom lenses is the 100-500mm f/8 MD Zoom, which is surprisingly lightweight and compact despite its impressive focal range. A similarly powerful lens is the 100-500mm f/8 MD Apo Tele Zoom, which incorporates Minolta's newly developed AD (anomalous dispersion) glass to minimize undesirable chromatic aberration. Its full 5X

zoom ratio from short to extreme telephoto plus macro capability (to 0.256X magnification) provide professional photographers and photojournalists with abundant framing flexibility for news, sports, wildlife, etc.





100–500mm Zoom at f/8, 1/2 sec. exposure while zooming



## 85MM f/2.8 VARISOFT

This, the perfect portrait and general-use short-telephoto lens, is the world's first 35mm single-lens-reflex lens to offer continuous normal-to-soft focus control. Merely turning the softness control ring from setting "0" (sharp focus) to "1," "2," or "3" (soft focus) increases the degree of optical softness.

At the "0" setting, the lens functions as a conventional 85mm lens. Turning the softness control ring alters the spherical aberration of the lens to create soft-focus effects.

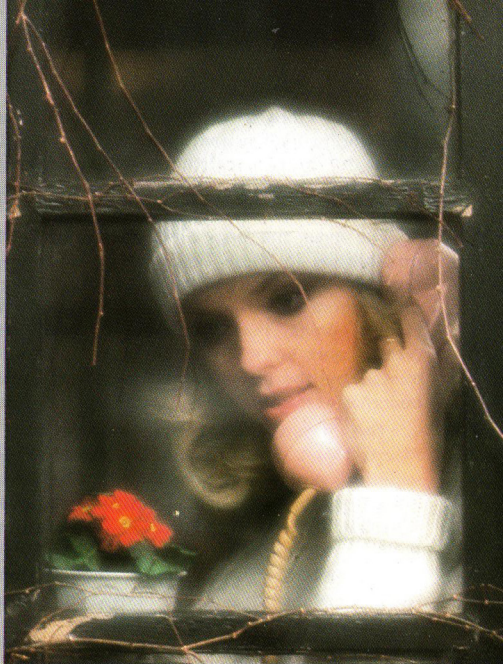
The lens has many distinctive features. Successive softness levels and apertures can be altered separately at will, an important feature for photographers working indoors with strobe. Also, in soft-focus rendition with the Minolta Varisoft lens, every image point has a sharp image core and soft halo component surrounding the core on the film plane. Thus, subject details are rendered on the film even when covered by the broad halo, ensuring optimum soft-focus effect with virtually any subject.



85mm f/2.8 Varisoft



85mm Varisoft Lens , control ring set at "0"



Control ring set at "3"

## MACRO LENSES

Of all the kinds of photography possible with the Minolta SLR system, the two that probably yield the most consistently unusual pictures are close-up photography and photomacrography.

For even the beginning photographer, the possibilities in these fields are practically unlimited, and the results are almost always uncommonly exciting. Everyday objects such as stamps, coins, insects, plants, the gears of a watch, and so many more take on aspects missed by the human eye. The commonplace becomes extraordinary through magnification.

The 50mm f/3.5 Macro and 100mm f/4 Macro lenses combine ease of operation with superior optics and versatility. The 50mm Macro produces critically sharp pictures at any distance between 230mm (9-1/16 in.) and infinity without attachments. The 100mm Macro produces pictures of highest image quality at any distance between 450mm (17-9/16 in.) and infinity.





100mm Macro Lens at f/11, 1/30 sec.

## BELLOWS MACRO/MICRO LENSES

Minolta offers four new bellows lenses for close-up photography and photomacrography. The 12.5mm f/2 Bellows Micro lens and the 25mm f/2.5 Bellows Micro lens are coupled to a Minolta bellows via an adapter; each provides extremely sharp magnification in 8X to 20.5X and 3.2X to 9.3X ranges, respectively. These and two new Auto Bellows Macro lenses may be used with either the Minolta Auto Bellows III or Bellows IV. The 50mm f/3.5 Auto Bellows Macro lens gives a 0.8X to 3.2X magnification range, while the 100mm f/4 Auto Bellows Macro lens focuses from infinity to life size (1:1).

50mm f/3.5 Auto Bellows Macro

100mm f/4  
Auto Bellows  
Macro



M-2 Adapter

M-1 Adapter

25mm f/2.5  
Bellows Micro

12.5mm f/2  
Bellows Micro



50mm Auto Bellows Macro Lens at f/16, with electronic flash

## TECHNICAL DETAILS

	LENS	ELEMENTS	GROUPS	METER-COUPLED AUTO DIAPHRAGM	ANGLE OF VIEW	MINIMUM FOCUS	MINIMUM F-STOP	FILTER-MOUNT DIAMETER	DIMENSIONS	WEIGHT
	MINOLTA 7.5mm f/4 MD FISHEYE	12	8	Yes	180°	0.5m (1.6 ft.)	f/22	Built-in	φ68 x 63mm	355g (12-1/2 oz.)
	MINOLTA 16mm f/2.8 MD FISHEYE	10	7	Yes	180°	0.25m (0.8 ft.)	f/22	Built-in	φ64.5 x 43mm	265g (9-5/16 oz.)
	MINOLTA 17mm f/4 MD	11	9	Yes	104°	0.25m (0.8 ft.)	f/22	72mm	φ75 x 53mm	325g (11-7/16 oz.)
	MINOLTA 20mm f/2.8 MD	10	9	Yes	94°	0.25m (0.8 ft.)	f/22	55mm	φ64 x 43.5mm	240g (8-7/16 oz.)
	MINOLTA 24mm f/2.8 MD	8	8	Yes	84°	0.25m (0.8 ft.)	f/22	49mm	φ64 x 39mm	200g (7-7/16 oz.)
	MINOLTA 28mm f/3.5 MD	5	5	Yes	75°	0.3m (1 ft.)	f/22	49mm	φ64 x 40mm	170g (5-15/16 oz.)
	MINOLTA 28mm f/2.8 MD	5	5	Yes	75°	0.3m (1 ft.)	f/22	49mm	φ64 x 43mm	185g (6-7/16 oz.)
	MINOLTA 28mm f/2 MD	9	9	Yes	75°	0.3m (1 ft.)	f/22	49mm	φ64 x 50mm	265g (9-5/16 oz.)
	MINOLTA 35mm f/2.8 MD	5	5	Yes	63°	0.3m (1 ft.)	f/22	49mm	φ64 x 38mm	170g (5-15/16 oz.)
	MINOLTA 35mm f/1.8 MD	8	6	Yes	63°	0.3m (1 ft.)	f/22	49mm	φ64 x 48mm	240g (8-7/16 oz.)
	MINOLTA 50mm f/2 MD	6	5	Yes	47°	0.45m (1.5 ft.)	f/22	49mm	φ64 x 36mm	150g (5-7/16 oz.)
	MINOLTA 50mm f/1.7 MD	6	5	Yes	47°	0.45m (1.5 ft.)	f/22	49mm	φ64 x 36mm	165g (5-13/16 oz.)
	MINOLTA 50mm f/1.4 MD	7	6	Yes	47°	0.45m (1.5 ft.)	f/16	49mm	φ64 x 40mm	235g (8-5/16 oz.)
	MINOLTA 50mm f/1.2 MD	7	6	Yes	47°	0.45m (1.5 ft.)	f/16	55mm	φ65 x 46mm	310g (10-15/16 oz.)
	MINOLTA 85mm f/2 MD	6	5	Yes	29°	0.85m (2.8 ft.)	f/22	49mm	φ64 x 53.5mm	285g (10-1/16 oz.)
	MINOLTA 100mm f/2.5 MD	5	5	Yes	24°	1m (3.3 ft.)	f/22	49mm	φ64 x 65.5mm	310g (10-15/16 oz.)
	MINOLTA 135mm f/3.5 MD	5	5	Yes	18°	1.5m (4.9 ft.)	f/22	49mm	φ64 x 72.5mm	285g (10-1/16 oz.)
	MINOLTA 135mm f/2.8 MD	5	5	Yes	18°	1.5m (4.9 ft.)	f/22	55mm	φ64 x 81mm	385g (13-9/16 oz.)
	MINOLTA 135mm f/2 MD	6	5	Yes	18°	1.3m (4.3 ft.)	f/22	72mm	φ79 x 96mm	725g (1 lb. 9-1/2 oz.)
	MINOLTA 200mm f/4 MD	5	5	Yes	12° 30'	2.5m (8.2 ft.)	f/32	55mm	φ64 x 116.5mm	410g (14-7/16 oz.)
	MINOLTA 200mm f/2.8 MD	5	5	Yes	12° 30'	1.8m (6 ft.)	f/32	72mm	φ78 x 133mm	700g (1 lb. 8-11/16 oz.)
	MINOLTA 300mm f/5.6 MD	5	5	Yes	8° 10'	4.5m (14.8 ft.)	f/32	55mm	φ65 x 186mm	695g (1 lb. 8-1/2 oz.)
	MINOLTA 300mm f/4.5 MD	7	6	Yes	8° 10'	3m (9.8 ft.)	f/32	72mm	φ77.5 x 177.5mm	705g (1 lb. 8-7/8 oz.)
	MINOLTA 400mm f/5.6 MD APO TELE	7	6	Yes	6° 10'	5m (16.4 ft.)	f/32	72mm	φ83 x 256.5mm	1440g (3 lb. 2-13/16 oz.)
	MINOLTA 600mm f/6.3 MD APO TELE	9	8	Yes	4° 10'	5m (16.4 ft.)	f/32 *		φ108.5 x 373.5mm	2400g (5 lb. 4-5/8 oz.)
	MINOLTA 250mm f/5.6 RF	6/2 mirrors	5	No	10°	2.5m (8.2 ft.)	f/16 *		φ66.5 x 58mm	250g (8-13/16 oz.)
	MINOLTA 500mm f/8 RF	6/2 mirrors	5	No	5°	4m (13.1 ft.)	f/16 *		φ83.5 x 98.5mm	635g (1 lb. 6-3/8 oz.)

LENS	ELEMENTS	GROUPS	METER-COUPLED AUTO DIAPHRAGM	ANGLE OF VIEW	MINIMUM FOCUS	MINIMUM F-STOP	FILTER-MOUNT DIAMETER	DIMENSIONS	WEIGHT
MINOLTA 800mm f/8 RF	8/2 mirrors	7 No	3° 10'	8m (26.2 ft.)	f/16 *	φ127 x 178mm	1960g (4 lb. 5-3/16 oz.)		
MINOLTA 1600mm f/11 RF	6/2 mirrors	5 No	1° 30'	20m (65.5 ft.)	f/22 *	φ179 x 325.5mm	6290g (13 lb. 13-7/8 oz.)		
MINOLTA 24-35mm f/3.5 MD ZOOM	10	10 Yes	84°-63°	0.3m (1 ft.)	f/22 55mm	φ67 x 50mm	285g (10-1/16 oz.)		
MINOLTA 24-50mm f/4 MD ZOOM	13	11 Yes	84°-47°	0.7m (2.3 ft.)	f/22 72mm	φ75 x 69.5mm	390g (13-3/4 oz.)		
MINOLTA 28-85mm f/3.5 MD ZOOM <sup>□</sup>	13	10 Yes	75°-29°	0.8m (2.6 ft.)	f/22 55mm	φ65.5 x 86.5mm	470g (1 lb. 9/16 oz.)		
MINOLTA 35-70mm f/3.5 MD ZOOM <sup>□</sup>	8	7 Yes	63°-34°	0.8m (2.6 ft.)	f/22 55mm	φ69 x 68.5mm	365g (12-7/8 oz.)		
MINOLTA 35-105mm f/3.5-4.5 MD ZOOM <sup>□</sup>	14	12 Yes	63°-23°	1.5m (5.2 ft.)	f/22 55mm	φ64 x 88mm	430g (15-3/16 oz.)		
MINOLTA 35-135mm f/3.5-4.5 MD ZOOM <sup>□</sup>	14	12 Yes	63°-18°	1.5m (4.9 ft.)	f/32 55mm	φ64 x 100mm	510g (1 lb. 2 oz.)		
MINOLTA 50-135mm f/3.5 MD ZOOM	12	10 Yes	47°-18°	1.5m (4.9 ft.)	f/32 55mm	φ68.5 x 118mm	480g (1 lb. 15/16 oz.)		
MINOLTA 70-210mm f/4 MD ZOOM <sup>□</sup>	12	9 Yes	34°-12°	1.1m (3.6 ft.)	f/32 55mm	φ72 x 153mm	635g (1 lb. 6-9/16 oz.)		
MINOLTA 75-150mm f/4 MD ZOOM	12	8 Yes	32°-16° 30'	1.2m (3.9 ft.)	f/32 49mm	φ64 x 113.5mm	445g (15-11/16 oz.)		
MINOLTA 100-200mm f/5.6 MD ZOOM	8	5 Yes	24°-12° 30'	2.5m (8.2 ft.)	f/22 55mm	φ64 x 171.5mm	595g (1 lb. 4-15/16 oz.)		
MINOLTA 100-300mm f/5.6 MD ZOOM <sup>□</sup>	13	10 Yes	24°-8° 10'	1.5m (4.9 ft.)	f/32 55mm	φ72 x 187mm	700g (1 lb. 8-11/16 oz.)		
MINOLTA 100-500mm f/8 MD ZOOM	16	10 Yes	24°-5°	2.5m (8.2 ft.)	f/32 72mm	φ90.5 x 330mm	2110g (4 lb. 7-2/8 oz.)		
MINOLTA 100-500mm f/8 MD APD TELE ZOOM <sup>□</sup>	16	11 Yes	24°-5°	2.5m (8.2 ft.)	f/32 72mm	φ90.5 x 331.5mm	2080g (4 lb. 9-3/8 oz.)		
MINOLTA 50mm f/3.5 MD MACRO	6	4 Yes	47°	0.23m (0.7 ft.)	f/22 55mm	φ64 x 55.5mm	200g (7-1/16 oz.)		
MINOLTA 100mm f/4 MD MACRO	5	4 Yes	24°	0.45m (1.5 ft.)	f/32 55mm	φ66 x 88.5mm	385g (13-9/16 oz.)		
MINOLTA 12.5mm f/2 BELLOWS MICRO	4	4 No	-	-	f/16 ***	φ33 x 23.5mm	40g (1-7/16 oz.)		
MINOLTA 25mm f/2.5 BELLOWS MICRO	6	4 No	-	-	f/16 ***	φ33.5 x 17mm	40g (1-7/16 oz.)		
MINOLTA 50mm f/3.5 AUTO BELLOWS MACRO	6	4 No**	-	-	f/32 ****	φ57 x 24.5mm	110g (3-7/8 oz.)		
MINOLTA 100mm f/4 AUTO BELLOWS MACRO	5	4 No**	-	-	f/32 ****	φ57 x 28.5mm	145g (5-1/8 oz.)		
MINOLTA 24mm f/2.8 MD VFC	9	7 Yes	84°	0.3m (1 ft.)	f/22 55mm	φ64.5 x 50.5mm	340g (12 oz.)		
MINOLTA 35mm f/2.8 SHIFT CA	9	7 No**	63°	0.3m (1 ft.)	f/22 55mm	φ83.5 x 71.5mm	555g (1 lb. 3-9/16 oz.)		
MINOLTA 85mm f/2.8 VARISOFT	6	5 Yes	29°	0.8m (2.6 ft.)	f/16 55mm	φ70 x 80mm	430g (15-3/16 oz.)		
MINOLTA MD 2X TELE CONVERTER 300-S	7	6 -	-	-	-	φ65 x 41.5mm	230g (8 oz.)		
MINOLTA MD 2X TELE CONVERTER 300-L	5	3 -	-	-	-	φ65 x 52.5mm	230g (8 oz.)		

<sup>□</sup>Features macro capability \*Integral lens-element type \*\*Auto diaphragm \*\*\*Optional gelatin-filter holder \*\*\*\*Optional gelatin-filter holder/55mm filter with hood  
Specifications subject to change without notice



## LENS ACCESSORIES

### Minolta MD 2X Tele Converters 300-L and 300-S

These accessories effectively double the focal length of the Minolta lenses they are used with, providing precision with little or no loss of image quality, contrast, or color balance. The 300-S is used with lenses of 300mm or shorter focal lengths. The 300-L is used with lenses of 300mm or longer focal lengths. Either can be attached quickly and easily between the lens and the camera body.

### Lens Monocular Converter

The Minolta Lens Monocular Converter has been specially developed for use with Minolta interchangeable lenses. When attached to standard or telephoto lenses, it converts them into high-quality spotting scopes and telescopes. It enables highly magnified views of small subjects when combined with macro lenses, bellows, or close-up accessories.

MD 2X Tele Converter 300-S



MD 2X Tele Converter 300-L



Lens/Monocular Converter



50mm Lens



50mm Lens with 300-S Tele Converter attached

# MINOLTA AUTO ELECTROFLASH UNITS AND ACCESSORIES



## Minolta Auto Electroflashes for Direct Autoflash Metering cameras

Minolta's Direct Autoflash Metering makes taking a wider range of flash photos simpler and faster than with conventional flash equipment and SLRs. With the Minolta X-700, X-500 or X-570 and a Minolta Auto Electroflash 360PX, 280PX, 132PX, or Macro 80PX, you can be sure that exposure will always be perfect, due to the accuracy of through-the-lens aperture, off-the-film light measurements. Flash techniques such as close-up, bounce, diffused and multiple flash can be employed with excellent results. Any taking lens aperture may be used, and thus the flash range can be greatly extended.

All operation is automatic: there are absolutely no calculations or flash settings to make, whatsoever. Also, this system gives you Programmed Autoflash capability with the Minolta X-700: after setting the camera's film speed dial, no shutter speed or aperture settings are necessary for perfect flash photo results. And with the Minolta X-500 or X-570, you can use Slow Shutter Autoflash to obtain better background detail.



### Auto Electroflash 360PX

The Auto Electroflash 360PX, Minolta's top-of-the-line TTL autoflash, is a multimode unit designed for bounce flash, auto time-lapse flash, and a variety of other creative flash techniques on or off camera. In all modes, the unit's variable guide number/power level control lets you adjust flash output for winder/motor drive sync, depth-of-field control, fill flash, close-ups, and other practical uses. It can be varied nine steps in half stops from a guide number of 36 in meters at ISO 100/21° down to 9 (59 down to 15 in feet at ISO 25/15°). The bounce head on the 360PX tilts 90° upward and rotates right and left 180°. Click-stops and markings simplify setting the head to the desired angle. Direct Autoflash Metering in the TTL Auto mode ensures easy, accurate bounce exposures. When used with other cameras, the 360PX can be set to the Sensor Auto mode and the flash's built-in sensor will control the flash duration.



### Auto Electroflash 280PX

The Minolta Auto Electroflash 280PX provides all the benefits of Direct Autoflash Metering. This flash unit offers a dual range setting and has a maximum guide number of 28 in meters at ISO 100/21° (46 in feet at ISO 25/15°). Its energy-saving series thyristor circuitry permits flash-synchronized speeds up to 3.5 frames per second. With the X-700, X-500, or X-570 set in Aperture Priority mode, flash duration is precisely adjusted according to the aperture you've selected allowing precise depth-of-field control. Also, in the viewfinder, a red LED blinks at 2Hz. (times per second) next to the 1/60 sec. indicator to show that the 280PX is set to X-sync and ready to fire. After exposure, a red LED in the viewfinder blinks at 8Hz. to confirm proper exposure.



### Auto Electroflash 132PX

The Minolta Auto Electroflash 132PX is the simplest and most affordable in the PX-series Auto Electroflash units. Like the 360PX and 280PX, the 132PX is designed to work with Minolta's Direct Autoflash Metering cameras and it offers simple, no fuss operation for direct flash, bounce flash, and other creative flash techniques. It has a guide number of 32 in meters at ISO 100/21° (52 in feet at ISO 25/15°). When used with the X-700, X-500, or X-570 in Aperture Priority mode, you can choose the aperture you require and the camera's TTL Auto metering will adjust the flash duration for perfect exposure. For softer more natural lighting in your pictures, the 132PX flash head tilts 90° upwards for bounce flash.



X-700 set in P mode with Auto Electroflash 280PX



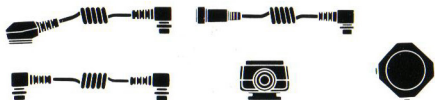
### Auto Electroflash Macro 80PX Set

The Minolta Auto Electroflash Macro 80PX Set is designed for photo hobbyists, professional photographers, and anyone who uses photography for scientific, biomedical, or industrial purposes. It has a guide number of 8 in meters at ISO 100/21° (13 in feet at ISO 25/15°). Its lightweight, lighting unit mounts around the lens and is connected by a flexible cord to the control unit which slides onto the hot shoe. As with all PX-series flash units, the Macro 80PX is designed to work with the Direct Autoflash Metering System in Minolta's X-700, X-500, and X-570 cameras when set in A mode. With A mode, you can select any aperture from the indicated working range for the magnification in use to control depth of field in close-ups. The lighting unit has four flashtubes, each with an on-off switch. All four flashtubes can be fired for uniform lighting. Turning off one or more flashtubes emphasizes texture and reduces reflections from shiny objects. It also has four focus lamps that can be switched on from the control unit to illuminate the scene for easier focusing.



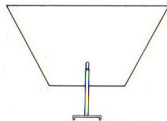
### Power Grip 2 Set

The Power Grip 2 supplements the batteries of Auto Electroflash 360PX or 280PX, enabling flash sequences at up to 3.5 frames per second with Motor Drive 1. Power can be supplied by six AA-size batteries inserted in the set's Battery Cartridge PG or by optional accessory Ni-Cd Battery Pack NP-2 to decrease recycling time and increase number of flashes per charge or set of batteries. The unit's power saving circuit automatically switches it off approximately two minutes after the grip switch is released. Power-saving auto charge control (with Multi-Function Back) in flash time-lapse photography is also possible. The grip can be mounted on either the camera's right or left by using Camera Bracket 2, and its bounce head tilts up and down and rotates right to left for bounce autoflash photography.



### Off-Camera Shoe, Cable OC, Cable EX, Triple Connector, Cable CD

Accurate TTL control for off-camera close-up and directional flash lighting is possible by connecting a PX-series Auto Electroflash to the X-700, X-500, or X-570 with Cable OC (plus Off-Camera Shoe for 280PX or 132PX, and up to five Cable EXs for greater distances). The Triple Connector (with Cable OC, several Cable EXs, and Off-Camera Shoe for 280PX or 132PX) lets you use up to three PX flash units to light your subject from more than one angle. Cable CD used with a 360PX and other flashes plus connectors also enables multi-flash lighting for controlling subject modeling.



### Bounce Reflector Set

This compact, collapsible accessory allows you to obtain soft, natural bounce lighting anywhere—even outdoors. Its white, reflective surface ensures correct color rendition in your pictures. When used with a 360PX or 132PX, and your X-700, X-500, or X-570 camera, Minolta's Direct Autoflash Metering will make sure your pictures are properly exposed. (Snap-on adapters are available to attach the Bounce Reflector Set to the flash head of either a 132X, or 128 Auto Electroflash unit.)



## Minolta Auto Electroflashes for the X-300, X-370, XD-, and XG-series cameras

Whether it's the economy and simplicity of a Manual Electroflash or the versatility of a system Auto Electroflash, Minolta makes just the unit to fit your flash photography needs. With the Auto Electroflashes, a sensor receives light reflected from the subject and turns the flash off at the microsecond that the proper exposure is reached, and the series thyristor models such as the 200X give maximum flashes per battery/charge and the shortest recycling times. The X-series units take automation a step further by setting the shutter of the X-300, X-370, XD-, and XG-series cameras for X-sync and starting a viewfinder flash-ready signal blinking when the unit is ready to fire.



### Auto Electroflash 200X

This new-generation compact flash unit is designed for use on the X-300, X-370, XD- and XG-series cameras and can also be used cordlessly on many other cameras. When attached to the camera and ready to fire, the 200X starts a flash-ready LED blinking in the viewfinder and automatically sets the camera at the fastest speed for proper sync when the shutter is released. Offering series-thyristor circuitry for fastest recycling and maximum number of flashes, it makes perfectly exposed autoflash exposures at either of two apertures or can be operated manually. Guide number is 20 for meters at ISO 100/21° (33 for feet at ISO 25/15°).



### Auto Electroflash 132X

The Minolta Auto Electroflash 132X provides many extremely useful features including a lighted control dial with LED readouts, FDC (flash distance checker), and bounce flash capability. When mounted on your Minolta X-300, X-370, XD- or XG-series camera hot shoe, the 132X automatically sets the shutter to X-sync and an LED in the viewfinder blinks to indicate that the unit is fully charged and ready to fire. For bounce flash, the flash head moves vertically with click stops at 50°, 65°, and 90°. A snap-on wideangle adapter for coverage with lenses down to 28mm is included with the unit. Optional accessories for the Auto Electroflash 132X includes a wideangle adapter for use with 24mm lenses. Minolta's Color Filter Set, the Bounce Reflector Set, and a Ni-Cd Charger NC-2 with batteries. Guide number is 32 in meters at ISO 100/21° (52 in feet at ISO 25/15°).



### Auto Electroflash 118X

Most compact of Minolta's autoflash units, the Auto Electroflash 118X connects cordlessly to Minolta X-300, X-370, XD- or XG-series or other cameras for perfect autoflash exposures at either of two settings or can be used manually. When attached to the camera and ready to fire, it starts a flash ready finder signal blinking and automatically sets the camera for X-sync when the shutter is released. Guide number is up to 18 for meters at ISO 100/21° (30 for feet at ISO 25/15°).



### Auto Electroflash 128

With a guide number of 28 in meters at ISO 100/21° (46 in feet at ISO 25/15°), the Auto Electroflash 128 delivers dependable, economical flash photography. It can be mounted on the hot shoe of your X-300, X-370, XD- or XG-series camera or on other cameras with the attachable cord. After a test flash is fired, the green FDC lamp on the back of the Auto Electroflash 128 will light if flash brightness is sufficient for correct exposure. The 128's flash head moves to vertical in click stops of 50°, 65°, and 90° for bounce flash pictures. The snap-on wideangle adapter for coverage down to a 28mm lens is standard. Optional accessories for the Auto Electroflash 128 include the Minolta Color Filter Set, wideangle adapter for coverage down to a 24mm lens. A Bounce Reflector Set, and the Ni-Cd Charger NC-2 with batteries.



### Auto Electroflash 25

This compact cordless/corded unit with a guide number of up to 25 for meters at ISO 100/21° (41 for feet, ISO 25/15°) slides into the hot shoe on Minolta SLR cameras and makes completely automatic electronic flash exposures by means of a built-in sensor or can be used as a conventional non-auto unit. Recycling is indicated by a monitor lamp.

### Electroflash 20

This non-automatic unit connects cordlessly to the hot shoe of any camera, and is powered by two AA-size batteries. Guide number is 20 in meters with ISO 100/21° film (33 in feet with ISO 25/15°). Its easy-to-read computer dial makes setting exposure fast and easy.



Camera set on "Auto" with Auto Electroflash 200X

## Accessories for X-700, X-500, X-570, X-300, X-370, XD- and XG-series cameras

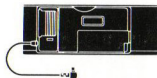
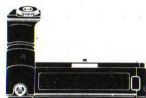
### Motor Drive 1 (for X-700, X-500, X-570, X-300, X-370, and XG-M)

This versatile, speedy motor drive lets you follow and capture the action with a choice of three settings: single frame, 2, and 3.5 frames per second. Attaching the drive is quick and simple, as there are no caps to remove or store away. Its design is attractive as well as providing positive and comfortable camera handling.

The operating buttons allow ease of operation in either vertical or horizontal framing positions, and both buttons feature the exclusive Minolta "Touch Switch" for instant metering and viewfinder readout.

### Auto Winders D and G

A versatile, fast-attaching Minolta Auto Winder provides up to two frames per second automatic film winding. It is lightweight, compact and quiet. Film winding automatically stops at the end of each roll of film, to prevent film damage. Additionally, the extremely quiet, smooth operation makes this accessory ideal for remote-control operation and close-up photography. Auto Winder D mates with any Minolta XD-series 35mm SLR; Auto Winder G, with the X-700, X-500, X-570, X-300, X-370, and any XG-series camera.

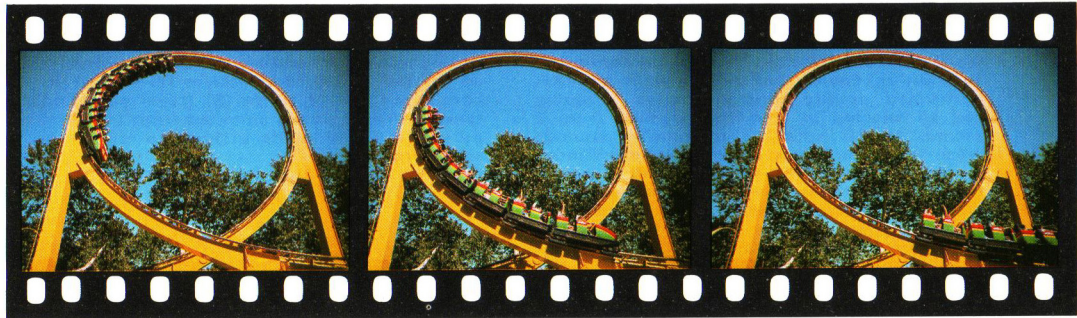


### Quartz Data Backs 1, G, and D

Controlled by an extremely accurate quartz clock and auto-calendar/microcomputer, the Minolta Quartz Data Back accurately registers the time, date (in any of three configurations), code number (up to 999999) or sequential frame numbers on the film. Leap years and irregular months are automatically compensated for, up to 2099. Installation is simple and quick; no special tools are required, thanks to a spring-loaded hinge pin. Quartz Data Back 1 fits the Minolta X-700, X-500, and X-570; the D and G models fit the Minolta XD-series and XG-series (except X-300, X-370 and XG-1).



50mm Lens at f/8, 1/250 sec. with Auto Winder





### Multi-Function Back

The Multi-Function Back is designed for the X-700, X-500 and X-570 cameras, and features a built-in quartz clock and a microcomputer to provide a variety of functions with LCD indications. Each film frame can be imprinted with the precise moment of exposure and the month/day/year can be imprinted in any of three ways, with a full autocalendar to 2099. Any desired number up to 6 digits can numerically code photographs and sequential camera-control from 1 to 999999 can, likewise, be imprinted. In addition, the Multi-Function Back provides unmanned camera control. Interval shooting can be selected in any time segment from 1 second to 99 hours/59 minutes/59 seconds when using the Motor Drive 1 or Auto Winder G; long exposure (time exposures) up to several hours' duration; or interval, number of frames and long exposure modes used in combination. Imprinting and camera control function can also be used simultaneously.



### Wireless Controller IR-1 Set

Minolta Wireless Controller IR-1 Set gives extended versatility to any Minolta camera with an electromagnetic shutter release and socket by allowing cordless remote control photography with the operator up to 60 meters (about 200 feet) away. Equipped with three separate channels, Wireless Controller IR-1 Set components allow any number of cameras to be operated simultaneously or independently in up to three individual groups, by appropriately setting transmitter and receivers. When connected on the X-700, the receiver IR-1 is set for continuous (C) or single (S) frame operation, senses infrared pulses emitted from the transmitter IR-1 and sends a signal to trigger the shutter release.

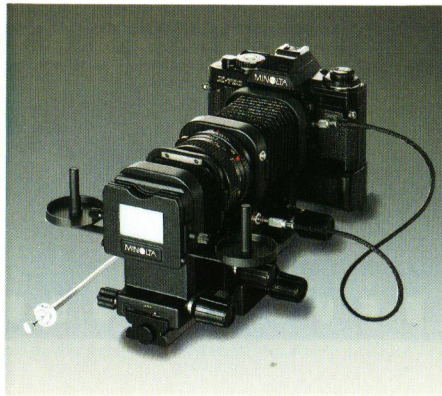
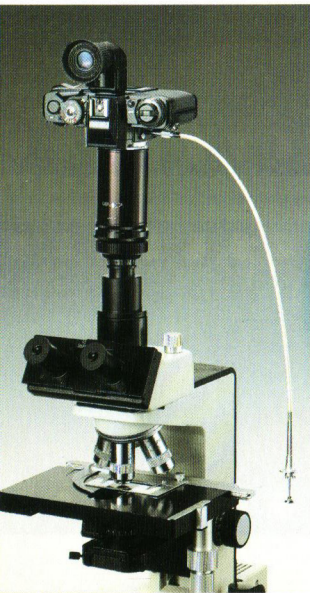


Interval pictures with Multi-Function Back and Motor Drive 1





# THE TOOLS OF CLOSE-UP PHOTOGRAPHY AND PHOTOMACROGRAPHY





### Close-Up Lenses

These lenses screw into the filter mount of normal Minolta lenses to permit focusing at close-up distances. Lenses 1 and 2 may be used in combination to allow work as close as 23cm (9 in.) from the subject. Lens 0 allows closer focusing with short telephoto lenses. With any of these close-up lenses, the aperture is set as it would be when the lens is used alone.



### Extension Tube Set II

This set of five separate rings and tubes can be used in various combinations for close-up photography with Minolta lenses. Function of the parts is to increase magnification by lengthening the lens-to-film distance. Selection of the proper extension part or combination depends on the area to be covered or the image size required. When used with TTL Minolta SLR cameras, no compensation for exposure is necessary since the exposure reading is taken directly through the extended lens.



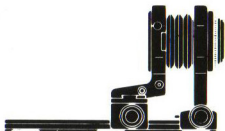
### Reverse Ring II

The Minolta Reverse Ring II enables using various Minolta lenses, particularly wideangle and normal, turned front to rear for considerably improved image quality at magnifications greater than life size (1:1 image-to-subject reproduction ratio).



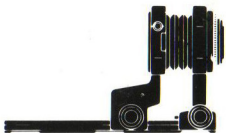
### MC Auto Extension Tubes

The purpose of this set of three tubes is the same as for Extension Tube Set II, but it offers refinements that provide greater ease of use. Full meter and automatic-diaphragm coupling enables full-aperture metering/focusing, with the diaphragm closing down to the preset aperture only at the moment of exposure with Minolta SLR's and meter-coupled Minolta lenses. Each of the three tubes has a Minolta SLR bayonet on one end and a matching receptacle on the other; this all-bayonet system makes for fast, easy attaching and changing.



### Auto Bellows III

The heart of a highly advanced close-up system, this unit features independently moving camera and lens standards for precise control of magnification and focusing. Its versatile swinging and shifting mechanisms can be used separately or together for unique effects that are observable through the viewfinder. Magnifications from 0.78X to 3.79X can be obtained with a 50mm standard lens.



### Bellows IV

Except for swinging and shifting mechanisms and auto diaphragm provision, all features and accessories of Auto Bellows III are common to this unit. A detachable bellows for easy lens reversing and rotating camera mount are other features shared by both units.



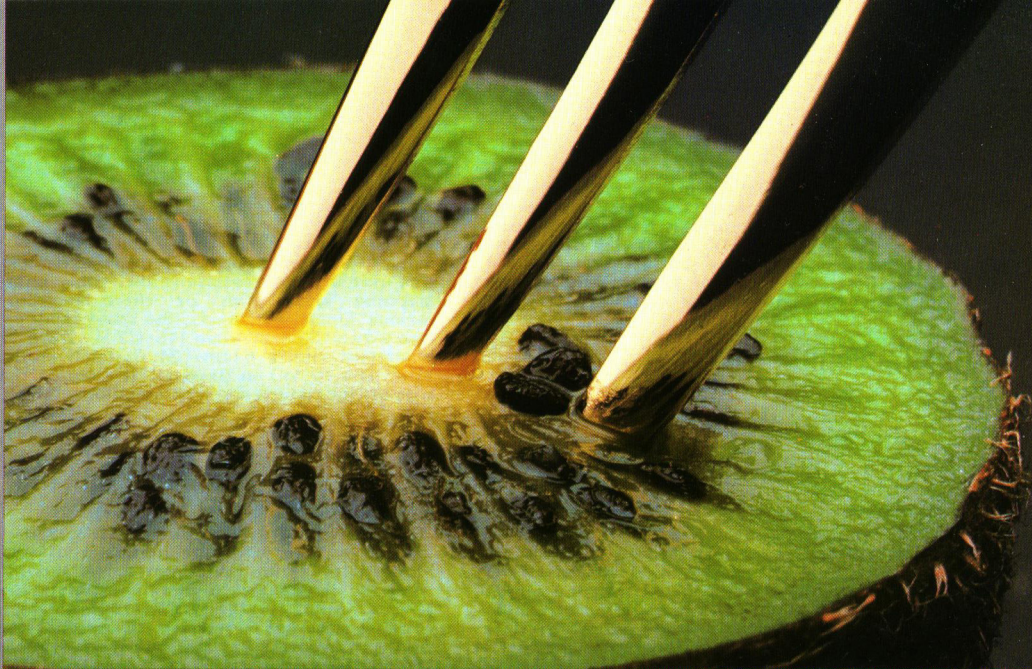
### Slide Copier AB-III

This handy unit can be attached to the Minolta Auto Bellows III and Bellows IV for copying transparencies up to 35mm, in mounts or strips. With a vertical shift of 7mm up and 6mm down, and a horizontal shift 8.5mm left or right, it provides great versatility in cropping slides; 0.8X to 2.6X magnifications may be achieved.



### Focusing Rail AB-III

This single-rail rack-and-pinion unit allows 110mm movement for easier, more precise focusing. It attaches to any Minolta Auto Bellows III and Bellows IV or to the Minolta Macro Stand easily and quickly. The built-in rotating hot shoe with sync cord is most advantageous for positioning flash equipment for illuminating close-up subjects, and a socket is provided for tripod use.

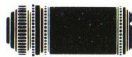


100mm Auto Bellows Lens at f/16 on Auto Bellows III, 1/60 sec.



### Magnifier Vn

This is a useful tool for precise focusing when making photomicrographs, copying, and taking distant telephoto pictures. It features an adjustable eyepiece and 2.3X magnifying power. Its pivoted attaching shoe permits swinging the magnifier away from the eyepiece for normal viewing of the entire finder without removal.



### Microscope Adapter

This two-piece device is used to connect an SLR camera to a microscope. One section bayonets onto the camera body in place of the lens, while the other end fits into the ocular adapter tube section of the microscope. Taking photomicrographs is convenient with this adapter because you can follow moving specimens up to the precise moment of exposure. The adapter fits ocular tubes from 23mm to 29mm in diameter.



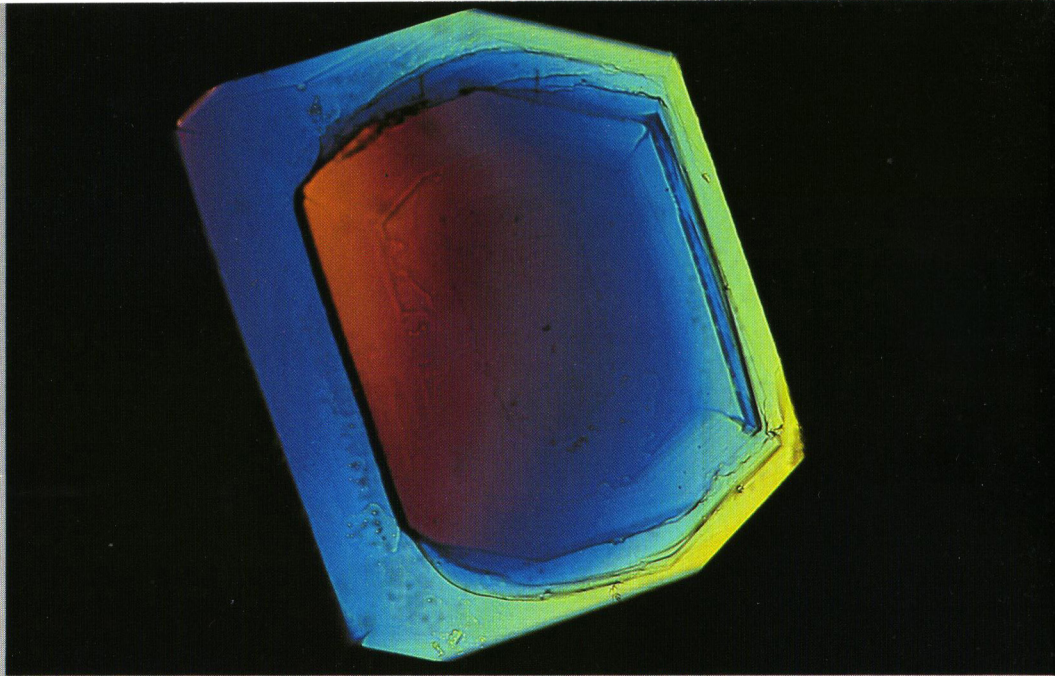
### Copy Stand II

A rigid camera support that assures maximum stability in all close-up and photomacrography, this unit is highly recommended when photographing either flat or three-dimensional objects. Unusually sturdy, the stand features a heavy-duty 39.4 x 45cm (15-1/2 x 17-3/4 in.) baseboard and a 61cm (24 in.)-high chrome tube 5cm (2 in.) in diameter to provide rigid support for camera and macro equipment.



### Macro Stand AB-III

This easily portable folding unit is light in weight yet sturdy for exacting close-up/macro work, with 28mm to 85mm lenses mounted normally or reversed, or 20mm to 24mm lenses reversed only. Its 78mm (3-1/16-in.)-diameter rotating stage has convenient 18-percent reflection, can be locked at any point, and has clips to hold flat specimens.



12.5mm Bellows Micro Lens at f/5.6 on microscope using Minolta Microscope Adapter , 1 sec. exposure



## Minolta Solid Glass Filters

Minolta's filters are invaluable for correcting or obtaining various photographic effects. They are made of solid glass ground optically flat in Minolta's own facilities to prevent distortion, and are mounted in satin-finish metal rings.

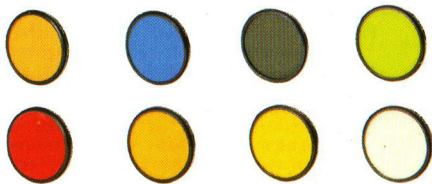
Refer to the following brief explanations to determine which filters best suit your photographic purposes, or consult your Minolta dealer for further information.

### For Black-and-White Photography

**UV:** This filter absorbs excessive ultraviolet rays when shooting mountain, snow, and distant scenes. Exposure is the same as without a filter, and it may be kept attached to protect the lens.

**Green:** For correct monochromatic rendition of colored subjects as they appear to the eye, this filter is used with panchromatic film.

**Yellow:** Red and yellow subjects are rendered lighter than the eye sees them by this filter. It tends to increase overall contrast somewhat and is often used to darken blue skies and emphasize white clouds.



Filter Sizes Available

L37 (UV)	49mm	55mm	72mm
Y52 (Yellow)	49mm	55mm	72mm
R60 (Red)	49mm	55mm	72mm
O56 (Orange)	49mm	55mm	72mm
GO (Green)	49mm	55mm	
Polarizing	49mm	55mm	
B12 (80B)	49mm	55mm	72mm
A12 (85)	49mm	55mm	72mm
1B	49mm	55mm	72mm
ND 4X	49mm	55mm	72mm
Portrayer	49mm	55mm	

All Achromatic coated (except polarizer)



**Orange:** Use of this filter with panchromatic films produces effects similar to but more pronounced than those with a yellow filter.

**Red:** This filter used with panchromatic materials greatly lightens red, produces strong contrast, and can be used for exaggerated cloud effects. Used in combination with infrared film, it eliminates atmospheric haze and produces spectacular, high-contrast effects.

**NOTE:** These filters can also be used with color film for special effects.

### For Color Photography

- 1A:** Use this filter to improve bluish rendition of subjects in shade, illuminated by blue sky, on overcast or rainy days, or obscured by atmospheric haze. It requires no increase in exposure and is often used with color or monochromatic materials to protect the lens.
- B12 (80B):** This filter is used for shooting with daylight-type color film indoors with artificial light of 3400°K color temperature (as of photoflood lamps).
- A12 (85):** Type A color films (balanced for exposure with light of 3400°K color temperature) can be used in daylight by exposing through this filter.

### Portrayer

**Filters:** Two types of Portrayer phase filters are available. Type P is used to soften skin tones without affecting other objects in the photograph; three progressive grades yield increasing degrees of complexion smoothness. Portrayer-S filters diffuse with an effect similar to that of a soft-focus lens. Two type S grades are available: one for delicate softness, the other for a more pronounced softening effect.

### For Black-and-White and Color Photography

#### Polarizing

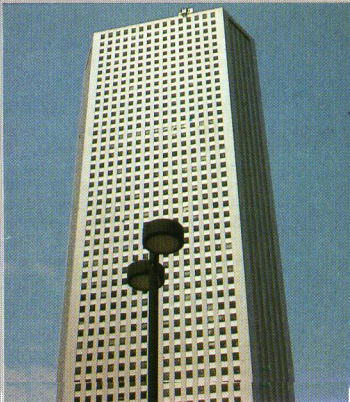
**Filter:** This filter is ideal for reducing or eliminating specular reflections as from glass or water to provide clearer views or richer tones or textures; it can also be used to darken skies in either color or monochrome.

**ND 4X:** Used to adjust light volume from a scene or subject, this neutral density filter can be employed to avoid overexposure (as when shooting beach or brilliant snow scenes, especially with fast films). It is also useful for depth-of-field control under certain conditions to emphasize a subject against an out-of-focus background.



50mm Lens at f/8 with R60 Filter, 1/60 sec.

Without Polarizing Filter  
With Polarizing Filter





### Rubber Eyepiece Cup

This soft rubber cup is ideal for photographers who wear eyeglasses. It permits close proximity to the eyepiece for accurate composing and focusing, without damage to the glasses' lens or camera body.



### Cable Release II and Remote Cords S and L

These high-quality, durable accessories aid in steady picture-taking. In addition to being extremely flexible, the cable release features a coaxial-type lock for time exposures. It is also a standard accessory for the Minolta Auto Bellows III. The remote cords come in both short and long sizes, 50cm (approx. 20 inches) and 5m (16-1/2 feet) and can be used on any Minolta camera with an electromagnetic shutter release and socket.



### Lens Mount Adapter

Minolta makes a Praktica lens adapter, which locks securely on Minolta SLR camera bodies with the special key provided. Any Praktica-mount lens can thus be used with Minolta SLR cameras and can be focused throughout its full range.



### Mini Tripod TR-1

The compact, convenient Minolta Mini Tripod TR-1 features a lockable ball head and rotating socket that allows camera positioning — either vertically or horizontally — over a full 360° range. A large fixing screw and positioning stops enable setting up and locking the three-leg support in seconds. When not in use, the legs fold for easy storage. And the Minolta Mini Tripod TR-1 can also be used as a handy chestpod.



### Eyepiece Corrector V<sub>N</sub>

Focusing aid for far- and near-sighted photographers is provided by these special lenses which snap into grooves provided in the camera eyepiece. Minolta makes nine different diopter strengths, from -4 to +3.



### Panorama Head II

The Minolta Panorma Head II is specially designed to be attached between a Minolta single-lens-reflex camera and a tripod for photographing panoramic views up to a full 360° in a sequence of photos that can be matched accurately.

It can be set to automatically provide proper interval and overlap between successive frames with various Minolta lenses and has a built-in level. Excellent panoramas can thus be easily made without the need of checking coverage of each frame through the viewfinder.



### Angle Finder V<sub>N</sub>

Selectable dual magnification (1X or 2X, selectable by lever), 360° rotation for full-frame finder image viewing, and -9 to +3 diopter eyepiece adjustment are some of the versatile features of Minolta Angle Finder V<sub>N</sub> that make it an ideal accessory for photographers who work with SLRs below eye level. It is also ideal for photomicrography and copywork.



### Gadget Bags XB-5s, XB-7s and Soft Bag Professional III

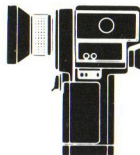
Minolta offers the photographer on the go three gadget bags in varying sizes, to hold almost anything you'd desire. These are well-constructed, thoughtfully designed bags made expressly to keep your Minolta equipment dry and secure.



Besides world-renowned cameras, lenses, and other products, Minolta makes and markets a full line of meters for every major photoexposure purpose. And at Minolta we produce our own CdS and silicon photocells for these and the meters built into our cameras.

At the request of NASA, the U.S.A.'s National Aeronautics and Space Administration, Minolta developed and produced the Space Meter, which was used for critical exposure measurement on epoch-making Apollo missions to the moon. This feat gives some indication of the distinguished state of the photometric art at Minolta.

You put this same superior technology to work for you whichever of the remarkable Minolta light meters you may choose.



### Auto-Spot II

Working with a  $1^\circ$  angle of acceptance for critical spot measurement, this single-lens-reflex type meter can make precise readings of individual areas of a subject. Since it does not average a variety of brightness levels, nor is it influenced by light from surrounding areas, the Auto-Spot II is especially ideal for metering unapproachable subjects. It uses motorized scales around the viewfinder which rotate to give the correct shutter-speed/aperture combinations and EV values.



### Spotmeter M

The latest microprocessor technology, liquid-crystal digital/analog multiple display, and memory function, give Spotmeter M the most sophisticated measuring abilities to date. This includes the first processor-calculated exposure-zone system that adjusts display indication to bias exposure for highlight or shadow rendition, or average two readings for best overall exposure.

Its high-sensitivity silicon photocell provides an extremely wide measuring range, and its Minolta optical system gives a bright, clear image for precise measurement of the central 1° spot.



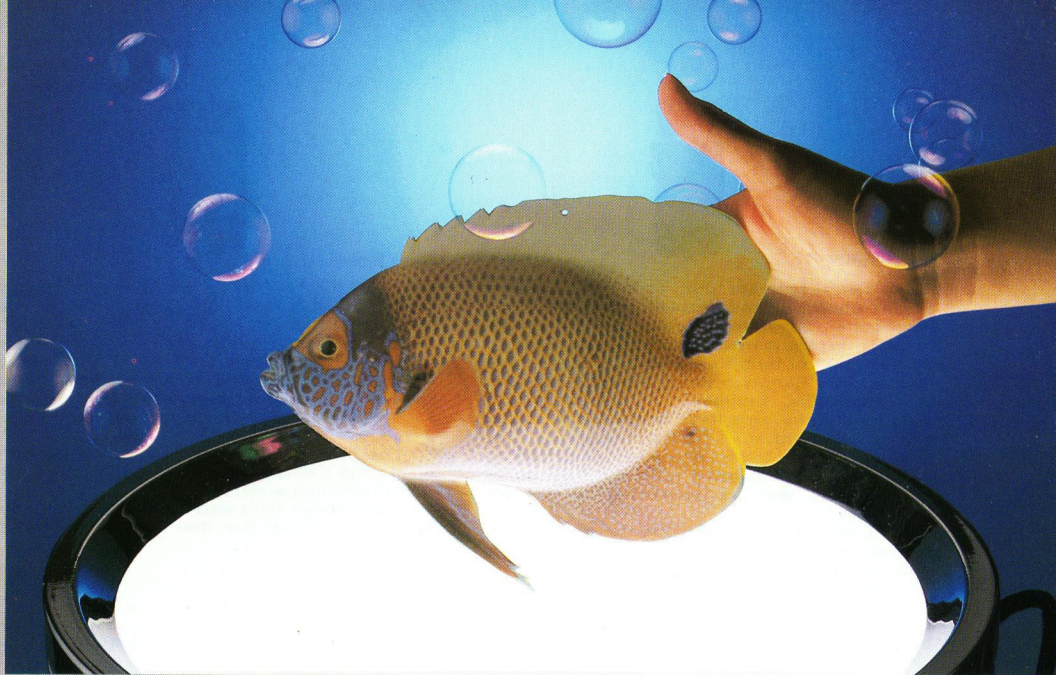
### Color Meter II

This lightweight and incredibly easy-to-use three-color meter utilizes the latest LSI microprocessor circuitry and easy-to-read liquid-crystal display to give unequalled accuracy and range.

Three high-sensitivity silicon photocells take simultaneous readings of the blue/red and green/red light ratios, and light/balancing and color/compensation indexes are instantly displayed in digital form at the push of a button. All data is inputted or displayed by simply pressing the proper keys, eliminating complicated dial settings and multiple needle or scale readings.

A three-position preset film-type selector instantly sets the meter for added convenience, and a variable setting allows precise adjustments for any film type or your own color-balance preference.

A detachable receptor head and continuous reading capability further increase the meter's capabilities.



Exposure calculated using Spotmeter M





### Flash Meter III

Remarkably accurate due to a high-response silicon photocell and specially developed LSI (large-scale integrated circuit), this multi-function exposure meter makes precise readings of electronic or bulb flash as well as continuous illumination. Simply pushing a button registers the applicable f-number or exposure-index number directly on a large liquid-crystal digital display to within 1/10-stop accuracy. Its unique exposure-index display mode simplifies determination of lighting ratio and flash guide numbers, as well as measuring of subject brightness.

The Minolta-designed microcomputer is able to store measurements for cumulative exposure with any number of successive flashes.

Flash Meter III is also compatible with a fully system of Minolta meter accessories.



### Auto Meter III

Using for the first time a special microprocessor circuit, digital/analog liquid-crystal display with memory capability, and a high-sensitivity silicon photocell, this multi-function meter makes precise measurements of incident or reflected light. Pressing the proper keys adjusts the ASA and time settings, and gives the correct EV or f-number readout to within 1/10 of a stop.

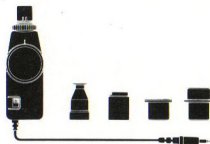
The memory can store up to two measurements and display them on the analog scale for simplified comparison of readings.

Auto Meter III is also compatible with a full system of accessories that further expand its versatility.



### Auto Meter IIIIF

Utilizing a high-sensitivity silicon photocell and a specially designed microprocessor circuit, the multi-function Auto Meter IIIIF takes precise incident and reflected measurements for both flash and ambient light. Readings are presented instantly on its liquid-crystal display, digitally and on a convenient analog scale. The meter incorporates a memory circuit that can store one or two previous flash and or ambient-light measurements, and recall them for comparison with a third reading; all three are displayed on the analog scale. A special key averages two memorized readings to quickly determine average exposure for a scene. This versatile meter allows the user to be ready for a wide range of metering situations, both in available light and with electronic flash.

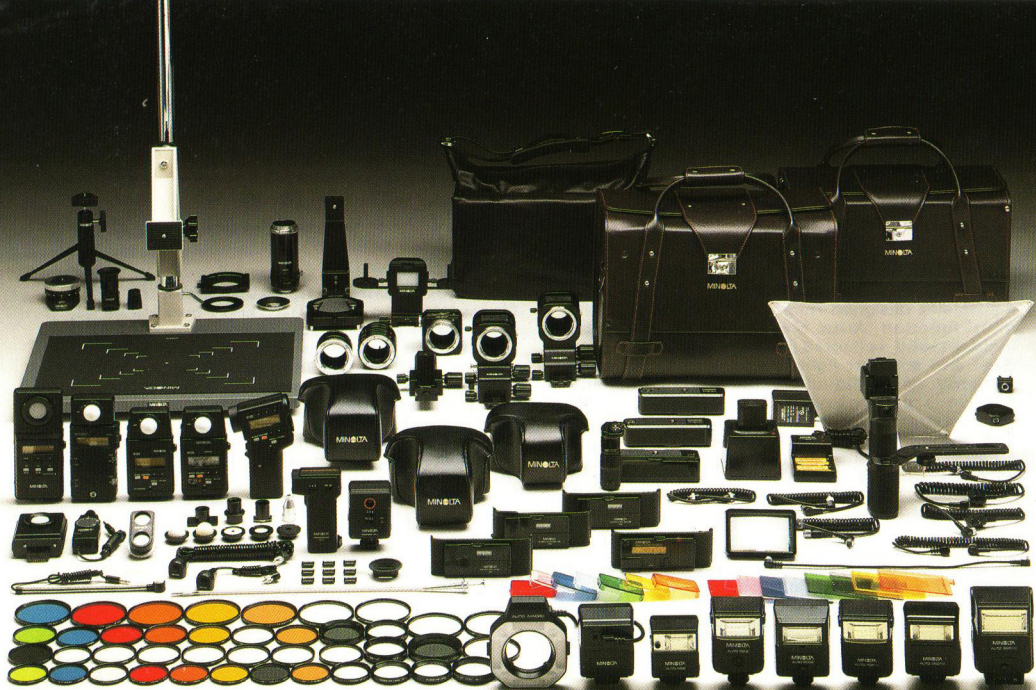


### Minolta Booster II

A unique accessory for Auto Meter II, Auto Meter III, Auto Meter IIIIF, and Flash Meter III, the booster permits taking measurements directly from the film plane or eyepiece of a 35mm camera, and the groundglass of larger format cameras. This gives extremely accurate results and eliminates the need to calculate the compensation needed for bellows extension, and other variables that affect light striking the film.

Booster II can also be used to meter through the eyepiece of a microscope.

Attachment to the meter is by a simple plug and socket arrangement.



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