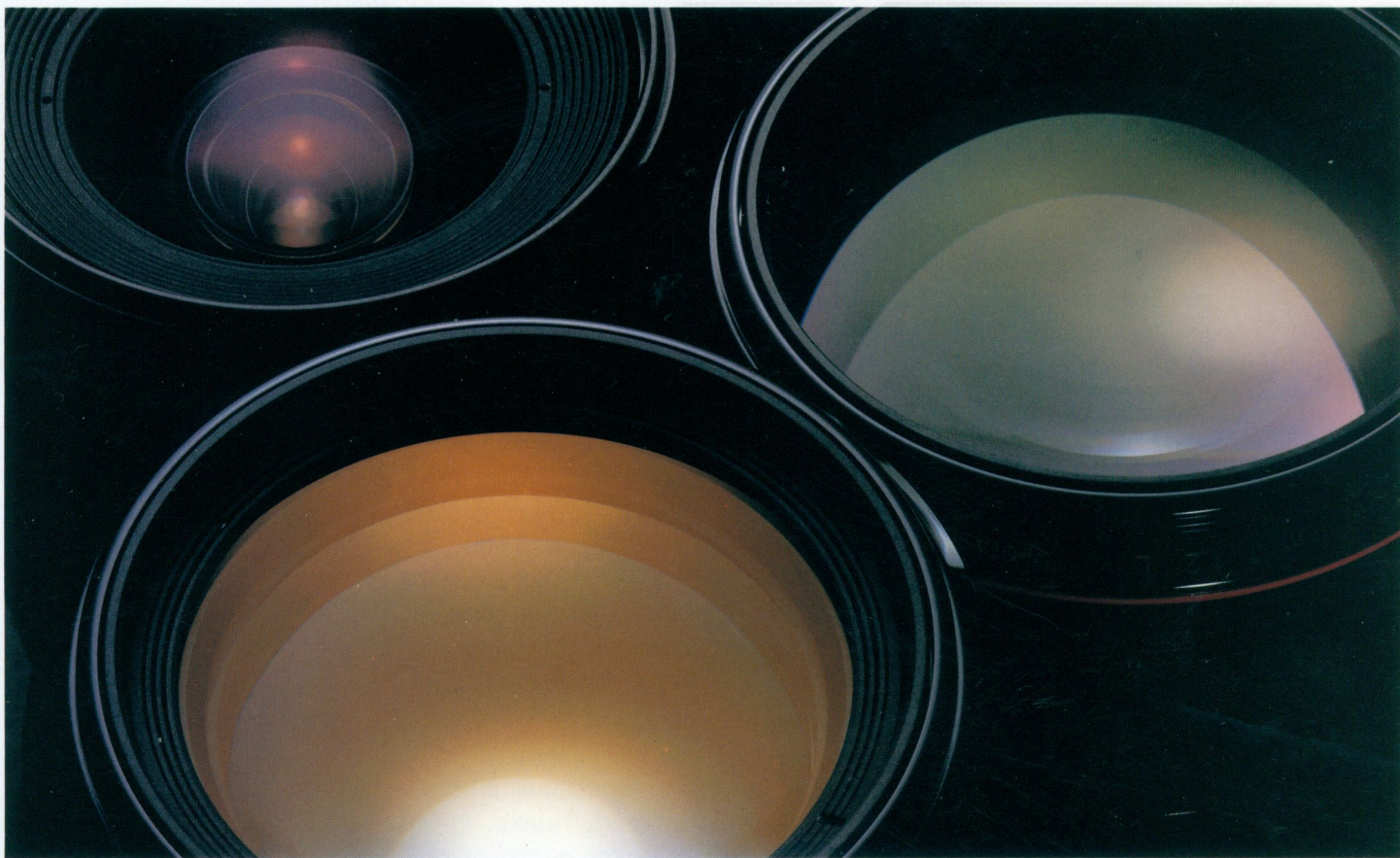



Canon EOS EF LENSES



Superior optics are combined with the most advanced electronics to provide exceptional image clarity and quick focusing response

Canon EF Lenses: Setting Today's Standards




The ability to use a wide variety of lenses is one of the main advantages of 35mm single lens reflex photography. And Canon's EF lenses are clearly a major reason for the success of the EOS system. Just as EOS cameras make good photography easier by incorporating the world's most advanced technology, EF lenses are a product of Canon's dedication to innovative lens design.

EF lenses are the embodiment of the EOS system concept: a fusion of state-of-the-art electronics, mechanical precision and optical excellence. The fully electronic EF lens mount is unique among 35mm SLR cameras, operating silently with unmatched reliability due to the complete elimination of moving parts. Every EF lens contains its own custom-designed autofocus motor and electromagnetic diaphragm, intelligently controlled by a built-in microprocessor. Canon is a leader in the use of aspherical lens elements, fluoride crystal, Ultra-Low Dispersion (UD) glass, and other advanced optical technologies. And uniformly high optical performance results from the extensive use of

exclusive Canon-developed manufacturing techniques in our own factories, the world's largest for 35mm cameras and lenses.

The EOS system's motor-in-lens approach provides significant, tangible benefits to the photographer. For example, technological advances such as Canon's revolutionary Ultrasonic Motor (USM) provide unequalled autofocus performance with high torque and nearly silent operation, plus full-time manual focusing capability with many EF lenses. The Electro-Magnetic Diaphragm (EMD) aperture-control mechanism is equally consistent and precise with every EF lens, overcoming the mechanical limitations imposed by conventional body-operated designs.

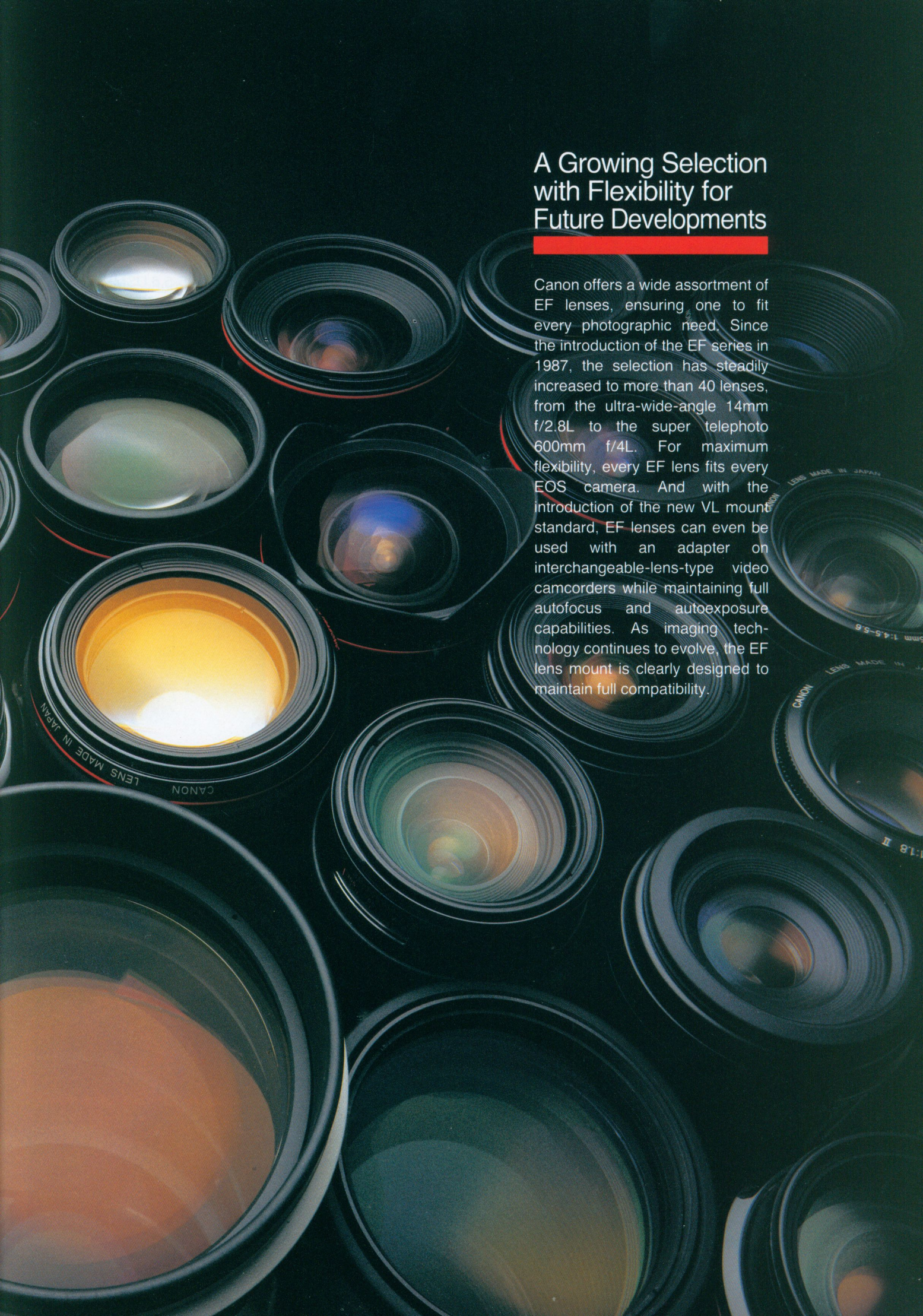
Many top professional photographers already stake their reputations on the quality of the images they produce with Canon EF lenses. They are intimately familiar with the exceptional sharpness, contrast and color balance that make EF lenses unique. But you don't have to be a professional to see how good Canon EF lenses really are. All you have to do is look at the photographs!



EF 80-200mm f/2.8L · 1/250 · f/2.8 · ISO 64







A Growing Selection with Flexibility for Future Developments

Canon offers a wide assortment of EF lenses, ensuring one to fit every photographic need. Since the introduction of the EF series in 1987, the selection has steadily increased to more than 40 lenses, from the ultra-wide-angle 14mm f/2.8L to the super telephoto 600mm f/4L. For maximum flexibility, every EF lens fits every EOS camera. And with the introduction of the new VL mount standard, EF lenses can even be used with an adapter on interchangeable-lens-type video camcorders while maintaining full autofocus and autoexposure capabilities. As imaging technology continues to evolve, the EF lens mount is clearly designed to maintain full compatibility.

Lens Selection Fundamentals

With so many EF lenses to choose from, it may seem difficult at first to make the right choices. If you're in this predicament, a good way to begin your selection process is to compare the differences in individual lenses. We've designed this catalog to make the task a lot easier. In this section, you can learn about the fundamentals of lens selection: focal length, aperture, depth of field and perspective.

Focal Length and Aperture

Lenses are named by their most essential specifications: focal length and maximum aperture value. The focal length of a lens is the distance from its point of infinity focus to the film plane. Among other things, focal length determines image size. For example, a subject photographed with a 100mm lens will appear twice as large in the frame compared to the same subject photographed with a 50mm lens. Similarly, a subject photographed with a 24mm lens will appear about half as large in the frame. A 50mm lens is considered standard for the 35mm format, because it produces images at about the same magnification as seen by the naked eye. EF lenses with focal lengths shorter than 50mm are considered wide-angle, while those with focal lengths longer than 50mm are considered tele-

photo. Zoom lenses feature adjustable focal length ranges. In the EF lens line, there is one wide-angle zoom (20-35mm f/2.8L), several wide-angle to telephoto zooms (such as the 35-135mm f/4.0-5.6 USM), and also several telephoto zooms (such as the 100-300mm f/4.5-5.6 USM).

The aperture of a lens is the opening through which light passes to the film. The maximum aperture value of a lens tells you how much light can enter when the aperture is fully open. Aperture values, also known as f-numbers or f/stops, are derived from the ratio of the lens focal length to the diameter of the lens opening. For this reason, small aperture numbers like f/2.8 or f/1.8 indicate relatively large lens openings. The EF 50mm f/1.0L has the largest aperture of any lens ever made for 35mm SLR cameras.



15mm



14mm



20mm



35mm



50mm



58mm



200mm



300mm



400mm



24mm perspective



50mm perspective



200mm perspective

The benefit of a large maximum aperture is the ability to use relatively fast shutter speeds, even in low light situations. You may occasionally see references to the “speed” of a lens, such as “fast” or “slow,” “high speed” or “medium speed,” etc. This usually refers to the maximum aperture of the lens. For example, the EF 80-200mm f/2.8L is a considerably “faster” lens than the EF 80-200mm f/4.5-5.6. In a typical low light situation, where the correct exposure might be 1/250 of a second at f/2.8, the best you could do with an f/5.6 lens would be 1/60 second. This difference in shutter speed can be crucial when you’re trying to “freeze” the action of a moving subject.

Depth of Field

All EF Lenses have an Electro-magnetic Diaphragm (EMD). This

device adjusts the size of the aperture, physically controlling how much light is passed through the lens. Aperture size is one way to regulate the exposure of the film. Shutter speed — how long the film is exposed — is the other. But the size of the aperture also determines depth of field. Depth of field simply means how much of the image from front to back is acceptably sharp. “Zone of focus” is another term with the same meaning. Sometimes you want a lot of depth of field. Landscapes, travel photos and snapshots all seem more successful if everything is in focus. Other times you want a shallow depth of field. Portraits look better if the background is blurred, for example. Successful photographs usually have a pleasing combination of the three elements that control depth of field — aperture value, focal length, and subject distance.

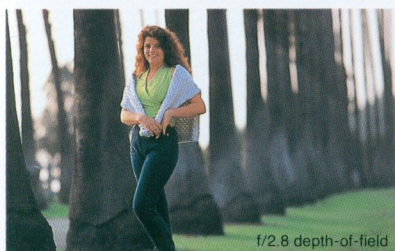
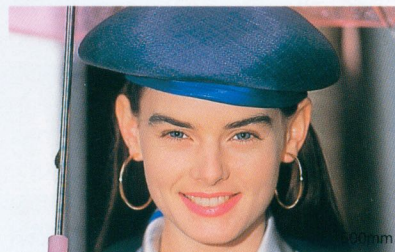
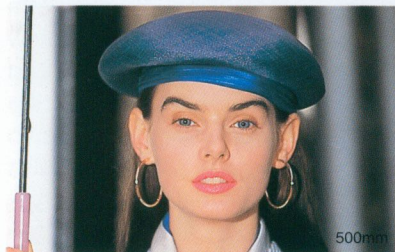
If the lens is “wide open,” that is, if it is set to its maximum aperture value, then the depth of field will be extremely shallow. Probably only subjects at the point of focus will be sharp. On the other hand, if the lens is “stopped down” to a very small aperture like f/11 or f/16, then the zone of focus will be very deep — with some lenses, probably everything from slightly in front of the camera to infinity will be sharp.

If you position your camera at a fixed distance from the subject, then wide angle focal lengths will have much more depth of field at any given aperture than telephoto focal lengths. For example, at a subject distance of 3 m/9.8 ft. and an aperture value of f/5.6, a 35mm focal length will have a depth of field from approximately 2.0-5.7 m/ 6.6-18.7 ft. If you zoomed to 135mm without moving the camera, the depth of field would shrink to 2.9-3.1 m/9.6-10.1 ft.

Subject distance is the third important factor in determining depth of field. Any lens produces more depth of field as you move away from the subject, and less as you move towards it.

Perspective

The combination of subject distance and focal length affects one other important photographic characteristic — perspective. In a photograph, “perspective” refers to the relative size of objects at various distances from the camera. You may have noticed how perspective changes according to subject distance. For example, if you photograph a person from the waist up using a 35mm focal length, background objects will appear much smaller than if you move back and shoot the same picture using a 135mm focal length. When maximum aperture is not the major consideration, professional photographers most often select a lens based on the perspective it will produce for the shot they want to make.



Which EF Lenses Are Best For You?

By selecting the right lens for each shooting situation, you can produce the kind of photographs you want. Knowing which lens is "best" comes from hands on experience, of course. No single lens solves all problems. After all, the same scene looks very different when shot through a 35mm lens than it does when a 135mm lens is used. The best lens for you depends on the kind of photography you do. Do you like to photograph people or other moving subjects, or do you prefer landscapes and still life? Are you a full-time professional photographer, or do you prefer to take pictures as a hobby? Honest answers to these questions will go a long way towards helping you make the right decisions.

Some general ideas can be mentioned here. When shooting indoors or in confined spaces, a wide-angle lens lets you get more in the picture. If your subject is far away, using a telephoto lens brings it closer. We'll examine these possibilities in more detail in the following pages.

Single Focal Length vs. Zoom Lenses

Lenses can be divided broadly into two categories: single focal lengths and zooms. Single focal length lenses mean just that: a 135mm lens always has the same degree of magnification and offers the same angle of view. Zoom lenses provide a range of focal lengths — from 28mm to 80mm, for example — with the angle of view changing accordingly. Zoom lenses make it easier to appreciate

the results of changing focal lengths since you can see what happens as you zoom. Some photographers prefer one kind of lens exclusively, others use both.

In the past, zoom lenses weren't quite as sharp as single focal length lenses. But today, thanks to improved optical technology, there's very little difference. Zooms are somewhat heavier and bulkier, and are usually slower than single focal length lenses. However, Canon now offers several relatively fast EF zoom lenses, most notably the 20-35mm f/2.8L and 80-200mm f/2.8L. Their sharpness and contrast are outstanding, and they have become the most popular EF Lenses among EOS-1 owners.

Would it make more sense for you to use two or three single focal length lenses or just one zoom? Sometimes, the choice is clear. If you have a specific application like sports or nature photography, you may need a longer or faster lens than you can get in a zoom. On the other hand, if you find that you don't have time to change lenses because you're shooting on the run, zoom lenses may be more practical. Today, most SLR photographers own both single focal length and zoom lenses.

Wide-angle or Telephoto?

Often, shooting conditions dictate the choice between wide-angle and telephoto lenses. Because wide-angle lenses include more in the picture, they are an obvious choice for interiors, group shots, landscapes, etc. Telephoto lenses are very useful when you cannot or perhaps don't want to get closer to the subject. When you're in control of the subject distance, remember that focal length always controls perspective and often affects depth-of-field. Wide-angle lenses are extremely useful for keeping background objects small and sharp. Telephoto lenses help

to isolate your subject by blurring the background. Keep in mind that zoom lenses can offer a wider range of choices in each category.

Special Purpose Lenses

Macro lenses and Tilt-Shift lenses solve special photographic problems better than conventional lenses. If you're interested in close-up photography, Canon offers both 50mm and 100mm EF Macro Lenses plus a special ring-shaped flash called the Macro Ring Lite ML-3. This equipment produces razor-sharp close-up photography, with full autofocus and automatic exposure capability. Architectural and landscape photographers use Canon's TS-E (Tilt-Shift for EOS) lenses, because they have built-in mechanisms which can correct converging lines and dramatically expand depth of field. EOS owners can choose between 24mm, 45mm and 90mm focal lengths in the TS-E group.

L-Series Lenses

Professional photographers demand the utmost from their lenses in terms of optical performance and rugged reliability. For them, and for anyone who appreciates top quality, Canon has created the L-Series of EF Lenses. Covering a wide range of focal lengths from 14mm to 600mm, there are now fourteen L-Series EF Lenses, and more will be added over the course of time. Within this group are many unique optical formulas that are exclusive to the EOS system. In addition to solid mechanical construction, L-Series lenses exhibit superior optical performance due to advanced technologies such as aspherical surfaces, fluorite, and Ultra-Low Dispersion (UD) glass. For more information on L-Series Lenses, be sure to read the Lens Technology section of this catalog.



EF 14mm f/2.8L USM • 1/60 • f/8 • ISO 50

Take a fresh look at the world with EF ultra-wide angle lenses

EF 15mm f/2.8 Fisheye • 1/250 • f/8 • ISO 100



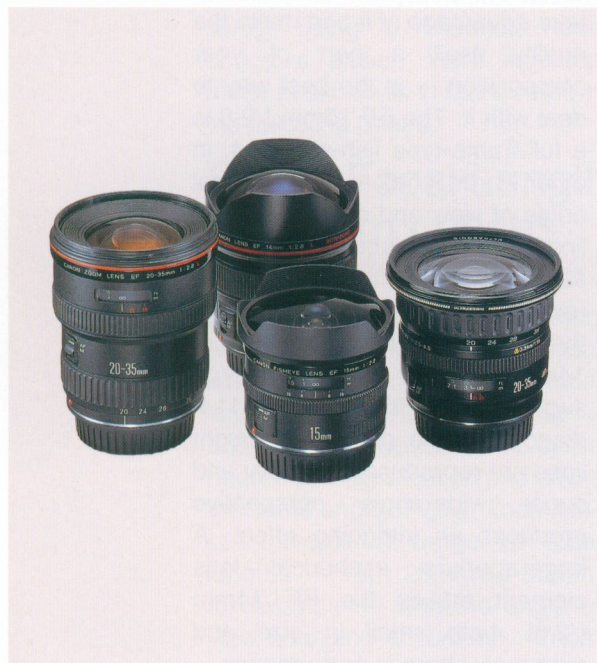
EF 14mm f/2.8L USM & Fish-eye EF 15mm f/2.8

Extreme wide-angle lenses provide unusual properties that are interesting to explore. Depth of field is almost infinite, but perspectives can be distorted, especially with fish-eye lenses. Learning how to compensate for this — and even to take advantage of it and make the quality itself a part of your composition — is the best way to deal with it. The EF 15mm f/2.8 is a full-frame-type fish-eye lens; in other words it has a 180° diagonal angle of view and causes straight lines in the subject to appear as curved lines in the photograph (except for those running through the center). Conversely, the EF 14mm f/2.8L is a rectilinear-type super wide-angle lens with a 114° diagonal angle of view. Straight lines are reproduced normally and super wide-angle perspective produces an intriguing effect. A large-aperture aspherical lens element makes the EF 14mm f/2.8L both small in size and extremely sharp in performance.

Expand your creativity with wide-angle EF lenses



EF 20-35mm f/2.8L • 1/30 • f/4 • ISO 50



EF 20-35mm f/2.8L EF 20-35mm f/3.5-4.5 USM

This L-Series lens combines essential wide-angle focal lengths with a bright maximum aperture. An aspherical lens element produces high-resolution images even at f/2.8, while inner focusing enhances focusing speed, handling and durability. The EF 20-35mm f/2.8L is a favorite lens among photojournalists, because it eliminates the need for changing lenses in the middle of shooting sessions and allows the photographer to carry a wider variety of equipment.

While using only spherical lens elements, the optical system of the EF 20-35mm f/3.5-4.5 USM effectively compensates distortion and provides high-quality, super wide-angle performance at an economical price. This light, compact lens features high-speed, quiet AF with full-time manual override, so you can add a creative touch to the focusing at any time.

EF 20mm f/2.8 USM

This is the newest wide-angle lens in the EF line. It features fast AF operation due to its advanced Ultrasonic motor and a modern rear-group focusing design. With a 94° diagonal angle of view, the 20mm focal length provides its own unique perspective that lends itself very well to architectural photography and landscapes, in addition to photojournalism in tight quarters. A specially-designed optional bayonet mount lens hood provides maximum flare protection, while a non-rotating 72mm filter thread is well-designed for special effects filters, such as Canon's PL-C circular polarizer.

EF 24mm f/2.8

The EF 24mm f/2.8 is surprisingly compact and light. AF speed is exceptional, due to cam-driven rear group focusing and Canon's high-performance Arc Form Drive (AFD) focusing motor. The optical performance of this lens is characterized by excellent sharpness and contrast at all apertures. Lens handling is improved by a stationary front group, which features a non-rotating 58mm filter thread.

EF 28mm f/2.8

The EF 28mm f/2.8 is the most affordable wide-angle lens in the Canon line, making it quite attractive for beginning photographers. An excellent choice for group shots and landscapes, the 28mm f/2.8 is also faster, lighter, and smaller than zoom lenses. This lens is quite sharp and exceptionally low in flare, due to a Canon-exclusive glass-molded aspherical (GMO) front element. The full-extension focusing system is driven by an AFD motor and features a non-rotating 52mm filter thread.



EF 28mm f/2.8 • 1/250 • f/5.6 • ISO 100



EF 35mm f/2 • 1/60 • f/11 • ISO 50

EF 35mm f/2

With a maximum aperture of f/2, this is the fastest EF wide-angle lens. Ideal for low-light shooting situations, this lens is also well-suited for many kinds of snapshot and travel photography. The EF 35mm f/2 can even be used as an alternative standard lens that lets you get more in the picture. The minimum focusing distance of 0.25 m/9.8 inches is useful for close-ups of nearly 1/4 life-size. The focusing system and filter size of the EF 35mm f/2 are the same as the EF 28mm f/2.8.



The standard zoom lens offers tremendous convenience

The standard zoom lens covers the focal lengths used for most day-to-day photography, and has replaced the traditional 50mm lens as the single most popular type of SLR lens being used today. The advantages are obvious. With a zoom lens, you can quickly shift the angle of view and amount of magnification. This lets you compose your image in the viewfinder, trying out various alternatives until you decide which you like best.

With a standard zoom lens, you have the three most commonly-used focal lengths — wide-angle, normal, and short telephoto — always available. This means you can go out on a photo “expedition” carrying only one lens instead of three — a real weight savings you’ll learn to appreciate when you’re out tramping in the fields or exploring city streets.

**EF 35-80mm
f/4-5.6 USM &
EF 35-105mm
f/4.5-5.6 USM**

These are among the first EF lenses to incorporate Canon’s new Micro Ultrasonic Motor (Micro USM) for silent, high-speed auto-focusing. Often sold as standard lenses for the EOS 1000/Rebel series, both of these zooms feature outstanding sharpness and contrast throughout their entire focusing range. The 35-80mm f/4-5.6 USM is particularly well known for its close-focusing capability, which produces magnifications up to 1/4 life-size. The 35-105mm f/4.5-5.6 USM employs a glass-molded aspherical (GMO) lens element which helps to reduce its length to



EF 28-80mm f/2.8-4L USM • 1/250 • f/5.6 • ISO 50



only 63 mm/2.5 inches — virtually the same as the EF 35-80mm, but with an extra 25mm of zooming range.

In addition to being compact in size, both the EF 35-80mm and EF 35-105mm lenses are also notable for their extremely light weight and affordable pricing. These new lenses offer compelling evidence of Canon's leadership in zoom lens technology.

EF 28-80mm f/3.5-5.6 USM & EF 28-80mm f/2.8-4L USM

These two lenses form the middle range in standard focal length zooms for the EF line. Both the 28-80mm f/3.5-5.6 USM and EF 28-80mm f/2.8-4L USM share several other common characteristics including aspherical elements for high image quality and advanced USM for autofocus. The 28-80mm f/3.5-5.6 USM is a good choice as a moderately priced lens, while the 28-80mm f/2.8-4L incorporates two aspherical elements that account for its excellent optical performance at all focusing distances.

EF 28-105mm f/3.5-4.5 USM & EF 35-135mm f/4-5.6 USM

These two lenses are the ultimate in standard zooms for the EF lens system. Similar in style and finish, they offer the most versatility in the EF line at a moderate price. The 35-135mm f/4-5.6 is a good choice for photographers interested in slightly more telephoto power, while the EF 28-105mm f/3.5-4.5 offers a wider angle of view as well as a slightly faster maximum aperture. Both lenses use Canon's unique USM to provide quick, silent autofocus.



EF 28-80mm f/3.5-5.6 USM • 1/60 • f/5.6 • ISO 64



EF 35-135mm f/4-5.6 USM • 1/125 • f/8 • ISO 50





EF 85mm f/1.2L USM • 2 second • f/2.8 • ISO 25

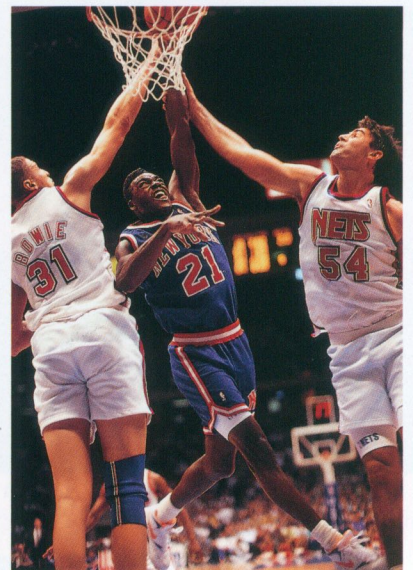
When lighting conditions are tough, these fast lenses come through

When choosing a lens, it's tempting to emphasize focal length specifications over maximum aperture values. However, a fast lens becomes indispensable when lighting conditions are poor and there's a need to stop action without the use of flash. At the same time, the optical formula of a high speed lens is one of the most demanding tasks in lens design, since image-degrading problems such as spherical aberration, curvature of field, coma and flare become extremely difficult to correct. Moreover, the diameter of the lens mount becomes a limiting factor as lens speed increases.

Canon took all these factors into account when designing the EOS system. One visible result is the 54mm inner diameter of the EF lens mount, the largest of any 35mm camera. This extra-wide mount enables better optical performance with high speed lenses, especially when used at their maximum apertures. Canon has also taken a strong lead in the development of large-aperture aspherical lenses, such as the EF 50mm f/1.0L and EF 85mm f/1.2L. Their specially-cut lens elements produce noticeably superior picture quality at all apertures.

EF 50mm f/1.0L USM & EF 85mm f/1.2L USM

These are the two fastest lenses in the EOS system. In fact, the EF 50mm f/1.0L is fastest standard lens ever made for SLRs. From a technical standpoint, these lenses represent an outstanding achievement due to the use of aspherical elements and an advanced focusing system that stabilizes optical performances at all shooting distances. In plain language, both lenses produce extremely sharp photographs with high contrast and superb color balance, even at full aperture. The EF 50mm f/1.0L is unsurpassed as a high-speed standard lens, while the EF 85mm f/1.2L is particularly well-suited for candid portraiture due to its slightly longer than normal focal length.



EF 50mm f/1.0L USM • 1/320 • f/1.0 ISO 200

The practical value of these high speed lenses is easier to appreciate if you compare them to conventional 50mm and 85mm lenses with a maximum aperture of f/1.8. What you gain, in effect, is one full stop from f/1.8 to f/1.2, or a stop and a half from f/1.8 to f/1.0. This means, for example, that a situation which with an f/1.8 lens might call for a 1/125 second shutter speed could be shot with



the EF 50mm f/1.0L lens at 1/350 — vastly reducing the chance of blur caused by subject movement or camera shake.

Looked at another way, the extra speed of f/1.2 and f/1.0 opens a whole new world of low-light photography that is unavailable with slower lenses. Although depth of field is quite shallow wide open, it is more than adequate to keep the entire face and body of a human being in focus when shot from the waist up or further away. At the same time, the background can be blurred to make the subject stand out.

Autofocusing is swift, silent and accurate with Canon's exclusive Ultrasonic Motor, and manual focusing is exceptionally smooth with a light touch. The location of the manual focusing ring provides optimum weight balance, and the left and right sides of each lens near the mount are slightly indented for reliable and secure holding during lens attachment and removal.

EF 50mm f/1.4 USM & EF 50mm f/1.8II

Both of these standard EF lenses combine high-quality optical performance with quick AF speed. Not only the lightest, most compact EF lens at only 130

grams/4.6 oz., the EF 50mm f/1.8II is also the most economically priced. The EF 50mm f/1.4 USM features full-time manual focusing, providing versatility in addition to a larger maximum aperture. Succeeding to the highly reputed FD 50mm f/1.4 of its superb optical performance, the color balance is nearly equal to the standard value recommended by ISO.

EF 85mm f/1.8 USM & EF 100mm f/2 USM

These moderate telephoto lenses offer high speed, compact size and superb optical performance at affordable prices. Developed in response to popular demand from professional photographers and advanced amateurs, the EF 85mm f/1.8 USM and EF 100mm f/2 USM are just right for a wide variety of shooting situations such as portraiture and fashion, where their natural perspective is appropriate. They are also popular for sports like basketball, where their large maximum apertures result in fast shutter speeds, and their super-quick Ultrasonic motors help the autofocus system keep up with fast-moving action. Both lenses feature inner focusing with full-time manual override for maximum convenience. Their non-rotating filter mounts accept 58mm filters and other accessories.



EF 85mm f/1.8 USM • 1/60 • f/5.6 • ISO 50



EF 50mm f/1.8II • 1/160 • f/5.6 • ISO 100



Telephoto zooms offer value and convenience

The telephoto zoom is the second most popular type of lens, next to the standard wide-to-tele zoom lens. Like any other zoom, a telephoto zoom provides a range of focal lengths so that you can control picture composition through the viewfinder without changing your distance from the subject.

Telephoto zoom lenses are useful for many shooting situations, from travel snapshots through sports action as well as nature photography. In fact, almost any time when you can't (or don't want to) get physically close to your subject, a telephoto zoom lens is a smart choice. Since telephoto lenses are generally larger and heavier than most other types, using a telephoto zoom can be much more convenient than carrying several single focal lengths in your gadget bag. Canon's full selection of EF zoom

lenses ensures one just right for your photographic needs and budget.

EF 80-200mm f/4.5-5.6 USM

This is Canon's most affordable telephoto zoom lens. It's also incredibly lightweight at 260 grams/ 9.1 oz., and so compact that it can be stored in the standard camera case for the EOS 1000/Rebel series. Don't let the small size and light weight fool you; this lens is a first-class optical performer, capable of producing impressive picture quality. It was also recently upgraded with Canon's Micro Ultrasonic Motor for high-speed, super-quiet AF operation. Whether you're travelling around the world or just taking a stroll around the block, you'll enjoy the convenience of the EF 80-200mm f/4.5-5.6 USM.



EF 80-200mm f/4.5-5.6 USM • 1/125 • f/8 • ISO 50



EF 80-200mm f/2.8L • 1/60 • f/5.6 • ISO 64

EF 70-210mm f/3.5-4.5 USM

In addition to slightly more focal length range at both ends of the zoom ring, the EF 70-210mm f/3.5-4.5 is up to a full f/stop faster than the EF 80-200mm f/4.5-5.6, thus permitting the use of higher shutter speeds when desired. The EF 70-210mm f/3.5-4.5 also focuses down to just 1.2 m/3.9 ft. and is provided with both a distance scale and a metal mount. Inner focusing combined with the silent USM results in extremely quick autofocus, as well as a non-rotating 58mm filter thread.

EF 80-200mm f/2.8L

The EF 80-200mm f/2.8L is Canon's number one professional L-Series medium telephoto zoom lens. It combines the flexibility of a zoom with a large maximum aperture that remains constant at all focal lengths. Superior optical

performance is assured by the use of 3 UD (Ultra-Low Dispersion) glass elements which effectively minimize chromatic aberration. Equally important, AF speed is the fastest in its class thanks to an advanced inner-focusing system that cuts the weight of the focusing components by 67% compared to conventional front-extension designs. In addition to fast AF, the lightweight focusing component of the EF 80-200mm f/2.8L significantly improves manual focusing in terms of smoothness and ease of use.

Other useful features include a detachable tripod collar for superior balance and a focusing distance selector switch. The EF 80-200mm f/2.8L is built to stand up to professional use, with a metal barrel and excellent sealing against dirt and moisture. With such a combination of high quality optics, AF speed and mechanical reliability, it's no wonder that the EF 80-200mm f/2.8L is the single most popular EF lens among the growing number of professionals who use the EOS system.



EF 70-210mm f/3.5-4.5 USM • 1/350 • f/4.5 • ISO 100

You have a choice in long range EF telephoto zooms



EF 100-300mm f/5.6L • 1/125 • f/5.6 • ISO 64

EF 100-300mm f/5.6L

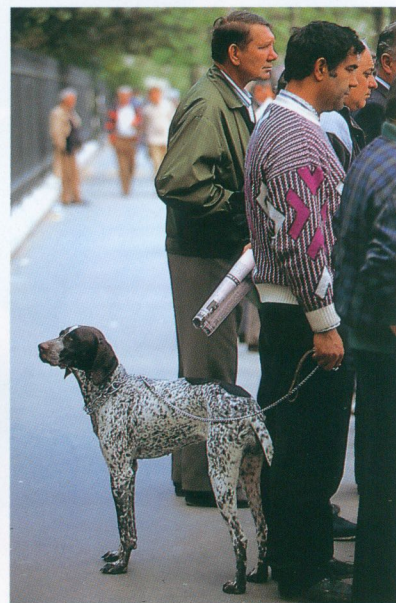
One element each of Fluorite and UD glass in its 15-element optical formula make the EF 100-300mm f/5.6L an extremely sharp zoom lens, one of Canon's professional quality L-Series. As an alternative to the EF 80-200mm f/2.8L, the EF 100-300mm f/5.6L offers longer range and lighter weight at a more



affordable price. Particularly popular with nature photographers, this lens has excellent performance for close-up photography with a full-range continuous macro capability that can produce magnifications better than 1/4 life-size at optimum working distances for flash.

EF 75-300mm f/4-5.6 USM

You won't find a better combination of light weight, long range and attractive pricing than the EF 75-300mm f/4-5.6 USM. This lens is much lighter than most single focal length 300mm lenses, yet its 4X zoom ratio provides impressive framing flexibility. Its new super-quiet Micro USM produces excellent AF speed.



EF 75-300mm f/4-5.6 USM • 1/500 • f/4 • ISO 100

EF 35-350mm f/3.5-5.6L USM

This revolutionary lens offers the highest magnification of any zoom lens available for a single lens reflex camera. Never before has one lens given the photographer the capability of hand-held shooting from wide-angle to super telephoto. Two UD glass elements thoroughly eliminate chromatic aberrations at telephoto focal lengths to give this lens the highest possible optical performance. Even macro shooting is possible with a maximum magnification of 0.25X at the 135mm position. Other features include a highly efficient corner cut lens hood, detachable tripod collar and variable zoom tensioning.

EF 100-300mm f/4.5-5.6 USM

The compact EF 100-300mm f/4.5-5.6 USM offers fast autofocus speed due to an advanced 5-group zoom design in which only 3 inner elements move for focusing. Additional benefits include a distance scale as well as a non-rotating 58mm filter thread.

Single focal length telephotos offer speed with compact size

EF 135mm f/2.8 with Soft Focus

Featuring Soft Focus in addition to tack sharp images at its normal setting, this bright, light-weight telephoto is well suited for both portraiture and landscapes. Combining the continuously adjustable soft focus ring with the lens's aperture setting, the photographer can achieve a broad range of creative effects, unlike conventional soft focus filters which produce only a fixed effect.

EF 200mm f/2.8L USM

This lens provides L-Series optical performance in an extremely compact size. A new 9-element optical formula produces superb sharpness and contrast due in part to the incorporation of two UD glass elements. The addition of this lens to the EF line-up allows Canon SLR users to choose between two 200mm lenses according to their shooting needs: the EF 200mm f/2.8L designed for mobility and the EF 200mm f/1.8L designed for maximum brightness. Fully compatible for both autofocus and autoexposure with the EF Extenders 1.4x and 2x, the EF 200mm f/2.8L USM can form the heart of a powerful yet portable telephoto system. A high-performance Ultrasonic Motor inner-focusing system results in silent, high-speed AF. Additional features include smooth, full-time mechanical manual focusing with a wide rubberized grip, plus an AF focusing range selector switch designed to offer the choice between minimum focusing distances of either 1.5 m/4.9 ft. or

3.5 m/11.5 ft. An optional detachable tripod collar is available, and a sliding lens hood is built in.

EF 300mm f/4L USM

Similar in concept to the EF 200mm f/2.8L USM, this lens is or lightweight, compact and more affordable alternative to the faster EF 300mm f/2.8L USM. The difference of one f/stop at maximum aperture results in a weight saving of 60%, making the EF 300mm f/4L USM extremely comfortable for hand-held shooting. An outstanding choice for nature photographers, the EF 300mm f/4L USM is also excellent for sports and fashion.

EF 400mm f/5.6L USM

Like the EF 300mm f/4L USM, the EF400mm f/5.6L USM is a high-performance single focal length telephoto targeted at photographers who want a lens that's easy to handle at an affordable price. While offering the



EF 300mm f/4L USM • 1/250 • f/4 • ISO 100

superior optical performance of Canon's L-Series, this lens is light enough to carry on extended field trips and convenient for hand-held operation. Equipped with Canon's exclusive USM for high-speed AF, this lens is also compatible with both EF Extenders for manual focusing with automatic exposure.



Every day, more pros switch to EOS because of these lenses

Exceptional in Every Way

Canon's L-Series EF super telephoto lenses (200mm f/1.8L, 300mm f/2.8L, 400mm f/2.8L, 500mm f/4.5L and 600mm f/4L) provide unequalled optical performance combined with rugged reliability. That's why you'll often see them in the hands of professional photographers at world-class sporting events such as the Olympics, championship tennis, football, baseball, basketball, motor-sports and more. The use of super telephoto lenses extends to many other areas of photography as well, including photojournalism, fashion, and nature to name a few. Though the photographers and their subjects may vary, one common factor in L-Series EF super telephoto lenses is unsurpassed quality.

Another common factor is raw speed. Lens for lens, every autofocus EF super telephoto offers the fastest maximum aperture in its class, so you can continue shooting in lighting conditions that make slower lenses useless.

But high speed isn't all these lenses have to offer. Each has incredible optical quality too. For example, the EF 200mm f/1.8L USM and 400mm f/2.8L USM use UD glass elements to control chromatic aberration, while the EF 300mm f/2.8L USM, 500mm f/4.5L USM and 600mm f/4L USM include both Fluorite and UD glass elements. The resulting photos nearly "jump" off the light table in terms of brightness, color fidelity and contrast when compared to images shot with conventional lenses. The EOS autofocus system squeezes every bit of sharpness



EF 200mm f/1.8L USM • 1/640 • f/1.8 • ISO 64

from these lenses, to help you make the most of your investment. Canon's exclusive Ultrasonic Motors are unequalled in terms of accuracy, and produce shooting speeds of up to 4.5 frames per second with AI Servo predictive AF when combined with the EOS-1/Power Drive Booster E1 camera system. Other advanced functions including focus preset, focusing range selection and manual focusing speed control improve handling and are detailed in the Lens Technology section of this catalog.

EF 200mm f/1.8L USM & EF 300mm f/2.8L USM

These unique lenses have done a great deal to establish the fine reputation of the EOS system with professional photographers around the world. Optically superb, both the 200mm f/1.8L USM and 300mm f/2.8L USM are often selected because of their unique ability to blur backgrounds



EF 300mm f/2.8L USM & EF Extender 1.4X • 1/500 • f/4 • ISO 100

into insignificance while maintaining exceptionally sharp focus on the main subject. They are ideal for indoor sports such as tennis and basketball as well as outdoor activities including sports, fashion and nature photography. The EF 200mm f/1.8L USM in particular is the world's fastest 200mm lens for 35mm SLRs, while the 300mm f/2.8L USM offers the fastest aperture available in its focal length for autofocus.

Extenders EF 1.4x & EF 2x

The Extenders EF 1.4x and 2x add yet another dimension of value to EF telephoto and super telephoto lenses. Lightweight and compact, they not only increase the magnification of the prime lens but also preserve maximum optical quality, as shown in our sample photo. Although they are optional accessories, the purchase of either or

both EF Extenders is a smart choice for use with any EF single focal length telephoto lens from 200mm on up to 600mm. Full autofocus capability is maintained with either extender as long as the maximum aperture of the prime lens/extender combination is at least f/5.6, while full autoexposure control is maintained with every compatible lens. See page 39 for a listing of compatible EF lenses and their resulting focal lengths and maximum apertures when used with the EF Extenders.



EF Super Telephoto Lenses



EF 500mm f/4.5L USM • f/4.5 • 1/750 • ISO 64



EF 400mm f/2.8L USM

When Canon introduced the world's first 400mm f/2.8 lens (the FD 400mm f/2.8L) in 1980, professional sports photographers fought each other over the chance to be among the first to shoot with it. Such history graphically shows how important this focal length/aperture combination can be for many demanding telephoto applications. Over the years, this lens has helped to establish Canon's solid reputation as an optical innovator. Now available with full autofocus capability, the EF 400mm f/2.8L USM continues to lead the industry as one of the premier super telephoto lenses of all time. Optically identical to the original FD lens, with two large-aperture UD glass elements to control residual chromatic aberration, the EF version adds quick, silent and precise autofocus with Canon's

exclusive Ultrasonic Motor. Fully compatible with Canon's EF Extenders 1.4x and 2x for autofocus and autoexposure, the EF 400mm f/2.8L is singularly usable for sports, nature and fashion photography.

EF 500mm f/4.5L USM

The EF 500mm f/4.5L USM has a heritage that is at least as well known as that of the EF 400mm L-Series lens. Originally developed in the late 1970s as the FD 500mm f/4.5 S.S.C., this lens quickly became a favorite among both motorsports and nature photographers. It almost goes without saying that its optical performance is first-rate, due to an advanced rear-focusing design with one element each of fluorite and UD glass in its 7-element formula. But to concentrate on the picture quality alone would be to ignore one of the EF 500mm

EF 400mm f/2.8L USM • f/5.6 • 1/250 • ISO 100

f/4.5L's most important features: its relatively compact size and light weight. At 3,000 grams/6.6 lb., the EF 500 "L" is half the weight of either the EF 400mm or 600mm L-series lenses. Combined with a comfortable length of 390mm/15-3/8 in., this 10-power lens is extremely well-balanced and a pleasure to use.

EF 600mm f/4L USM

Developed just in time for the Calgary Winter Olympics in 1988, the EF 600mm f/4L USM has firmly established itself as the one of the finest long-range autofocus super telephoto lenses ever made. In-

corporating one fluorite and two UD glass elements in a 9-element formula, its clarity and snap must be experienced to be appreciated. Its rear-group focusing design is perfectly matched with a powerful, silent USM autofocus drive. Manual focusing is also very smooth, and like other L-Series super telephotos, can be set for either half, normal or double speed to match the shooting conditions. Well suited for both sports and nature photography, the value of the EF 600mm f/4L USM is further enhanced by its compatibility with EF Extenders. When used with the Extender EF 1.4x, the EF 600mm becomes an autofocus 840mm f/5.6, while the 600mm/2X combination produces a manual focus 1200mm f/8.



EF 600mm f/4L USM • f/4 • 1/640 • ISO 50



EF 400mm f/2.8L USM



EF 500mm f/4.5L USM



EF 600mm f/4L USM

Explore the fascinating world of the very small with EF macro lenses



EF 100mm f/2.8 Macro • f/8 • 1/125 • ISO 100

EF 50mm f/2.5 Compact Macro & Life Size Converter EF

Nothing surpasses a true macro lens for close-up quality and convenience. Unlike conventional lenses fitted with close-up diopters or extension tubes, macro lenses can focus from infinity to extreme close-up range without accessories. This characteristic makes them very convenient and easy to use for a wide range of shooting situations. The EF 50mm f/2.5 Compact Macro focuses from in-

finity to 0.5X magnification (1/2 life-size). Since it can also be used as a standard lens, it's a smart choice for those photographers who tend to shoot at focal lengths other than 50mm but may want to use a standard lens occasionally. When combined with the Life-Size Converter EF, close up shooting from 1/4 life-size to full life-size is possible. Autofocus operation is fully maintained with the converter in place. The Life Size Converter EF contains its own optics which effectively increase the focal length of the 50mm Compact Macro to 70mm. This approach produces superb optical quality and improves AF speed compared to an extension tube.

EF 100mm f/2.8 Macro

The EF 100mm f/2.8 Macro covers a broad shooting range, from infinity all the way down to 1X magnification (full life-size) without accessories. The medium-telephoto focal length produces a pleasing perspective with small three-dimensional subjects, creating a noticeably different visual effect compared to the 50mm Compact Macro. The extra focal length also provides more working room between the front of the lens and the subject, making it ideal for close-up photography of subjects like insects or flowers. With its bright f/2.8 maximum aperture, the EF 100mm Macro can also be used for conventional subjects such as portraits. An "AF limiter" controls the focusing range, thus improving autofocus response. A wide focusing ring is provided for smooth manual focus operation.

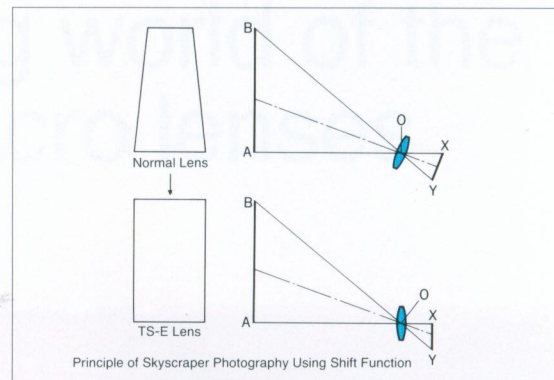




EF 50mm f/2.5 Compact Macro · f/11 · 1/60 · ISO 50



Tilt-Shift Lenses produce special effects not possible with ordinary lenses



The EF lens system contains a number of interesting choices to explore for increased functionality and enjoyment. TS-E lenses are one particular option worth looking into if you'd like to have more control over depth-of-field and straight lines in your photography.

"TS" means "tilt and shift." The optical axis of a TS-E lens can literally be tilted up to $\pm 8^\circ$ and shifted up to ± 11 mm from the normal position. Although shift lenses have been available from several 35mm camera manufacturers for many years, only Canon offers TS-E lenses that tilt as well. These unique manual focus, auto

diaphragm lenses significantly expand the photographic capability of the EOS system, and meet the needs of many photographers for a wide variety of purposes.

Conceived from the beginning as a matched set, the Canon TS-E Series provides a choice of focal lengths from 24mm f/3.5L wide-angle through 45mm f/2.8 standard to 90mm f/2.8 telephoto. In this way, it becomes possible to select the best lens for the subject. Because they have been designed for EOS 35mm SLRs, TS-E lenses offer many benefits that are simply unavailable in other formats. These include superior portability as well as the capability of producing 35mm originals, which are definitely more economical than large format and potentially more suitable for specific applications such as slide presentations.



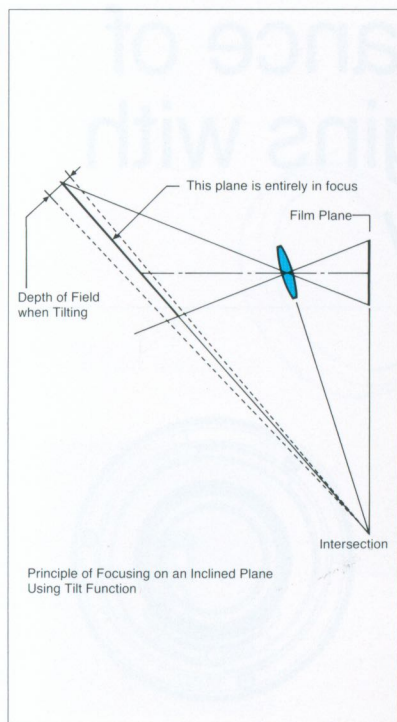
TS-E 24mm f/3.5L • f/11 • 1 second • ISO 50 • Uncorrected



TS-E 24mm f/3.5L • f/11 • 1 second • ISO 50 • Corrected by Shift

Shifting

Shift lenses for 35mm cameras are specially designed to project a larger-than-normal image at the film plane. Taking advantage of this larger image involves moving, or "shifting" the lens parallel to the film plane, and up or down from its normal position. Shifting is the best way to correct converging lines in the subject. For example, when photographing a building with a conventional wide-angle lens, the edges of the building appear to converge towards the top. The converging lines can be corrected with a shift lens by keeping the camera parallel to the



building and shifting the lens upwards. The resulting photo looks as if the camera was positioned much higher, and the edges of the building remain straight. Thus, shift lenses are quite valuable for architectural photography because they produce more professional-looking photos.

Tilting

With ordinary lenses, the plane of focus is parallel to the film, and depth of field is controlled by adjusting the size of the lens opening, or aperture. Ordinary lenses must rely on decreasing the size of the aperture to increase the depth of field. However, tilting the lens controls depth of field by adjusting the plane of focus at any aperture. The ability to control the plane of focus with the tilt feature is extremely useful for, among others, nature photographers because it minimizes the need for small apertures, resulting in faster shutter speeds to control subject movement such as delicate flowers moving in the wind.



TS-E 24mm f/3.5L • f/3.5 • 1/60 • ISO 50 • Uncorrected



TS-E 24mm f/3.5L • f/3.5 • 1/60 • ISO 50 • Corrected by Tilt



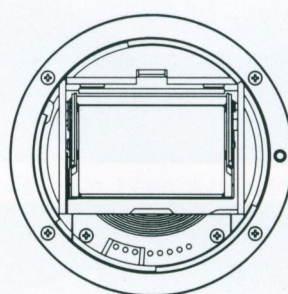
The superior performance of Canon EF lenses begins with innovative technology

Ever since the introduction of the original Canon lens in 1947, Canon has developed and maintained its own original lens design and manufacturing technologies. This simple yet powerful statement is the essence of what makes Canon EF lenses unique and different from all others. A close review of key Canon EF lens technologies reveals not only their uniqueness but also their distinct benefits. These technologies have been developed with the clear goal of producing pictures of the highest possible quality, along with maximum ease of use.

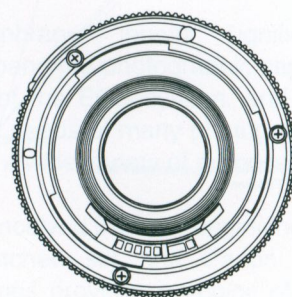
EF Lens Mount

The EF lens mount is an excellent example of Canon technology. With the only fully electronic body-lens interface for 35mm SLR cameras, the EF lens mount surpasses previous designs in terms of fundamental reliability as well as flexibility for future developments. Its large 65mm outer diameter and solid construction provide maximum handling stability with all lenses, particularly EF super-telephotos. High speed lenses such as the EF 50mm f/1.0L and 85mm f/1.2L take advantage of the 54mm inner mount diameter for improved optical performance, too. Most importantly, electronic contacts replace moving parts used in conventional lens mounts. In addition to reducing noise levels, this is a key improvement because it enables the placement of self-controlled autofocus and aperture drive mechanisms in the lenses.

Electronic contacts



Body side



Lens side

Self-Controlled EF Lens Motors

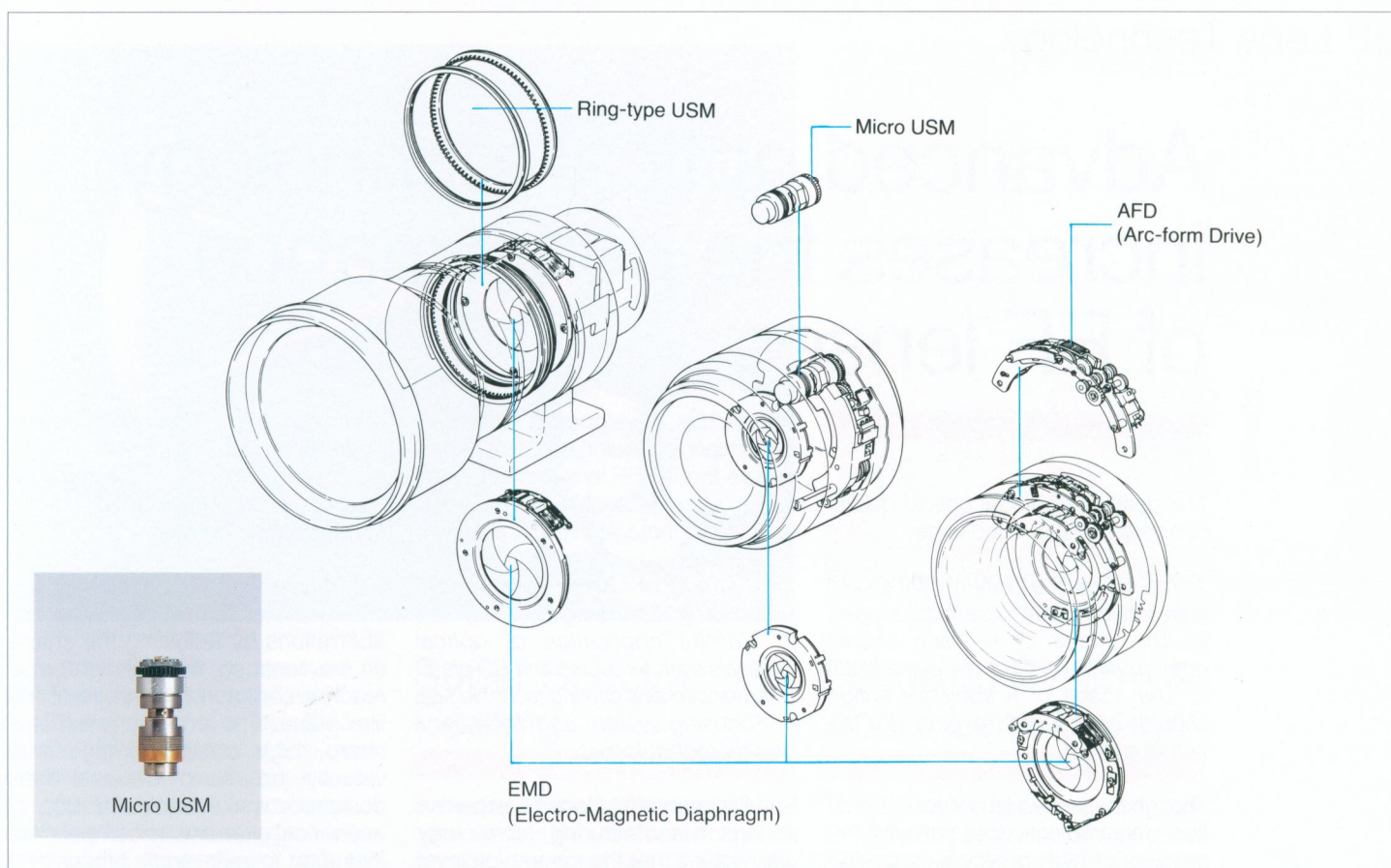
The EOS system achieves many desirable improvements over conventional AF designs by placing autofocus and aperture drive mechanisms within every EF lens. For instance, positioning the motors immediately adjacent to the lens components being driven enhances speed and precision. Additionally, each motor is custom designed for optimum performance according to lens type.

A microprocessor built into each EF lens performs the dual roles of communication with the EOS camera body and control of the AF and aperture drive motors. Up to 50 items of information, including focal length, lens status, and metering data, are transmitted through the contacts of the EF lens mount. Electronic control enables automatic diaphragm operation even with specialized lenses such as the unique TS-E

series. And, as a result of their self-controlled lens motors, EF lenses provide full compatibility with other imaging devices such as VL-mount video camcorders, with full autofocus and autoexposure capability. Clearly, the EF lens system's unique combination of self-contained autofocus and aperture drive motors with integrated microprocessor control reduces constraints on camera design. But at the same time, it enables the continuing development of internal components for increased performance.

Ultrasonic Motors (USM)

One of the most exciting technologies to emerge from the Canon EOS system is the Ultrasonic Motor (USM), used for focusing with many EF lenses. Developed and manufactured entirely within Canon, the key feature of the USM is quiet



operation with high torque plus unmatched starting and stopping response.

Canon now manufactures several types of USM motors, including both ring-type and cylindrical. Although sizes and shapes vary, the basic operating principle of each motor is the same. Ultrasonic vibrations far beyond the range of human hearing (approx. 30 kHz) create a rotational force which drives the focusing section of the lens. The vibrating component of a USM motor is placed in close contact with the rotating element through pressure applied by a circular spring. This design produces impressive focusing speed and torque while at the same time providing an extremely effective braking system for exceptional precision in high-speed predictive AF sequences. More than 20 EF lenses, including all single focal length lenses from 200mm on up are now provided with Ultrasonic motors for maximum AF performance.

The Micro USM is the newest implementation of Canon's original ultrasonic motor. It replaces the standard ring design with a far more compact cylindrical shape. As a

result, size and weight are reduced by over 50%, and manufacturing costs are reduced to 1/30 the level of the original USM. These incredible size and cost reductions will expand the use of USM motors to virtually all future EF lenses. The replacement of rotary micromotors in several EF zoom lenses with Micro USM motors, as mentioned previously in this brochure, results in operation that is 4 times quieter and 50% faster, with no increase in size or weight.

Focusing Options

In addition to spectacular AF performance, the USM makes many other creative focusing options possible. Two exclusive options for L-Series EF super telephoto lenses are focusing speed control and focus preset. Focusing speed control enables the photographer to adjust the sensitivity of manual focusing to suit the subject. Half, normal or double speed manual focusing is possible. The focus preset function memorizes a distance setting determined by the photographer. At a baseball game, for example, the correct focus for

second base can be preset. Then, if a sudden play occurs during normal shooting, the preset distance can be "played back" in a fraction of a second by turning a special ring in front of the manual focusing ring.

Several USM lenses offer full-time mechanical manual focusing capability. These lenses allow instant manual override of the AF setting for superior operability. Please refer to the chart on page 38 for a complete listing of EF lenses with this valuable feature.

Electro-Magnetic Diaphragm (EMD)

The Electro-Magnetic Diaphragm (EMD) is a motorized aperture control device consisting of a standard iris diaphragm driven by a stepping motor. In addition to providing consistent exposure accuracy with every EF lens, the key advantage of the EMD is its electronic control. This feature is the main reason that EF lenses can be used not only with EOS cameras but also with other imaging products such as VL-mount camcorders with autoexposure capability intact.

Advanced optical technology increases the performance of EF lenses

The definition of ideal optical quality consists of three conditions:

1. The image of a point of light should correspond exactly to the original point.
2. The image of a plane should correspond exactly to the plane itself.
3. The image of a subject's shape should correspond exactly to the actual subject.

Though the perfect lens that meets all three requirements does not exist, the process of high quality lens design always begins by acknowledging the ideals and attempting to meet them as closely as possible. Before any lens can become part of the Canon EF series, it must also adhere to Canon's design standards. There are 6 basic EF lens design guidelines:

1. High resolution should be combined with excellent contrast over the entire frame.
2. Optical aberrations should be corrected as well as possible.
3. The colors of the subject should be faithfully reproduced.
4. Out-of-focus areas in the image should have a natural appearance.
5. The lens should operate quietly.
6. The lens should be both reliable and easy to use.

Canon has developed a wealth of advanced technologies designed to ensure that all EF lenses meet these tough standards. The key Canon optical technologies are:

1. Aspherical lens design and processing technologies.
2. Careful application of optical materials such as fluorite and UD glass.
3. Advanced lens coating technologies.
4. Focusing system and zoom lens design technologies.

Equally important, Canon's expertise in lens manufacturing technology guarantees that the same high level of quality designed into our lenses is present in every EF lens you purchase. Photographic results prove there's a lot more to an EF lens than just guidelines and ideals.

Aspherical Lenses

An inherent fault of conventional spherical lens elements is that light rays entering the edge of the lens are refracted, or bent, more severely than light rays entering the center of the lens. This defect, called spherical aberration, results in poor sharpness and contrast, plus image-degrading flare. The likelihood of spherical aberration increases in direct proportion to aperture size.

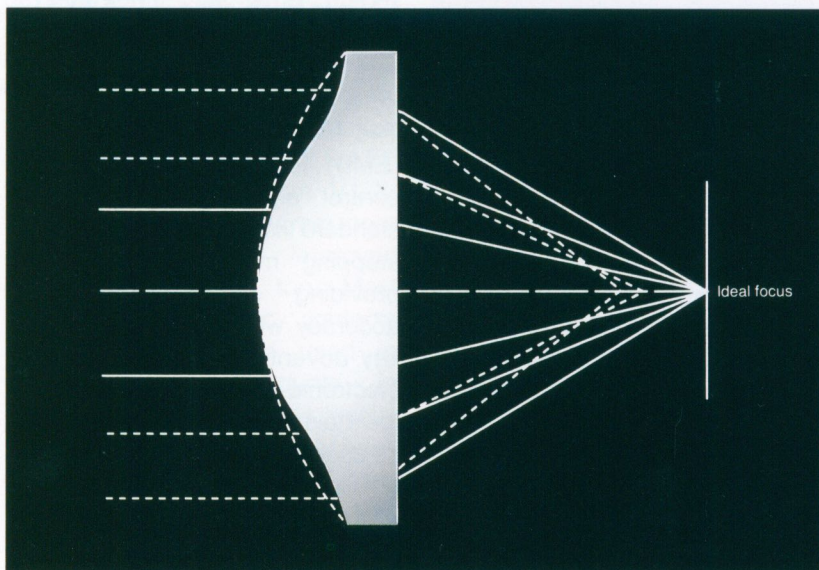
Although the effect of spherical aberration can often be slightly reduced by stopping down, it can never be completely eliminated with spherical lens designs.

Aspherical lens elements are very effective in eliminating spherical aberrations by adjusting the shape of the lens so that all light rays reach a common focal point at the film plane. The primary result is a sharp, high contrast image with virtually no flare. Canon's lens designers make additional use of aspherical elements to compensate distortion in wide-angle lenses and reduce the overall size, weight and cost of standard zoom lenses.

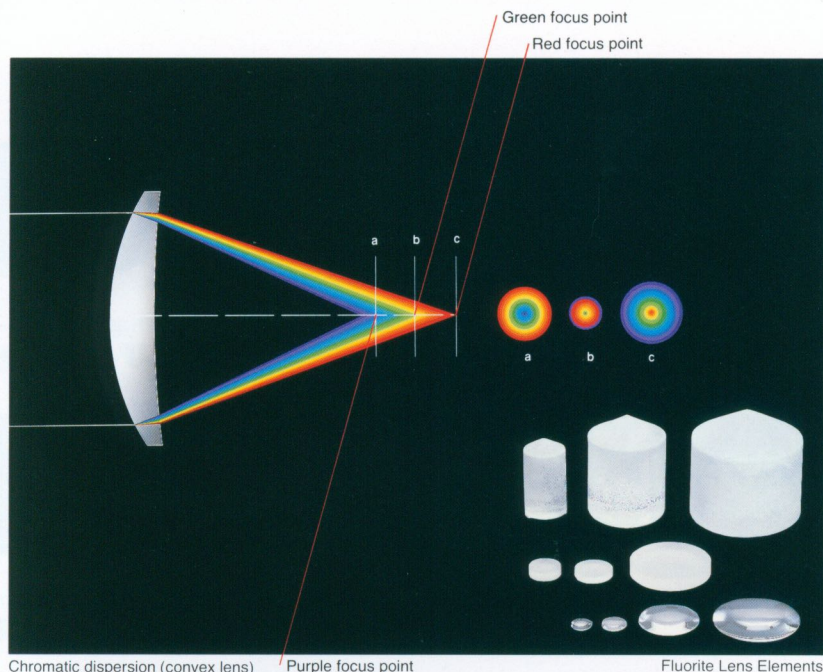
The concept of aspherical lens elements is easy to understand, but they are extremely difficult to manufacture. However, Canon has invested over 20 years of research into the development of optical designs and production technologies for manufacturing aspherical lenses in large volume at low cost. As a result, we have successfully developed original manufacturing techniques for ground and polished aspherical surfaces as well as glass-molded (GMO) aspherical lens elements, which in addition to replica method and composite aspherical elements allow our optical designers to select the most appropriate types for each lens. 13 EF lenses now use aspherical elements, placing Canon far ahead of all other lens manufacturers in the application of this beneficial technology.

Fluorite & UD Glass

Daylight passing through standard optical glass breaks up, or disperses, into a broad spectrum of color wavelengths that cannot be focused simultaneously in one plane. Short wavelengths, which we see as blue light, come into focus slightly in front of medium wavelengths (green light), which in turn come into focus slightly in front of long wavelengths (red light).



Convergence at one focal point by aspherical lens



This phenomenon is one type of chromatic aberration, and it results in blur, flare and poor color reproduction. By combining standard optical glass elements of different refractive indexes, it becomes possible to correct chromatic aberration for two wavelengths. Lenses achieving this degree of color correction are called achromatic. However, residual chromatic aberration, also called secondary spectrum, cannot be reduced to an amount less than that expressed by the equation (focal length times .002) with conventional optical glass. Although residual chromatic aberration is a relatively minor problem with short focal lengths, it becomes a serious problem with telephoto lenses unless it is corrected.

Fluorite (an artificially crystallized form of calcium fluoride developed by Canon) and UD glass (a hybrid optical glass blended with fluorides) are extremely effective in minimizing secondary spectrum because of their extremely low dispersion as well as anomalous dispersion of color wavelengths. The results of this color correction are threefold: a noticeable increase in sharpness as well as a major improvement in color accuracy and the virtual elimination of flare.

Canon's 25 years of experience in the development of professional lenses using fluorite and UD glass technology has resulted in 4 EF lenses with fluorite elements and 9 EF lenses with one or more UD glass elements, including all L-Series telephoto lenses. Please see the chart on page 38 for a complete listing.

Super Spectra Coating

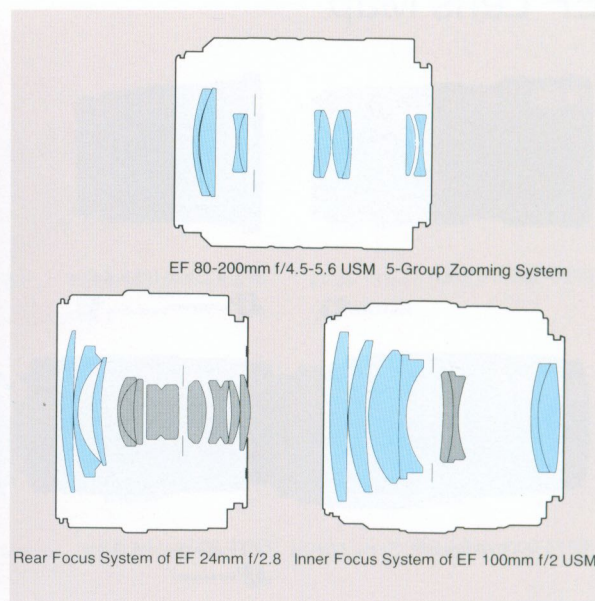
Even after all optical aberrations have been corrected as thoroughly as possible, individual optical materials have their own color transmission and reflection characteristics which affect picture quality. For example, every glass-to-air surface can theoretically reflect from 4-10% of the light entering it, resulting in unacceptable light loss with today's complex multi-element lens formulas. Also, different glass types have unique spectral transmission properties, sometimes producing unwanted and inconsistent coloration in the final image.

To overcome these problems, Canon has developed a unique multiple layer lens coating technology called Super Spectra Coating. Used with every EF lens, the Super Spectra process provides extremely efficient anti-reflection performance for maximum contrast and ghost-free imaging. Additionally, Canon-exclusive lens coating materials are skillfully selected with the aid of a proprietary computer program, which automatically compensates for variations in spectral transmission to produce perfect color balance. Years of manufacturing know-how have made it possible for Canon to guarantee totally uniform and reliable lens coating quality. Professional photographers know they can depend on Canon's Super Spectra Coating for consistently faithful color reproduction with a durable surface that's also scratch-resistant and easy to clean.

Focusing System & Zoom Lens Design

The EOS system has set new standards for AF speed, accuracy and control, but EF lens focusing systems also contribute to total system performance. In line with the concept that Canon lenses should be durable and easy to use, many EF lenses employ focusing systems which need very little energy to operate, such as inner focusing and rear focusing types. Unlike conventional manual focusing designs which often require movement of the entire optical formula, inner and rear focusing systems reduce the weight of the moving components to a minimum, thus producing vastly improved AF speed. At the same time, a great deal of attention has been paid to improving the feel of manual focusing for increased comfort, particularly with USM and L-series lenses. Additional benefits of inner and rear focusing systems include improved sharpness at close range, and superior handling because lens size doesn't change, filter threads don't rotate, and moving elements are protected inside the lens.

EF zoom lenses are also easier to use, in part because Canon's innovative multi-group optical designs drastically reduce size and weight. The 80-200mm f/4.5-5.6 USM is a particularly good example: its 5-group zooming system, originally developed by Canon, realizes sharp performance at all settings while reducing overall length and weight to just 78.5 mm/3.1 inches and 260 grams/9.1 oz. Other EF zooms offer similar compactness due to aspherical lens elements, and several advanced models including the 20-35mm f/2.8L and 80-200mm f/2.8L feature inner focusing.



EF Lens Map



EF20-35mm f/2.8L



EF20-35mm f/3.5-4.5



EF28-70mm f/3.5-4.5II



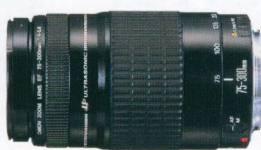
EF28-80mm f/2.8-4L



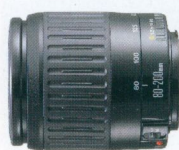
EF 28-80mm f/3.5-5.6



EF75-300mm f/4-5.6



EF75-300mm f/4-5.6



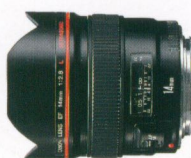
EF80-200mm f/4.5-5.6



EF80-200mm f/4.5-5.6



EF80-200mm f/2.8L



EF14mm f/2.8L



Fish-eye EF15mm f/2.8



EF20mm f/2.8



EF24mm f/2.8



EF28mm f/2.8



EF35mm f/2



EF50mm f/1.0L



EF200mm f/1.8L



EF200mm f/2.8L



TS-E24mm f/3.5L



TS-E45mm f/2.8



EF35-350mm f/3.5-5.6L



EF400mm f/2.8L



EF600mm f/4L



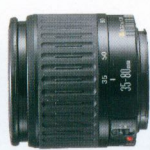
Extender EF 2X



Extender EF 1.4X



EF28-105mm f/3.5-4.5
ULTRASONIC



EF35-80mm f/4-5.6



EF35-80mm f/4-5.6
ULTRASONIC



EF35-105mm f/4.5-5.6



EF35-105mm f/4.5-5.6
ULTRASONIC



EF35-135mm f/4-5.6
ULTRASONIC



EF100-300mm f/4.5-5.6
ULTRASONIC



EF100-300mm f/5.6L



EF50mm f/2.5 Compact-Macro



Life-Size Converter EF



EF100mm f/2.8 Macro



EF50mm f/1.4
ULTRASONIC



EF50mm f/1.8 II



EF85mm f/1.2L
ULTRASONIC



EF85mm f/1.8
ULTRASONIC



EF100mm f/2
ULTRASONIC



EF135mm f/2.8 with Softfocus



TS-E90mm f/2.8



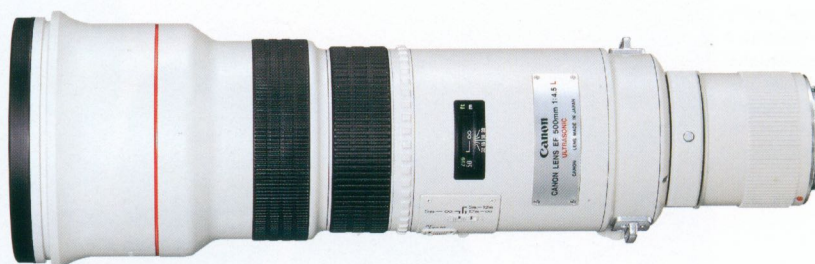
EF300mm f/2.8L
ULTRASONIC



EF300mm f/4L
ULTRASONIC



EF400mm f/5.6L
ULTRASONIC



EF500mm f/4.5L
ULTRASONIC

EF Lens Outfits

EOS Rebel II

EOS Rebel II
 EF 35-80mm f/4-5.6 USM
 EF 28mm f/2.8
 EF 50mm f/1.8II
 EF 35-105mm f/4.5-5.6 USM
 EF 75-300mm f/4-5.6 USM
 EF 80-200mm f/4.5-5.6 USM
 Speedlite 200E



EOS ELAN

EOS ELAN
 EF 28-80mm f/3.5-5.6 USM
 EF 20mm f/2.8 USM
 EF 50mm f/2.5 Compact Macro
 Life Size Converter EF
 EF 70-210mm f/3.5-4.5 USM
 EF 100-300mm f/4.5-5.6 USM
 Speedlite 300EZ
 Remote Controller RC-1
 Bar Code Reader E



EOS A2



EOS A2
 EF 24mm f/2.8
 EF 100mm f/2 USM
 EF 100-300mm f/5.6L
 EF 300mm f/4L USM
 EF 28-105 mm f/3.5-4.5
 USM
 Remote Switch 60T3
 Vertical Grip VG10

EOS 1

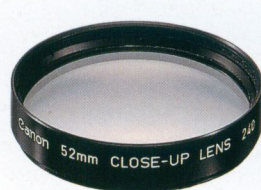


EOS-1
 Power Drive Booster E1
 EF 20-35mm f/2.8L
 EF 14mm f/2.8L USM
 EF 50mm f/1.0L USM
 EF 80-200mm f/2.8L
 EF 300mm f/2.8L USM
 EF 600mm f/4L USM
 TS-E 24mm f/3.5L
 TS-E 45mm f/2.8
 TS-E 90mm f/2.8
 Speedlite 430EZ
 Off-Camera Shoe Cord
 Remote Switch 60T3

The EF lens system is backed by a complete range of accessories designed to ensure optimum results in specific situations

Close-up Lenses

Extremely light and easy to carry in your gadget bag, close-up (CU) lenses screw into the filter rings of many EF lenses to provide a simple, inexpensive way to increase magnification by reducing subject distance. Canon manufactures three types of close-up lenses, each one designed with two optical glass elements for high performance. The 52mm CU 240 and 52mm CU 450 are designed for most EF lenses with 52mm filter threads, while the 58mm CU 500T is primarily designed for telephoto zoom lenses with 58mm filter threads.



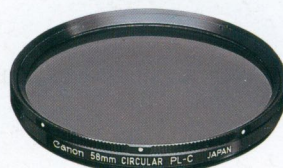
Extension Tube EF25

This close-up accessory for EF lenses is compatible with the EOS-1, EOS 10/10s, and the EOS 100/Elan. Extension Tube EF25 extends the close-focusing range of most EF lenses. Primarily beneficial for macro work, it can also be helpful with telephoto lenses. Autofocus and autoexposure are fully coupled, though manual focusing is recommended and EOS-1 spot metering should not be used.



PL-C Filters

Polarizing filters are used to reduce reflections in substances like glass, water, or shiny metal that can negatively affect image clarity and color. They can also help to bring out a blue sky. Canon's PL-C filters are circular polarizers, especially designed for the EOS system so that autofocus and light metering remain unaffected. Screw-in type PL-C filters are available in 52mm, 58mm, 72mm & 77mm sizes for most EF lenses. Additionally, Canon offers an exclusive 48mm drop-in type adjustable PL-C filter for use with all EF super telephoto lenses.



Softmat Filters

Attaching a Softmat filter creates a "soft-focus" effect by slightly blurring the image. Softmat filters are available in two strengths, No.2 producing a stronger effect than No.1. Especially popular for portraits and landscapes, Softmat filters are made in 52mm and 58mm size.



Gelatin Filter Holders

Gelatin filters are often used by professional photographers to compensate for variations in lighting quality. Fine adjustments are also often made for differences in emulsion numbers and processing laboratories. Canon offers a full range of gel holders, including both screw-in and drop-in types.



EF Lens Accessory Chart

SINGLE FOCAL LENGTH	HARD CASE	SOFT CASE	LENS HOOD	FILTER SIZE	LENS CAP
EF 14mm f/2.8L USM	LH-C13	ES-C13	Built-in	Gelatin	Exclusive
EF 15mm f/2.8 Fish-Eye	LHP-C10	ES-C9	Built-in	Gelatin	E-73
EF 20mm f/2.8 USM	LH-C13	None	EW-75	72mm	E-72
EF 24mm f/2.8	LHP-B9	ES-C9	EW-60	58mm	E-58
EF 28mm f/2.8	LHP-B9	ES-C9	EW-65	52mm	E-52
EF 35mm f/2	LHP-B9	ES-C9	EW-65	52mm	E-52
EF 50mm f/1.0L USM	LH-D12	None	ES-79	72mm	E-72
EF 50mm f/1.4 USM	LHP-C10	ES-C13	ES-71	58mm	E-58U
EF 50mm f/1.8 II	LHP-B9	ES-C9	ES-62	52mm	E-52
EF 85mm f/1.2L USM	LH-D12	None	ES-79	72mm	E-72
EF 85mm f/1.8 USM	LH-B12	ES-C13	ET-65II	58mm	E-58
EF 100mm f/2 USM	LH-B12	ES-C13	ET-65II	58mm	E-58
EF 135mm f/2.8 SF	LH-B15	ES-C13	ET-65II	52mm	E-52
EF 200mm f/1.8L USM	Exclusive	None	ET-123	48mm DI (Gelatin)	E-162
EF 200mm f/2.8L USM	LH-D18	None	Built-in	72mm	E-72
EF 300mm f/2.8L USM	Exclusive	None	ET-118	48mm DI (Gelatin)	E-137
EF 300mm f/4L USM	LH-D26	None	Built-in	77mm	E-77
EF 400mm f/2.8L USM	Exclusive	None	ET-161B	48mm DI (Gelatin)	E-180B
EF 400mm f/5.6L USM	LH-D29	None	Built-in	77mm	E-77U
EF 500mm f/4.5L USM	Exclusive	None	ET-123B	48mm DI (Gelatin)	E-130
EF 600mm f/4L USM	Exclusive	None	ET-161	48mm DI (Gelatin)	E-180
ZOOMS					
EF 20-35mm f/2.8L	LH-D13	None	EW-75	72mm	E-72
EF 20-35mm f/3.5-4.5 USM	LH-D11	None	EW-83	77mm	E-77
EF 28-80mm f/2.8-4.0L USM	LH-D16	None	EW-79	72mm	E-72
EF 28-80mm f/3.5-5.6 USM	LH-B12	ES-C13	EW-68A	58mm	E-58
EF 28-105mm f/3.5-4.5 USM	LH-C13	ES-C13	EW-63	58mm	E-58U
EF 35-80mm f/4-5.6	LH-C13	ES-C9	EW-62 w/Hood Adapter Ring	52mm	E-52
EF 35-80mm f/4-5.6 USM	LH-C13	ES-C9	EW-54	52mm	E-52
EF 35-105mm f/4.5-5.6	LH-B12	ES-C9	EW-68B	58mm	E-58
EF 35-105mm f/4.5-5.6 USM	LH-B12	ES-C9	EW-60B	58mm	E-58
EF 35-135mm f/4-5.6 USM	LH-C13	ES-C13	EW-62	58mm	E-58
EF 35-350mm f/3.5-5.6L USM	LH-D22	None	EW-78	72mm	E-72
EF 70-210mm f/3.5-4.5 USM	LH-C16	ES-C17	ET-65II	58mm	E-58
EF 75-300mm f/4-5.6	LH-C16	ES-C17	ET-65II	58mm	E-58
EF 75-300mm f/4-5.6 USM	LH-C16	ES-C17	ET-60	58mm	E-58
EF 80-200mm f/2.8L	LH-D23	None	ES-79	72mm	E-72
EF 80-200mm f/4.5-5.6	LH-C13	ES-C13	ET-62II w/Hood Adapter Ring	52mm	E-52
EF 80-200mm f/4.5-5.6 USM	LH-C13	ES-C13	ET-54	52mm	E-52
EF 100-300mm f/4.5-5.6 USM	LH-C16	ES-C17	ET-65II	58mm	E-58
EF 100-300mm f/5.6L	LH-C21	ES-C20	ET-62	58mm	E-58
MACRO					
EF 50mm f/2.5 Macro	LH-C10	ES-C9	None	52mm	E-52
EF 100mm f/2.8 Macro	LH-C16	ES-C13	None	52mm	E-52
TILT-SHIFT					
TS-E 24mm f/3.5L	LH-D14	None	EW-75B	72mm	E-72
TS-E 45mm f/2.8	LH-D14	None	EW-79B	72mm	E-72
TS-E 90mm f/2.8	LH-D14	None	ES-65II	58mm	E-58
EXTENDERS					
Extender EF 2x	LHP-B9	ES-C9	None	None	Exclusive
Extender EF 1.4x	LHP-B9	ES-C9	None	None	Exclusive
Life Size Converter EF	LH-B8	ES-C9	None	None	R-F-3

Rear Cap for EF Lenses=Lens Dust Cap E.
Body Cap for EOS Cameras, Life Size Converter EF=Camera Cover R-F-3.
EF 14mm f/2.8L USM and EF 15mm f/2.8 Fish-Eye have built-in gelatin filter holders.
DI=Drop-in
Lenses marked (USM) use one of Canon's exclusive Ultrasonic Motors for focusing.

EF Lens Technical Specifications

Single Focal Length Lenses	Actuator			Optical Construction					Full Macro	Focusing Characteristics							Float	F R
	USM	AFD	MM	G-E	New	AL	CaF2	UD		I/R	E-M	FT-M	FP	FS	SF			
EF 14mm f/2.8L USM	■			10-13	■	■				■		■				■		
EF 15mm f/2.8 FE		■		7-8	■													
EF 20mm f/2.8 USM	■			9-11	■					■		■				■	N	
EF 24mm f/2.8		■		10-10	■					■						■	N	
EF 28mm f/2.8		■		5-5	■	■											N	
EF 35mm f/2		■		5-7	■												N	
EF 50mm f/1.0L USM	■			9-11	■	2■					■			■		■	N	
EF 50mm f/1.4 USM	■			6-7	■							■					N	
EF 50mm f/1.8 II			■	5-6	■												Y	
EF 50mm f/2.5 Macro		■		8-9	■				■							■	N	
EF 85mm f/1.2L USM	■			7-8	■	■					■					■	N	
EF 85mm f/1.8 USM	■			7-9	■					■		■					N	
EF 100mm f/2 USM	■			6-8	■					■		■					N	
EF 100mm f/2.8 Macro			■	9-10	■				■							■	N	
EF 135mm f/2.8 SF		■		6-7	■	■				■					■		N	
EF 200mm f/1.8L USM	■			10-12	■			3■		■	■		■	■			N	
EF 200mm f/2.8L USM	■			7-9	■			2■		■		■		■			N	
EF 300mm f/2.8L USM	■			8-10			■	■		■	■		■	■			N	
EF 300mm f/4L USM	■			7-8	■			2■		■		■		■			N	
EF 400mm f/2.8L USM	■			9-11				2■		■	■		■	■			N	
EF 400mm f/5.6L USM	■			6-7	■			2■		■		■		■			N	
EF 500mm f/4.5L USM	■			6-7			■	■		■	■		■	■			N	
EF 600mm f/4L USM	■			8-9	■		■	2■		■	■		■	■			N	
Zoom Lenses																		
EF 20-35mm f/2.8L		■		12-15	■	■				■							N	
EF 20-35mm f/3.5-4.5 USM	■			11-12	■					■		■					N	
EF 28-80mm f/2.8-4L USM	■			11-15	■	2■			■		■						Y	
EF 28-80mm f/3.5-5.6 USM	■			9-10	■	■			■			■					Y	
EF 28-105mm f/3.5-4.5 USM	■			12-15	■				■	■		■					N	
EF 35-80mm f/4-5.6			■	8-8	■				■								Y	
EF 35-80mm f/4-5.6 USM	■			8-8	■				■								Y	
EF 35-105mm f/4.5-5.6			■	12-13	■	■			■								Y	
EF 35-105mm f/4.5-5.6 USM	■			12-13	■	■			■								Y	
EF 35-135mm f/4-5.6 USM	■			12-14	■	■			■	■		■					N	
EF 35-350mm f/3.5-5.6L USM	■			15-21	■			2■	■	■		■					N	
EF 70-210mm f/3.5-4.5 USM	■			10-14	■				■	■		■					N	
EF 75-300mm f/4-5.6			■	9-13	■				■								Y	
EF 75-300mm f/4-5.6 USM	■			9-13	■				■								Y	
EF 80-200mm f/2.8L		■		13-16	■			3■		■				■			N	
EF 80-200mm f/4.5-5.6			■	7-10	■				■								Y	
EF 80-200mm f/4.5-5.6 USM	■			7-10	■				■								Y	
EF 100-300mm f/4.5-5.6 USM	■			10-13	■				■	■		■					N	
EF 100-300mm f/5.6L		■		10-15			■	■	■					■			Y	
Tilt-Shift Lenses																		
TS-E 24mm f/3.5L		Manual		9-11	■	■						■				■	N	
TS-E 45mm f/2.8		Manual		9-10	■					■		■					N	
TS-E 90mm f/2.8		Manual		5-6	■							■					N	
Extenders																		
Extender EF 2x		NA		5-7														
Extender EF 1.4x		NA		4-5														
Life Size Converter EF		NA		3-4														

USM = Ultrasonic Motor
 G-E = Groups-Elements
 CaF2 = Fluorite Element
 I/R = Inner/Rear Focus
 FP = Focus Preset
 Float = Floating Effect

AFD = Arc Form Drive
 New = New optical design compared to FD
 UD = Ultra-low Dispersion Glass
 E-M = Electronic Manual Focusing
 FS = Focusing Range Selector
 FR = Filter Rotation

MM = Micro Motor
 AL = Aspherical Lens
 Full Macro = Full Range Macro
 FT-M = Full-Time (Mecha) Manual
 SF = Soft Focus

Figures at the left of ■ indicate the number of element.

EF Lens Specifications

Lens	Angle of View (Horizontal · Vertical · Diagonal)	No. of Diaphragm Blades	Minimum Aperture	Closest Focusing Distance	Maximum Magnification (×)	Length×Max. Diameter (mm/in)	Weight (g/oz)
EF 14mm f/2.8L USM	104° · 81° · 114°	5	22	0.25m/0.8ft	0.1	89×77/3-1/2"×3-5/16"	560/19.6
Fish-eye EF 15mm f/2.8	141°54' · 91°73' · 180°	5	22	0.2m/0.7ft	0.14	62.2×73/2-7/16"×2-7/16"	330/11.6
EF 20mm f/2.8 USM	84° · 62° · 94°	5	22	0.25m/0.8ft	0.14	70.6×77.5/2-3/4"×3-1/16"	405/14.2
EF 24mm f/2.8	74° · 53° · 84°	6	22	0.25m/0.8ft	0.16	48.5×67.5/1-7/16"×2-5/16"	270/9.5
EF 28mm f/2.8	65° · 46° · 75°	5	22	0.3m/1ft	0.13	42.5×67.4/1-11/16"×2-5/16"	185/6.5
EF 35mm f/2.0	54° · 38° · 63°	5	22	0.25m/0.8ft	0.23	42.5×67.4/1-11/16"×2-5/16"	210/7.4
EF 50mm f/1.0L USM	40° · 27° · 46°	8	16	0.6m/2ft	0.11	81.5×91.5/3-3/16"×3-9/16"	985/2.2 lbs.
EF 50mm f/1.4 USM	40° · 27° · 46°	8	22	0.45m/1.5ft	0.147	50.5×73.8/2"×2-19/16"	290/10.2
EF 50mm f/1.8II	40° · 27° · 46°	5	22	0.45m/1.5ft	0.15	41×68.2/1-5/16"×2-11/16"	130/4.6
EF 50mm f/2.5 Compact-macro	40° · 27° · 46°	6	32	0.23m/0.8ft	0.5	63×67.6/2-1/2"×2-11/16"	280/9.9
Life-size Converter EF (exclusive for EF 50mm f/2.5 Compact-macro)	—	—	—	0.24–0.42m/0.8–1.4ft	1	34.9×67.6/1-3/16"×2-11/16"	160/5.6
EF 85mm f/1.2L USM	24° · 16° · 28°30'	8	16	0.95m/3.1ft	0.11	84×91.5/3-5/16"×3-9/16"	1,025/2.3 lbs.
EF 85mm f/1.8 USM	24° · 16° · 28°30'	8	22	0.85m/2.8ft	0.13	71.5×75/2-13/16"×2-15/16"	425/14.9
EF 100mm f/2 USM	20° · 14° · 24°	8	22	0.9m/3ft	0.137	73.5×75/2-7/16"×2-19/16"	460/16.1
EF 100mm f/2.8 Macro	20° · 14° · 24°	8	32	0.31m/1ft	1	105.3×75/4-1/4"×2-15/16"	650/22.9
EF 135mm f/2.8 (with softfocus)	15° · 10° · 18°	6	32	1.3m/4.3ft	0.124	98.4×69.2/3-1/16"×2-3/4"	390/13.8
EF 200mm f/1.8L USM	10° · 7° · 12°	8	22	2.5m/8.2ft	0.09	208×130/8-3/16"×5-1/8"	3,000/6.6 lbs.
EF 200mm f/2.8L USM	10° · 7° · 12°	8	32	1.5m/4.9ft	0.16	136.2×83/5-3/16"×3-1/4"	790/27.7
EF 300mm f/2.8L USM	6°50' · 4°35' · 8°15'	8	32	3m/9.8ft	0.11	253×125/9-15/16"×4-15/16"	2,855/6.3 lbs.
EF 300mm f/4L USM	6°50' · 4°35' · 8°15'	8	32	2.5m/8.2ft	0.13	213.5×90/8-3/16"×3-9/16"	1,300/2.9 lbs.
EF 400mm f/2.8L USM	5°10' · 3°30' · 6°10'	8	32	4m/13.1ft	0.11	348×167/13-11/16"×6-9/16"	6,100/13.4 lbs.
EF 400mm f/5.6L USM	5°10' · 3°30' · 6°10'	8	32	3.5m/11.5ft	0.12	256.5×90/10-1/16"×3-1/2"	1,250/2.8 lbs.
EF 500mm f/4.5L USM	4° · 2°45' · 5°	9	32	5m/16.4ft	0.11	390×130/15-3/16"×5-1/8"	3,000/6.6 lbs.
EF 600mm f/4.0L USM	3°30' · 2°20' · 4°10'	8	32	6m/19.7ft	0.11	456×167/17-13/16"×6-9/16"	6,000/13.2 lbs.
EF 20-35mm f/2.8L	84°~54° · 62°~38° · 94°~63°	6	22	0.5m/1.6ft	0.09 (at 35mm)	79.2×89/3-1/8"×3-1/2"	570/20.1
EF 20-35mm f/3.5-4.5 USM	84°~54° · 62°~38° · 94°~63°	5	27 ^{*1}	0.34m/1.1ft	0.13 (at 35mm)	68.9×83.5/2-11/16"×3-1/4"	340/11.9
EF 28-80mm f/2.8-4L USM	65°~25° · 46°~17° · 75°~30°	8	22	0.5m/1.6ft	0.20 (at 80mm)	119.5×84/4-11/16"×3-5/16"	945/2.1 lbs.
EF 28-80mm f/3.5-5.6 USM	65°~25° · 46°~17° · 75°~30°	5	22~38 ^{*1}	0.5m/1.6ft	0.182 (at 80mm)	77.5×72/3-1/8"×2-13/16"	330/11.6
EF 28-105mm f/3.5-4.5 USM	65°~19°20' · 46°~13° · 75°~23°20'	5	22~29	0.5m/1.6ft	0.19 (at 105mm)	75×72/2-15/16"×2-13/16"	365/12.8
EF 35-80mm f/4-5.6 USM	54°~25° · 38°~17° · 63°~30°	5	22~32	0.38m/1.3ft	0.25 (at 80mm)	61×65/2-3/16"×2-9/16"	170/6
EF 35-80mm f/4-5.6	54°~25° · 38°~17° · 63°~30°	5	22~32	0.37m/1.2ft	0.25 (at 80mm)	61×68.6/2-3/16"×2-11/16"	180/6.3
EF 35-105mm f/4.5-5.6 USM	54°~19°20' · 38°~13° · 63°~23°30'	5	22~27 ^{*1}	0.85m/2.8ft	0.16 (at 105mm)	63×68/2-1/2"×2-11/16"	280/9.8
EF 35-105mm f/4.5-5.6	54°~19°20' · 38°~13° · 63°~23°30'	5	22~27 ^{*1}	0.85m/2.8ft	0.16 (at 105mm)	63.3×70.6/3-3/16"×2-13/16"	280/9.8
EF 35-135mm f/4-5.6 USM	54°~15° · 38°~10° · 63°~18°	5	22~32	0.75m/2.5ft	0.15 (at 135mm)	86.4×72/2-1/2"×2-3/4"	425/14.9
EF 35-350mm f/3.5-5.6L USM	54°~6° · 38°~4° · 63°~7°	8	22~36	0.63m/2.1ft at 35mm 0.6m/2ft at 135mm 2.2m/7.2ft at 350mm	0.25 (at 135mm)	167.4×85/6-9/16"×3-5/16"	1,350/3 lbs
EF 70-210mm f/3.5-4.5 USM	29°~9°20' · 19°30'~6°20' · 34°~11°20'	8	22~27 ^{*1}	1.2m/3.9ft	0.17 (at 210mm)	121.5×73/4-3/4"×2-7/16"	550/19.4
EF 75-300mm f/4-5.6 USM	27°~6°50' · 18°11'~4°35' · 32°11'~8°15'	7	32~45	1.5m/4.9ft	0.25 (at 300mm)	122.1×71/4-13/16"×2-13/16"	495/17.3
EF 75-300mm f/4-5.6	27°~6°50' · 18°11'~4°35' · 32°11'~8°15'	8	32~45	1.5m/4.9ft	0.25 (at 300mm)	122×73.8/4-13/16"×2-7/16"	500/17.6
EF 80-200mm f/2.8L	25°~10° · 17°~7° · 30°~12°	8	32	1.8m/5.9ft	0.13 (at 200mm)	185.7×84/7-5/16"×3-5/16"	1,330/2.9 lbs.
EF 80-200mm f/4.5-5.6 USM	25°~10° · 17°~7° · 30°~12°	5	22~27 ^{*1}	1.5m/4.9ft	0.16 (at 200mm)	78.5×69/3-1/16"×2-11/16"	260/9.1
EF 80-200mm f/4.5-5.6	25°~10° · 17°~7° · 30°~12°	5	22~27 ^{*1}	1.5m/4.9ft	0.156 (at 200mm)	77.8×71.2/3-1/16"×2-13/16"	275/9.7
EF 100-300mm f/5.6L	20°~6°50' · 14°~4°35' · 24°~8°15'	8	32	1.4m/4.6ft	0.26 (at 300mm)	166.6×75/6-1/2"×2-15/16"	695/24.5
EF 100-300mm f/4.5-5.6 USM	20°~6°50' · 14°~4°35' · 24°~8°15'	8	32~38 ^{*1}	1.5m/4.9ft	0.2 (at 300mm)	121.5×73/4-3/4"×2-7/16"	540/19
TS-E 24mm f/3.5L	74° · 53° · 84° (without tilt or shift) ^{*2}	8	22	0.3m/1ft	0.14	86.7×78/3-1/16"×3-1/16"	570/20.1
TS-E 45mm f/2.8	44° · 33° · 51° (without tilt or shift) ^{*2}	8	22	0.4m/1.3ft	0.158	90.1×81/3-9/16"×3-3/16"	645/22.8
TS-E 90mm f/2.8	22°37' · 15°11' · 27° (without tilt or shift) ^{*2}	8	32	0.5m/1.6ft	0.293	88×73.6/3-1/2"×2-7/16"	565/19.9
Extender EF 1.4X	—	—	—	—	—	27.3×67.6/1-1/16"×2-11/16"	200/7.4
Extender EF 2X	—	—	—	—	—	50.5×67.6/1-15/16"×2-11/16"	240/8.5
Extension Tube EF 25	—	—	—	—	—	27.3×67.6/1-1/16"×2-11/16"	125/4.4

Extension Tube EF 25 is compatible with most EF lenses except: EF 14mm f/2.8L USM, Fish-eye EF 15mm f/2.8, EF 20mm f/2.8 USM, EF 24mm f/2.8, TS-E 24mm f/3.5L, EF 28mm f/2.8, TS-E 45mm f/2.8, EF 50mm f/1.0L USM and the wide end of EF 20-35mm f/2.8L, EF 28-70mm f/3.5-4.5II, EF 28-80mm f/2.8-4L USM and EF 28-80mm f/3.5-5.6 USM

^{*1} Data based on EOS models with exposure display in 1/2-stop increments. It varies slightly with the EOS-1.

^{*2} Image circle = $\phi 58.6\text{mm}/\phi 2\text{-}5/16\text{'}$

Extender EF 1.4X								
When used with EF Lens	200mm f/1.8L	200mm f/2.8L	300mm f/2.8L	300mm f/4L	400mm f/2.8L	400mm f/5.6L USM	500mm f/4.5L	600mm f/4L
Focal Length, Max. Aperture	280mm f/2.5	280mm f/4	420mm f/4	420mm f/5.6	560mm f/4	560mm f/8	700mm f/6.3 ^{*1}	840mm f/5.6
Focusing	Autofocus	Autofocus	Autofocus	Autofocus	Autofocus	Manual Focus	Manual Focus	Autofocus
Max. Magnification	0.12X	0.22X	0.15X	0.18X	0.16X	0.12X	0.15X	0.15X

Extender EF 2X								
When used with EF Lens	200mm f/1.8L	200mm f/2.8L	300mm f/2.8L	300mm f/4L	400mm f/2.8L	400mm f/5.6L USM	500mm f/4.5L	600mm f/4L
Focal Length, Max. Aperture	400mm f/3.5	400mm f/5.6	600mm f/5.6	600mm f/8	800mm f/5.6	800mm f/11	1000mm f/9 ^{*1}	1200mm f/8
Focusing	Autofocus	Autofocus	Autofocus	Manual Focus	Autofocus	Manual Focus	Manual Focus	Manual Focus
Max. Magnification	0.18X	0.32X	0.22X	0.26X	0.23X	0.175X	0.22X	0.21X

●Use of the Extenders EF 1.4X and EF 2X decreases the effective aperture of the prime lens by one f/stop or 2 f/stops respectively.

●The EOS Camera viewfinder data and LCD panel display the effective aperture. There is no change necessary in normal metering procedures with EOS cameras or external exposure meters.

^{*1}Data based on EOS-1. Exposure display varies slightly with other EOS models.



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