

# Filters that can adjust light to further optimise shooting performance.

#### FILTER



#### PROTECT

#### 52mm 58mm 67mm 72mm 77mm

This neutral filter protects your valuable lens while maintaining perfect colour balance. Its Super Spectra Coating prevents harmful light reflections. It can be used for general shooting.

#### SKYLIGHT 52mm 58mm 72mm

### This light amber skylight filter is for use with both black-and-white and colour

with both black-and-white and colour film for daylight exposures on sunny days. This filter reduces the blue cast that occurs due to sky and water reflections and when photographing subjects in shadows. The filter has minimal effect on exposure and colour temperature.

#### UV

#### 52mm 58mm 72mm

This colourless filter is for use with blackand-white film, and absorbs ultraviolet light without cutting visible light. Its use is most effective on sunny days for cutting haze out of the shot. This filter has no effect on exposure and minimal effect on colour temperature.



#### ND 4X-L·8X-L 52mm 58mm 72mm

These filters are used with both blackand-white and colour film to reduce the light entering the lens to one-fourth the original level (two f/stops) and one-eighth the original level (three f/stops) respectively. These filters are invaluable for large-aperture and slow shutter-speed photography.



### Softmat No.1 & No.2 52mm 58mm

Softmat filters mildly soften the focus for flattering portraits and dreamy landscapes. These filters utilise the effect of diffraction, which occurs between light passing through the transparent part and light passing through the coated part. Use Softmat No. 1 filter for a gentle soft focus effect, and Softmat No. 2 for a stronger effect.

#### POLARIZING FILTER



#### Circular Polarizing Filter PL-C 52mm 58mm 67mm 72mm 77mm (II)

Polarizing filters enhance picture quality by blocking harmful reflected light. Use it to reduce polarized light reflections from glass and water surfaces or to improve colour saturation. Simple to use, this filter polarizes light circularly, rather than linearly, so it does not interfere with autofocus or TTL light metering.



52mm Drop-in Screw Filter

### 52mm Drop-in Screw Filter Holder

(with protect filter)

A holder for the 52mm screw-type filters available on the market. Use by replacing the filter with the protect filter provided.

Compatible with the EF 300mm f/2.8L IS USM, EF 400mm f/2.8L IS USM, EF 400mm f/4 DO IS USM, EF 500mm f/4L IS USM, EF 600mm f/4L IS USM.



Drop-in Circular Polarizing Filter PL-C 52

#### Drop-in Circular Polarizing Filter PL-C 52

A drop-in filter for use with lenses equipped with large aperture Image Stabilization in the super telephoto series. It can be rotated from the outside without removing it from the lens, enabling precise control.

Compatible with the EF 300mm f/2.8L IS USM, EF 400mm f/2.8L IS USM, EF 400mm f/4 DO IS USM, EF 500mm f/4L IS USM, EF 600mm f/4L IS USM

#### **Circular PL Filter Effects**

Without Circular PL Filter



With Circular PL Filter



Emphasises the blue of the sky





Suppresses the reflection of the glass surface





Suppresses the reflection from the surface of the leaves and the surface of the water

#### GELATIN FILTER HOLDER SYSTEM



This convenient holder system allows the use of commercially available square filters without the need for cutting. The holder attaches to the lens through an adapter that fits the filter diameter. A special hood is available for use with the system. Use with 3inch square type III and 4-inch square type IV gelatin filters. Gelatin filters can be used with most EF lenses.

\* Refer to the Specifications Chart in the back for lens compatibility and the number of hoods that can be used with each holder.

#### **GELATIN FILTER HOLDER**



#### 52mm Drop-in Gelatin Filter Holder

Up to three gelatin filters can be placed in this holder. To use, insert a cut piece of gelatin film between the holder's filter frame and pressure clip, and screw on to the lens.

Available for both 48mm-compatible and 52mm-compatible lenses.

\* Compatible lenses: EF 300mm f/2.8L IS USM, EF 400mm f/2.8L IS USM, EF 400mm f/4 DO IS USM, EF 500mm f/4L IS USM, EF 600mm f/4L IS USM.

#### **CLOSE-UP LENS**



**52mm 58mm 72mm\***<sup>1</sup> **77mm\***<sup>1</sup> These screw-in lenses are an easy way to provide enhanced close-up photography. The 250D/500D series incorporates double-element achromatic design for maximum optical performance while the 500 series features single-element construction for maximum economy. An excellent way to further improve close-up shooting skills.

\*1 For the 500D only.

The working distance from the end of the lens is 25cm for the 250D, and 50cm for the 500D-500. (At  $\infty$ ) In addition, the magnification is higher for the 250D than for the 500D-500.

#### **EXTENSION TUBE**



These close-up accessories, placed between the camera body and lens, can be used with most EF lenses, including EF-S lenses. Through eight electronic contact points, electronic function is the same as during normal photography. The magnification differs according to the lens, but for standard zoom lenses it is about 0.3 to 0.5 for the EF 12 II and 0.7 or over for the EF 25 II. By using both tubes together effectively, the choice of magnifications can be greatly extended. Manual focusing is recommended.

Extension Tube EF 25 II is not compatible with: EF 15mm f/2.8 Fisheye, EF 14mm f/2.8L USM, EF 20mm f/2.8 USM, EF 24mm f/1.4L USM, EF 16-35mm f/2.8L USM (at wide angles), EF 17-40mm f/4L USM (at wide angles), EF 24-70mm f/2.8L USM (at wide angles), EF 24-105mm f/2.8L USM (at wide angles), EF 28-300mm f/3.5-5.6 L IS USM (at wide angles), MP-E 65mm f/2.8 1-5x Macro Photo, TS-E 45mm f/2.8, EF 510-22mm t/3.5-4.5 USM (at wide angles), EF: S17-85mm t/4 5.6 IS USM (at wide angles), EF-S 18-55mm t/3.5-5.6 II USM (at wide angles), EF-S 18-55mm t/3.5-5.6 II (at wide angles), We do not recommend use of the Extension Tube EF 12 II with EF-S 10-22mm t/3.5-4.5 USM at near the tele end, EF 3 17-55mm f/2.8 IS USM at near the tele end, since it radically reduces working distance.)

Extension Tube EF 12 II is not compatible with: EF 15mm f/2.8 Fisheye, EF 14mm f/2.8L USM, MP. E65mm f/2.8 1-5x Macro Photo, EF-S 10-22mm f/3.5-4.5 USM (at wide angles), EF-S 17-55mm f/2.8 IS USM (at wide angles), EF-S 17-85mm f/4-5.6 IS USM (at wide angles).

\* Refer to the Specifications Chart for the magnification rate for each lens.

#### **TRIPOD MOUNT**



This is a separately sold black ring-type tripod mount for the EF 200mm f/2.8L II USM. It provides stable mounting and smooth rotation with excellent operability.



Tripod Mount Ring A II (W)

This is a separately sold white ringtype tripod mount for the EF 70-200mm f/4L IS USM. It provides stable mounting and promises smooth rotation with comfortable operation.

\* Can also be used for the EF 400mm f/5.6L USM and EF 70-200mm f/4L USM.



Tripod Mount Ring B (B) With EF 100mm f/2.8 Macro USM adapter

This makes it possible to quickly and easily change the setup between vertical and horizontal positions without disturbing the optical axis.

\* Can also be used without an adapter for the EF 180mm f/3.5L Macro USM and MP-E 65mm f/2.8 1-5x Macro Photo.



TS-E Lens Tripod Adapter

This tripod adapter improves the operability when using a TS-E lens. This adapter prevents the lens from striking the tripod or ball-head mounting plate when tilting or shifting.

#### Loupe

4x and 8x Loupes provide superb resolving power, and their Super Spectra Coating produces a clearer-than-ever image, enabling effective evaluation of image quality. Loupe 4x completely eliminates astigmatic aberration, allowing every detail in the 24mm x 36mm surface of a negative frame to be viewed. Loupe 8x provides a field of vision with a 24mm diameter and can accurately pick out details even when checking under extreme enlargement. When 4x and 8x are used together, the quality evaluation is unsurpassable. An easy to change hood and rubber eyecup are provided with both models.

Included: standard rubber eyecup, rubber eyecup with strap, translucent hood, light shading hood, soft case.



#### Hoods



#### Cases

There are functional, strong and well-designed cases available for each lens. The cases protect the valuable lenses while they are being moved.

#### Lens Pouch

LP811, LP814, LP1011, LP1016, LP1019, LP1022, LP1116, LP1214, LP1216, LP1219, LP1222, LP1224, LP1319

**Zipper Case** LZ1128, LZ1132, LZ1324

#### Lens Case

Lens Case 300, Lens Case 400, Lens Case 400B, Lens Case 500, Lens Case 600



Lens Pouch (LP type)



Zipper Case (LZ type)



Lens Case

### Variety in the Canon Lens World

Although Canon's precision optical technology is readily visible in Canon cameras and lenses, most people might not know that its existence actually extends much further into a wide variety of high-technology fields, supporting the steady progress of society. This section provides a brief introduction to the various fields other than conventional photography where Canon lenses are plaving an ever-expanding role.

#### Fine Optical Components Catching the Light from Distant Stars: The Subaru Observatory Optics

At an altitude of 4200m above sea level, the Japanese "Subaru" large optical-infrared telescope atop Mauna Kea on the island of Hawaii is home to Canon ultra-high performance lens technology.

With an 8.2-meter diameter, the telescope's main mirror is the largest in the world, and is equipped with an optical system that creates an image at the principal focus – an unheard-of feature in large reflecting telescopes. And it is Canon lens technology which made the principal focus correction optical system possible. Canon developed this system using the concept of "smaller and lighter" in order to solve the problem of how to fit it onto the principal focus of the telescope – a feat otherwise impossible using conventional optical design. Indeed, compared to the original design specifications, Canon succeeded in making the system 70% smaller and 50% lighter than it would have turned out otherwise.

This principal focus correction optical system possesses a field of view of 30 arc-minutes, which is overwhelmingly wider than that of other large telescopes, and it is also equipped with a mechanism that uses a shift method to deliver high-precision optical correction of atmospheric dispersion, a phenomenon that causes light entering the earth's atmosphere to turn different colours due to the varying index of refraction of each wavelength. Astronomy – observing distant celestial bodies to find out how the universe was created. Here, too, Canon's optical technology is hard at work.



Subaru's principal focus correction optical system



The Subaru Observatory

Digital Cameras and Digital Video Camcorders

# Canon High-Performance Lens Technology also at Work in the Field of Digital Imaging

Digital imaging devices are now mainstream and continue to advance by leaps and bounds in terms of image quality and operability. Recognising that lens performance significantly influences the image quality and desirability of digital cameras and video camcorders, Canon incorporates leading lens technology developed originally for EF lenses to meet the most demanding expectations of users. For example, Canon's DIGITAL IXUS series cameras, renowned for their wealth of functions and ease of use, offer superb image quality and surprisingly high zoom ratios thanks to UA aspherical lens elements boasting a super-high refractive index and UD lens elements that efficiently reduce colour aberrations. Other models such as the DIGITAL IXUS 850 IS, PowerShot G7, and PowerShot A710 IS feature a lens-shift mechanism that greatly reduces the incidence of camera-shake blur. Canon's interchangeable lenses for XL series digital video camcorders and advanced lens technology in High Definition consumer-level compact cameras like the HV10 have also received widespread acclaim.

Broadcast Equipment

#### Pursuing World Events in Real-time: High-Performance Canon TV Zoom Lenses

The spread of satellite television broadcasts and 24-hour news channels allows us to watch the real-time unfolding of world events from our living rooms. Canon lenses are used throughout the world in the cameras in these fields. The images you see from worldwide news reports and international sporting evens, and the unmanned broadcasts from various regions, are brought into your home through Canon lenses. In other words, without knowing it, people are constantly seeing images reproduced by Canon lenses every day. Canon has also developed many lenses for use with next-generation high-definition television (HDTV) cameras, thereby contributing to photography of advanced large-scale images. In September 2002, we developed a 100x zoom HDTV-compatible field lens (focal length range of 9.3mm to 930mm, f/1.7-4.7), the world's first broadcast television zoom lens with triple-digit zoom ratio\*. The lens has been used in many broadcast stations around the world.

\* As of January, 2003



PowerShot G7



DIGITAL IXUS 850 IS



HD 20x zoom lens XL 5.4-108mm L IS I attached to XL H1 digital video camcorder

•Products' photos are those for the Japanese market.



HJ22ex7.6B (HDTV compatible portable type 22xmagnification zoom lens)



HJ40x10B (HDTV compatible portable type 40xmagnification zoom lens)



DIGISUPER 100 xs (HDTV compatible 100x zoom lens)

Semiconductor Manufacturing Equipment

# Supporting the Progress of Electronic Technology: Ultra-High-Resolution Canon Lenses

CPUs, LSIs, memory, and other high-precision electronic components are essential to the operation of computers and other electronic equipment. Behind the manufacturing of such components is semiconductor exposure equipment which projects intricate electronic circuit patterns over and over onto silicon wafers during the manufacturing process for large integrated semiconductor chips. The development and manufacture of semiconductor exposure equipment requires positioning and control technologies which make it possible to move superior optics and silicon wafers at high speeds and with ultra-high precision. Canon is one of the few makers of semiconductor exposure equipment in the world, and has always contributed as a leading company in the field.

In order to meet the accelerating demand for ever larger integration of chips for higher performance electronic devices, Canon's latest semiconductor exposure equipment uses an ArF excimer laser as the light source and an ultra-high-resolution lens incorporating fluorite to correct all aberrations, achieving an ultra-high resolution of 110 nanometers (1 nanometer = 1/1,000,000mm), or the width of a circuit line.

Office Automation Equipment

#### High-Precision Optical Technology: The Heart of Laser Beam Printers

Canon holds an overwhelming world market share for laser beam printers. At the heart of the laser beam printer is the laser scanner unit. The laser is reflected by a four- to six-sided polygon mirror rotating at 10,000 to 20,000 rpm and then scanned onto a photosensitive drum.

To print an image with a resolution of about 560 dots per square millimeter, the drum scanning must be ultra-precise. Canon laser beam printers feature state-of-the-art electronics, precision optics, and manufacturing technologies. They include a polygon mirror with a finish smoother than one-fifth of the wavelength (780 nm) of the laser used, a motor which spins this mirror at high speed, and a special optical system which uses an aspherical element. Canon precision optics technology is a traditional stronghold and continues to play an important role in a variety of fields.

The photograph below shows the laser scanner unit for an economy-priced laser beam printer designed for small and home offices. Use of a special aspherical element to which plastic molded lens technology has been applied permits the printer to achieve high performance and low cost.







LBP laser scanner lens optics

Medical Equipment

#### Contributing to Human Health: Another Type of Canon Lens

Medical equipment contributes to healthy lives, and here, too, you can find Canon lens technology. A special camera called a "fundus camera" (fundus is a Latin word meaning "depths" or "back" – in this case, the back of the eyeball) is used in fundus examinations, which are useful for diagnosing a variety of ailments, by taking a picture of the retina which is located at the back of the eye. Canon developed the Non-Mydriatic Retinal Camera as well as the 60° Fundus Camera, which can record a wide field of view, years ahead of the competition, making it easier to provide many people with fundus examinations in a variety of situations, including group examinations. Canon also developed the Auto-Ref. Keratometer, which measures the eye refraction and cornea shape simultaneously for optometric and contact lens prescriptions.





Non-mydriatic Retinal Camera CR-DGi

### $EF\ LENS\ WORK\ III\$ The Eyes of EOS

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CANON INC. 30-2, Shimomaruko 3-chome, Ohta-ku, Tokyo 146-8501, Japan