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Carl Zeiss Camera Lens Division

Camera Lens News

A newsletter for all who use, buy, sell, like, report about and are interested in Carl Zeiss camera lenses.

Content

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Pete Myers on the Biogon T* 2/35 ZM

Pete Myers

In April of 2007, Carl Zeiss loaned me a Biogon T* 2/35 ZM lens for evaluation. The lens has had a good word-of-mouth reputation on the street, and I knew that its performance would be solid. But I was doubtful that it would perform as a "Master Class" prime lens. My intention was to photograph with it a bit, make an evaluation, and send the lens back with a kind note of appreciation to Carl Zeiss for allowing me to borrow it.

Instead, my first look at the evaluation negatives made from the ZM 2/35 left me startled. I immediately made my first image from those negatives (see title), and then begged Carl Zeiss to keep the lens! I simply was astounded by the performance of the lens.

Very few lenses in the world are "Master Class" lenses. I believe that the Biogon T* 2/35 ZM is a "Master Class" lens - and I would go so far as to state that it is the best 35mm focal length lens in the world.

Background

I am a fine arts photographer by profession (www.petemyers.com). Over the past fourteen years my work has been exclusive in its use of small format photography.

Rangefinder cameras have always exhibited superior performance for my work, and most of my former images have been photographed using a competitor's aspheric 35mm focal length lens and rangefinder camera system.

I say "lens" in the singular. Throughout my career I have maintained simplicity in my fieldwork by using only one lens and camera body combination at a time. For me, the most versatile focal length for my image-making is at 35mm.

The 35mm focal length lens that I have used in recent years has been considered state of the art for rangefinder lens design by the use of its aspheric lens element. It is well regarded, but many photographers have questioned the "bokeh" of the lens in having significant visible "jarring" fore and aft of the focal plane as a result of the exotic aspherical modeling.

My use of Bokeh

"Bokeh" is a Japanese term, derived from the word "boke," which means "blur." The term is used to describe the aesthetic qualities of the fore and aft lens blur away from the lens's focal plane. I use the bokeh of the lens to "paint" the image I am photographing so as to help create an illusion of three-dimensional depth in my two-dimen-sional photographic prints.

For example, if I stand at a fourty-five degree angle to the edge of a building and focus on the edge, the focal plane of the image will be the building edge - while the walls receding from the edge will gradually blur further and further out of focus as the distance increases away from the focal plane.

If the lens has "good bokeh," the graduation from the focal plane to the defocused zones will transition extremely smoothly - gradually opening up to a defocus that looks pictorial in nature. If the lens's bokeh is utilized to advantage when creating an image, the viewer's full attention will be directed right to the point of interest in the image's focal plane. As the viewer's eyes continue to explore the print, the subtle blurring effect transitioning away from the focal plane helps create a three-dimensional sensation to the image.

Bokeh helps create an illusion of depth in the photographic print. It is not something that can be added to the photograph in postproduction, but rather is a characteristic of the lens performance at the time the image is taken.

Using the "ZM 2/35"

For my work, I often photograph with the lens substantially "opened up." This usually means working at an aperture of f4. At this aperture, and with a Master Class lens, the image will have extremely high resolution in the focal plane, pronounced bokeh fore and aft of the focal plane, and yet will hold resolution deep into the corners.

Monster-Zoom 1 © 2007, Peter H. Myers (Image Gamma 1.8)

Monster-Zoom 2 © 2007, Peter H. Myers (Image Gamma 1.8)

The most obvious characteristic I saw in the negatives was decisively more resolution and micro-contrast over the competitor's lens. My assumption in photographing with the competitor's lens was that my images were bandwidth-limited by the film emulsion response. I was extremely surprised to see an obvious and substantial increase in performance with the same film emulsion when using the Biogon T* 2/35 ZM.

The second characteristic of the ZM 2/35 that appealed to me was in the simplicity of the symmetrical Biogon lens design and the 10-blade diaphragm. The lens has yielded stunning bokeh as a result of its design and careful build at the factory.

I knew from the first image that my work had gained strength in terms of the artistic element of my image making by means of the ZM 2/35. The bokeh is astonishingly "fluidic" in its smoothness - a characteristic I feel is lacking in the competitor's lens.

Take a careful look at the sample above from the image, Monster. The shown details have been enlarged by the factor 2.5 compared to the image on the title. The razor-sharp performance of the lens is apparent.

The second image sample below shows how the bokeh of the lens supports the transition of the image from near-field, to far-field, in a smooth and pictorialist manner.

The ZM 2/35 lens has become my prime photographic lens. It will not leave my camera. I thought it was important for me to stand up for this lens and reflect in writing my excitement towards its use.I applaud Carl Zeiss for creating a Master Class lens in the Biogon T* 2/35 ZM, and doing so by using conventional Gaussian design and utilizing simple spherical optics. It is a tribute to Carl Zeiss's lens designers. That company's partnership with Cosina has resulted in a superbly built lens, in a beautiful package - and at a price point that is stunning in its modesty given the performance. But in the end, I would not be using this lens if I did not find that it produced the best images in the world at the 35mm focal length - it is simply that good.

About Pete Myers:
Pete Myers is a fine arts photographer by profession, residing in Santa Fe, New Mexico, USA, with his wife, Kathy. Myers is known for his pioneering efforts in Digital Intermediate image processing for monochrome images.

The SLR Family Is Growing
Carl Zeiss SLR Lenses Now Available for K Bayonet

Good news for 35 mm SLR (Single Lens Reflex) enthusiasts. The successful SLR line of lenses is continuing to grow. Different camera mounts are making the prized optics attractive for an increasing number of SLR photographers. These premium lenses with manual focusing are now also available for the K bayonet. They are sold under the name of ZK Until now, Carl Zeiss SLR lenses were already available for the F bayonet (ZF) and the M42 screw threads (ZS).

Berlin main train station

SLR lenses from Carl Zeiss are known for their outstanding image quality and precise, long-lasting mechanical parts. This has been enabled by the growing known-how and the latest technology: for the design of its SLR lenses, Carl Zeiss draws on more than 100 years of experience in camera optics.

The ZEISS SLR lenses with the ZK bayonet contain transmission elements based on the KA standard and thus permit the utilization of shutter priority, aperture priority and programmed auto exposure on all camera models with these features.

Initially, the Distagon T* 2.8/25 and 2/35, Planar T* 1.4/50 and 1.4/85 as well as Makro-Planar T* 2/50 and 2/100 will be offered for the K bayonet. In the future, further additions to the line of SLR lenses will provide demanding photographers with an even larger selection of manually focusable fixed focal lengths for their work. Prices for these premium optics range from 500 to 1350 Euro (excl. VAT). The first lenses will be available in August.

Precise focusing is the decisive factor for optimum results in practically all areas of photography. SLR lenses from Carl Zeiss offer considerable advantages over lenses with autofocus, particularly for landscape, macro, portrait, night and architectural images. For practical use, the large rotary angle and the absolute freedom from play of the focus ring simplify exact focusing on the details important to the image, which also makes the performance of the lens visible in the resulting picture. This allows photographers to better implement their creative ideas and better accentuate details in the image as the main subject can be clearly emphasized against its surroundings.

For nighttime exposures with strong light sources in the image, in particular, the advanced stray light suppression of Carl Zeiss lenses practically prevents ghost images and the contrast in the picture is outstanding. The quality of a lens can be noticed very quickly, particularly in challenging lighting situations.

The range of use of this line of lenses can also be expanded by attaching a corresponding adapter to the digital and analog camera housings of other manufacturers. Novoflex, for example, offers high-quality adapters.

Carl Zeiss Cooperates with Logitech
Webcams with Tessar lenses for improved quality

When you think about quality optics, webcams are surely not what you think of. These products frequently use insufficient lenses and sensors. But now there is a solution: a new type of Tessar lens from Carl Zeiss is entering the world of computers and laptops. This is made possible by the new cooperation partner Logitech. The global market leader for webcams and Carl Zeiss have now agreed to an exclusive collaboration with the goal of developing products for video communications with clearly enhanced image quality.

ZEISS optics for the web: the Logitech QuickCam Pro 9000 for computers ...

The famous Tessar lenses provide the foundation for this endeavor.

... and the QuickCam Pro for notebooks.

This type of lens was developed in 1902. Tessar lenses are of compact design, high image quality and brilliance. This led to the „eagle eye of the camera“ motto.

The first Logitech webcams with eagle eye optics were presented to the press at the end of June. Both models – the Logitech QuickCam® Pro 9000 and the Logitech QuickCam Pro for notebooks – will be available in the USA and Europe in July. They feature a Tessar 3.7 mm, f2.0 autofocus lens that has been optimized for a resolution of 2 megapixels, thus enabling outstanding detail rendition and clarity.

Logitech introduced its first webcam in 1995 and has played a key role in the development of webcam technology since the beginning of video communications via the Internet. Together with Carl Zeiss, Logitech now intends to create a new standard of image quality for webcams.

Logitech still sees outstanding growth opportunities in the field of webcams. “The unbelievable boom in broadband connections has made video communications available to an increasing number of people of all ages,” says Gina Clark, Vice President of Marketing for Internet Communications at Logitech.
Carl Zeiss optics for webcams create the image quality that brings people together – be it sons and daughters proudly showing their engagement rings to their parents, grandparents seeing the first pictures drawn by their grandchildren or face-to-face communications with subsidiaries, offices and business partners.

The World's Most Powerful Lenses

A day without a cell phone, computer or laptop. Unimaginable for many. In an increasingly faster-paced world, no one wants to do without these electronic marvels in either their professional or private lives. Every user values the performance of modern electronics. However, only a few are aware that highly precise optics are required for the manufacture of these electronic gadgets.

Today, state-of-the-art controllers and memory modules based on semiconductors can be found in virtually all areas of daily life: in industrial operations and hospitals, in transportation vehicles and private households. The semiconductor industry manufactures millions of microchips annually for these modules. The heart of the wafer steppers used, or semiconductor production machines, is an enormous lens with practically unimaginable power.

It is virtually unknown that the ZEISS Planar camera lens is the forefather of these special optics. Carl Zeiss employee Paul Rudolf (1858 – 1935) developed this lens in 1896. The result was a lens featuring uniformly high definition throughout the entire image field. This property is still the hallmark of Planar lenses, and it is precisely this property that is so vital to semiconductor manufacture where a plane surface must be uniformly exposed by the lens.

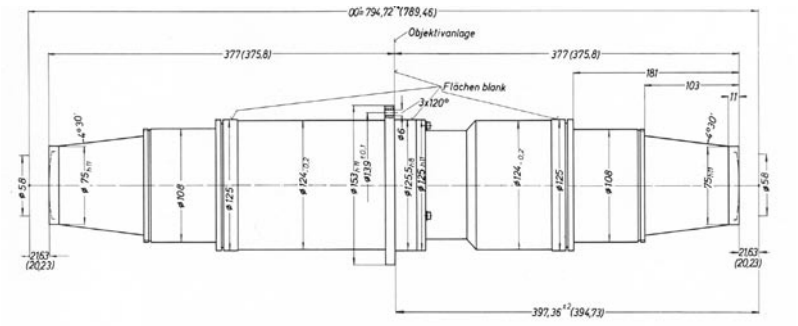
Starlith 1700

Enhanced for industrial applications

An important milestone in the historical development of the Planar lenses occurred in the 1960s when they were redesigned for industrial applications. The name of mathematician and optical designer Erhard Glatzel (1925 – 2002) is now inseparably associated with this event. In 1969, he also developed the S-Planar line of lenses for microlithography – the process used to produce integrated circuits (now, entire microchips).

Although derived from camera lenses and very similar to them in the beginning, the lenses now used in microlithography are becoming increasingly different from their predecessors. In the 1970s, a good dozen single lens elements with a total weight of 50 kg were assembled to form a lithography lens. This led to the development of new S-Planar lenses in rapid succession. During the 1970s, S-Planar lenses worked with light in the 400 - 600 nm spectral range (10-9 m, billionth of a meter). This enabled structural widths of approximately 2 micrometers. A human hair is 30 times as thick. The structures became increasingly smaller within only a few years. The 5/0.42 S-Planar lens from 1982 enabled structures smaller than 0.5 micrometers for the first time.

This development adhered to Moore's Law. Gordon Moore, a co-founder of Intel, predicted in the mid 1960s that the performance of microchips will double about every two years. Back then it was impossible for him to know that the „law" later named after him would dictate the rate of development of semiconductor chips into the next century.



S-Planar Construction Design

Current technology level

Now, almost 30 years later, semiconductor lenses are specified for light with a wavelength of 258 or 193 nm, for example. The numerical apertures of immersion lenses for chip fabrication, Starlith i, reach values above 1. This results in ever finer semiconductor structures that enable microchips with greater storage capacity and computing speed. The performance of the Starlith 1700i lithography lens is outstanding. It is the first system of its kind with a combination of lens elements and mirror systems. It features a numerical aperture of 1.2 and enables resolution down to 45 nanometers. This resolution makes it possible to store the content of 7.4 bibles on a surface no larger than one square millimeter.

A new field of business emerges

The first semiconductor lenses were developed as "special lenses" in what was then the department for camera lenses. Business was so successful that the later Semiconductor Technology Business Group was founded. This later became Carl Zeiss SMT AG. For many years, Carl Zeiss has maintained a strategic partnership with Holland-based ASML, the world's largest provider of lithography systems. This cooperation holds a market share of more than 50 percent. This means that more than half of the microchips produced around the globe are created with a lens from Carl Zeiss. The chances are good that the monitor you are looking at right now works with such microchips.

The world in which the precision optics for microlithography are created

Aerial photograph of SMT AG

is a world of records: the lens elements are cemented in the mounting rings with an accuracy of 0.5 arc seconds, or the equivalent of 1 meter variance over 400 kilometers of altitude (International Space Station). A one meter tall lens must not be tipped more than 6 micrometers out of its longitudinal axis; at this degree of accuracy, the tip of the 165 meter tall cathedral in Ulm would be exactly 1 millimeter outside its longitudinal axis.

Publisher's Imprint
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Exhibitions and Events 2007

Carl Zeiss Participation

07. – 09. September	Photo-Festival Tideland Nationalpark	Husum/Germany
14. - 16. September	Focus on Nature	Radolfzell am Bodensee/ Germany
20. – 21. September	2. Fränkische AV Media Days	Stein bei Nürnberg/ Deutschland
23. - 25. September	PMA Canada	Ottawa/Kanada
26. - 29. September	Shanghai Imaging Expo/ Interphoto 2007	Shanghai/China
18. - 20. October	PhotoPlus Expo	New York City/USA