

No. 4

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Carl Zeiss to Unveil 3 Dozen New Lenses

during "photokina '98"

This autumn Carl Zeiss will introduce an astounding number of new lenses for many areas of photography. You name it: still or motion, amateur or professional, 35 mm or medium format, analog or digital, silver halide or electronic, originating or processing, taking or projection – the new introductions will make their presence known in every area.

The premiere is scheduled for photokina '98 in Cologne, which will take place September 16.–21. No one interested in high performance optics can afford to miss this event!

Famous Photographer

Francis Giacobetti in Paradise

World famous French photographer and designer Francis Giacobetti, renowned for his fashion and beauty photography and recently very successful with his images of irises and hands of the geniuses of the world, visited the Carl Zeiss Oberkochen factory in June 1998.

Francis who uses a Contax RTS III and Carl Zeiss Makro-Planar 2,8/100 on his ongoing iris project and a Hasselblad 553 ELX with several Carl Zeiss lenses for portraits, fashion, and beauty assignments, highly enjoyed being in the place where Carl Zeiss camera lenses are being conceived, designed and manufactured: "All of my life I was fascinated with everything that has to do with glass. *Here I am in Paradise!*"

New People And New Activities

At Carl Zeiss's Camera Lens Division

Dr. Ulrich Morlock joined the division as of 1. May. He is responsible for all operations involving the flow of materials within the camera lens division. This includes production, all aspects of logistics from purchasing to shipping, and – last but not least – service.

Born in 1959, Dr. Ulrich Morlock joined Carl Zeiss in 1990 as a newly graduated physicist, and worked as a scientist in the holographical production of precision gratings for spectroscopy. Inclined towards more complex and business-oriented work he took over special project tasks in logistics and gained considerable expertise in the field. Recognized today as an expert in this field, Dr. Morlock now gives lectures on logistics to business administrators both withing Carl Zeiss and outside the firm.

Vario Sonnar 3,5–4,5/28–70 mm

A New Zoom Lens for Contax SLR

A new Zoom lens for the Contax SLR system has appeared on the scene. It accompanies the new Contax Aria, the new step into the Contax SLR program, which replaces the Contax 167 MT, but is meant to be used with any Contax SLR. Both the new camera and the new zoom lens are designed to be very compact and affordable while offering the high quality which demanding users expect from Contax cameras and Carl Zeiss lenses. Carl Zeiss lens designers developed the new Vario-Sonnar with the travelling photographer in mind, who wants all the advantages of an SLR viewfinder but would not be willing to carry the bulk and weight of e.g. a Contax RTS III camera and the proven Carl Zeiss Vario-Sonnar 28–85 mm.

From market research Carl Zeiss is aware that a lower focal length of 28 mm is a must in a traveller's all-round zoom, and high performance on Carl Zeiss level is mandatory to achieve pleasingly detailed images of landscapes, cities, architecture and the like. So, special attention went into excellent correction of all aberrations.

The optical design calls for 9 elements in 8 groups. Anomalous dispersion glass and a molded glass aspheric lens are used to control chromatic aberrations

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(some other lens manufacturers would have named the lens "Apo" just because of it) and reduce distortion while maintaining compactness. The result is a lens weighing 325 g with an overall length of 63.5 mm, with a large M 67 filter thread to accept e. g. high quality circular polarizer filters without mechanical vignetting. For the first time in a Contax lens, separate rings control focus (down to 0.5 meters plus makro-function to frame subjects one third of life-size) and focal length. For a spec sheet with MTF graphs please contact us (see publishers imprint).

Over 8 Million Carl Zeiss Lenses

Manufactured To Date

Production of Carl Zeiss camera lenses is speeding up further. New products on the market equipped with optics from Carl Zeiss is one reason for this, rising demand for existing products is the other. Currently more than 200,000 new Carl Zeiss lenses enter the market every year and Carl Zeiss is working hard to generate an increase to more than 300,000 by the year 2000.

The serial-number 8,000,000 was attributed to a Carl Zeiss Planar T* 1,2/55 mm jubilee lens for Contax 35 mm SLR cameras, manufactured in a limited edition series of 1,000 units during November and December 1996. Recent Vario-Sonnar 1,8/4,4 – 52,8 mm lenses for the Sony Digital Video Cassette Recorder PC 10 carry numbers beginning with 8,200,000.

Sony Digital Video Cassette Recorder PC 10 with Carl Zeiss Vario-Sonnar 1,8/4,4 – 52,8 mm

Sony market research has it that 70% of all buyers of the Digital Video Cassette Recorder PC 10 purchased it because it comes with a Carl Zeiss lens. With a questionnaire distributed with every PC 10 Sony asked all buyers to disclose their reasons for purchasing the PC 10

and tick answers from a multiple choice of reasons why they purchased the camera. By far the most important criterion was "because it has a Carl Zeiss lens", ticked by 70% of the respondents. On no. 2 followed "because it is digital" chosen by 50%.

For several weeks in a row the Sony Digital Video Cassette Recorder PC 10 with Carl Zeiss Vario-Sonnar was the best selling camcorder in the Japanese domestic market.

Meanwhile Sony's PC 10 has successfully found its way into television commercial production in Europe, where this compact device excels in dramatic takes for automobile and tire commercials. In the USA several TV stations have found the news material gathered with the PC 10 completely satisfactory for broadcasting.

New CZ World Record in Optical Metrology

Ernst Abbe, the genius behind the success of Carl Zeiss was well aware of the fact: You can't manufacture more precisely than you can measure. As a matter of fact your metrology has to be at least five times more accurate than the manufacturing precision you try to achieve.

Carl Zeiss has always strived for excellence in metrology. And this has paid off time and again. A recent example: Carl Zeiss's superiority in ultra-high-performance Starlith® lenses for micro-chip production (by the way the most successful Carl Zeiss division today, a spin-off from the camera lens division) could not have been achieved without proprietary metrology to ensure ultra-precise optical surfaces.

Recently Carl Zeiss has taken another step towards future lens element surfaces of even higher smoothness: A new measuring system has been developed at Carl Zeiss that can detect

deviations from the ideal surfaces smaller than half the diameter of a single atom! This is the world record in the industry today.

Admittedly the new system will not be implemented in the manufacturing of camera lenses, as long as their price has to remain clearly below the price region of Carl Zeiss Starlith® micro-chip lenses, which sell for approximately 1.5 million DM per unit.

10 Steps to Success in High Performance Photography

The following article is meant to be a ten step guide to images that are significantly sharper than average ones. Images that exploit the enormous optical potential of Carl Zeiss lenses, their ability to produce photos with phenomenal sharpness and impressive information content.

This is the ten step method used by Carl Zeiss applications specialists to shoot the high resolution demo photos which challenge today's sharpest color films to their very limit.

- 1 Select a high performance optic! If you don't, all subsequent steps are a waste of your time and effort.
- 2 Attach your high performance optic to an adequate camera. To be adequate, the camera needs to have an all metal die cast housing, strong and large bottom plate with tripod thread preferably located under the center of gravity. If the camera has a detachable winder or motor attached underneath, you may want to take it off for better rigidity of the whole system. Do not simply assume that your camera is in perfect condition, rather have it double checked for correct back focal flange distance, and – in case your camera is an SLR – for perfect alignment of mirror and focusing screen in relation to the film plane.
- 3 Place your camera and optic in a very rigid way onto a very stiff tripod and head, preferably with virtually no



elasticity. Photo tripods usually prove insufficient for real high performance photography.

You may wish to use a carbon fibre television tripod instead, with a fluid head featuring adjustable damping devices. Balance your camera properly on the fluid head, adjust the counterbalance dial for the weight of your camera and lens, choose high values on the damping system dials (e. g. 5 to 7 on a Sachtler "Video 18 Plus"), and do not fasten the brakes! This is the special trick with fluid heads: Use their damping systems, originally invented to enable the cameraman to perform smooth pans, to absorb equipment vibrations triggered by the shutter, instead. These vibrations could otherwise reduce or even destroy the optical resolution of fine structures.)

④ Select a high performance film like Kodak Ektar 25 Professional or Kodak Royal Gold 25 (color negative), or Kodak Technical Pan (black & white) or Fuji-chrome Velvia (color transparency) and make sure it will be processed adequately. Films like the ones just mentioned offer a resolving power of 150 line pairs per millimeter and beyond.

⑤ Use the split field indicator for focusing. Make sure the aperture is wide open. You may want to use accessories – small telescopes like the Carl Zeiss MiniQuick® 5 x 10 T* with 5x magnification are pretty handy for this task – to enlarge the center of your viewfinder image during focusing.

⑥ Prefer f-stop settings in the region of 5.6 to 8. (To close the aperture down further will cost too much resolution due to the unavoidable phenomenon of diffraction (At f/8, diffraction will limit the resolution to 200 line pairs per millimeter or below, at f/5.6 the diffraction limit is at 280 line pairs per millimeter; see CLN 2). To open up the aperture more may cost too much resolution due to thermal expansion effects, film curvature due to

moisture and temperature (The Real Time Vacuum System in the Contax RTS III does away with this problem). Mechanical tolerances due to wear and tear, rough handling and other influences like residual warpage of the focusing screen also recommend to open up no wider than 5.6 or 8.)

⑦ Use the mirror pre-release feature, if your camera has it (Every camera that has it, needs it. The opposite is not true! Not every camera that comes without, can achieve high resolution photos.)

⑧ Wrap your hands around the camera to absorb most of the vibrations that occur upon opening the focal plane shutter (you may not need a cable release at all). If your camera system gives you the freedom to use either focal plane or central shutter – like the Hasselblad 200-series cameras or the discontinued Rolleiflex SL 66, when combined with central shutter lenses – prefer the central shutter because of its inherently lower vibration levels.

⑨ Take written notes of all parameters and settings (like: "Carl Zeiss Distagon 28 mm # 7.500.123, @ f/8, Contax RX # 10.531 @ 1/125, in Av-mode, Mar 3, 1998, focusing done with split field indicator for license plate in center of image, damping on fluid head: 7 on vertical, 5 on horizontal, license plate on truck 350 feet away, character line width on license plate: 3/8 inch.")

⑩ Select a lab that is very quality conscious about equipment and materials and uses high performance optics in printers and enlargers. The best optics ever used in a lab for enlarging are Carl Zeiss S-Orthoplanar 4/60 and Carl Zeiss S-Biogon 5,6/40 for prints from 35 mm originals and Carl Zeiss S-Orthoplanar 5,6/105 for prints from medium format originals. These optics were originally developed for the extreme resolution demands of microdocumentation (beyond

150 line pairs per millimeter) and are, at magnifications of 10 x to 70 x, far superior to even the very best enlarging lenses currently available.

Understanding and using these techniques will surely give you a better appreciation of the extremely high limits which Carl Zeiss has spent so much effort designing and manufacturing into their lenses. More than ever before, extremely careful and deliberate technique must be used to obtain the results of which the equipment is capable.

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All information contained in CLN is given to the best of our knowledge at the time of go to press. Technical specifications of Carl Zeiss products are subject to change.

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