

The Wonderful World of the Industrial Super Nikkor Lenses

RED BOOK NIKKOR

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Akiyama is Japanese who lives in Japan. He is a famous worldwide collector of Ultra-Micro-Nikkor lenses and other High Resolution Super Nikkors. Please visit his cool website. You can see varieties of Extreme High Resolution Nikkor Lenses such as Ultra-Micro-Nikkor, REPRO Nikkor, CRT Nikkor, MACRO Nikkor, APO Nikkor, EL Nikkor, APO EL Nikkor, COM Nikkor, Printing Nikkor and other industrial use Super Nikkor Lenses.

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The Galaxy of Optical Gems, Industrial Super Nikkor Lenses

Ultra Micro Nikkor Grand History

Dawn of a Micro Photograph System

The appearance of the Micro Nikkor 5cm F3.5 was in October 1956. It was designed for 35mm microfilm system. This lens's designer was Mr. Zenji Wakimoto. He was called the expert of a lens design. Although 1950s was the time which was using the microfilm camera imported from the United States, it had a serious problem for resolution to read the Japanese characters. As we know, Japanese "Kanji" characters are more complicated than alphabet. It is easily understandable the Japanese lens needs more resolution than alphabet lens. But what is microfilm system? Microfilm system was used to save the documents. Before the personal computer was come out, printing processing was analog method. When the company saved the document, it was bulky if it was still paper. Therefore, all documents

were taken a picture and saved in the small photograph. Of course, to save into the microfilm, each company orders that to professional people. And that size was not only one size also there were many formats such as postcard size, small window opened, and so on. For all problems, the Nippon Kogaku made the lenses which were called Micro Nikkor 5cm F3.5 to demand the high resolution to produce the microfilm photography in Japan. Although other camera company named MACRO for macro lenses, this is the reason only Nikon named macro lens "MICRO".

The Requirement Exceeded the Limit

In the early 1960s in Tokyo, Otemachi. Japanese electric-appliance makers and famous printing presses had the inquiry to Nippon Kogaku the Micro Nikkor. Nippon Kogaku didn't understand why they call about this lens at this time. Many companies needed the high-resolution lens which can make the circuit photograph (photograph mask) to make a silicone transistor circuits. The normal lens which was commonly used at many printing presses had not enough resolution to make those circuit photographs. Later, Nippon Kogaku understood their requirement, so they began to tackle the high-resolution lens only for photograph mask manufactures. The requirement of specifications was the high resolution exceeding the limit of a conventional optical lens.

Accomplished Extreme High-Resolution Lens: 105mm F2.8

August 1962. It was hot and very humid day in Japan. Kenichi Horie succeeded in single-handed Pacific Ocean sailing crossing by small yacht. He was the first person in the world. It was greatly reported to the Japanese newspaper. Many shopping malls had exhibition about his adventure. I took some pictures with the Kenichi Horie's yacht "MERMAID" at this exhibition. I build a plastic model of "MERMAID" also. Anyway, development of this high-resolution lens was so difficult, because no one has ever made. The challenge to the unprecedented success. The passion to high resolution lens. Examination and the selection of optical glass material. The glass dissolution required the artisan skill. It required special precision for lens polish. Final step, create the lens curved surface, was not able to do by machine. Hand to hand, Nippon Kogaku technicians did ceaseless quest for extreme well made. Is this craftsman work or a superhuman feat? The optical performance was measured with the precision measuring machine (this was also developed this time).

Engineer continued the delicate adjustment. Finally, the accepted certificate was signed with ink. It was stored the heavy wooden box of varnish coating with velvet interior. The development of extreme high-resolution lens 105mm F2.8 was completed. The extreme high-resolution lens was named Ultra-Micro-Nikkor. It was very hot and humid day in Japan.

It was Tokyo Olympic game in 1964 that the word "Ultra" got used to Japanese people. By the gymnastics, super difficulty play was called "Ultra C". On the TV broadcast, the announcer screamed loudly with Ultra C. The TV program called "Ultra Q" broadcasted too. Those days, many kids watched the TV Program "Ultra Man". The sense of the engineer, who named Ultra-Micro-Nikkor, was wonderful. Difficulties in a development this lens were unknown from the related reference from Nikon. It was not appeared. I highly recommend to Nikon Corp. to leave this development story. If Ultra-Micro-Nikkor did not exist, it is not too much to say we cannot see those days computer development.

Dr. Koana and Nippon Kogaku

In Japan, there is a scientist who led Nippon Kogaku by the specifications of requirement beyond other company's lens specifications. His name is Doctor Zyun Koana. Dr. Koana as science professor at University of Tokyo. If you are familiar with darkroom development, you know Dr. Koana's name even if you don't know who he is, He is the person who invent the Koana style magnifying glass. It is earlier to explain to call; he is the first doctor of the "Asahi Camera", Japanese shutterbug magazine. This is more familiar. Dr. Koana demanded the lens which has over 1,000 lines/mm resolution

as for the super-micro photographs to Nippon Kogaku. So, Nippon Kogaku tries to make the super high-resolution lens, which is based on the 40X object lens (may be the APO PLAN base) of a microscope. The Nippon Kogaku developed this lens as standard magnification is 1/25X under e-line monochromatic lighting (wavelength 546.1 nm). This lens was the first lens which has multi coating. Even they are working an active part as the basis of industry; engineer and industrial machine's name cannot be popular. Under such circumstances, the time is coming to introduce those lenses.

Lady Chatterley's Lover

November 1964. Even Tokyo Olympic game was over, many people were still in the dream. Finally, a legendary high-end lens, Ultra-Micro-Nikkor development of 29.5mm F1.2 lens was successfully done. The MONSTER LENS which has 1,260 lines/mm resolution was appeared. This lens has nine elements in six groups. Distortion is -1.3%. It weighs only 800g. Dr. Koana did the reduction copy of all the English novel pages into a small postage stamp size using this lens. It is not several pages. It has 330 pages in the text. This was stored for 12.5mm square. Furthermore, he enlarges from this small size pictures to the original size by using the same lens. Dr. Koana enjoyed this lens well. The book he try to make it small was "Lady Chatterley's Lover". He has the humor sense, because if he chooses Shakespeare, the story is not exciting. He made this minimum and reads under a microscope. This is the great hobby, isn't it?



All Star of the Ultra-Micro-Nikkor Lenses

Fluorite Legend, Ultra-Micro-Nikkor 29.5mm F1.2

This lens is well known to the lens enthusiast by using fluorite. Since it is that time, it is considered not using an artificial fluorite but using natural fluorite. Which means to make this lens was very difficult, because of to find natural fluorite. I have no idea Nippon Kogaku collect then all over the world or not. Today, the manufacture technology of making artificial fluorite

is established. However, can you imagine how it was difficult to find all natural, not artificial fluorite?

The Day When the Lens Was Awarded

According to the record, Ultra-Micro-Nikkor 29.5mm F1.2 was elected as the major 1964 ten new product prize of Nikkan-Kogyo-Shinbun (Daily Industrial Newspaper) selection. Moreover, the Minister of Science and Technology Agency is awarded to this lens's development person in April 1965. I'm so glad to hear about that happy news, because as I told before, in the most case, the engineer's life ends in obscurity.

The lens designer, Zenji Wakimoto was conferred a Medal with Purple Ribbon by His Majesty the Emperor for his work in developing the Ultra-Micro-Nikkor lenses. Mr. Wakimoto passed away in October 1996. I also want to say "It's very good! I understand your great work." to the person who did dissolved glass, ground the lens, finished the highest accuracy, did product inspection, and other all related people.

Timeline of the Ultra-Micro Nikkor

From the company history "The History of the Nikon Seventy-Five Years, And the Collection of Data", I focus on to the Ultra-Micro-Nikkor lenses. Of course, this book doesn't have all products. It seems that the most popular product is listed. It makes sense to check for the age whether the lens was named "Ultra-Micro-Nikkor" and appearing into the world. In addition, this book cannot be re-issued. So, to find this book was so hard. Even I found some typo, I just copy and paste, because I want to show you the originals. For example, you will be surprised if you find "300mm F1.4" lens won't you. However, this is not typo. This is not miss spell. This is the truth. This lens was really existed in our world.

Ultra-Micro-Nikkor Making History (Source: Nikon 75 years, 1993)

1962	105mm F2.8
1964	29.5mm F1.2
1965	28mm F1.8, 55mm F2, 125mm F2.8, 135mm F4
1967	28mm F1.8h, 55mm F2h
1969	30mm F1.2h, 50mm F1.8e, 50mm F1.8h, 225mm F1.0g, 300mm F1.4g
1970	165mm F4



Big Tiny Little Boy MACRO Nikkor 19mm F2.8