

PERFORMANCE OF THE ZEISS SFL 8X40 IN COMPARISON WITH SOME OTHER 40 MM BINOCULARS

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INTRODUCTION.

If one investigates the history of binoculars it is striking that binoculars with objective diameters of 40 mm are less abundant as binoculars with 42 mm objective diameter. It was therefore kind of a surprise that Zeiss recently introduced its new series of 40 mm SFL binoculars. Another surprise is that Zeiss designed the binoculars but outsourced the production of them to a Japanese company (it can all be read on the binoculars although you have to look carefully since the prints telling the story do not jump into your eyes). During a visit to Zeiss in Oberkochen I asked the Zeiss designer why Zeiss had chosen for outsourcing the production of the SFL to Japan. The answer was: to keep the price lower.

A quick glance into the history of 40 mm binoculars shows that especially Leica has produced several models starting around 1963 with the 8x40 and 10x40 Trinovids with Uppendahl roof prisms. The company stopped making the 40 mm Trinovids in 1986.

Surprisingly Leica recently introduced the Trinovids again with models 7x35, 8x40 and 10x40 but now supplied with Schmidt-Pechan roof prisms. They were quickly baptised on internet as the Leica Retrovids. In the past the Russian company Foton also has made a 10x40 roof prism binocular, which has some resemblance with the Leica Trinovid 10x40. I also found some 40 mm binoculars with porro prisms for example Asahi Pentax 8x40, Voigtländer 8x40 and the Optolyth Osiris 8x40 and of course the well-known Swarovski Habicht 10x40 porro's. I have listed some in table 1, which also contains the main characteristics of these binoculars.



Foto from left to right: Zeiss SFL 8x40, Swarovski Habicht 10x40W (2022), Swarovski Habicht 10x40W (1984), Leica Ednar 10x40, Hartmann Compact Weitwinkel 8x40.

- ZEISS SFL 8X40

The Zeiss SFL 8x40 is user friendly shaped with the two barrels almost separated, see the pictures. The tubes are 5 cm in diameter, which can feel less comfortable for smaller hands, see for comparison the Swarovski CL 8x30 with tube diameters of 4 cm. The focussing wheel is positioned so that it fits directly under the middle finger of the hands, a user friendly construction, but that can of course differ depending on the size of the hands. The body shape and the position of the focussing mechanisms has some resemblance with the Swarovski CL 8x30, which we investigated before but to supply the reader with the data we found from this binocular, they are listed also in the table. The focussing wheel of the SFL turns smoothly with a pleasant low turning resistance.

To correct for differences in eye strength a diopter correction ring is present under the righthand eyepiece. The ring turns with some resistance, so the position does not change unwanted, a well proven and often used construction in binoculars in the past 100 years.

The SFL has a very attractive close focus value of 1,4 m, the shortest of the binoculars tested here.

Optically the binocular scores very good: almost sharp to the edge of the field and with good color reproduction. Under some circumstances a tiny blue line is present around the edge of the image and image sharpness slightly decreases at the very edge of the field.

The high level of optical performance and handling comfort makes the Zeiss SFL 8x40 for its price of 1830 euros an attractive binocular.

- SWAROVSKI CL 8X30

I have chosen to investigate this binocular, since it is with its tube diameter of 4 cm perhaps a more convenient choice for smaller hands. Moreover it is with its weight of 467 grams one of the lightest binoculars investigated here. The 4 cm thick tubes allow a very comfortable grip certainly of importance for users with smaller hands. The focussing wheel turns smoothly and its position is placed so that it fits directly under one of the hands fingers. The images are sharp until the very edge of the FOV and color reproduction is perfect as judged by eye. It is confirmed by the measured transmission spectra, which are flat over a broad wavelength range. Correction for differences in eye strength are done by pushing and turning a small wheel in the focussing wheel. It works well, but you must know how to use it.

Swarovski has supplied this binocular with its special construction for the carrying strap, it works well, but you have to get used to it.

- LEICA EDNAR 10X40.

The Dutch army has used the Leica Ednar 6x42 porro a lot. It is a good binocular, but the mechanical construction of the metal bridge was often too weak for military use and as a consequence many broken samples can be found in military magazines. The heavy Leica Ednar 10 x40 investigated here is a roof prism binocular with a body covered with a strong rubber armor. It looks less vulnerable/much stronger than its lighter 6x42 porro sister. Optically the Ednar 10x40 performs well although it is not up to modern standards as far as light gathering power is concerned and color reproduction is not perfect: whites become slightly yellow. Individual eyepiece focussing makes it less useful for birders and nature watchers. The Ednar is not suited for users with spectacles because of its small eyerelief. Individual eyepiece focussing is precise but not very handy for fast focussing changes.

- SWAROVSKI HABICHT 10X40 W

The Swarovski Habicht 10x40W investigated here is the rubber armoured version, there is also a version available with leather black armor. The rubber armored version investigated here is a real “veteran” in the Swarovski production line. It was and is popular by a certain group of users (mostly hunters I think) all these years. Swarovski has constantly improved the performance of this binocular as one can also see by comparing the observed properties of this binocular produced in 1984 and the one produced in 2022, see the data in the added table. The sample from 1984 we have investigated is still in very good shape, but the color reproduction is certainly not perfect: the overall image has a yellow bias, and this is confirmed by the measured transmission spectrum.

The 2022 10x40W Habicht on the other hand has a very bright image quality with perfect color reproduction, see also the measured transmission spectrum.

-OPTOLYTH OSIRIS 8X40

The Optolyth Osiris line was a sort of “budget” line in the Optolyth production programme. It can not compete with modern binoculars with porro prisms. However, just for fun I decided to mention its data in this report, so readers who are interested can judge by themselves how well this binocular performs.

CONCLUSIONS. The new Zeiss SFL 8x40 is very good binocular for a reasonable attractive price.

TABLE 1

ZEISS SFL 8X40 AND SOME OTHER BINOCULARS

Binocular	1 Zeiss SFL 8X40	2 Hartmann Compact Weitwinkel 8x40	3 Swarovski Habicht 10x40W (1984)	4 Swarovski Habicht 10x40W (2022)	5 Leica Ednar 10x40	6 Swarovski CL 8X30	7 Optolyth Osiris 8x40
Weight	644 g	785 g	776 g	744 g	764 g	467 g	417 g
Prism type	Schmidt- Pechan roof	Porro	Porro	Porro	Schmidt- Pechan roof	Schmidt- Pechan roof	Porro
Objective diameter (mm)	40,0 mm	39,4 mm	40,6 mm	39,95 mm	39,7 mm	30,3 mm	39,8 mm
Exit pupil (mm)	5,0 mm	4,2 mm	3,6 mm	4,0 mm	3,7 mm	3,7 mm	5 mm
Eyerelief (mm)	17 mm	11 mm	11 mm	16 mm	11 mm	17 mm	13 mm
Rev. closefocus to infinity CF=centralfocus IF=indivual eyepiece focus	1,3 (CF)	1 (CF)	1,3 (CF)	1,3 (CF)	0,8 (IF)	1,5 (CF)	1,2 (CF)
Close focus (m)	1,4 m	13 m	4,3 m	3,7 m	9 m	2,75 m	9 m
FOV (m/1000m)	140m/1000m	142m/1000m	108m/1000m	108m/1000m	114m/1000m	132m/1000m	100m/1000m
Transmission 500 nm 550 nm	89,2% 91,9%	74,3% 79%	79,9% 87,1%	94,6% 94,6%	61% 64,5%	92% 92,5%	67,6% 69,9%
Color reproduction	Very good	Tiny bit yellow	Yellow	Perfect	Almost neutral	Very good	Good
Price (euros)	1830,-	Used 200-300	Used 500 euros	1290 New (rubber armor)	Used 200-400 euro	1260 ,-	Used 50-100 euro

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