

The Barr & Stroud Series 5 8x 42 ED

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Product Name: Barr & Stroud Series 5 8 x 42 ED

Country of Manufacture: China

Field of View: 142m@ 1000m (8.14 angular degrees)

Eye Relief: 17.2mm

Close focus: 2m advertised(1.79m measured)

Exit Pupil: 5.25mm

Chassis: rubber armoured magnesium

Coatings: fully multi-coated, BAK 4 phase corrected roof prisms, water repelling coatings on outer lenses.

Dioptre range: +/- 4

Waterproof: Yes (1.5m for 3 minutes)

ED Glass: Yes

Nitrogen Purged: Yes

Weight: 710g

Tripod Attachable: Yes

Dimensions H/W: 15.4/12.6cm

Warranty: 10 years

Accessories: Hard clamshell case, lens cleaning cloth, rain guard and objective lens covers, quality padded neck strap, generic instruction sheet, warranty card.

Retail Price: £220-£250UK



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There's something in a name!

Just three years ago, I knew absolutely nothing about modern binoculars, having no experience with all the technological developments that had occurred in the last few decades. But that changed when a fellow villager recommended a relatively inexpensive instrument, the Barr & Stroud Sahara 8 x 42. My first look through that binocular blew me away, as I was

completely astonished at how good the image was through a binocular that cost substantially less than £100. It was bright and sharp and contrasty, with a wide, well-corrected field of view. Since then, I've sampled many more Barr & Stroud binoculars and can vouch for their excellent quality and value for money. Indeed, I would go so far as to say that I'm now a dyed-in-the-wool fanboy of Barr & Stroud (B & S) binos, because I believe they produce a variety of quality products and clearly know something about how a good binocular ought to perform.

Three years later, I finally got around to test driving their most sophisticated binocular range, the Series 5 ED, which comes in two models, a 10 x 42 and 8 x 42. These models are not to be confused with the other Series 5 binos from B & S, which offer the same two instruments as non-ED versions. In a previous blog I test drove the Series 5 8 x 42 non-ED version, where I reported that it offered excellent bang for buck. But I became very curious about the ED version of the same series, so decided to order the instrument up for review and to compare it critically with its non-ED counterpart. The reader will note that the instrument was purchased with my own money; I have no affiliations with any binocular company, and that the results I show here are entirely my own.

First Impressions



The Barr & Stroud Series 5 8 x 42 ED astride its hard clamshell case.

I purchased the B & S Series 5 8x 42 ED from the very reputable Rother Valley Optics, Sheffield, who were offering the instrument at a great price. I secured it for £209 plus another £15 to get expedited delivery of the instrument to me within 24 hours of purchase. So £224 all in. I left a message with the sales assistant to check the eyecups on the binocular prior to dispatching, as I have developed quite a disliking for eye cups that are too loose or collapse downward after being fully extended, with just a little pressure. They honoured that request!

The binocular was well packaged inside its fetching white box. The first thing I noted was that it was precisely the same box as the non-ED Series 5, only that the company put an additional ED sticker on it. While that may alarm some customers, I thought it to be an ingenious cost-

cutting move. Indeed, if I were marketing these binoculars, I would have done exactly the same thing lol! Everything was packed away securely, including the padded logoed neck strap, a lens cleaning cloth, rubber ocular and objective covers, generic instruction sheet, an excellent zip-lockable hard clamshell case, and warranty card. If you want to see those accessories and the box they came in, have a look at the link above to the non-ED version.

Removing the binocular from the inside the case, the first thing I checked was the eye cups, and to my great relief they were firm and locked rigidly in place when fully extended. Why fret over eye cups? Well, the non-ED Series 5 had a slightly loose left eye cup, which did niggle me a little, so seeing that both were more or less equally tensioned put a smile on my face. Good job!

Ergonomics

Just like the non-ED Series 5 8 x42, the instrument felt very solid in my medium sized hands. The magnesium alloy chassis and not overly thick green rubber overcoat helps keep the weight down. Indeed, I measured its weight at 710g, as opposed to just 690g for its non-ED counterpart. That made sense to me as ED glass elements tend to be a little heavier than regular crown and flint glass.



The machined metal twist up eye cups are easy to adjust and click rigidly into place.

As mentioned above, the rubber-clad metal eye cups twist up with two intermediary positions. They were easy to extend and held their positions securely, with very little wiggle room. Eye relief is a very generous 17.2mm, large enough to see nearly the entire field with my eyeglasses on.

The centrally placed focus wheel is large, very nicely tensioned and very smooth to operate, both clockwise and anti-clockwise. If anything, I thought it was a shade over tight compared to its non-ED counterpart but to be fair, all focusers need a bit of breaking in time to get them moving as smoothly as possible. That said, I have spoken before about the care B & S put into

their focusers. They are much better tuned than the majority of other binoculars I've tested in this price range. Taking just over two full revolutions to go from one extreme of travel to the other, I would describe it as being intermediate between the super-fast focusers birders seek after, and the slower focusers hunters prefer.



The Series 5 ED has a really smooth and easy to use focus wheel that is head and shoulders above those found on many other models in the same price range.

The metal dioptre ring is located under the right ocular, and while not lockable, is quite stiff and easy to adjust. Moreover, it stays in position very well.

The Series 5 ED has a silky smooth and easy to use focus wheel that is head and shoulders above those found on many other models in the same price range. The objective lenses are

very deeply recessed, just like the non-ED incarnation, protecting the glass from stray light, dust and rain.



The B & S Series 5 ED has nicely recessed objective lenses.

Handling this binocular is a joy. While not the grippiest substrate I've encountered, the green rubber armouring provides a very adequate level of friction with your hands. There are no thumb indentations on the belly of this binocular but I've never really found them to be that advantageous to the overall ergonomics compared with several other binoculars that did have them. The rubber armouring is a little thinner than other models, such as the Nikon Prostaff and Monarch 5 & 7 lines, but this does cut down the weight of the binocular, which makes transporting it that little bit easier.

The Series 5 ED binocular I received did not have the ED labelling under the left ocular, as I was expecting from the images I'd seen on a few retailers' websites. Instead, this model presents the ED moniker on the focus wheel, which might possibly indicate that this instrument was manufactured more recently.

I've always been more than satisfied with the padded neck strap accompanying the more expensive B & S binoculars. It's very comfortable to wear 'round your neck without much in the way of chafing after a long walk on level ground on a hot summer day. The hard clam shell case is another great accessory. It zips closed and there is a little storage area inside to carry a lens cloth or a sachet of silica gel desiccant to keep the interior as dry as possible when not in active use.

Examining the exit pupils on the binocular showed nice circular openings, with a nice rim of dark around them.



Left eye exit pupil.



Right eye exit pupil.

All in all, I was very pleased with the overall fit and feel of the Series 5 ED 8 x 42. Elegant and understated, it has very nice mechanics that should hold up in field use for a long time to come.

Optical Assessment



One of the control binoculars I used to assess the optical quality of the Barr & Stroud Series 5 8x 42 ED. Seen at right is the Leica Ultravid BR 8x 20.

The first thing I checked was how well a bright beam of light behaved as it was directed into the binocular from across a room. I simply set my phone torch on to its brightest setting, focused the binocular, and examined the image. To be honest, I was expecting excellent results based on what I had previously experienced with both the non-ED Series 5 and their Savannah range of instruments. As a control, I was using my Leica Ultravid. The results were very much in keeping with my previous tests on the better Barr & Stroud binoculars, that is, the instrument was exceptionally clean and sharp, with only the faintest hint of internal reflections, no diffraction spikes and no diffused light, indicative of the use of very high-quality optical components. Indeed, it was that little bit better than the Leica Ultravid in this regard. Leica are well known for their excellent suppression of internal reflections so obtaining an even better result from the Series 5 ED 8 x 42 was music to my ears.

Taking the binocular outside in the open air on a warm and bright August afternoon, I was immediately impressed with the image from the Series 5 ED. The binocular served up a beautiful, sharp and high contrast image. Reds and oranges really pop in this glass and over all I would describe the colour tone as slightly warm. The focusing was smooth and responsive, with the 8x providing a very stable image. The sweet spot is very large but begins to gradually

deteriorate as one moves the target to the edge of the field. I also noted a small drop in image brightness at the edge of the field. Nothing dramatic here but certainly noticeable if you look for it. There is some field curvature as one moves off axis – considerably stronger than in the Leica Ultravid – as evidenced by looking at a telephone pole about 30 yards distant, but I don't find this aberration to be especially annoying in field use. I measured the close focus to be an impressive 1.79m, making it a very good choice for those who enjoy using their binoculars as long-range microscopes.

Comparing the Series 5 ED with the Leica Ultravid, I judged the former to be clearly superior to the latter in suppressing glare, as evidenced by examining a brightly backlit scene near sunset. Furthermore, the Series 5 exhibited far superior control of veiling glare than the Leica pocket glass. This was easy to ascertain by homing in on the leaves of a tree lying immediately below a mid-afternoon Sun (local time 3.30pm in late August). The entire bottom half of the Leica image was washed out to a much greater degree than the Leica. I attribute this result to the very shallow recession of Ultravid's objective lenses making it more prone to picking up stray light. This test wasn't even close, the Series 5 ED was far superior.



Comparing the Series 5 ED to the Nikon Monarch HG 8 x 30(left).

In another test, I compared the glare suppressing capabilities of the B & S Series 5 8 x 42 ED to a top-tier 8 x 30 binocular, the Nikon Monarch HG, costing four times the price. My target was a hilltop about 800 yards distant with the Sun immediately above it. The Monarch HG

binocular handles glare exceptionally well, better than the Series 5 ED in fact. But it was only marginally inferior. I consider that an excellent result for a binocular that evidently has no portfolio.

I also conducted some night-time viewing with both the B & S Series 5 8 x 42 ED and the Leica Ultravid 8 x 20, testing to see how they would perform on a bright yellow sodium streetlight placed in the centre of the field at a distance of 50 yards. Both binoculars, as expected, delivered excellent results here. The images in both binoculars were clean and crisp, with no annoying internal reflections, no diffused light around the lamp, and zero evidence of diffraction spikes.



Alexander, enjoying the views through the B & S Series 5 8 x 42 ED .

On another afternoon, I enlisted the help of my math student, Alexander, to compare and contrast the image in both the Leica Ultravid and Series 5 ED. After a few minutes of going back and forth between the two instruments, he said that they were equally sharp with better colours coming through in the Series 5. I thought the Leica was that bit sharper overall though. I asked him to see if the sharpness fell off as he moved his target (a tree trunk in this case) to the edge of the field in both binoculars. He noted, as I did, that the Leica served up a tack sharp image all across the field but that the extreme edges of the Series 5 field was less sharp. He also noted that the 8 x 42 ED was easier to handle than the 8 x 20. Finally, he mentioned that the background was in sharper focus in the Leica than the Series 5. He was, of course, referring to depth of focus here; the little Leica has exceptional focus depth, but the Series 5 is still very decent in this regard.

Tests for Chromatic Aberration; Comparing the ED to the non-ED Series 5



The Barr & Stroud Series 5 8 x 42(left) and the 8 x 42 ED(right).

On one overcast August afternoon, I hooked up with a former student of mine, Joe, who was keen to do a blind A/B test comparing the B & S Series 5 8 x 42 ED and the otherwise identical non-ED version. Before we carried out the tests, I contacted OVL asking them a simple question: would I see a difference between the ED and non-ED Series 5? They got back to me within minutes with this response:

“Most people wouldn’t notice much difference between the ED and non-ED versions unless they know what to look for. Standard optical performance is similar, you just don’t get the pronounced colour fringing with the ED glass, when viewing an object with a high contrasting background.”

That was a good answer, and that’s precisely what we found.

Superficially, both images were good and sharp with excellent contrast, but when we viewed a telephone pole against a bright overcast sky, the fringing was more apparent at the edges of our target in the non-ED binocular compared with its ED counterpart. Testing on another target – some leaves at the top of a Horse Chestnut tree some 40 yards in the distance, I was only able to detect chromatic aberration off axis in the non-ED, in the outer half of the field, but Joe claimed to see that little bit more towards the centre of the image. After looking through both binoculars for several minutes, we conducted a blind test – Joe handed me one binocular while closing my eyes, being only allowed to open them again once the instrument was deployed in front of my face. Then we switched roles, with Joe conducting the optical tests. The results were unanimous; we could see a small but perceptible improvement in the image using the ED binocular. In another test, Joe felt the intricate details of flowers were slightly crisper and had richer colours than the non-ED version, but I found it harder to verify this.

What about light transmission?

The previous evening, I emerged with both binoculars – the ED and non-ED Series 5 – at sunset and conducted a low light test, looking into the shadows of a bush located some 100 yards away as the light continued to fail. Try as I could to see a difference, it simply was too small to notice. Again, I would maybe give the nod to the ED binocular, but only just!

The Virtues of Testing Binoculars Under the Stars

I’ve noticed that many binocular reviews published in birding magazines seem a tad over generic. Indeed, in many cases one could simply remove the name of one binocular and replace it with another, and hardly anyone would be the wiser. And in some reviews I’ve come across, the sense I get is that the writing is so contrived as to be almost fictional. Quite often, reviewers report of ‘peripheral softness’ in the outer part of the field or some such. Others report that the field is either too restrictive or is wide and expansive. And still others report some drop off in illumination towards the edge of the field.

The trouble with this kind of reporting is that it is rather too subjective. Many birders might be interested to learn that one can get a much better handle on the extent of those properties simply by looking at the Moon in the sky or a bright star field. For example, one can use a pair of stars of known angular separation to accurately measure the field of view of any binocular. Off axis aberrations can also be more accurately ascertained by moving a bright star from the centre to the edge of the field and noting how and where the stellar images begin to morph significantly. Furthermore, moving the Moon to the outer edge of the field will easily show reduced brightness if indeed, it exists at all. What's more, the Moon can also be used to more easily differentiate non-ED from ED binoculars at the same power by looking at the extent of fringing observed on the lunar limb.

So how did the Series 5 8 x 42 ED fare under the starry heaven? How did it look on the Moon?

Ad Astra

After a very overcast day on August 31, the clouds dispersed very late in the evening, leaving a clear and tranquil sky to verify the many properties of a binocular that can be ascertained simply by examining the images of bright stars in a binocular field. Assisting me this evening was Joe, who kindly gave me about 90 minutes of his time testing out a number of binoculars in comparison to the Barr & Stroud Series 5 8 x 42 ED. Starting shortly after midnight, we continued our tests on various objects until about 1:30 am, September 1.

The first thing we verified was the size of the field. As stated before, if you happen to know the angular separation of two bright stars in the sky, you can use that information to measure field size. As usual, I chose the two stars in the Ploughshare asterism in Ursa Major. We were just about able to fit Phecda and Merak into the field of view of the binocular. These are separated by $70' 54''$ or 7.9 angular degrees, so I'm confident that the stated field size (8.1 angular degrees) for this binocular is fairly accurate. As an additional control, we employed the Nikon Monarch HG 8 x 30, with an advertised field of view of 8.3 angular degrees, to show that it too was able to frame these two stars but with a little more room to spare.

Next, we tested how well corrected the field was in both the Barr & Stroud Series 5 ED and the Nikon Monarch HG 8 x 30. Focusing on bright yellow Capella, now fairly low down in the northeast, we took our turns moving the star from the centre to the edge of the fields in both binoculars, making mental notes of the experience and later committing those notes to pen and paper. Here's what we found: first off, the Nikon Monarch HG, despite having a field flattener built-in, did not have an entirely flat field. Furthermore, its lateral flatness was noticeably superior to its vertical flatness. To make that even clearer, side-to-side flatness was

much better than up-and-down flatness. Furthermore, we observed the same phenomenon in several other binoculars including the Barr & Stroud Series 5 non-ED, the Celestron Trailseeker 8 x 32, a Carson VP 10 x 42 and a Leica Ultravid 8 x 20.

This asymmetry is a very real phenomenon that is unreported in the binocular literature!

The little Leica Ultravid 8 x 20 exhibited by far the flattest, best corrected field of all the instruments tested.

The next best corrected field was the Nikon Monarch HG 8 x 30, where stars began to morph in shape at about 75 per cent out from the centre, getting gradually worse as it reached the field stop. The Barr & Stroud Series 5s were pretty much identical, with distortions occurring from about 70 per cent out from the centre. What is more, apart from the extreme top and bottom of the binocular field, both Barr & Stroud Series 5s offered up acceptably small stellar images over pretty much the rest of the field, making them excellent star gazing binoculars.

We were both quite shocked to see the Nikon Monarch HG behave in this way, as our daylight tests didn't show this field curvature nearly as acutely as the star tests did. All we could say is that the Monarch HG had a flatter field than the Barr & Stroud Series 5s.

By 1.00 am local time, a last quarter Moon was rising over the hills to the northeast and we were able to test for chromatic aberration in both the Series 5 ED and non-ED binoculars. We both detected a small amount of secondary spectrum on the lunar limb in the non-ED which was all but absent in the ED, in full accordance with our expectations.

Finally, by moving the Moon laterally off axis, from the centre to the edges of the field, we noted how the lunar maria darkened a little near the field stop showing clear evidence of edge of field illumination drop off. That said, the same phenomenon was noted with the Monarch HG and the Leica Ultravid, although to a lesser extent.

Overall Conclusions



A binocular that will get the job done!

The Barr & Stroud Series 5 8 x 42 ED proved to be an improvement over the Series 5 non-ED. It does have better colour correction, slightly better contrast and slightly crisper images. Having tested many binoculars in the same price range as the Series 5 ED, I believe it has noticeably superior glare control, which keeps contrast levels high, even in fairly harsh lighting conditions. While certainly not in the same league as an alpha binocular, it does offer up very satisfying optics and ergonomics punching well above its modest price tag. I would unhesitatingly recommend this binocular as a very capable general use binocular that will sate the demands of the majority of birders, nature watchers and stargazers alike. It just does many things well and has a very wide and well corrected field.

I gifted the Series 5 8 x 42 non-ED to Joe for his enthusiastic services and will be keeping the ED version for my own personal use. He is delighted with it and I'm confident that Joe, who returns to the United States on September 3, will make maximal use of it.

Thanks for reading.

Dr Neil English is the author of several hundred magazine articles on visual astronomy, astrophotography, telescope testing, origin science and birdwatching, which have appeared on both sides of the Atlantic. He is also the author of seven books including his lauded, *Chronicling the Golden Age of Astronomy*, detailing the lives and work of several dozen astronomers over four centuries of telescopic history.