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# Orion 30 x 125mm Binoculars

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## Introduction

Big Binos, who can honestly say they've never wished for a pair of giant binoculars with which to sweep the night skies with? Who hasn't used a small pair of binoculars and attempted to visualize how much better the views would be? Well, if you are one of these people then you've come to the right review - read on and see if you too wish to take the plunge

Before purchasing your first pair of giant binoculars, you need to make a critical decision - are you interested in object placement (wide-field) or object viewing (narrow field)? Such a question will determine which model of binoculars you will buy as you trade off real field of view as you increase the magnification. For example, the Orion 125mms give a real field of view of 3 degrees for the 20x model and 1.6 degrees for the 30x model. I for one, view giant binoculars as a telescope that allows me to use both eyes - so I'm willing to trade off FOV for higher magnification. Consequently, I choose the 30x model since the majority of objects will benefit from the additional 10x of magnification (it should be noted that there are several exceptions to this).

## Background and competition

The Orion 30 x 125 giant binoculars are the 3rd largest production binoculars one can buy in the U.S. First place goes to the monstrous Fujinon 150mm binoculars while 2nd place goes to the Miyauchi 141mm fluorites. Price wise the Fujinon 150 achromats come in at \$7500 for binos and mount (\$11,000 for ED glass version) while the Miyauchi 141 fluorites with mount is in the \$10,000+ range. At these prices the Orions (which come with a very nice mount) seem like a bargain at \$3300

The Orion's are actually Vixen of Japan which Orion imports and puts their own label on. Orion is the sole US importer of Vixen products and details on these binos can be found on Orions website [www.orientel.com](http://www.orientel.com) or the Vixen homepage [http://www.vixen.co.jp/english/index\\_e.htm](http://www.vixen.co.jp/english/index_e.htm). If you surf over to the Vixen website you will find something a bit unusual (but helpful). In bold headline above the opening picture of the 125mm binocular section you will find the caption "Most suitable for observation of comets, nebula and star clusters". In other words Vixen is telling prospective buyers upfront - these binoculars were designed for deep sky not for bright objects - scale your expectations accordingly. More on this later.

## Binoculars and Mount

Orion sells the Vixen 125mm binoculars as a package with the Vixen alt-az fork mount. The unit is delivered in 3 boxes: binoculars, fork arms, and tripod. The tripod is the genuine Great Polaris tripod sold with the Great Polaris mount. To the top of the tripod you attach the 1/2 pier extension with fork arms with a single threaded bolt (same way you attach the GP EQ head). The fork arms can be tilted to any desired angle by loosening a small bolt in the center of the fork arms. This allows you to view at the zenith without the end of the binoculars being stopped by the 1/2 pier extension itself.



Permanently attached to each side of the binoculars are small circular knobs encased in teflon. The knobs are attached at the balance point of the binoculars, which allows the binoculars to be moved in the up-down direction without requiring any counterweights. The binoculars then attach to the fork arms by sliding these 2 teflon coated knobs into the clamshell assembly at the top of each fork arm. A single

threaded screw with a convenient hand knob tightens the clamshell down and also acts as the tension adjustment in the up/down direction.

The side to side direction tension is handled by a large circular adjustment "wheel" at the base of the  $\frac{1}{2}$  pier. The entire system of tension and correct balancing of the binoculars works extremely well. Movement of the binos in any direction is very smooth and once you stop on a target the binos stay put.

The binoculars themselves weigh in at 24 lbs and have a convenient carrying handle permanently attached to the middle part of the binoculars. The fit and finish on these binos are quite good - the catalog picture doesn't do them justice. The 30 x 125s are a pastel yellow color and efforts were made to blend in machine screws and other parts. The bottom part of the middle structure that holds the tubes together has a built in GP dovetail plate - simply attach to a GP with a skysensor unit and instant goto binoculars.



The eyepieces have full interpupillary adjustment. The entire turret that each eyepiece sits in moves in a circular manner allowing the user to adjust the distance between the eyepieces to fit their comfort zone. Each turret has a texturized rubber ring running along the outside that gives the user a gripping surface when adjusting the interpupillary distance.

The eyepieces themselves are described as "4 group 6 element fully multi-coated". They look identical to the Vixen Lanthenums I've owned and with the stated 20mm eye relief, I would bet dollars to donuts they are. Each eyepiece sits in its own helical focuser, which also has texturized rubber. The focuser is smooth and doesn't incur any jitters when focusing on objects. The eyecups fold down allowing eyeglasses owners or folks who have the uncanny knack of fogging up eyepieces (such as myself) to view in comfort.

Vixen describes the optics as "two air-spaced components, multi-coated". Orion reports they are "multi-coated, fully baffled 625mm F/5 optical system". Since neither site claims to be using either ED or

Fluorite lenses (which I'm sure they would if they did) then what we basically have is a pair of F/5 achromats with 45 deg prisms. Hmmmmm how bad will the secondary color be? Read on . .

## **2 nights with the Giants**

The first night out was clear, cold and lit by a ½ moon. Not in the least bit daunted I quickly setup the binoculars, desk and adjustable chair and was ready for a full night of giant binocular observing. I found I could easily carry the entire binocular setup outside (total wieght is around 38 lbs) and realized that I had now found my new "quick setup" scope.

Deciding that I had to know the full extent of the secondary color issue first, I pointed them at the moon and took my first look. Big bloobby blurrrrrr - ooops need to focus the eyepieces. Focusing is accomplished by closing one eye, turning the helical focuser until it reaches focus, the performing the same steps in reverse for the other eye. You really only need to do this once with minor adjustments throughout your viewing session.

Wham - huge 3 dimensional moon. The emotional impact of such a sight can not be conveyed adaquately with words. This is a double "oh wow!" and I sat mesmerized for a full 5 minutes drinking in all the lunar features that are available at 30x. I havn't started my lunar observing program yet, but when I do, this will be the perfect scope to begin with When I began to breathe normally again, I searched for the dreaded secondary color. What I found was rather subtle and pleasantly surprising - a pencil thin green line around the edge of the moon. That's it. No purple headlights, no green fairie fire, no red plumes, simply a pencil green thin line around the outside of the moon. Okay, this I can live with.

The moon is really only part of the story when checking for color correction. Point sources of bright light can be even tougher and away I went to Capella, a mag 1sh star in Auriga. Here things became a little messier. Capella showed as a green/red star with spikes showing on each side, one red one green. I attempted to focus the star down to a point but it refused to settle down. Once you thought you had it it would push a spike out the opposite side. It was obvious the color correction was not as good on point sources of light and also obvious that something was wrong.

Here I began some focusing exercises, first looking at Capella through one tube with one eye and then the other and reversing to the other tube. It quickly became apparent that something was not quite right in the right binocular tube. The left tube could almost get down to a point of light but the right one could not. When you used both eyes you would end up with a bright star with small spikes or flares.

Being unsure of whether Capella was a binary system (and not having my books anywhere handy) I slewed over to Alnilam, the middle star in the belt of Orion. I half-remembered that this star is not a binary and repeated the focusing trick from above - same results. Drat - a call to Orion's tech department seemed in order in the morning. I completed the above exercise on two other stars before clouds moved in.

## **Orion Tech call #1**

A quick call to the Orion tech support department yielded a discussion around whether I was shooting

over a house or parking lot, what stars was I testing on, was my seeing eyedog getting in the way, etc. Once satisfied that I wasn't overlooking the obvious, the tech support folks requested that I perform a star test (at 30x??) and call them back with the results. I agreed and waited for the next clear night.

## Night #2

Several nights later I was setup with my books, Messier binocular log, flashlight and field desk. Tonight I was not only going to perform the star test but (gasp) get a little observing in. Back to Alnilam (oddly enough this was the star Orion tech support suggested I star test on) and I slowly racked the focuser in and out on the right tube. What I saw was the star expanded it's rings off to the right - pretty much what you would see if your sct or newt was out of collimation. I attempted the same thing with the left tube and found that while it expanded to the right also, it wasn't as severe. <whew> relieved - this can only mean the optics were out of alignment. Perhaps they could talk me through it on the phone in the morning.

Okay on to observing and the Orion Nebula. Illuminated by a 1/2 moon I swung over to M42 and focused. Very nicccceee. A big fluffy cloud of nebulosity which (once again) took on a 3 dimensional look that you only get by observing with both eyes. I quickly opened my Messier observing log and began to sketch and take notes. I stayed on Orion for roughly 20 minutes, relaxed, sketching and taking in the view. One of the advantages of using both eyes is the reduction of eye strain that sets in when you observe an objects for a moderate amount of time. On any other scope I would have taken a break or swung to another object - this never occurred to me while viewing m42 though the binos.

No color was noted (either in the nebula or the stars composing the nebula) so the color correction found the night before was restricted to very bright stars or the planets. Hence the warning Vixen gave on it's web page was quite truthful, even if they didn't give the reason. Unfortunately, the misaligned optics were "spiking" the stars slightly in the trapezium confounding my efforts to see any more then 4 stars. I think if the optics were aligned then 5 in the trapezium would be quite easy.

I went on to sketch the nebulosity and center star in M43. Very faint but visible nebulosity. I can only assume that without the glare of the moon and a dark sky, m43 would appear much more visible.

Up to M78. In the past I've had some problems in finding m78 using scopes larger then the binoculars from my home site. I find it is rather easy to sweep right over this mag 8 reflection nebula. Tonight I swept the binoculars several degrees up from Orion's belt and found it right away - no hunting, no sweeping, no uncertainty. I was shocked, it shouldn't be this easy. It was here that I began to suspect that using giant binoculars has other advantages other then sheer enjoyment and avoidance of eye strain. It appears that the detection of faint, extended objects is easier with two eyes rather then one when sweeping the binoculars across the sky. Further testing will need to be done but I strongly suspect that the brain is hardwired to detect faint contrast changes with both eyes and that performing this with one eye "cripples" our ability to detect such faint differences in the background. I'm more then curious to see if this bears out against a like sized instrument and if so how much aperture is needed to compensate for using one eye?

A very positive note to end the evening on . . . .

## **Tech Call #2**

A call to the tech support of Orion confirmed my suspicions from the evening before - the binos needed to have the optics aligned. My idea of doing this myself was dashed when the support person informed me that the objectives lacked any adjustment screws. Additionally, the problem could reside in the alignment of the prisms. The binos would need to be returned (under warranty) for a lab diagnosis and fix.

Right here is the achilles heel of not only this giant binocular, but other brands as well. Unlike dobs, scts and most refractors, if the optical components come out of alignment, the owner can do nothing but ship them back for repair. This is an aggravating situation as the owner will lose their binos for several weeks. If you are outside the warranty period then shipping and labor costs are on you.

## **Conclusion (for now)**

I'm happy with the Orion 125mm binoculars and foresee a great deal of observing time being spent behind them if the optical alignment problems are fixed properly . As I stated in the introduction, there is simply no viewing experience like using a pair of giant binoculars as the 3 dimensional view can simply not be described adequately with words. The eventual optical performance result will have to wait until I get them back from Orion. As soon as I do I'll post the results here. Sooo stay tuned.

## **Addendum**

After 3 weeks of waiting I called Orion to see how the repair work was coming along. I was quickly passed to a manager who informed me that the binoculars needed to be sent to the manufacturer for collimation - 8 weeks more. I was stunned. I quickly brought up the fact that when I purchased the 30 x 125s I specifically asked whether they would need to be sent elsewhere for repair or collimation and was informed that both tasks would be performed in house. This was one of the most critical variables in my purchasing decision. The manager was sympathetic but nothing further could be done. At that point, not wishing to wait 8 additional weeks and who knows how many shipments, I requested and was granted a refund. Since I had purchased these binoculars from Orion's special discount section, no exchanges were possible. It was with a heavy heart that I packed the tripod assembly and shipped it back. <sigh>

## **Conclusions**

Here ends my tale of the Vixen 125mm binoculars. I hope and encourage other owners to contribute their experiences with these stunning binos. In thinking over this little adventure and hoping to pass on some meaningful opinions, I have outlined them below (NOTE - these are simply one man's opinions)

## 1. Secondary Color

The Vixen 125mm binoculars are designed for and sold as "deep sky" binoculars. Clusters, nebula, and galaxies are the reason these binoculars exist. To use these for planetary, doubles, bright stars or lunar work (although lunar will knock your socks off) is using the wrong tool for the wrong job. An F/5 achromat, no matter how well made, will show a good deal of secondary color on bright objects. On deep sky objects they will perform well and no secondary color will be noticeable. If your intentions are to use these bins for the latter category, then you should be shopping for fluorite or ED binoculars such as Miyauchi's or Fujinon EDs. However, I simply can't understand why someone would use giant binoculars for bright objects. In many respects it's like using an F/15 maksutov for wide field work, wrong scope for your nights work.

## 2. Collimation

One of the upkeep problems with giant bins that use prisms (either 45 or 90 deg) is their susceptibility to coming out of collimation. A little knock here, a ding there, and suddenly you find yourself straining to merge the images. Consequently, whichever pair of giant binoculars you are contemplating purchasing (Orion, Miyauchi, Fujinon, etc) make sure you have a repair agreement that you can live with before placing your order. If you're scouring the used market for a pair, be wise and contact the manufacturer, reseller or an independent optical repair shop prior to agreeing to buy. That "good deal" could turn into a nightmare the moment the bins need a little work.

## 3. Aperture - a one way door

After using the 125mms for several weeks, I will admit to be spoiled for smaller bins. In times past I would get excited when I was able to use a high quality smaller pair, but I fear those times are past. It's kinda like someone lending you his or her 4" apo for a week and then having to go back to using your 70mm Ranger when you give it back. It's simply not the same - you've had a taste and that's that.

## 4. Price

I purchased my Orion 30 x 125s on their Special clearance section for \$2500. I've waited for this chance for some time as I feel \$3800 for the 20 x 125s and \$4200 for the variable power model is simply too much. After using the 30 x 125s I still hold to this opinion. You can purchase new 100mm bins for \$1000 and \$400 for a parallelgram mount and save yourself \$2400 over the cheapest 125mm model. In my opinion the price gap is too big for most mortals.

Well, that's all folks. If you happen to own any version of the Vixen 125s, PLEASE submit your review on them. The conclusions I drew are based upon my limited experiences and viewing biases. It's important to read what others have to say to insure you have all the information you need before placing your order.