Equipment review

Vixen's giant binoculars among largest sold

Use the BT-125-A, and you'll know why many observers love large binoculars. **by Phil Harrington**

Specifications

Vixen BT-125-A

Aperture: 4.9 inches
Prism type: BaK-4
Focal length: 625 millimeters
Focal ratio: f/5
Eye relief: 20mm
True field of view: 1.6° (with 30mm eyepieces)
Weight: 24 pounds (10.9 kilograms)
Price: $3,699 (binoculars only)
$3,999 (with two 22mm eyepieces [28x])
$4,399 (complete package)

No question about it: Binocular astronomy is growing in popularity. But merely looking through small, handheld models doesn't satisfy today's stargazers. We're just as aperture-hungry as telescope observers. And with good reason. Giant binoculars, with triple-digit apertures and magnifications of 20x or more, are among the most exciting instruments for viewing the heavens because they collect enough light to make objects easy to see, and they offer a wide field of view.

Setup and operation

Among the largest giant binoculars sold today are Vixen's BT-125-A. Recently, I had the opportunity to put them through their paces. I was not disappointed.

Assembly takes about 5 minutes. A captive bolt secures the fork-style alt-azimuth mount/half-pier combination to the tripod. Although the optical unit weighs 24 pounds (10.9 kg) — certainly on the heavy side for some people — a convenient handle between the barrels makes setup easy.

Two Teflon-wrapped metal axles extending from the binoculars' center of gravity nest into matching hinged clamps on the fork mount. Once the binoculars are in place, adjust the clamp pressure until the unit moves up and down smoothly (without swinging uncontrollably). Azimuth (left-right) motion was equally smooth after I turned a tension-adjustment wheel at the half-pier's base.

The binoculars are too long to swing through the fork without hitting its base. To aim them higher than about 45°, you first have to tilt the fork by loosening a setscrew at the center of the fork base and pivoting the arms. Angling them at 45° makes it possible to point at the zenith without hitting the mount. Although this shifts the center of gravity away from the tripod's center, it does not compromise the mount's stability. Because celestial objects look best when viewed through less atmosphere, I did most of my observing above the 45° threshold.

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Each front lens of the BT-125-A measures 4.9 inches (125mm) across. This allows a lot of light to reach your eyes, brightening objects that normally appear faint through binoculars. All photos: William Zuback: *Astronomy*

Optics

One look at the fully multicoated objective lenses (each a 4.9-inch f/5 doublet) and you know the BT-125-A means business. The greenish coatings in the test pair appeared flawless. When I shined a flashlight into the barrels, I saw no indication of manufacturing flaws, such as errant metal flakes or other quality-control issues. Dew caps extend 3.2 inches in front of each objective to guard against stray light and lens fogging.

Both eyepieces showed circular, fully illuminated exit pupils. This indicates that the Vixen prisms, made of superior BaK-4 glass, are the proper size for the optical design. If the exit pupils were asymmetric or showed a grayed, diamond-shaped edge, the prisms would not be able to deliver the full potential of the huge objective lenses.

Mechanics and engineering

As with all giant binoculars, the eyepieces focus individually. Focusing was simple to achieve and smooth. Neither helical focuser showed any hint of binding.

The 45° angled eyepieces sit in cylindrical prism assemblies that pivot, allowing observers to adjust interocular distance (the spacing between the two eyepieces) until both fields of view merge. The range of interocular adjustment varies from 57 to 73 millimeters. I

found viewing to be comfortable even while wearing eyeglasses, thanks to each eyepiece's generous 20mm of eye relief.

With 30mm eyepieces, the BT-125-A boasts a true field of view of 1.6°, which I confirmed during testing. Stars were pinpoints across all but the outermost edge of the field. Aiming the BT-125-A accurately proved tricky at first. Although the binoculars do not come with a finder, they do have a standard finder mounting base. Once I put my own finder scope into place, aiming became a breeze.

Under the sky

I clearly resolved stars in the bright globular clusters M3 and the Hercules Cluster (M13), while the distinctive disks of two planetary nebulae — the Dumbbell Nebula (M27) and the Ring Nebula (M57) — were both readily visible.

I also spotted the nebulous bridge connecting the Whirlpool Galaxy (M51) and its irregular companion, NGC 5195. I could even make out a hint of M51's distinctive spiral structure.

Targets closer to home also put on fine shows. Although I noted some residual chromatic aberration in the form of a purple fringe to the Moon, the impact of the faux 3-D effect that the Vixens created overshadowed that small defect.

Jupiter's equatorial belts and Saturn's rings were also clear, although 30x is not enough oomph to show fine planetary detail.

That's why I'm pleased Vixen's new version of these binoculars has removable eyepieces. All BT-125-A models now work with any 1¼" diameter eyepiece. That's a plus because some other binoculars work only with specially designed eyepieces. I can only imagine what the views through these will be like with a pair of premium wide-field eyepieces in place. Wow!

Contact information

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Vixen's BT-125-A binoculars weigh 24 pounds (10.9 kg). You can set the unit up in only a few minutes.

Eyepieces are interchangeable, and each focuses separately. Observers also can change the interpupillary distance, which is the separation between your eyes.