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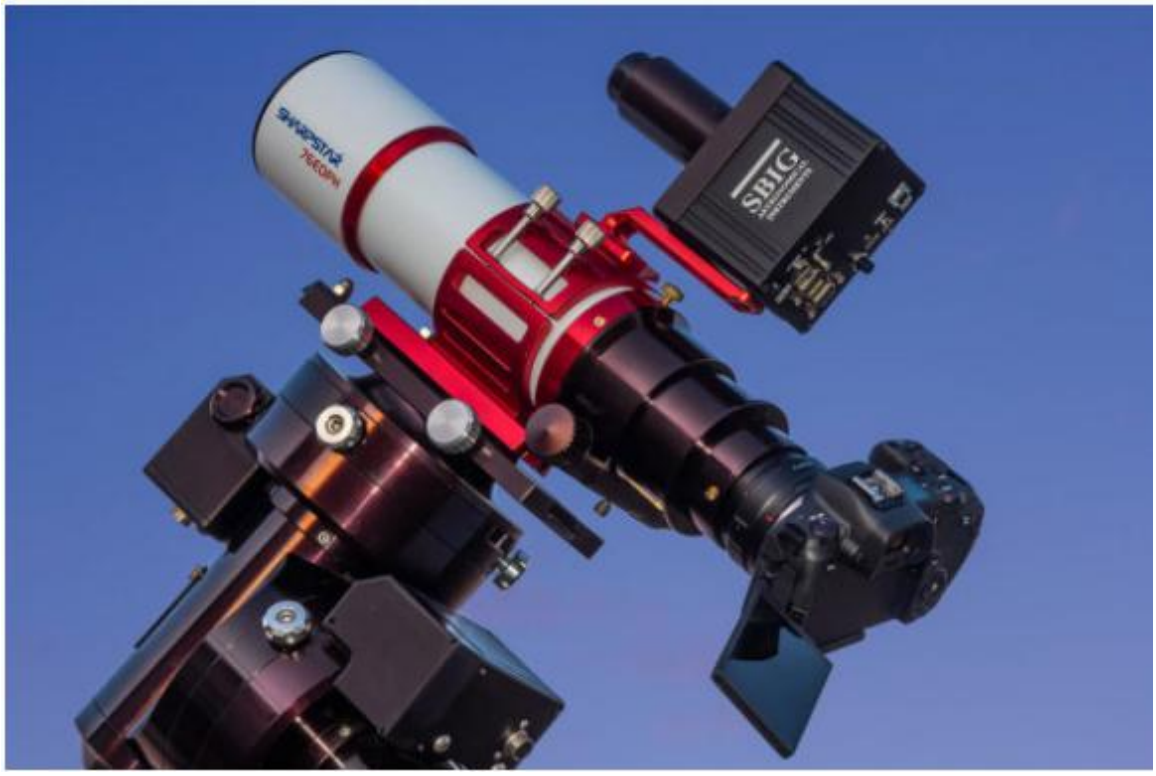
Review: SharpStar's 76EDPH 76mm Apo Refractor

BY: ALAN DYER



Credit: SharpStar

Plus: Superb optics, good for visual and photographic use; excellent fittings and finish

Minus: No case provided; flattener can be hard to screw on

Summary: The SharpStar 76EDPH (MSRP: $829) is a beautifully finished triplet apochromatic refractor presenting color-free images for visual use and, with the optional f/4.5 flattener, a wide flat field for photography.

Who Is It For? Anyone looking for a compact, premium travel telescope for both observing and astrophotography.

SharpStar is a new brand in the astronomy marketplace from the Jiaxing Rui Xing Optical Instrument Company in China. The company's telescopes have been sold worldwide under various brand names, but their own SharpStar line includes a growing array of premium refractors at attractive prices.

I had a chance to test three new SharpStars, provided on loan from my local telescope dealer including the 100QII astrograph and the big 140PH apo refractor.

The smallest of the trio that I tested is the 76mm EDPH, a triplet ED apochromat with a focal ratio of f/5.5. Upon unboxing, the striking red finish caught my eye, and the view through the eyepiece lived up to that favourable first impression.

The limbs of the Moon, Venus and bright stars showed no chromatic aberration when in focus, with Venus and bright stars showing just a pale rims of magenta inside focus and cyan outside focus. This is color correction that ranks with the best in the world of apos.

There was no sign of astigmatism, even on cold winter nights when lens cells can pinch optics, and only a smidgen of spherical aberration. In-focus stars exhibited textbook Airy disks.

The focuser is a solid and smooth 2.5-inch rack-and-pinion with 10:1 dual speed and 60mm of focus travel. Using my 2-inch diagonal (one is not supplied with the scope), all of the dozen or so eyepieces I tested – with both 2-inch and 1.25-inch barrels — reached focus. So did DSLR cameras.

The dew shield extends 2 inches in front of the lens; not a lot but enough to hold off dew on most nights. The scope's total weight with the clam-shell rings and included Vixen dovetail rail is just 3.5 lbs (1.6 kg) making the 76EDPH an ideal travel scope.

Unlike other SharpStar telescopes, no travel case is provided. However, the 76EDPH is small enough to store in an existing camera bag or accessory case.

Using a full-frame camera, only the inner 18mm of the field presented sharp stars at the scope's native f/5.5 focal ratio. The optional EDPH reducer/flattener, which reduces the focal ratio to f/4.5, did its job very well, though, resulting in stars tack sharp across the frame. A slight amount of remained, along with a modest 0.8-stop of vignetting (darkening), but only at the extreme corners of a full-frame sensor.

SharpStar 76EDPH Photo Performance

A raw unprocessed image of Messier 44 shows the 76's wide field of view with its optional f/4.5 reducer/flattener with a low level of vignetting and, in the closeup, off-axis performance yielding stars sharp to all but the extreme corners of a full-frame sensor.

In test images, the 76EDPH proved its merit as a fast 340mm focal length astrograph, providing a 4° x 6° field with a full-frame sensor. The reducer/flattener is designed for the 55mm back focus requirements of DSLRs, with M48 male thread on the camera side for attaching T-rings and other camera adapters.

One drawback of the flattener lens is that the very fine M74 threads on it and the focuser can be difficult to mate.

That design annoyance aside, I consider the 76mm a match, both optically and mechanically, for the best apos on the market, and at a very reasonable price for its performance.

Title image: Sharpstar 76mm f/5.5 ED Triplet Apo Refractor. Credit: Sharpstar Optics

About Alan Dyer

Alan Dyer is an astrophotographer and astronomy author based in Alberta, Canada. His website at www.amazingsky.com has galleries of his images, plus links to his product review blog posts, video tutorials, and ebooks on astrophotography.