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Zenithstar 66ED Semi-apo

By [Joseph Hedrick](#) - 7/30/2005

First, let me preface this review by saying that I have no affiliation with, or financial stake, in William Optics.



When I saw that WO was going to offer a semi-apo Petzval I became very excited as I had always loved the performance of my TV Genesis. The question was how much was such a scope going to set me back? When pricing was announced I could scarcely believe it, a quality semi-apo Petzval for less than \$300.00 (terrestrial package price)! I wondered what corners would have to be cut to achieve this pricing. Well I have received my Zenithstar 66ED (I chose the astronomical package which is a little more) and I have to admit I am really, really impressed. The fit and finish on this little scope is astounding and the optics are excellent, even more so when one factors in the price.

Let's start with cosmetics. The scope has a gloss-anodized black finish that is complimented by the semi-matte silver anodized focuser and lens cap. The only drawback of the finish is that it will show fingerprints and instills a somewhat compulsive desire to keep it polished (maybe that's just me). WO seems to have anticipated this as a polishing cloth is included. The serial number and a QC sticker are placed on the underside of the focuser assembly. Mounting comes by way of a 2"-20 L bracket that provides connection to a wide range of mounts including light weight photo-tripods. The graphics are kept to a minimum with a swan logo on the lens cap and a small, tastefully executed swan logo on the top of the tube just behind the lock screw for the rotatable focuser. This brings me to the mechanics of the scope - yes it has a rotatable focuser! This feature works extremely well with zero play in the rotation. There is a single knurled-grip locking screw that secures rotation and works well, though the knurling could perhaps be slightly more pronounced. There also appear to be some adjustment screws. There also appears to be a nylon washer in the rotating assembly. All in all, this is a really nice built-in feature for photography that would be an additional cost add-on with most other scopes in this class. The focuser itself is a very smooth Crayford style with a tensioning/lock screw that didn't seem to do much. I will have to play with this down the line. In any case the focuser held a 2" WO SCT diagonal (included in the astronomy package) and a 2" Pentax XL eyepiece just fine, even near zenith. The drawtube itself has 2.5 inches of travel and is threaded at the end to accept either a 1.25" visual back (included) or a WO SCT 2" diagonal. Presumably this threading will accept other SCT accessories though I myself have not tried it. At the other end of the tube one finds a sliding dew shield that extends 3" from the front of the lens cell (non-collimatable). This brings us finally to the optics, but to keep you hanging on just a bit further let's have a look inside the optical tube itself.

The scope does not use knife edge baffles but rather a shouldered baffling combined with microbaffles and a flat black interior. There is also a baffle of sorts due to the cell that contains the rear lens elements. Overall, internal reflections appear to be well-controlled. Now we finally get to the

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optics. The optical system is a 66mm f/6 (400mm focal length) Petzval design that uses four elements in two groups of two. Far from a new design, the Petzval design has been around for more than 150 years and has been used by Televue for some time. Joseph Petzval was a mid 19th century optical designer who was interested in camera optics and not in telescope optics per se. In any case the basic Petzval design provides some color correction over a simple doublet achromat. Its effect is to lessen secondary color by about 25-30% and allows a faster relative speed with the same amount of color correction. The introduction of ED glass into one element of the Zenithstar 66ED (presumably one of the smaller rear elements) provides additional color correction and the scope is ultimately classified as semi-apo? So what does this mean? Well for me it means that there is essentially little or no in focus false color visible except on the brightest of objects such as the Moon or Venus and by this definition the scope is indeed semi-apo. For example, I saw only the slightest hint of false color when observing Jupiter from light-polluted suburban skies at 100X with a Meade 4mm RG-Ortho. I would not really consider the Zenithstar a planetary scope due to its short focal length, however. Wide-field observation is where this scope really comes into its own, particularly as the Petzval design has the added advantage of producing a flat field (photographers take note-remember Petzval was interested in camera lenses). The added bonus of being able to use 2?eyepieces with the WO SCT diagonal really makes this scope a joy to use on objects like the Pleiades. I suspect that photo and CCD imaging folks are going to be very happy with this scope too, but I cannot personally speak to this (yet).

So how does this scope compare to the competition? Well I can only speak to the Tak FS-60C, which is a jewel in its own right. The Tak is lighter and I still prefer the Tak focuser (but it's very close) and the Tak can use 2? eyepieces if fitted with the Novoselsky adapter and FSQ diagonal, but this adds over \$400.00 to its nearly \$800.00 initial cost and you still need to add some means of mounting the Tak (like a \$90 Tak ring). The Tak has excellent color correction with its fluorite element and in this respect is better than the Zenithstar (although an Apo Zenithstar is coming soon), but you definitely pay a premium for this. The other comparison I can make is to the older Televue Ranger which also had an ED element, but was a doublet design with a helical focuser. The Zenithstar66ED is, in my opinion, very much superior to this older TV in almost every respect. It would be interesting to see how the Zenithstar 66ED compares to the TV60 though the Apo Zenithstar might make a closer comparison.

The Zenithstar 66ED comes with a very nice travel case with fitted foam, either an upright prism diagonal and 20mm eyepiece (terrestrial package) or a 2?dielectric WO SCT diagonal (astronomical package) and a 2 year warranty. There is no manual, but operation is relatively straightforward and it isn't really missed. The price point is exceptional for a scope with this optical and mechanical quality. William Optics has hit a home-run with this scope and if this is any indication of where these guys are headed the competition had better take notice. In summary and to paraphrase Lee Iacocca, if you can find a better scope for the money, buy it!

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