

FIRST light

See an interactive 360° model of this refractor at www.skyatnightmagazine.com/360/wozs71ed



William Optics ZenithStar 71 ED doublet refractor

A remarkably short instrument that dispels the notion of a 'typical' scope

WORDS: PAUL MONEY

VITAL STATS

- **Price** £369
- **Aperture** 71mm (2.8 inches)
- **Focal length** 418mm, f/5.9
- **Optical design** Air-spaced doublet
- **Focuser** 2-inch rack and pinion dual-speed with microfocuser
- **Length** 310mm, 355mm with dew shield extended
- **Mounting** L-type bracket
- **Weight** 2.7kg
- **Extras** 2- to 1.25-inch adaptor
- **Supplier** Widescreen Centre
- **www.widescreen-centre.co.uk**
- **Tel** 020 7935 2580

SKY SAYS...

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Refractors are the 'typical' telescope first-time stargazers tend to associate with looking at the night sky; the image they imagine is usually one of a long tube with the eyepiece at the end. But improvements in manufacturing and grinding techniques have led to shorter focal length lenses with good colour correction – dramatically shortening the length of the tube required. Following in this tradition is the latest scope from William Optics, the ZenithStar 71 ED, a doublet refractor just 310mm long.

The ZS71 ED has a 2.8-inch, air-spaced and fully multicoated doublet objective lens made from Ohara ED glass. This lens has a short focal length of 418mm, giving a fast focal ratio of f/5.9, which is ideal for imaging. The scope also features a retractable dew shield – when extended, this increases the scope's overall length to 355mm.

At the other end, the focuser back can be fully rotated and has a locking screw that firmly keeps it in place when set in the desired position. We did notice a little play when our Canon EOS 50D DSLR was attached and found that it was best to recheck the focus after rotating the back section. This is a minor quibble, however: we found we could quickly refocus and then continue with our imaging tests. The focuser itself is a dual-speed rack and pinion design and has a generous 80mm of travel.

The telescope comes with a 1.25- to 2-inch adaptor and an L-style mounting bracket, which allows the scope to be used on a photographic

tripod. It's also easy to attach to a Vixen-style mount for long imaging sessions or visual observations. We were also loaned a William Optics field flattener designed for short focal length instruments for our review.

Cut a wide swath

We used a trusted 26mm eyepiece and star diagonal to check out the field of view, which was good across 85 per cent with only slight trailing off towards the field edge. Chromatic aberration – where not all the colours are brought to the same focus – was well controlled, so we sought out a couple of double stars to test the resolution. This is a wide-field instrument, so we added a 5x Powermate to the 26mm eyepiece to boost magnification to 80x and enjoyed good views of Albireo in Cygnus. Keeping the Powermate ▶

OPTICS

The objective lens is made from Ohara ED (extra dispersion) glass and all surfaces are multicoated. The doublet design corrects for chromatic aberration and visually, gave good views of the sky. Photographically, there was slight colour fringing on the brightest stars, but this was a minor issue.

DEW SHIELD

The retractable dew shield was smooth to use and easy to retract for storage after use. It gave decent protection from dewing up under normal conditions and did a good job at cutting out extraneous light as well.

OPTICAL VERSATILITY

Cheap, small refractors often put people off, but today's short focus models are a long way from their ancestors and can be used for a wide variety of purposes. The ZS71 ED is light enough for you to use on a photographic tripod, either as a visual system or an imaging one, for casual astronomy or nature studies.

Along with its low weight, it is quite compact and can therefore be taken abroad in airline hand luggage, making it a good travel scope when in search of distant

dark skies. Alternatively, adding a white light filter can turn it into a scope for eclipse chasers.

It is also good as a wide-field imaging system, especially when combined with the optional flattener, and we were impressed with our test images of the Andromeda Galaxy and the Pleiades star cluster. The compactness also makes the ZS71 ED ideal as a lightweight guidescope – in a single word, versatility best sums up this telescope.



FOCUSER

The focuser is a dual-speed rack and pinion design with a microfocuser for fine focus control. It was smooth in use and can be easily locked in place once focus is achieved, although there was a little image shift. It accepts 2-inch eyepieces as standard, but an adaptor for 1.25-inch eyepiece is supplied.



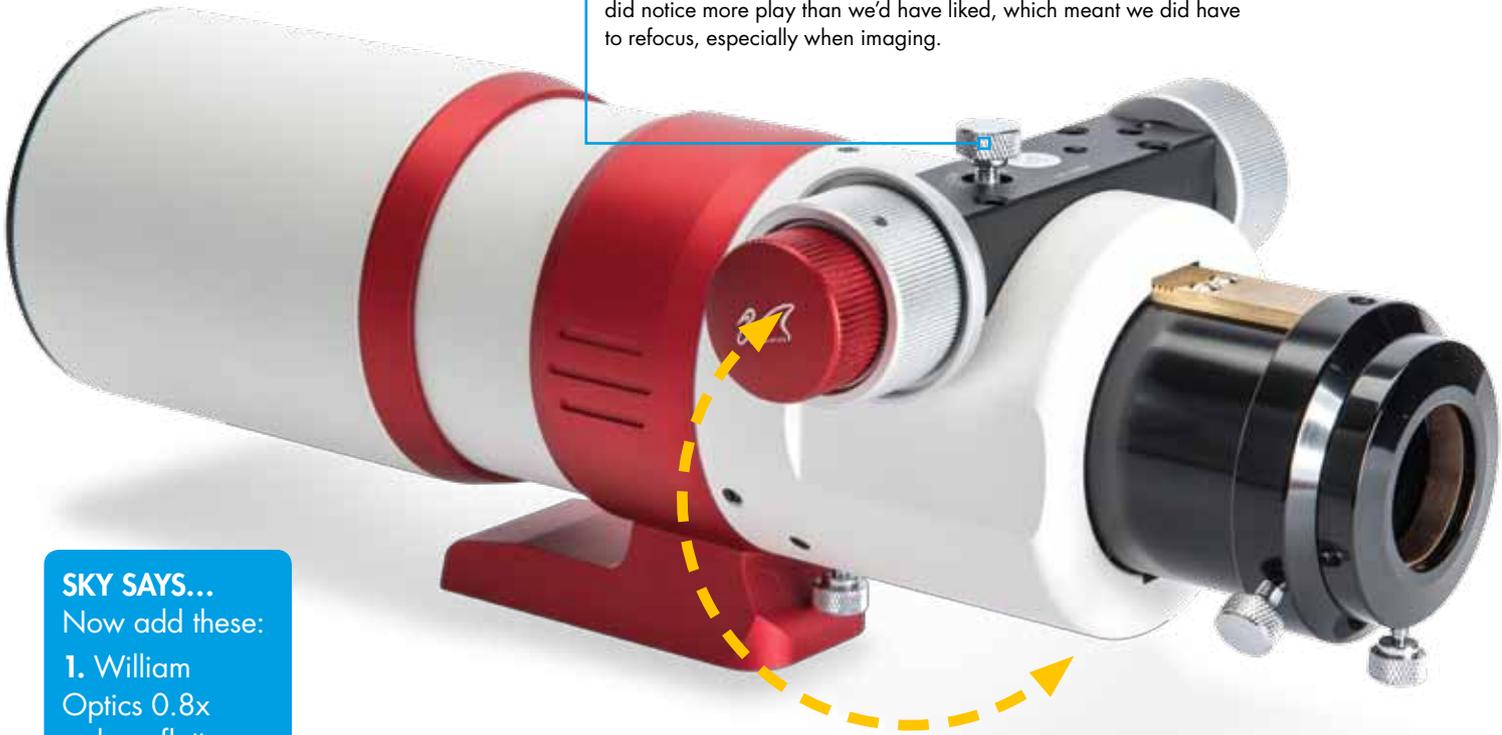
BODY

The tube is quite lightweight and easy to handle at 2.7kg, but it is still robust. It is 310mm long, extending to 355mm when the dew shield is in use. The internal matte coating does a good job in cutting down on reflections within the tube, which can spoil the contrast in faint deep-sky objects.

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ROTATABLE VIEW

The back section of the tube can be rotated through 360° and has a locking screw to hold it in place. This is a useful feature, but we did notice more play than we'd have liked, which meant we did have to refocus, especially when imaging.



SKY SAYS...

Now add these:

1. William Optics 0.8x reducer-flattener
2. William Optics soft carry case
3. William Optics 90°, 2-inch quartz dielectric star diagonal

▶ but switching to a 9mm eyepiece, giving 232x magnification, we could nicely split Alpha Piscium. Its component stars are separated by a mere 1.8 arcseconds.

Using our 26mm eyepiece again, we located galaxy pair M81 and M82, despite their small apparent size in the approximately 3° field of view. The size of the field meant we could nicely fit Orion's belt in the view plus Sigma Orionis. Large bright objects are ideal targets for this

instrument, something we clearly saw with the Andromeda Galaxy, which appeared in the guise of a glorious haze with a large central bulge. Star clusters such as the Pleiades sparkled in the view, as did the myriad delights that could be spotted along the Milky Way. We were impressed with how well the telescope could bear higher magnification on many of these objects. This was also evident when we spotted Jupiter rising, so we pushed the magnification with the 9mm eyepiece and 5x Powermate and could easily see the two main bands and the Galilean moons. Later we also enjoyed the craters of the Moon – visually, this is a very capable telescope.

Attaching our Canon EOS 50D DSLR, we imaged the Andromeda Galaxy by taking 32, 120-second exposures at ISO 800 and stacking them. This captured plenty of detail in the spiral arms, but as expected there was some distortion of stars at the image edges. We repeated the exercise with the loaned field flattener, which left stars pin-sharp all the way to the edge. The ZS71 ED is a lovely wide-field instrument that gives good results both for visual and imaging needs. **S**

▶ The Andromeda Galaxy, imaged without the loaned field-flattener



▶ Composite image of the Pleiades open star cluster in Taurus



VERDICT

BUILD AND DESIGN	★★★★★
EASE OF USE	★★★★★
FEATURES	★★★★★
IMAGING QUALITY	★★★★★
OPTICS	★★★★★
OVERALL	★★★★★