

TeleVue 'TV-85' refractor

Ninian Boyle gets his hands on TeleVue's 85mm refractor, which is perfect for visual astronomy or astrophotography while also making a great travelling telescope.

TeleVue is an American company who are perhaps more famous for their eyepieces than telescopes. That said, they do have a fan base for their range of telescopes from 60mm to a substantial 127mm diameter aperture. I have been familiar with and impressed by their products for many years and so relished the chance to look at one of these telescopes in detail and with a dispassionate eye.

The TV-85 is an 85mm (3.5-inch) aperture apochromatic refractor presented in a substantial padded case with die-cut foam, made capable of housing other accessories such as eyepieces. Included in the bag is a 'standard' 20mm TeleVue Plössl eyepiece, a two-inch to 1.25-inch adaptor and a TeleVue 'Everbrite' two-inch diagonal mirror. At first glance the whole package oozes quality, which is what you might expect considering the price tag! Another accessory that used to be an 'optional extra' is the 'Focusmate' 10:1 reduction fine focuser, now included as part of the package. This too screams high quality. The focuser itself is a beautifully engineered rack and pinion unit and the addition of the Focusmate renders this buttery smooth and a highly controllable delight to use. But is this quality only found in the presentation and the accessories?

▼ A close-up of the TV-85's focuser and locking screws.



▼ The TV-85's padded carrying case, which both protects the telescope when it is not in use and makes it easier to carry while travelling.



The telescope tube is solidly built and finished in a hardwearing ivory coloured textured paint. I am not sure why TeleVue chose to give the paint texture, but I can only assume that it was to aid safe handling of the telescope in cold, damp conditions. The lens cell itself is a separate black anodised section with a sliding dew shield. This extends out past the lens cell some three inches and is lined with black felt that helps it to wick moisture away from the lens; a nice touch. The mount ring is a very solid clamshell device with a recess cut and tapped both sides to accommodate either the TeleVue 'Qwik Point' red-dot finder or the much classier (and more expensive) Starbeam finder. The other end of the tube houses the focusing unit and tapers down to the draw tube, a substantial black anodised metal tube that sits snugly inside the focusing unit giving no 'play' in its movement that I could detect, when racked in and out.

The TV-85 is designed with visual use in mind. You can only bring the image to focus using the diagonal. However, you can use it 'straight-through' with the addition of a three-inch extension tube; this is also necessary if you plan to use the scope for imaging.

One of the other nice features of the telescope is the use of two capture screws to hold the diagonal, extension tubes, or other accessories. These in turn press onto a brass ring inside the draw-tube thereby minimising the risk of marking your nice quality eyepieces or other equipment. There are also two similar screws that mount through the telescope tube and hold the draw-tube firmly in place to 'lock' the focus so heavy eyepieces or cameras do not disturb your carefully acquired sharp focus. This is especially important when imaging.

No collimation needed

The objective lens is covered by a very solid metal, screw-on cover with a satisfyingly long thread, although this could get troublesome if your hands are cold! Once removed, you can see the objective lens itself sitting

neatly in its cell. It is very unusual to have to collimate a refractor telescope, especially one of this quality and the TV-85 is factory set with no obvious way of adjusting this should the need arise. The only way to get to the collimation screws, cleverly disguised with a neat blob of a black waxy material around the outside of the lens cell, is to scrape off the wax to access the screws. As this would likely invalidate your guarantee, it is not to be recommended and you should send your telescope back to TeleVue if it requires collimating, as they recommend.

The lens itself is a thing of beauty. It is an apochromatic doublet lens of 600mm, giving a focal ratio of $f/7$. Apochromats are designed to eliminate all false colours from the image. There are many such telescopes that do this with greater or lesser success; the TV-85 does it superlatively. On a bright near full Moon, I could detect no false colour whatsoever. Stars were absolutely pin-sharp and the sense of being in space when looking through a low power, wide-angle eyepiece is astonishing. I wanted to see how the telescope handled serious magnification so I inserted a high-power eyepiece, in this case a 3mm TeleVue Radian along with a TeleVue 2.5x Powermate amplifier that gave a magnification of 500x! Through high, thin cloud, Saturn was still recognisable although very dim, but even at this extreme magnification some detail was discernible. At 200x the planet was a joy to view, with the Cassini Division in the rings clearly visible, as well as subtle variations in the cloud belts of Saturn itself. Without a doubt though, it is the wide vistas where the TV-85 really excels. With a low power, wide-field eyepiece the views are nothing short of stunning.

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The other important question to ask of this telescope was “is it good for imaging?” TeleVue produce a field flattener/reducer for this telescope and using it with the TV-85 brings the focal ratio from $f/7$ to $f/5.6$, a very nice focal length for imaging many deep-sky objects. This allows the telescope to be used with both a dedicated CCD camera as well as a DSLR. With optics of this quality, you almost cannot fail to produce decent images. The only criticism I can make of this instrument is that the dew shield sometimes slipped when the telescope was pointing at the zenith.

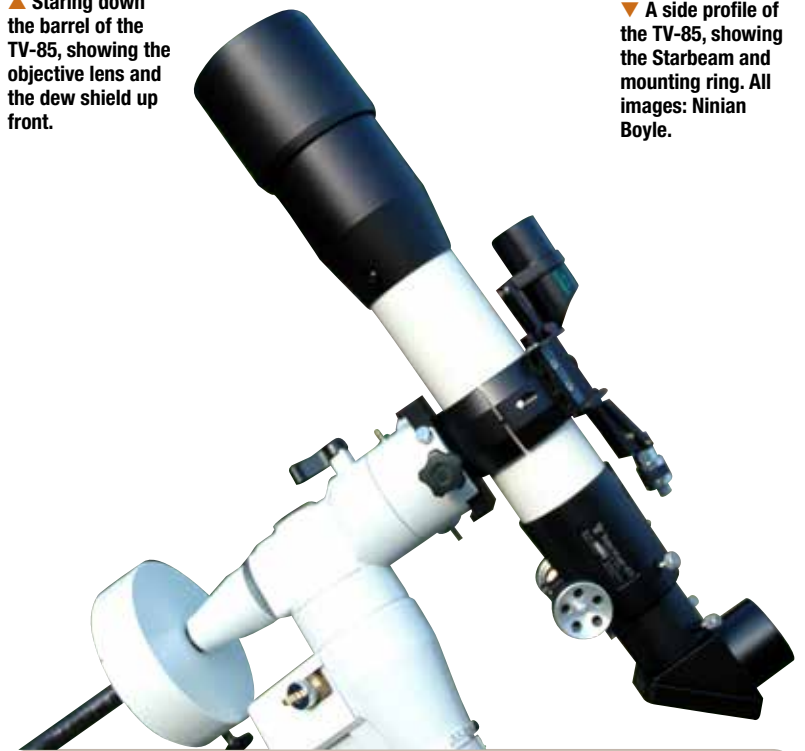
In conclusion I have to say that I am very impressed with the TV-85 for its versatility, flexibility and first class optical quality. It would make an excellent telescope for the serious imager and visual observer as well as the casual observer, and also comes in a more expensive version with a brass finish. It is the sort of telescope that is small enough to be taken on holiday or used as part of a semi-permanent set up in an observatory.

Visit Ninian Boyle's website [Astronomy Know How at www.astronomyknowhow.com](http://www.astronomyknowhow.com).



▲ Staring down the barrel of the TV-85, showing the objective lens and the dew shield up front.

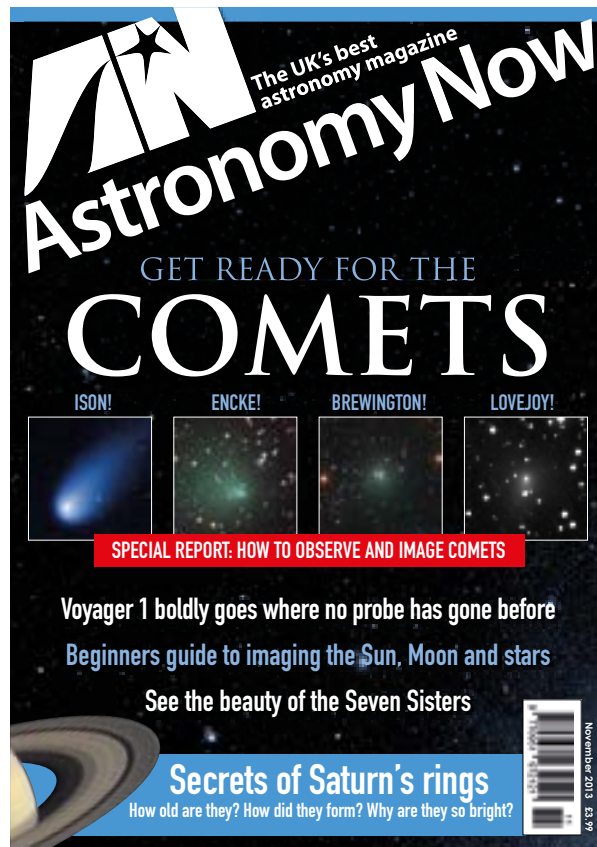
▼ A side profile of the TV-85, showing the Starbeam and mounting ring. All images: Ninian Boyle.



At a glance:

The TV-85

Type:	Apochromatic refractor
Aperture:	85mm
Focal length:	600mm
Focal ratio:	$f/7$
Weight:	6.1 lbs (2kg)
Accessories:	Two-inch, dual speed, rack and pinion 'Focusmate' focuser, two-inch Everbrite diagonal, dew shield, tube rings, 1.25-inch eyepiece adaptor, 20mm Plössl eyepiece, carrying case
Price:	£2,049
Details:	www.televue.com
Available from:	The Widescreen Centre (020 79352580)



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