The Sky-Watcher Ex

Nick Howes takes a look through Sky-Watcher's eagerly anticipated Maksutov–Newtonian.

The introduction of the Explorer 190MN Pro by manufacturers Sky-Watcher, who in recent years have excelled in the amateur mount market with the likes of the EQ6 and HEQ5 mounts, is their attempt to bridge the gap between large apertures and high quality distortion-free optics for the deep sky imager. How well does it succeed?

The Maksutov–Newtonian design that is deployed on the 190MN Pro uses a front corrector plate that is courtesy of a world exclusive co-branding agreement with glass manufacturers Schott. The corrector plate is used to correct the light path prior to its arrival at first, the low expansion Pyrex primary mirror, and then back up the tube to the secondary mounted on the front corrector plate, and then out of the side, as with a traditional Newtonian. Being a closed system, the benefits are that the primary and secondary are never exposed to the elements, thus reducing the need ever to have the optics re-coated, but, it has to be said, this can increase the overall tube cool down time. A low cost fan unit that fits into the eyepiece holder and draws out the warm air, would be a sound investment with this telescope.

The Maksutov design on the 190MN yields only a 26 percent obstruction, so you get very little loss in overall contrast, and as a result it feels like and looks like a large apochromat. At f/5.26, the optics are wide and fast, but again because of the very high quality of the optics it can happily take quite significant levels of magnification. Achieving greater than the 500x quoted by the spec was absolutely possible, making it a fine lunar and planetary option with suitable Barlow or Powermate type lenses. My first night imaging and visually observing with this telescope was spent with Venus, a beautiful object in the late winter evening skies. With a 5x Powermate bringing the focal length up to around f/28, the image was nothing short of stunning at both the eyepiece and on the camera, close to matching the best I had seen from my C11.

In terms of build quality, the OTA itself is beautifully constructed. It's predominantly black sparkling livery oozes quality and, whilst initially looking a bit odd against the supplied white tube rings and back plate, you realise the practicality of this colour scheme pretty quickly (especially at night, as you can see the OTA far easier, and avoid knocking into it). At only ten kilograms in weight it's not that unwieldy, even against a traditional SCT or Maksutov design.

The telescope also comes with a standard Vixen/Synta dovetail bar (black in colour), which dropped straight onto my EQ6 mount. Thankfully the telescope also comes with a 50mm right-angled finder, and not those awful straight ones that make finding objects almost impossible. I would personally still add a Telrad to this set-up, but the RA finder works very well indeed, and was ready in seconds.

In practical use, I felt that this telescope should come as standard with a dew shield. Again, cost I assume is a factor, but the corrector plate is a dew magnet, and to my mind makes it unusable without dew heating and a suitable shield for any prolonged periods of time. This issue applies to many manufacturers who use an SCT or Maksutov style design, so it's not a specific issue with this product, but having used refractors that have integrated dew shields for some time, the lack of one was noticeable during the review test. Speaking to Sky-Watcher, they are looking into addressing this issue in future, which is excellent news.

■ The 190MN has a single speed focuser, but separate adjustment knobs for focus lock and tension, and holds both two-inch and 1.25-inch cameras and eyepieces.

■ Messier 42 and the Running Man Nebula, imaged through an Explorer 190MN Pro, shows pin sharp stars all the way to the edge and superb detail in the nebulae. Image: Steve Loughran.

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xplorer-190MN Pro

▼ The Sky-Watcher Explorer 190MN OTA.

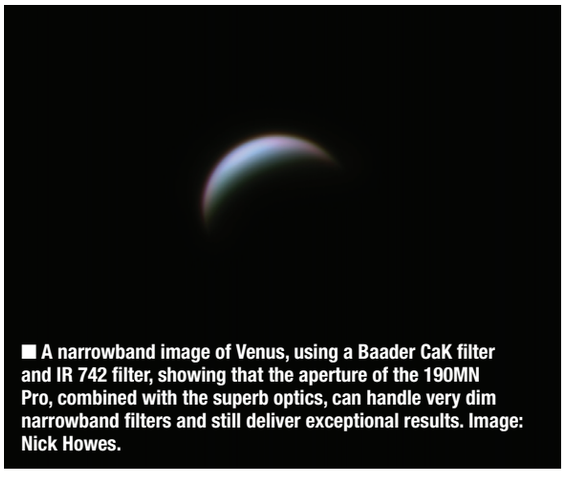
Collimation is via Phillips cross head screws on the back plate, and Sky-Watcher do supply a small screwdriver to facilitate this. I could not help thinking that something more akin to Bob's Knobs would be better for this, especially as holding a screwdriver and adjusting it whilst looking at the eyepiece end with a Cheshire eyepiece would (and I am 6'1") tax the arms of an orangutan. However, as the collimation was pretty much perfect and held night after night, I didn't have to test this theory in practice. Also, Sky-Watcher have added the obligatory central circular spot to the primary, making laser collimation very simple.

The main compromise for me though was the focuser. In itself, from a functionality standpoint, it's pretty good, despite being single speed only, which one might expect not to be the case for a £999 telescope given that many refractors now come fitted with dual speed focusers as standard. In real world use, it held both small format and large format CCD cameras, my EOS DSLR and larger eyepieces in place well. As standard it is a two-inch focusing system, and comes with a 1.25-inch adapter, both using compression rings so as not to damage your eyepieces or CCDs. Aesthetically, however, the whole focusing system almost looks like an afterthought, which is a shame, for with the optics being so good one would almost have expected it to have come with a focuser to match. It is easy to replace, and I suspect anyone serious about using this wonderful optical system long term, may probably do.

In use though, it's the optics that count and, even straight out of the box, the reputation of the Maksutov design for holding collimation and delivering incredible levels of contrast and clarity was evident. No tweaking was needed at all, and there were pin sharp stars all the way out to the edge of the field. It really is like having a 190mm triplet apochromat in your hands, but for a fraction of the cost. The light grasp and fast focal ratio meant that objects like M31 were visually stunning, whilst more difficult visual objects like M51 and M33 really began to stand out against the background stars. The field of view works incredibly well with larger format CCD or DSLR cameras in particular. Other telescope designs can show up optical imperfections closer to the edges, but with the 190MN no issues were found at all. Connecting up my Atik 4021 and 314L cameras, the field of view for both was superb. The lower focal ratio, in comparison to my usual telescope rig, gave me an enormous vista of stars, and was way faster in terms of imaging time than I was used to with my f/7.5 refractor set-up. Again, tack sharp points out to the edge of the field of view – a real bonus given our inclement weather in the UK.

The question is why, if the Maksutov–Newtonian design can produce optical quality of this level at a remarkable price point, are more companies not doing it? The same question could be levelled at the mount market as well, which Sky-Watcher now deservedly dominates. Sky-Watcher have done their R&D and market research well in both areas, and are adopting very high quality control levels whilst maintaining relatively low costs. With the 190MN they have hit the ground running; the optics on this telescope are truly first class, and whilst there are a few niggles with other aspects, nothing can detract from the fundamental fact that for under £1,000, you have what equates to almost an eight-inch triplet apochromat, in terms of colour, contrast, and sharpness of image. A picture, as the old saying goes, says a thousand words, and one only has to look at some of the remarkable images taken by 190MN users to realise that you can paint a real masterpiece.

Nick Howes is the Senior Test Engineer at Yamaha R&D and is the technical liaison officer for Wiltshire Astronomical Society.



■ A narrowband image of Venus, using a Baader CaK filter and IR 742 filter, showing that the aperture of the 190MN Pro, combined with the superb optics, can handle very dim narrowband filters and still deliver exceptional results. Image: Nick Howes.

At a glance

Sky-Watcher Explorer 190MN Pro

Primary mirror:	190mm (7.4 inches)
Focal length:	1,000mm
Focal ratio:	f/5.26

Supplied with 9 x 50 right-angled finderscope, two-inch Crayford focuser, two-inch to 1.25-inch eyepiece adaptor, Sky-Watcher dovetail mounting plate.

[82-86] In the shops May09.indd 85 31/3/09 14:33:09