

Vixen NA140SSF – Neo Achromatic Optics



Objective: 140mm Achromat 4 element.
Focal Ratio: F5.7 (FL 800mm).
Focuser: 2" dual-speed rack & pinion focuser.

Length of tube: 1080mm (with focuser wound in).
Tube diameter: 140mm increasing to 165mm for dew shield
Dew shield length: 240mm
Dew shield to Front Element: 180mm

Opening the box.



I was lucky enough to get the first one of these scopes to look at. It was so new that there was no model specific packaging.

The scope arrived in a great shape except that the end cap on the focuser had come away and there were some polystyrene pieces inside the tube.



First impressions.

This is a big scope, I was a little taken a back when the box arrived in my office. Even more shocked when I got home and opened the box to find it full of telescope. It was at this point that I had to eat... I like my food, but all I could think about was this scope sitting on the HEQ5 and would the mount be up to it. As it turns out it was.

The fit and finish of the telescope oozes quality from the feel of the 2" Rack and Pinion focuser to the tube rings and dovetail. Even the white paint job seems to be a step up from JUST a white paint finish.

A quick twiddle of the focuser gave a nice positive feeling it was firm with no obvious lateral movement that you get on some R&P focusers. The tightening bolt on top of the focuser was extremely effective in locking the draw tube. Removing the lens cap revealed a nice clean looking element with a lovely green tinge to it.



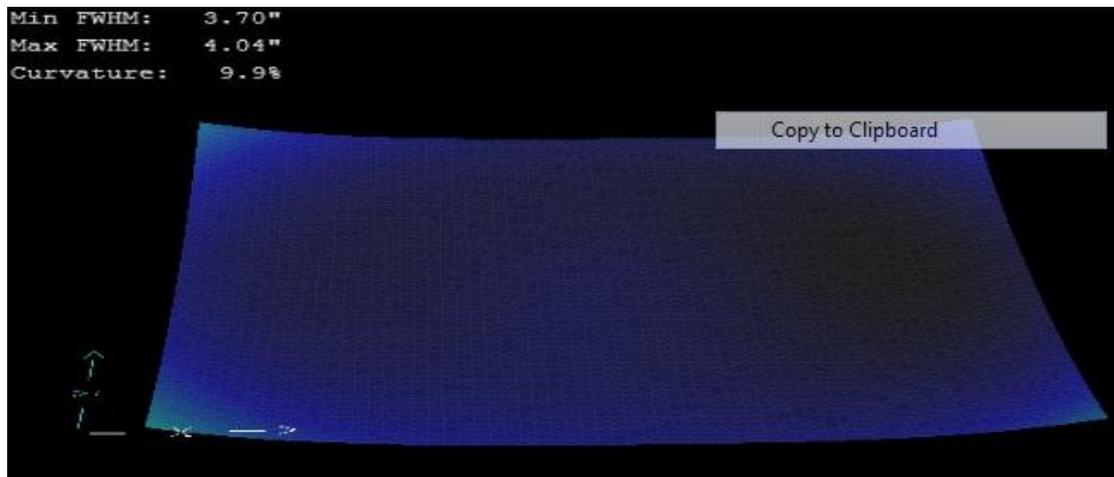
Chromatic Aberration.

I did finally manage to get enough adapters and spacers together to get the 300D to focus, and did find the tell tale signs of CA around stars (not only the bright ones either) but on the Moon the combo did a great job. I'm not really a visual astronomer so I only have one eyepiece – a standard 20mm cheapo that you get free with some scopes. So the view of Venus did have quite a bit of blue surrounding it, however I was using one of the worst eyepieces known to man – so the amount of blue caused by the scope is uncertain. When viewing the moon with the same eyepiece the CA was much less noticeable.

Flat Field.

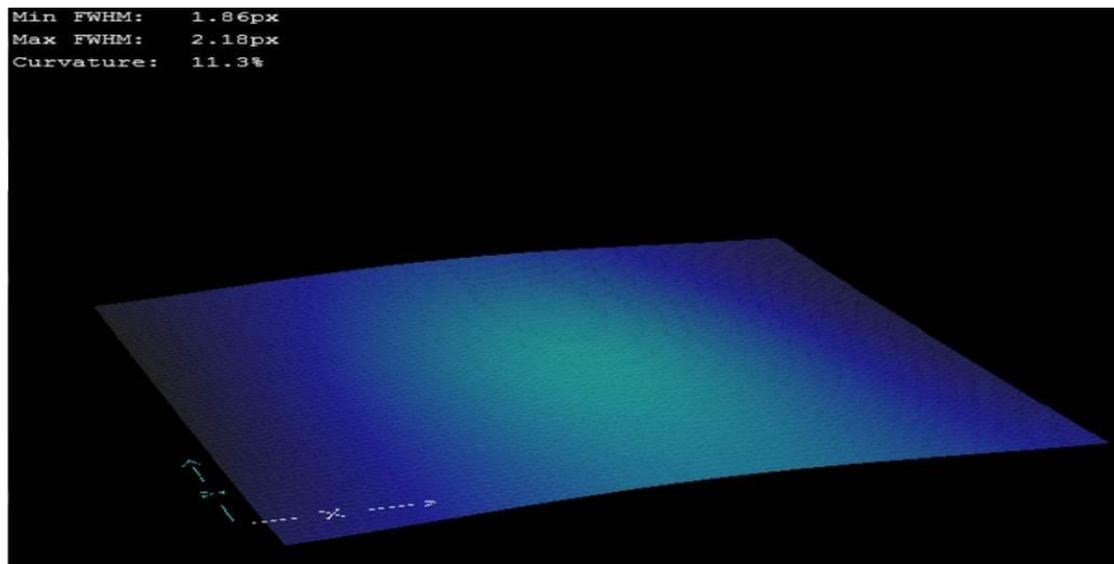
From the test images I took on the first night I found a lovely flat field when I ran the images through CCD Inspector.

OK the H9 isn't the largest chipped camera out there, but still this is quite impressive.



The only other camera I have is the 300D. To get the 300D to focus with the SX Lodestar/FW/OAG combination I had to get a C mount extension tube made. Once made I could guide as usual but check out how good the scope was with a larger chip.

I'm no expert in reading these images, but to me they look pretty darn flat!



Tube Rings and Dovetail.

The supplied tube rings and dovetail are everything you'd expect from Vixen, everything is finished to a high quality they are in a matching white livery. The dovetail, which is the small version, fitted onto the HEQ5 in a very positive manner.



There is a flexible handle (PU maybe) between the two tube rings, I was extremely dubious of using this handle to support the weight – especially as this was the most expensive scope I've ever had. But after lots of testing over the bed it appears to do its job very well. Being

between the two tube rings also means that it's in the centre of gravity. I used the handle throughout the few months that I had the scope.

The tightening knobs are extended so that you can get a really good grip on them, this is another example of seeing where the money goes.

Finder

The Vixen doesn't come with a finder scope, but does have the standard finder shoe slot so that you can either but the matching Vixen finder or add a cheaper Skywatcher equivalent, especially useful if you have one already.

Back focus.

With the SXV-H9 / OAG / SXFW / Hotech SCA in place there was still 57mm of back focus (subject to fine focusing). This leaves plenty of room to add in the SX AO unit that measures in at 38mm and still have 19mm to spare.



The Results.

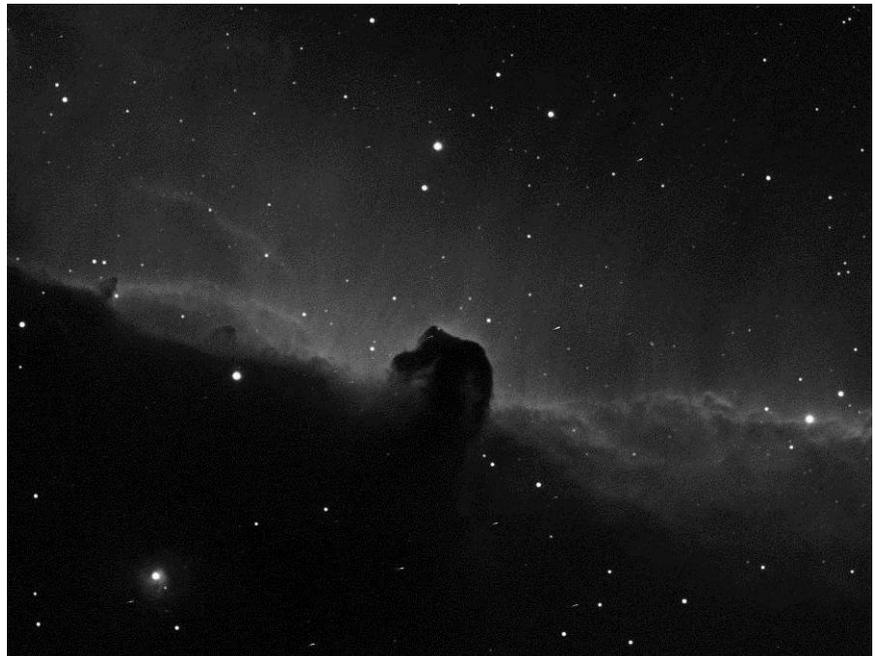
This is a couple of images taken by using the bodged extension tubes that I had with the 300D. Stacked in Registax with a little adjustment with the wavelets settings, then finally into Photoshop for some curves and contrast adjustment.



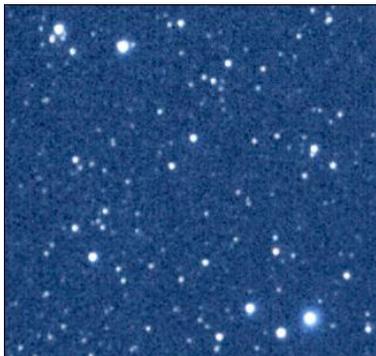
The Horsehead Nebula in Orion , one of my favourite objects.

This was first image taken the Vixen comprised of 63 x 2 minute exposures with flats and bias frames.

Taken with a SXV H9 and 7nm Ha filter.



M39, Open Cluster, just to test the field flatness on a larger chip camera. The image below is the slightly cropped image resized to fit in the page. It comprises of 25 x 30 second exposures. With Darks, Lights and Bias frames all stacked in Deep Sky Stacker and processed with levels and curves in Photoshop CS5.



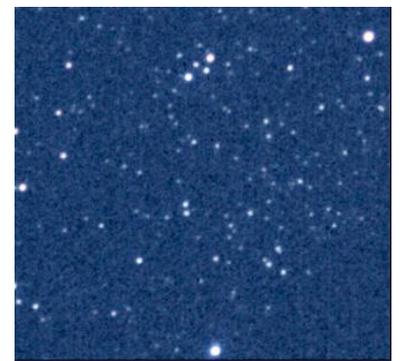
Due to the dire weather we had over the summer of 2012, imaging opportunities were few and far between. So I wanted something that would give me a good test of both the CA and flat field, but with a single nights imaging.



M39 seemed like a really good idea as it is a bright Open Cluster, one you should be able to get good results in a single night. However it doesn't get dark in July, so the sky was blue not black. I still only managed a fairly short imaging session, literally a few hours including calibration images and packing up!



You can see from these 100% corner crops that CA is still visible, but could be brought under control quite a bit more with the use of a Minus Violet filter. This image was taken with just the 300D and no filters. The purpose of these corner crops really is to show the quality of the field right into those difficult to reach areas. The stars are round right into the corners.



I really wanted to try out the 140SSF on narrow band targets, but the having the scope over the spring and then the dire summer we've had I didn't get out as much as I wanted and had only a couple of nights with the scope before I gave it back.

I did manage to get out and bag one Ha target, Abel 21, a large Planetary nebula in Gemini. This Nebula is over 10' of arc – roughly one third the size of the full moon.

This image is made up of 3 30 minute subs through a 7nm Ha Filter. I would really like to have got OIII and SII to make up a Hubble palette – but the weather had other ideas.



M51, this is a RGB image with each channel captured separately using premium quality Baader LRGBC filters. 4hrs in Blue, 4hr 30min in Green and 4hr 30min in Red.

As with most telescopes the blue channel is the most difficult to keep under control, the Vixen NA140SSF is no different.

The blue channel can be processed to keep the slight halos at bay, and the resulting three channels aligned and combined in Photoshop. The end result is very pleasing.

Conclusion.

There is no doubt, this is a very nice telescope. It is a classic Vixen in quality and style of finish. It isn't as well corrected as an APO, but it isn't that bad either. Where this scope does excel is the flat field. The flat field is very good indeed. I did have a couple of little niggles though.

1. The Focuser internals seem to be slightly larger than standard. There is quite a bit of lateral movement with a normal 2" adapter... Even the Hotech SCA adapter doesn't tighten fully – you still have to use the thumb screws.
2. The telescope tube in my opinion is too short. The Canon DSLR doesn't come to focus without an extension tube (which combined with the oversize drawer tube, makes life difficult) it is about 15mm too short. But strangely there isn't enough in focus to add in a diagonal – so the only way to make the camera fit was a bodge using T extensions. To get around this issue I added the FW/OAG for guiding – now this isn't a problem.

Would I buy this telescope?

Funds permitting, without a doubt I would. The scope looks great and the quality is very nice indeed. A 140mm F5.7 refractor, which is a hell of a lot of telescope, for £1300 is pretty good value.

Having the built in flattener / reducer keeps the focal ratio down at F5.7 which in turn means a smaller tube length and a lower weight, so this scope is quite at home on a HEQ5. I had perfectly round stars with 30 minute subs using the Off Axis Guider.

I am happy with the results that I got with this telescope. Its potential far exceeds what I managed in the time that I had it. I already miss this scope dearly.

September 2012