

Comparing the Hyperion and Vixen LVW ranges

Introduction

Thanks to Steve at First Light Optics, for the past few weeks I've had the opportunity to compare a number of the Baader Hyperions with their equivalents from the Vixen LVW range. The Hyperions are made in China whereas the LVWs are of Japanese manufacture and retail for roughly twice as much as the Hyperions. I was loaned the 5mm, 8mm, 13mm, 17mm and 22/24mm focal lengths for this comparison (the 22mm is the longest focal length available in the 1.25" format LVW series).

The Eyepieces

Comparing the specifications, the Hyperions are stated to provide a consistent 20mm of eye relief across the range and an apparent field of view (Afov) of 68 degrees. The LVWs match the Hyperions in eye relief but deliver a slightly smaller Afov of 65 degrees. Both eyepiece ranges use good quality multi-coatings on all the air to glass surfaces, blackened lens edges and carefully designed internal baffling to minimise light scatter and maximise contrast. Baader state that the Hyperions use 8 "low index" glass elements while Vixen state that Lanthanum glass is used in the 6-8 element LVWs.

The Baader Hyperions are described as being modular eyepieces and incorporate a number of thoughtful features and options which add much to their flexibility. This includes the Hyperion Fine Tuning Rings which can be used in various combinations deliver a much wider range of effective focal lengths – a feature which works remarkably well as I later found out. The Fine Tuning Rings do not work with the 24mm Hyperion though.

There is quite a difference between the 2 eyepiece ranges when it comes to their packaging. The Vixen LVWs each come in a modest white box with just the basic information on its contents printed on it. The eyepiece itself is wrapped safely in a plastic bag, with some bubble wrap, and has top and bottom dust caps – nothing more. Baader have gone to town with the Hyperions with glossily printed boxes, outer and inner plastic bags with a small silica gel pack, a nice little leatherette drawstring pouch, top and bottom dust caps AND an additional dust cap to use depending if you use the eyepiece with its rubber eye cup raised or lowered.

Baader's attention to detail is, typically, impressive, but I guess it must add to the production costs and, in practice, I reckon the pouch might be more trouble than it's worth in the dark. It would protect the Hyperions well in between use though.

When you do get them unwrapped, the two ranges look rather similar as the photo shows:



The internal lens arrangements of these eyepieces results in the shorter focal lengths requiring the longest housings and, comparison to many designs, these are large eyepieces. The Hyperions can be used in 2" mode if desired (though I did not). The Hyperions weigh in at between 329 grams (24mm) and 417 grams (5mm) while the LVWs weigh around 25% more across the range and this is rather noticeable as you pick them up and use them.

Both eyepiece ranges are finished to a high standard although Baader have used more, and chunkier, soft rubber surrounds and grips which I found very reassuring to hold with cold fingers. Vixen and Baader use screen printed lettering which does have the tendency to flake off over time, judging by used examples that I've seen for sale. The Hyperions are in an all-over black anodised finish while the LVWs have a smoother black finish but retain chrome barrels – a more traditional look and feel perhaps ?.

The colour coded rings around the eyepiece tops are purely cosmetic in my opinion, being undetectable in the dark. Beneath the Hyperions rubber surround and eyecup are male M54 and M43 threads which enable other accessories eg: for eyepiece projection, to be used. In the 5mm – 17mm Hyperions, the lower lens group / 1.25" barrel can be removed which reveals a 2" barrel threaded for 2" filters and the Hyperion Fine Tuning Rings. I believe you can use the Hyperions without the lower lens group in place when they become 22mm 2" eyepieces, however I did not try that. The Vixen LVW's do not have the above features – I'm assuming that they are intended for use solely in 1.25" mode.



From the above top down view, we see that the Hyperions (to the left) employ larger diameter eye lenses than the LVWs in all but the 24mm focal length (bottom left) which, for reasons unknown to me, uses a significantly smaller eye lens. The Vixen coatings have a strong purple tint whereas the Baader Phantom Coatings look paler, with a grey / light purple colour, depending on the angle you view them from.

Using Them

I won't attempt to do an in depth, blow by blow, performance comparison of the two brands at each focal length as it would make rather tedious reading and would require a level of recording and analysis that was beyond the scope of my testing. As I was observing, switching between the eyepieces, certain characteristics did become evident which I'll try and summarise at the end of these observing notes. I must also say that these are just my impressions, with my scopes under my observing conditions – “your mileage may vary” as the saying goes !.

I tried all the eyepieces from both ranges on a selection of astronomical objects over 4 viewing sessions with varying viewing conditions. The scopes I used were an Orion Optics 10" F/4.8 newtonian, an Intes 6" F/5.9 maksutov-newtonian and a Vixen 4" F/6.5 ED refractor.

Objects observed included the Epsilon Lyrae (the “Double Double”), Polaris & companion, Iota Cassiopeia, M57 (the Ring Nebula), M27 (the Dumbbell Nebula), Vega, the double cluster in Perseus, galaxies M31, M32, M110 and M33, M15 globular cluster, Jupiter, Uranus, the Moon and the Pleiades cluster.

Both sets of eyepiece are more or less par-focal within their range. There is a few mm difference between their focal points so swapping between the brands requires a quarter turn of so on focuser wheel to re-focus.

The slightly smaller field of view of the Vixen LVWs was barely, if at all, noticeable in actual use. I didn't attempt to check the claimed fields of view but they looked broadly as per the manufacturers specifications.

With the 10" F/4.8 newtonian, the Vixen LVWs were noticeably better corrected at the edge of the field of view with stars showing as pinpoints almost right to the edge. The Hyperions while sharp across the central area of the field did show astigmatic stars in outer 20% of the field although this was not as pronounced as some less expensive wide field eyepieces that I have tried. It is also more noticeable at lower magnifications. When used in my F/5.9 maksutov-newtonian the Hyperion astigmatism was significantly reduced and with my 102mm F/6.5 refractor it was hardly noticeable at all.

Views of above deep sky objects were very similar in both eyepiece ranges across the central 80% of the field of view with their light throughput seeming equal to my eyes.

The number of stars visible amidst the misty glow M27 of in 17mm focal lengths and above were the same in both eyepiece types. The extent of nebulosity shown and the contrast within it looked virtually identical to me as well.

The double cluster in Perseus was excellent and sharp in both EP types. Stars towards the field edge were better defined in LVW as noted earlier.

The core region of galaxy M31 as well as M32 and M110 all fit into FoV of the 22mm LVW and 24mm Hyperion in my 1200mm focal length scope. They just spill over the edge of 17mm focal lengths in both brands. Again the field of view differences between the brands was not noticeable during viewing.

With the 10" Newtonian, the globular cluster M15 resolved into 1000's of tiny star points with a condensed core from 13mm and upwards focal lengths in both ranges. With the 6" mak-newtonian this cluster was, understandably, not as bright and the star resolution not as extensive (globulars love aperture !) but both brands of eyepiece enabled the smaller mak to give the cluster it's best shot.

Good detail on Jupiter at 5mm and 8mm was visible with both eyepiece brands. Light scatter is possibly just a tiny bit better controlled in the LVWs compared to their Hyperion cousins – the sky around the planet seemed a little darker with the Vixens. Both brands 5mm versions allowed the Great Red Spot to be seen with the 4" refractor. 5mm LVW showed a faint "ghost" image of Jupiter amongst the Galilean moons that was not seen with the Hyperion 5mm or the 8mm LVW. This very faint ghost was also seen with the other scopes I tried the LVW 5mm in. It was not distracting by any means though.

The tiny pale blue-green disk of Uranus was nicely resolved with 5mm (240x) of both Baader and Vixen with the 6" F/5.9 mak-newtonian.

The face on, and rather faint from my back garden, galaxy M33 was seen as faint patch of light with slight condensing of light towards centre. Again both eyepiece types seemed to show this object equally well in all 3 scopes though naturally the galaxy was more distinct with 10" of aperture !.

Rising in the early hours, the Pleiades looked very nice at low power but edge performance of 24mm Hyperion, in the fast Newtonian, started to get a little distracting I felt. By contrast the stars were almost sharp to the edge again with the LVW 22mm in this scope.

The A, B and C components of the triple star Iota in Cassiopeia, were well split with 5mm and 8mm eyepieces (both brands) when used with my 4" F/6.5 ED refractor. The closer pair were "suggested" rather than split with both the 13mms.

As mentioned above, in the F/6.5 refractor the Hyperions edge correction had improved markedly to a 90-95% non-astigmatic field of view. The LVWs sharp right across at this focal ratio of course.

During a session with the 6" mak-newtonian (F/5.9) I observed the double double, Polaris, the double cluster, Jupiter and the moon through very light hazy veil of cloud.

Both pairs of the double double, Epsilon Lyrae, were cleanly split at 112x with the Hyperion and LVW 8mm's. The split was very clear and easy at 180x with the 5mm versions. Polaris showed off its 9th magnitude companion very easily with even the lowest magnifications.

Jupiter was showing good detail and the Great Red Spot (GRS) was distinct. I used 8mm and 5mm Hyperions and LVWs and also used 28mm fine tuning ring on the 8mm Hyperion to make it a 5mm. The views were excellent and very similar with all eyepieces including the "fine tuned" Hyperion 8mm. Again there were suggestions that the LVWs possibly scatter a little less light than Hyperions but that could have been the hazy cloud I was observing through on this occasion.

The image quality and planetary contrast held up towards field edge slightly better with LVW but was pretty good in both with the GRS and cloud band details remaining visible right up to field stop edge in 5mm eyepieces as I let the planet drift right across the field of view.

Using the Hyperion 8mm with the 28mm fine tuning ring V's 5mm Hyperion resulted in almost dead heat – with identical views, at least to my eyes. The fine tuning rings really do seem to work well and give further flexibility to the Hyperion range.

The double cluster dominated the field with the 24/22mm's. The LVW is sharp to the edge at F/5.9 while the Hyperion was 85% sharp, remaining 15% stars showed some astigmatism but not too distracting I felt. Viewing the Pleiades field proved the same – Hyperion edge astigmatism is there around F/6 but not anywhere near as distracting as it was with the F/4.8 newtonian.

Finally I observed a 90% illuminated Moon with the 6" mak-newtonian with the 5mm and 8mm focal length Hyperions and LVWs. Details seen of lunar features were very similar in both eyepiece types. The Vixen LVWs do seem slightly better at controlling glare and sky looked blacker adjacent to the lunar limb as it had with Jupiter. With the 900mm focal length maksutov the whole lunar disk will fit into the 8mm field of view.

During this session I noticed that the eyepiece field edge was defined like a knife edge with all the LVWs, slightly less well defined with the Hyperions although this is a minor factor I feel.

Final photo – mid-testing – Baaders to the right, Vixens to the left:



Summary

Baader Hyperion

A thoughtfully designed and well made range, I felt that the Hyperions were very nice eyepieces to own and use. They are a significant step up from the eyepieces supplied with scopes and standard quality plossls and, with their carefully thought out packaging, seem to me to deliver good value for their approx £92.00 retail price.

The modular options such as the fine tuning rings really do work and add flexibility and further value to the range, with the exception of the 24mm which cannot be used with the FT rings. They (like the Vixen's) are large eyepieces but their extensive use of rubber makes their handling secure and reassuring.

Optically they are very comfortable to use and seem able to deliver excellent quality views of a wide range of astronomical objects. In scopes slower than F/6 or so I think they perform at their best. In faster scopes than this the edge of field astigmatism could prove distracting when viewing extended objects but this will not bother everybody by any means. While their control of light scatter around bright objects does not appear to be quite as good as the Vixens, by others standards, they are still pretty decent in this respect.

Vixen LVW

The LVWs are rather understated compared directly to the Hyperions but are clearly high quality items as soon as you pick them up. With the exception of the printing on the barrels, which I know does flake in time, the LVWs finish is impeccable. They have noticeably more “heft” to them than the Hyperions do and their weight may cause some scope balance issues.

Optically I felt that, while very similar on many occasions to the Hyperions, the LVWs show their quality at the field edges and in really effective suppression of stray light which suggests a really well balanced blend of internal baffling, glass and coating quality. At their best they reminded me of the views I have had through Pentax XWs and Tele Vue Panoptics. The 5mm LVW did seem to have a slight “ghost” when viewing Jupiter.

The Vixen LVW’s cost twice as much as the Baader Hyperion’s and, to me at least, they do deliver slightly superior performance in some areas as mentioned above. I won’t attempt to pass an opinion on whether or not these differences are worth the additional cost as that must be a personal decision. Owners of fast scopes will derive more benefit from the higher investment in my opinion although the Vixen pricing does take them into the territory of some other serious rivals.

Many thanks again to Steve and James at First Light Optics for trusting me with these 10 very nice pieces of kit for a few weeks.

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