

GROUP test

Snap into focus

Get a pristine view through larger cameras and eyepieces with these 2-inch Crayford focusers

WORDS: MARK PARRISH

Heavyweight cameras and eyepieces can place big demands on standard focusers. If it is a rack and pinion model or cheap Crayford, it may suffer from backlash – the irritating ‘delayed’ movement experienced as you focus in and out. This is caused by a small amount of slack between the gear teeth, a result of poorly fitting or flexible components, and can make it difficult to lock the drawtube in position to take images or make fine enough movements to reach that elusive perfect focus position.

Each of the 2-inch Crayford focusers in this month’s *Group test* is robust, has locking screws and two speeds for fine focusing. All but one of the models are mounted on base plates. They are suitable for use on Newtonian telescopes, often as a direct replacement for an existing unit. Read on to find out if the cost of these upgrades is justified by the benefits they offer.

ALL PHOTOS: PAUL WHITFIELD



How we tested

The six Crayford focusers were tested using the same criteria: **build and design**, **ease of use**, **features**, **smoothness** and **travel range**. These criteria were given a percentage rating and the average was taken to give an overall score. The features we looked at included:



Build quality

Stargazers rightly expect products to last. We examined the build quality of each focuser, especially the moving elements, screw fittings and adjusters. These should all be accurately machined and smooth in operation.



Controls

Smooth focus controls are vital and fine movements should be easy to achieve with no backlash. We checked to see if the locking screws prevented any movement of the focuser, which is especially important when imaging.



Extra features

We looked for extras such as 1.25-inch reducers for smaller eyepieces, dust caps and tube extenders. Multiple locking screws and integrated brass compression rings should protect valuable eyepieces while maintaining a good grip.



Materials

The materials used should be resistant to corrosion, while the applied finish should protect the focuser from the elements and resist wear. Although not essential to everyone, we also looked at the aesthetic quality of the products.



Movement range

Because these focusers need to accommodate eyepieces and photographic accessories, a good range of movement is required. We checked this and measured the heights above and inside the mounting plate.

Revelation Astro Newtonian Crayford

VITAL STATS

- Price £104.99
- Focuser travel 30mm
- Speeds 10:1
- Lowest profile 64mm
- 1.25-inch adaptor Yes
- Weight 900g
- Supplier Telescope House
- Tel 01342 837610
- www.telescopehouse.com

FINISHED IN GLOSS black, machined from a thick alloy and with generously sized controls, the 64mm-high Revelation Astro Newtonian Crayford Focuser Dual Speed has a bombproof feel. The thick-gauge drawtube has a 18mm-wide drive surface, which provides plenty of grip for the drive shaft, and the locking screw has a brass insert that fits in a deep milled slot.

The focuser is supplied with a 1.25-inch reducer, which has its own screw and compression ring. At 900g it was the heaviest focuser on test, so balancing your telescope (especially tricky with some Dobsonian mounts) might be an issue. The main focus wheels have a knurled, soft rubber surface, which made them easy to use when wearing gloves. The 10:1 gearbox was smooth, and though movements were light and easy the drawtube never slipped, even under heavy loads. The plastic-coated fine focus wheel had a slightly flexible feel to it – it didn't seem quite as positive

VERDICT

FOR Solid construction
AGAINST Heaviest on test

BUILD AND DESIGN	93%
EASE OF USE	93%
FEATURES	90%
SMOOTHNESS	89%
TRAVEL RANGE	86%
OVERALL	90%

as some of the others we tested, although this didn't affect its operation.

The 115mm x 90mm base plate has four machined screw holes as well as central slots, which allows for accurate positioning to align it with the secondary mirror. The set screw that holds the eyepiece was well-fitted, but we found the drawtube locking screw disconcertingly wobbly in its thread when loosened. It's unlikely that it would ever fall out, but this let down what is otherwise a chunky and well-built product.

Optical Vision Dual-Speed Crayford

VITAL STATS

- Price £99.99
- Focuser travel 34mm
- Speeds 10:1
- Lowest profile 54mm
- 1.25-inch adaptor Yes
- Weight 880g
- Supplier Optical Vision Ltd
- Tel 01359 244255
- www.opticalvision.co.uk

IF IT IS height and range of movement you are looking for, then this is the focuser for you. With a body height of 54mm and 34mm of travel, the basic stats aren't too impressive, but an integral extension tube adds another 61mm to overall range. At full height this arrangement was still rigid, making it suitable for the heaviest of eyepieces.

Several focusers in our test appear to share components – this model has the same type of 1.25-inch adaptor used in the Lacerta. The gearbox has a smooth matte finish, which looked nice against the shiny tube components.

This substantial chunk of metal is the second heaviest on test, although for that weight you do get the generous extension tube, unlike the heavier Revelation Astro focuser. The reduction gearing was smooth and felt quite positive, with no sense of backlash. It has a narrow drive surface, which

VERDICT

FOR Good range of movement
AGAINST Poor locking arrangement

BUILD AND DESIGN	83%
EASE OF USE	88%
FEATURES	92%
SMOOTHNESS	85%
TRAVEL RANGE	89%
OVERALL	87%

makes it more prone to slipping, and the set screw was fitted very poorly, with its tiny nylon insert pressed directly against the drive surface. Because the drive surface is not machined right to the end, the nylon tip sometimes caught its raised edge, preventing full movement unless it was backed right off, and this interfered with otherwise smooth focusing. At full extension, the locking effect was therefore not so good – a shame on what is otherwise a well-made device.

Lacerta Low-Profile Crayford

VITAL STATS

- Price £136
- Focuser travel 25mm
- Speeds 10:1
- Lowest profile 43mm
- 1.25-inch adaptor Yes
- Weight 740g
- Supplier 365 Astronomy
- Tel 020 3384 5187
- www.365astronomy.com

AT JUST 43MM high and weighing 740g, the Lacerta Low-Profile Crayford 1:10 Micro-Focuser is one of the lightest and smallest in our test. The low height may appeal to astro imagers and binoviewer users in particular, as it can be tricky to bring these to focus using taller models.

This focuser appears to have the same well-made base plate as the Revelation Astro, but the similarities end there. The drawtube has a thinner gauge and an 11mm-wide drive surface; we could make it slip under heavy loads, but not in normal use. The reason for the thinner drawtube is a built-in extension tube – by releasing a second set screw, you can raise the eyepiece tube a further 50mm, giving a whopping 75mm range of movement overall. Even at full extension the unit was rigid, with no signs of 'droop'.

A 1.25-inch eyepiece adaptor is included, but it is a split collet type that relies purely on friction to hold the

VERDICT

FOR Built-in extension tube
AGAINST Wobbly set screws

BUILD AND DESIGN	91%
EASE OF USE	89%
FEATURES	92%
SMOOTHNESS	90%
TRAVEL RANGE	82%
OVERALL	89%

eyepiece and lacks the reassuring safety undercut of the Revelation Astro. Focus is achieved by turning the 38mm-diameter alloy wheels and a smaller, gold-anodised 10:1 reduction wheel. The fluting on the wheels is quite crisp, offering good grip and a positive feel. The locking screw has a nylon insert that effectively disengaged the drive and held the tube still, although it needs to be tightened quite firmly. Once again, loose threads on the set screws were disappointing.

Optical Vision Low-Profile Crayford

VITAL STATS

- Price £129
- Focuser travel 25mm
- Speeds 10:1
- Lowest profile 43mm
- 1.25-inch adaptor Yes
- Weight 810g
- Supplier Optical Vision Ltd
- Tel 01359 244255
- www.opticalvision.co.uk

THE SECOND FOCUSER from Optical Vision is a low-profile model and, as such, better addresses the needs of astro imagers than its taller stablemate. At first glance it appears to be identical to the Lacerta model – there's little doubt that most of the parts probably originated from the same source. A quick test on the scales revealed an extra 70g of metal for your money – this appears to be due to a chunkier base plate, which lacks the adjustment slots. The screw holes are countersunk, which seemed a little odd as many components are secured using socket cap screws.

The anodised focus wheels looked the same as the Lacerta's, but the flutes were very slightly more rounded and didn't afford such positive grip. We also felt a subtle difference in the feedback when operating the fine focus: there was a little more springiness and it seemed slightly

VERDICT

FOR Low profile
AGAINST Awkward mounting arrangement

BUILD AND DESIGN	87%
EASE OF USE	89%
FEATURES	92%
SMOOTHNESS	85%
TRAVEL RANGE	82%
OVERALL	87%

less positive than the Lacerta – this could possibly be caused by some differences in the internal components or manufacturing.

Looking into the minutiae, we noticed that you need to remove the focuser from its base plate to access the lower two mounting holes, as they are partially obscured by the gear shaft housing. This is not too serious, but a bit fiddly. You'll need to use a tiny Allen key.

Baader Planetarium Steeltrack

VITAL STATS

- Price £186
- Focuser travel 30mm
- Speeds 10:1
- Lowest profile 44mm
- 1.25-inch adaptor No
- Weight 780g
- Supplier David Hinds
- Tel 01525 852696
- www.dhinds.co.uk

THE BAADER PLANETARIUM focuser exudes quality. Every feature is beautifully engineered, resulting in silky smooth operation. With a 44mm-high main body, this focuser has a low profile as well as a generous 30mm range of movement, although you may need a tube extension if you plan to use it for imaging.

Steeltrack refers to the stainless steel drive plate, which will resist wear and gives plenty of grip. The large, 41mm-diameter main focus wheels and an effective brass-tipped locking screw allow this focuser to handle heavy loads with ease. The drawtube boasts three set screws, which provide a reassuring grip while maintaining a well-centred eyepiece or camera nosepiece.

Every threaded or knurled element is accurately made: it really did feel like we were operating a piece of precision machinery. The smooth gears, combined with the weighty wheels and drawtube, provided a real sense of feedback when

VERDICT

FOR Can handle heavy loads
AGAINST No accessories

BUILD AND DESIGN	96%
EASE OF USE	95%
FEATURES	90%
SMOOTHNESS	96%
TRAVEL RANGE	86%
OVERALL	93%

focusing back and forth. Following a brisk spin of the shaft, we could even sense the momentum of the spinning gears inside, which was rather satisfying, if not strictly useful when observing.

The neatly printed drawtube scale is helpful if you want to note a particular setup for future use. A dust cap is provided, but a 1.25-inch adaptor is not. It is clear that although this is not a cheap option, no corners have been cut and you'll get something that's built to last.



SkyatNight
MAY 2012
HIGHLY
COMMENDED
93%

Starlight Instruments Feather Touch

VITAL STATS

- Price £339 (add £30 for adaptor plate)
- Focuser travel 65mm
- Speeds 10:1
- Lowest profile 36mm
- 1.25-inch adaptor No
- Weight 520g (without base plate)
- Supplier The Widescreen Centre
- Tel 020 7935 2580
- www.widescreen-centre.co.uk

THE FEATHER TOUCH 2-inch boasts some innovative variations on the standard Crayford design – it has a remarkably compact gearbox and its bearings are mounted on recessed steel bars in slots on the same side as the drive shaft. This results in very precise movement with no signs of flexure.

The drive surface is a steel plate similar to that of the Baader model, and there is evidence of a similarly high standard of engineering in every respect. Even the pair of set screws felt deliciously smooth and 'buttery' in use. The body has a very low profile, while the drawtube has the largest range of movement of all the focusers on test. It is worth noting that in its lowest position, this extends to about 60mm below the base plate – possibly into the optical path, which could affect an image. At just 520g, it's also featherlight.

A base plate is not supplied, but the focuser can be attached to an existing one using an adaptor. However, you'll need to

VERDICT

FOR Innovative engineering
AGAINST Expensive

BUILD AND DESIGN	96%
EASE OF USE	94%
FEATURES	88%
SMOOTHNESS	97%
TRAVEL RANGE	97%
OVERALL	94%

specify the size of the telescope you are fitting the focuser to when you order, so that you get an adaptor that fits.

This is a delightful focuser that performs wonderfully. Small details set it apart from the other models on test – its locking screw, for example, applies pressure to the shaft and can be used to adjust friction as well as lock the tube. The focus wheels are smaller too: the 21mm-diameter fine focus feels light and precise, although with a gloved hand it is a little tricky to operate.



SkyatNight
MAY 2012
GROUP TEST
WINNER
94%

OVERALL WINNER

Starlight Instruments Feather Touch

AT FIRST GLANCE these focusers have many similarities, and not just because they are all based on John Wall's original design. However, each has its own strengths and weaknesses.

The low-priced Revelation Astro is impressively chunky and built to last, although its weight could deter some. Optical Vision's two offerings, one traditional and one low profile, both incorporate a very useful extension tube, which we like. Lacerta's focuser is similar to Optical Vision's low-profile model, but had a better base plate and seemed to just have the edge in terms of quality control.

At the top end of the price scale we have the heavy-duty model by Baader and the low-profile model by Starlight Instruments. Both were well built and used high-quality

components. Attention to detail meant that each performed wonderfully, with no signs of play or backlash. Although their designs differ considerably, both moved smoothly, could carry good loads and could be effectively locked off for imaging. Neither offer frills such as 1.25-inch adaptors or built-in extension tubes, so further investment on top of their already hefty price tags may be required. But for sheer build quality and satisfaction they stand out.

It was hard to choose between them for an overall winner, but the Starlight Instruments Feather Touch just tips the balance for all-round quality and range of movement, even though it requires a separate base.

NEXT MONTH
OUR NEW-LOOK
REVIEWS
SECTION



At-a-glance guide	Revelation Astro	Lacerta	Optical Vision	Optical Vision	Baader Planetarium	Starlight Instruments
MANUFACTURER	Revelation Astro	Lacerta	Optical Vision	Optical Vision	Baader Planetarium	Starlight Instruments
MODEL	Newtonian Crayford Focuser Dual Speed	Low-Profile Crayford 1:10 Micro-Focuser	Dual-Speed Crayford	Low-Profile 2-inch Crayford	2-inch Steeltrack	Feather Touch 2-inch
PRICE	£104.99	£136	£99.99	£129	£186	£339 (add £30 for adaptor plate)
FOCUSER TRAVEL	30mm	25mm	34mm	25mm	30mm	65mm
SPEEDS	10:1	10:1	10:1	10:1	10:1	10:1
LOWEST PROFILE	64mm	43mm	54mm	43mm	44mm	36mm
1.25-INCH ADAPTOR	Yes	Yes	Yes	Yes	No	No
WEIGHT	900g	740g	880g	810g	780g	520g (without base plate)
SUPPLIER	Telescope House	365 Astronomy	Optical Vision	Optical Vision	David Hinds	The Widescreen Centre
SCORE	90%	89%	87%	87%	93%	94% WINNER

ALL PHOTOS BY PAUL WHITEFIELD