



PhotoPlus SUPER TEST





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Macro lenses

Get in close and capture life's little things in extraordinary detail. We put the top macro lenses from Canon, Sigma and Tamron to the test

P rime lenses are renowned for their sharpness, and that's especially true of 'macro' optics, which can typically resolve immensely small detail. All of the lenses in this Super Test enable full 1.0x or 1:1 magnification at their closest focus distance. That might not sound massively impressive but, essentially, it means they have the potential to reproduce small objects at full life-size on the camera's image sensor. For example, you

could fill the entire image frame of an APS-C-format camera like the 700D or 70D with something as small as a postage stamp; view the resulting image on a computer screen, or as a large-format print, and the potential for enlarging tiny details is little short of astonishing.

Apart from Canon's EF-S 60mm lens, which is specifically designed for APS-C bodies, all the lenses we've chosen for this test group are fully compatible with both APS-C and full-frame cameras. Even so, there are significant differences between them when it comes to focal length, autofocus systems and the provision – or absence – of image stabilisation. So let's take a closer look at what each lens has to offer, and also at which features are the most important when making your macro choice... ▶



Our eight on test

- | | |
|--|------|
| 1 Canon EF-S 60mm f/2.8 Macro USM | £365 |
| 2 Sigma 70mm f/2.8 EX DG Macro | £365 |
| 3 Tamron SP AF 90mm f/2.8 Di Macro | £370 |
| 4 Sigma 105mm f/2.8 EX DG OS HSM Macro | £380 |
| 5 Tamron SP 90mm f/2.8 Di USD VC Macro | £400 |
| 6 Canon EF 100mm f/2.8 Macro USM | £430 |
| 7 Sigma 150mm f/2.8 EX DG OS HSM Macro | £700 |
| 8 Canon EF 100mm f/2.8L Macro IS USM | £740 |



Canon EF-S 60mm f/2.8 Macro USM

www.canon.co.uk

Tailor-made for cameras with APS-C image sensors, this is the only lens in the group that's incompatible with full-frame bodies. Plus points include a compact build, and the lens is only about half the weight of many larger competitors. Even so, build quality feels sturdy and robust, and high-end features include fully internal focusing, so the front element neither rotates nor extends; the latter is a bonus considering the minimum focus

distance is a mere 20cm. Further refinements include fast and whisper-quiet ring-type ultrasonic autofocus, with full-time manual override in One Shot AF mode.

The 'effective' focal length of 96mm is almost identical to the often-favoured 100mm on a full-frame camera, so it's a good choice for most types of macro shooting. It also makes the lens more useful for portraiture on APS-C bodies, compared with the longer focal lengths of most macro lenses. More good news is that sharpness and contrast are very good, from the widest aperture of f/2.8 right the way down to f/16. The sharpness drops off a little at the narrowest aperture of f/32, due to the diffraction of light passing through the constricted diaphragm, but this is normal.



PhotoPlus Target Price **£365**



PhotoPlus Verdict

- ✓ Refined handling and advanced features; lightweight and compact
- ✗ High-g geared focus ring makes precise manual adjustments tricky

86%

Canon EF 100mm f/2.8 Macro USM

www.canon.co.uk

An almost direct equivalent to Canon's EF-S 60mm lens, but for full-frame cameras, this one is quite a lot larger and nearly twice as heavy. Similarities include fully internal focusing and speedy ring-type ultrasonic autofocus, although it's not quite as quick as in the smaller lens. The filter thread is larger, at 58mm, and in both cases you need to buy the lens hood separately – all the other lenses on test come with a hood.

One feature of this lens that the 60mm lacks is a focus limiter switch. This quickens autofocus in practical terms, as the system doesn't have to hunt through its whole travel when acquiring tricky targets. It's a shame, however, that the two-position switch only enables either full travel or longer focus distances of between 48cm to infinity; you can't lock out the long end of the range for close-up shooting, where lenses are more prone to AF 'hunting'.

The manual focus ring is a lot larger than on the 60mm lens, and more comfortable to use. However, the amount of travel still isn't generous, making precise close-up adjustments tricky. Image quality is on a par with the smaller lens, with excellent sharpness and contrast from f/2.8 to fairly narrow apertures.



PhotoPlus Target Price **£430**



PhotoPlus Verdict

- ✓ Sturdy build, fast autofocus and very good overall image quality
- ✗ Focus limiter switch only works for the longer end of the range

87%

Canon EF 100mm f/2.8L Macro IS USM

www.canon.co.uk

Full of refinement, this is Canon's range-topping macro lens, with all the usual L-series trappings, such as weather-seals and super-fast ring-type ultrasonic autofocus. Unlike the other Canon 100mm lens on test, it also has a three-position focus limiter switch, which can lock the range to either the short or long end. A big selling point is the 'hybrid' stabiliser, which was developed specially for this lens. Canon claims a

four-stop advantage for general shooting, three stops for close-up work at up to 0.5x magnification, and two at full 1.0x magnification. These claims were borne out in our tests but, ultimately, the system didn't prove any more effective than in the competing Sigma or Tamron lenses.

Despite being slightly larger and heavier than Canon's non-stabilised 100mm macro lens, this one is still very manageable, and doesn't require a tripod collar and mounting foot. Manual focusing is a bit more precise than in the other Canon lenses, but there's very little to choose between them in terms of image quality. Overall, the big increase in price compared with the equivalent Sigma 105mm OS and Tamron 90mm VC lenses is difficult to justify.



PhotoPlus
Target Price
£740



PhotoPlus Verdict

- ✓ Pro build quality with weather seals; hybrid image stabiliser
- ✗ A lot more expensive than most competing stabilised lenses

88%

Sigma 70mm f/2.8 EX DG Macro

www.sigma-imaging-uk.com

Despite being compatible with full-frame cameras, the Sigma 70mm only has a slightly longer focal length than the APS-C-only Canon EF-S 60mm. It's a similar story with the minimum focus distance, which is just 25cm compared with the Canon's 20cm. The Sigma's physical length is noticeably longer, at 95mm as opposed to 70mm, and a crucial drawback is that, unlike the Canon lens, it doesn't feature internal focusing;

the Sigma extends to nearly twice its physical length at its shortest focus distance, putting the front element of the lens uncomfortably close to the subject you're photographing.

One plus point is that manual focusing is extremely smooth and precise, with a focus limiter switch that operates either side of about 50cm. However, another downside is that the micro-motor-based autofocus is noisy and sluggish, and handling is impaired by the manual focus ring rotating during autofocus.

Image quality is good all round, with plenty of sharpness and contrast. But, taking everything into account, at least for APS-C cameras, the Canon EF-S 60mm is a much more attractive buy, especially considering that both lenses cost exactly the same. ▶



PhotoPlus
Target Price
£365



PhotoPlus Verdict

- ✓ Decent image quality; manual focusing is smooth and precise
- ✗ Barrel extends massively at shorter focusing distances; no stabilisation

75%



Sigma 105mm f/2.8 EX DG OS HSM Macro

www.sigma-imaging-uk.com

Costing only £15 more than Sigma's own 70mm macro lens, this 105mm lens is in an entirely different league. It boasts rapid ring-type ultrasonic autofocus, fully internal focusing and a four-stop image stabiliser, complete with switchable static and panning modes. The focus limiter switch is also refined, with three independent positions, while handling is far superior thanks to the manual focus ring not rotating during autofocus.



Full-time manual override is also available in One Shot AF mode.

The lens works brilliantly as both a short or medium telephoto prime on full-frame or APS-C bodies respectively. In macro shooting, focusing is smooth and precise; as usual, the effectiveness of the image stabiliser drops off at very close focus distances but, overall, it compares well with Canon's 'hybrid' system in the EF 100mm IS USM. Image quality is excellent, with stunning sharpness. The Sigma lacks the Canon L-series lens's weather seals but, in all other respects, it delivers the same high levels of performance along with reassuringly rugged build quality, yet costs about half the price. It's quite simply a fabulous lens that's also unbeatable value for money.

PhotoPlus Target Price **£380**



PhotoPlus **BEST VALUE**

PhotoPlus **BEST ON TEST**

PhotoPlus Verdict

- ✓ Unbeatable handling and image quality; highly effective stabiliser
- ✗ Doesn't have weather seals to help keep out dust and moisture

96%

Sigma 150mm f/2.8 EX DG OS HSM Macro

www.sigma-imaging-uk.com

An upscaled version of the Sigma 105mm macro, the longer focal length of this lens results in a correspondingly longer minimum focus distance of 38cm, compared with 31cm. It therefore has an advantage when you're shooting timid bugs, and there's a reduced risk of casting a shadow over your subject when relying on ambient light from a source that's behind you. The design of both lenses is very similar, with the same layout



of the stabiliser, autofocus and focus limiter switches.

At 1.15kg this is the heaviest lens in the group, and the only one to come complete with a tripod mounting collar and attachment foot. As such, good balance is maintained for tripod-mounted shooting, and rotation between landscape and portrait orientation is easy. The focal length is a little long for typical portrait shooting, especially on an APS-C body, where it's equivalent to a 240mm lens on full-frame cameras, but this pays dividends for telephoto shooting.

As a macro lens, it boasts the same high level of image quality as the Sigma 105mm but, in our tests, autofocus proved a little fidgety in extreme close-up use. You also pay a hefty premium for the extra focal length.

PhotoPlus Target Price **£700**



PhotoPlus Verdict

- ✓ Excellent image quality; refined features; tripod collar supplied
- ✗ Comparatively expensive; some autofocus hunting at close range

90%

Tamron SP AF 90mm f/2.8 Di Macro

www.tamron.eu

Older lenses can't be expected to improve with age, but this Tamron has certainly stood the test of time. It's not exactly bristling with high-tech features, and lacks ultrasonic autofocus, optical stabilisation or even an internal focus system, which means the lens barrel extends dramatically at shorter focus distances, as with the Sigma 70mm. Even so, the somewhat basic micro-motor-driven autofocus is reasonably

quick and quiet, helped by a focus limiter switch which operates either side of about 40cm.

A push-pull focus ring enables easy switching between autofocus and manual focus; it's not quite as refined as full-time manual focus override, but it's the next best thing. Manual focusing itself is smooth and precise.

What the Tamron lacks in mod-cons it makes up for in image quality, with excellent sharpness and contrast even at the widest available aperture. The deeply recessed front element helps to combat ghosting and flare, making the supplied lens hood all but redundant in most situations. Overall, it's a very good lens and something of a classic, although it's starting to be overtaken by newer models, not the least of which are from the Tamron stable.



PhotoPlus
Target Price
£370

PhotoPlus Verdict

- ✓ Impressive image quality in both macro and general shooting
- ✗ No longer great value compared with some more modern lenses

84%

Tamron SP 90mm f/2.8 Di USD VC Macro

www.tamron.eu

This relatively new edition of Tamron's 90mm macro lens is far from being simply a revamp of the old model reviewed above; it's a new beast entirely, and the latest technology abounds, with ring-type ultrasonic autofocus, fully internal focusing and Tamron's proprietary image stabilisation system. Indeed, it goes head to head with Canon's 100mm L-series lens by featuring weather seals, including a rubber ring on the mounting plate to

guard against the ingress of dust and moisture.

What's more, while the new Tamron was priced at £570 when launched, it seems to have been in something of a bruising price war with the competing Sigma 105mm macro lens, and they've come down to £400 and £380 respectively; older lenses like Tamron's original 90mm macro look poor value by comparison.

A three-position focus limiter switch aids handling, and the manual focus ring operates very smoothly. Along with its upmarket features and robust build quality, the lens delivers excellent image quality, producing slightly better sharpness and contrast than the older Tamron 90mm. In our tests the Sigma 105mm still had the edge in these respects, but there was very little in it. ▶



PhotoPlus
Target Price
£400



PhotoPlus Verdict

- ✓ Superior image quality and some high-end features; weather seals
- ✗ Not quite as sharp as the Sigma 105mm, and slightly pricier

93%



Macro lenses at a glance

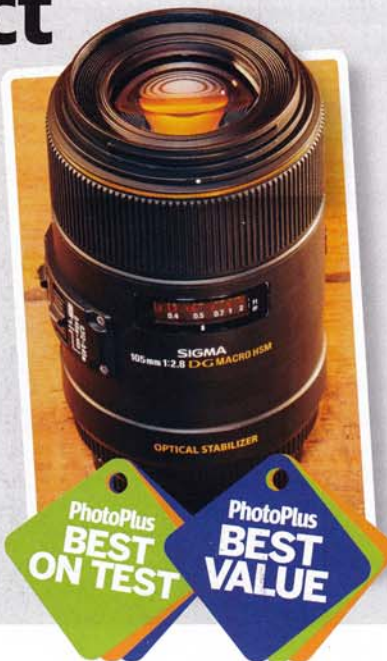


Name	Canon EF-S 60mm f/2.8 Macro USM	Canon EF 100mm f/2.8 Macro USM	Canon EF 100mm f/2.8L Macro IS USM	Sigma 70mm f/2.8 EX DG Macro	Sigma 105mm f/2.8 EX DG OS HSM Macro	Sigma 150mm f/2.8 EX DG OS HSM Macro	Tamron SP AF 90mm f/2.8 Di Macro	Tamron SP 90mm f/2.8 Di USD VC Macro
Aperture range	f/2.8-32	f/2.8-32	f/2.8-32	f/2.8-22	f/2.8-22	f/2.8-22	f/2.8-32	f/2.8-32
Full-frame compatible	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Effective focal length (APS-C)	96mm	160mm	160mm	112mm	168mm	240mm	144mm	144mm
Max magnification	1.0x	1.0x	1.0x	1.0x	1.0x	1.0x	1.0x	1.0x
Min focus distance	20cm	31cm	30cm	25cm	31cm	38cm	29cm	30cm
AF motor type	Ultrasonic (ring)	Ultrasonic (ring)	Ultrasonic (ring)	Micro-motor	Ultrasonic (ring)	Ultrasonic (ring)	Micro-motor	Ultrasonic (ring)
Internal focusing	Yes	Yes	Yes	No	Yes	Yes	No	Yes
Manual focus override	Full-time	Full-time	Full-time	None	Full-time	Full-time	Push-pull	Full-time
Focus limiter	None	Long/full	Short/long/full	Short/long/full	Short/long/full	Short/long/full	Short/long/full	Short/long/full
Image stabiliser	No	No	Four-stop hybrid	No	Four-stop	Four-stop	No	Four-stop
Filter size	52mm	58mm	67mm	62mm	62mm	72mm	55mm	58mm
Lens hood	ET-67B, £30	ET-67, £25	ET-73, included	Included	Included	Included	Included	Included
Dimensions (dia x length)	73x70mm	79x119mm	78x123mm	76x95mm	78x126mm	80x150mm	72x97mm	76x123mm
Weight	335g	600g	625g	527g	725g	1,150g	405g	550g
Target price	£365	£430	£740	£365	£380	£700	£370	£400
Verdict	86%	87%	88%	75%	96%	90%	84%	93%

PhotoPlus Verdict

The two standout lenses in this Super Test are the Sigma 105mm and the new edition of the Tamron 90mm. Both come complete with all the advanced features you could hope for, including ring-type ultrasonic autofocus, image stabilisation and fully internal focusing mechanisms. There's almost nothing to choose between them but, although the Tamron boasts weather seals, the Sigma wins out with its remarkable sharp image quality. Both lenses are also incredibly good value for money, and make the Canon 100mm L-series IS lens look rather overpriced.

If you're after a longer focal length, then the Sigma 150mm lens is the one to go for. On the other hand, if you're after a shorter lens for use only on APS-C-format bodies, the Canon EF-S 60mm is compact, lightweight and doubles up very well as a portrait lens; however, compared with some of the best newer lenses, the lack of image stabilisation is something of a letdown. ■



Five things we learned in this test

- 1 Manual focusing is often preferable for macro shooting, so a focus ring with a smooth and precise action is a big bonus.
- 2 Image stabilisation is a real advantage for general handheld shooting, but of relatively little benefit for extreme close-ups.
- 3 Internal focusing, featured in all but the Sigma 70mm and older Tamron 90mm lenses, is great for macro shooting, as the lens barrel doesn't encroach on the subject at shorter focus distances.
- 4 A focus limiter switch is useful to avoid end-to-end autofocus hunting. It's better still if you can limit the focus range to both the short or long end, for close-up or general shooting.
- 5 Ring flash systems are neat for even, shadow-free macro lighting. However, constant LED ring lights can be much more affordable for close-up shooting, with prices starting at around £50.