

## Can I use the Canon 100mm macro lens for portraits?

Absolutely. The 100mm 2.8 macro and macro USM lenses are both excellent portrait lenses in addition to being great macro lenses. The only problem is that they're extremely sharp lenses, and some people prefer softer lenses for portraiture, particularly of women. If you're in that camp you could always slap a soft focus filter onto the lens.

What happened to the solid all-metal lens barrels of yesteryear? Why is everything today made of plastic?

It's true that a lot of lens barrels of the 60s and 70s were solid finely-crafted metal masterpieces with smooth focussing spiral-shaped helicals and precisely-machined parts. Whereas today many lens barrels are made largely of plastic. There are a number of reasons for this - the rise of autofocus, rise in labour costs, lower SLR sales, improved plastics technology, a desire to make lighter-weight gear, increased profit margins for manufacturers and so on.

Certainly the rise of autofocus is a major factor. Autofocus lenses with geartrains (ie: ring USM lenses excepted) require a bit more looseness and play in the geartrain system. They also don't usually use long focussing helicals as that would take more battery life and time to focus. Manual focus lenses with helicals, by contrast, can be machined to very tight tolerances.

However, there are advantages to increased use of plastics in lens construction. Quality plastic is fairly resilient and doesn't dent like metal, plastic is obviously much lighter than metal, plastic components are less expensive to produce and can in theory result in lower prices to the consumer and so on.

So, while the old manual-focus lenses may feel great to hold and use and exude that terrific sense of precise quality that plastic lenses simply do not do, it's unlikely that less expensive autofocus lenses will ever be made with metal barrels. Note, however, that many Canon L series lenses use solid metal barrels and have reasonably tight-feeling manual focus rings. So if you're willing to spend the money you can still get metal lenses and retain autofocus.

### Grades of plastic

There's also plastic and there's plastic. Canon have used, very roughly speaking, three different grades of plastic shell material for their EF lenses over the years.

The first generation of EF lenses used a fairly brittle hard type of plastic, which I call type 1. (though that isn't, of course, an official Canon designation) This material was moulded with a slight rough texture and the lenses had basically parallel lines to their cylindrical barrels, with little if any tapering. Focus and zoom rings often did not have rubberized surfaces. The 50mm 1.8 mark 1 is an example of this late 80s type of design. In my experience, though this purely anecdotal, type 1 plastic is a bit more likely to crack upon impact than later plastics.

The second generation, particularly black L lenses and advanced amateur lenses, are made of a more resilient hard black plastic, which I call type 2. These lenses have relatively little texture - they're either quite smooth or have a subtle hammered finish. These barrels tend to have subtly tapered barrels rather than simple cylinders, and have rubberized zoom and focus rings. The 28-105 3.5-4.5 USM is an example of a midrange zoom of this construction, and the heavier 135mm 2.0L USM is an example of an L lens using this construction, albeit with thicker plastic and a generally sturdier design. Lenses of this type first came out in the early 1990s, and seem to me to be slightly less likely to crack upon impact - the plastic has a tiny bit more inherent flex to it.

Finally, inexpensive cheapie lenses over the past few years have been made of lightweight smooth plastic which I characterize as type 3. These lenses often have somewhat exaggerated rubber rings for zoom grips, and later models (late 90s on) have shiny chrome rings around the end to impress less experienced consumers. The EF-S 18-55 3.5-5.6 is a typical example of this type.