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# Macro

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Macro photography can show us a close-up world we never see with the naked eye, but capturing that close-up world is not easy. You will need specialized equipment to shoot true macro. What is true macro? True macro is when your subject is as large on your film or sensor as it is in real life. So, imagine taking a picture of a penny with a macro lens. You can literally take that penny and place it on the film and it will be exactly the same size. That is called 1:1 ratio. Shots of small insects often require shooting at a magnification which is larger than life size. 2:1 would be twice as big as 1:1.



## THE BASICS

Choose a strong subject. The subject is king in macro photography.

Use a telephoto macro lens. Telephoto macros give a little more working distance between the lens and the subject than normal macros. You need that little bit of space to reduce the chance of blocking your light sources, too. I suggest a 100mm macro or longer. A 100mm macro lens gives you about 5 inches of space between the lens and the subject.

Use accessories to turn your normal lens into a macro lens. Here are some examples.

**Extension Tubes** - Hollow tubes that mount between the camera and the lens. Extension tubes change the focusing distance of the lens allowing you to get closer and increase the magnification of the subject. They usually come in 3 packs and can be stacked. An extension tube increases lens magnification by an amount equal to the extension distance divided by the lens focal length. A 50mm lens w/ a 25mm tube gives a magnification ratio of 1:2 or half lifesize.

**Bellows** - Bellows work like extension tubes but offer much greater magnification and focus control.

**Close Up Filters** - Close up filters screw onto your lens like a regular filter. They magnify the image just like a magnifying glass does. They usually come in packs with several magnifications, +1, +2, +3.

**Reverse Adapter** - A reverse adapter or 'reverse ring' screws onto the front of your lens. It has a lens mount on one side which lets you turn your lens around and mount it backwards on the body. They are usually used with 50mm lenses.

**Coupling Ring** - A coupling ring allows you to attach a lens, facing backwards, to the front of your existing lens. The reversed lens at the front acts like a diopter. This technique will produce extreme close ups. 50mm lenses are the usual choice but you can use any lens in the reversed position. Note: The magnification with a wide angle lens will be greater than with a 50mm.

Choose an angle that gives you the largest possible area of the subject in focus. In other words, if you shoot a wall at an angle only part of the image will be in focus, but if you shoot that wall straight on the whole image is in focus.

Shoot at very small apertures. f16 is recommended. Be aware of the limited depth of field in macro photography.

Control blur. When shooting at close range the camera and the subject shake easily. Every little movement is magnified. Use a tripod. Use a cable release or remote release. Manually focus with live view. Use a flash to help freeze the subject movement by allowing you to choose a reasonable shutter speed.

Choose a background without bright spots. Bright areas often produce strange and distracting bokeh (out of focus) effects.

Maximize your in-focus area. Since depth-of-field is very shallow in macro you should choose angles that allow larger areas of the subject to be in focus. For example, if you shoot a quarter from the side only the edge is in focus, but if you shoot it from the front the whole surface is in focus. Choose a good angle.

Don't rush. Wait for the breeze to subside. Wait for the light to change. Double check your settings. Test your lighting and observe where the shadows fall.

Diffuse and control your flash. Use cards to block the flash's light from hitting the background. Make sure your flash's light is not blocked by your lens. Use multiple flashes or a ring light to evenly light the subject. Unnatural shadows are very distracting in macro photographs.

There is no cropping factor in macro photography. Lifesize is lifesize whether your lens is mounted on a full frame or sub frame body. A 100mm macro is not a 160mm macro on a sub frame body when shooting at close range. Sub frame bodies do not give you longer working distances.

Use a focus rail to ensure pinpoint focusing by moving the camera by small amounts instead of turning the focus ring on the lens.

## ANOTHER WAY OF SHOOTING MACRO

If you have an enlarger lens you can adapt it and use it as a macro lens. You will need a Leica M39 adapter and extension tubes or a bellows. The extension is a necessity and you will need approximately 50mm of extension to make the lens usable. If you want to focus with an enlarger lens you either need a focusing rail or a helicoid or a bellows with rear focusing. Most folks use an M39 to M42 adapter at the front with an M42 helicoid or an M42 bellows in the middle.



You may choose to use a helicoid tube instead of a bellows. M42 to M42 helicoids are readily available in varying lengths. Helicoid extension tubes are much easier to focus and carry than a bellows unit. The shots below are shot handheld and with strobes. Note the shot taken with the Nikkor Micro. The Nikkor has better contrast than the Fujinon but you can clearly see the enlarging lens does very well.



Fujinon 75mm f4.5 w/ helicoid extension



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Fujinon 75mm f4.5 w/ helicoid extension



Fujinon 75mm f4.5 w/ helicoid extension



Nikkor 55mm f3.5 Micro



Fujinon 75mm f4.5 w/ helicoid extension



Fujinon 75mm f4.5 w/ helicoid extension

50mm enlarger lenses focus closer than 75mm lenses and therefore give you a better macro ratio. The drawback w/ 50mm's is that you must get very close in order to focus. You will be right on top of your subject. It is better to use extra extension tubes with a 75mm than to use a 50mm. It does not matter where you place the extra extension tubes because extension tubes do not use glass.