

What is DoF and how does it effect the final image ?

Part 2

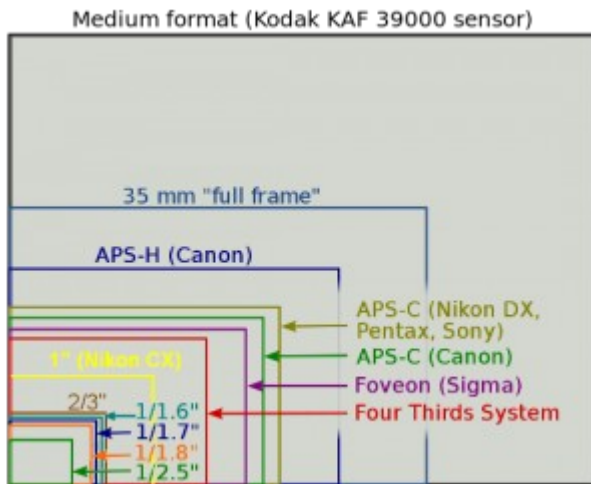
Depth Of Field = How Much Of The Photo Is In Acceptable Focus

I also discussed how you can alter how much of your photograph is in focus by using the Aperture setting on your camera.

We learned that:

The larger the f -number, the more that is in focus

Today, I'm going to look at the relationship between Sensor Size and DoF.



Sensor Sizes, Source: Wikipedia

The diagram, above, shows different camera sensor sizes from very small Compact Camera sensors, right up to huge Medium Format sensors.

Today I'm going to compare the DoF of a Consumer DSLR (APS-C Sensor) and a Superzoom Camera (1/1.6" Sensor).

This is not a formal test, there is a slight difference in framing between the 2 cameras, but it will illustrate the differences easily enough.

The Superzoom also produces softer images than the DSLR due to its lower quality optics.

We will start at $f/4$, and then compare $f/5.6$ and $f/8$.

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Note in the DSLR photo, the level of blur on the Bluebird Bitter and the Battle Axe bottles.



Looking at the Superzoom photo, you can see that the farthest bottles are already in near-focus. They're much sharper than the DSLR photo.

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By f/5.6 the DSLR is getting more in focus. Bluebird & Battle Axe are still not in focus, but they are a bit more distinct.



At f/5.6 everything is now focused by the Superzoom's small sensor.

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At $f/8$, the Bluebird Bitter is focused by the DSLR. Battle Axe is almost focused. (It's easier to see the difference on the full-size image than on this web post.)



Everything is still in focus here. No real visible difference between $f/5.6$ and $f/8$. At full size you can see the difference between $f/4$ and $f/5.6$, but not between $f/5.6$ and $f/8$.

This test has shown quite clearly that a smaller sensor keeps more of the image in focus.

More critically,

Large Sensors give more control over Depth Of Field

Remember Depth Of Field Part 1? If you click through to the article, you can see that the DSLR enables us to either have very blurred backgrounds (small f -numbers like $f/2$), or everything in focus (with large f -numbers like $f/16$).

To illustrate the point further I will now show a more stark example using just 2 bottles.

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At f/3.5, and closer to the subject, we can see just how small the focused area is using the DSLR. The second bottle is only about an inch behind the first, yet it is well out of focus.



The same image, shot by the Superzoom, and both bottles are in focus. The areas of light from the window are focused too, unlike the DSLR photo. Even the background rail on the wall is almost focused. On the DSLR shot, it's just a white blur.

The point of this article is to say that:

If you want control over focus depth in your photos, you need a camera with a large sensor

If you want to take photos with blurred backgrounds to make your subject stand out, such as in portrait shots, you need a camera with a large sensor