

Depth of Field

A camera can only focus its lens at a single point, but there will be an area that stretches in front of and behind this focus point that still appears sharp. This zone is known as the depth of field. It's not a fixed distance, it changes in size and can be described as either 'shallow' (where only a narrow zone appears sharp) or deep (where more of the picture appears sharp). Depth of field is important because it allows you to precisely control the elements in your image that are in or out of focus.

Depth of field is affected by 4 factors:

1.

Aperture. Wider or larger apertures, i.e. lower f-stop numbers, create shallower depth of field.

Opening the aperture/iris from $f/22$ to $f/2$ gives shallower depth of field, as well as increasing the exposure. To prevent overexposure, the ND filter or a lower ISO can be used.



2.

The distance from the lens to the subject. Depth of field increases as the distance between the (focused) subject and the lens increases.

3.

Sensor size. Larger sensors produce shallower depth of field. DSLRs like the Canon 5D have the largest, 'full frame' sensors, while those in smart phones are very small. The C100 has a 'Super 35mm' sensor. The same size as film, a Red camera or Arri Alexa.

Type	1/3"	1/2"	2/3"	4/3"	APS-C	Canon Nikon Pentax DX	Super 35	APS-H	35mm Full Frame
sensor w x h	4.8 x 3.6mm	6.4 x 4.8mm	8.8 x 6.6mm	17.8 x 10mm	22.2 x 14.8mm	23.6 x 15.5mm*	24.89 x 18.66mm	28.7 x 19.1mm	36 x 24mm
sensor diagonal	6mm	8mm	11mm	20.41mm	26.7mm	28.4mm	31.1mm	34.5mm	43.3mm
sensor area	17.3mm ²	30.7mm ²	58.1mm ²	178mm ²	329mm ²	366mm ² *	464.44mm ²	548mm ²	864mm ²

4.

The focal length of the lens. Depth of field is compressed as you zoom in on your subject and expanded as you zoom out. E.g. a 200mm telephoto lens gives shallower depth of field than a 16mm wide angle lens.



DoF compressed

