

All about Filters... (Extracts from Wikipedia, the free encyclopedia)

ND FILTERS

A **neutral density filter** or **ND filter** is a **filter** that reduces or modifies the intensity of all **wavelengths** or **colors** of light equally, giving no changes in **hue** of color rendition. It can be a colorless (clear) or grey filter. The purpose of a standard photographic neutral-density filter is to reduce the amount of light entering the lens. Doing so allows the photographer to select combinations of **aperture**, **exposure time** and **sensor sensitivity** which would otherwise produce overexposed pictures. This is done to achieve effects such as a shallower depth of field or **motion blur** of a subject in a wider range of situations and **atmospheric** conditions.

For example, one might wish to photograph a waterfall at a slow **shutter speed** to create a deliberate **motion blur** effect. The photographer might determine that to obtain the desired effect a shutter speed of ten seconds was needed. On a very bright day, there might be so much light that even at minimum **film speed** and a minimum aperture, the ten-second shutter speed would let in too much light and the photo would be overexposed. In this situation, applying an appropriate neutral-density filter is the equivalent of stopping down one or more additional **stops**, allowing for the slower shutter speed and the desired motion-blur effect.

Examples of this use include:

- Blurring water motion (e.g. waterfalls, rivers, oceans).
- Reducing depth of field in very bright light (e.g. daylight).
- When using a flash on a camera with a focal-plane shutter, exposure time is limited to the maximum speed—often 1/250th of a second, at best—at which the entire film or sensor is exposed to light at one instant. Without an ND filter this can result in the need to use f8 or higher.
- Using a wider aperture to stay below the **diffraction limit**.
- Reduce the visibility of moving objects
- Add motion blur to subjects
- Extended **time exposures**

ND2-400 FILTERS

This is a ND Filter with variable density

POLARIZING FILTERS

A **polarizing filter** or **polarising filter** is often placed in front of the camera lens in photography in order to darken skies, manage reflections, or suppress glare from the surface of lakes or the sea. Since reflections (and sky-light) tend to be at least partially linearly-polarized, a linear polarizer can be used to change the balance of the light in the photograph. The rotational orientation of the filter is adjusted for the preferred artistic effect.

CIRCULAR POLARIZING FILTERS

Circular polarizers, also referred to as **circular polarizing filters**, can be used to create [circularly polarized](#) light or alternatively to selectively absorb or pass clockwise and counter-clockwise circularly [polarized](#) light. They are used as [polarizing filters in photography](#) to reduce oblique reflections from non-metallic surfaces, and are the lenses of the [3D glasses](#) worn for the viewing some [stereoscopic](#) movies (notably, the [RealD 3D](#) variety), where the polarization of light is used to differentiate which image should be seen by the left and right eye.

For modern cameras, a [circular polarizer](#) is typically used; this comprises firstly a linear polarizer which performs the artistic function just described, followed by a quarter-wave plate which further filters the now-linearly polarized light into circularly-polarised light before entering the camera. This additional step avoids problems with auto-focus and light-metering sensors within some cameras, which otherwise may not function reliably with a simple linear polariser.

