



## Stills Filters: Technical information sheet

### Neutral Density Filters

Neutral density filters (also known as NDs) produce a grey neutral tone and are used to reduce light, enabling more control over exposure and depth of field without affecting colour or contrast. They are especially useful in bright light conditions to avoid overexposure. Since ND filters uniformly reduce light at all wavelengths, there is no effect of the colour rendition.

NDs are made in different grades according to the level of light reduction. The standard grades are 0.1, 0.2, 0.3, 0.6, 0.9 and 1.2. Heavier densities can be manufactured to order.

Neutral density graduated filters (also known as ND grads) are clear in the bottom half with a gradual transition to the ND effect in the top half of the filter. They produce a grey neutral tone and are used to reduce light, enabling more control over exposure and depth of field without affecting colour or contrast. Neutral Density graduated filters are primarily used for light reduction in skylines or landscape shots.

Graduated NDs are available in Soft Edge or Hard Edge varieties. Soft edge grads have a smooth transition from clear to ND. Hard edge grads have a more defined hard lined transition and should be used for longer lenses. For extremely long focal lengths a razor edge grad providing a very highly defined transition, may be ordered. **Note:** when ordering graduated filters in Panavision (4x5.65") size, as these filters are not square, care should be taken to order either horizontal filters (i.e. landscape) or vertical (i.e. portrait) dependent on which way you will be using the filters in the matte box.

<b>Neutral Density Chart</b>		
<b>Density</b>	<b>Transmission</b>	<b>Exposure</b>
<b>ND 0.1</b>	80%	+1/3
<b>ND 0.2</b>	63%	+2/3
<b>ND 0.3</b>	50%	+1
<b>ND 0.6</b>	25%	+2
<b>ND 0.9</b>	12%	+3
<b>ND 1.2</b>	6.30%	+4