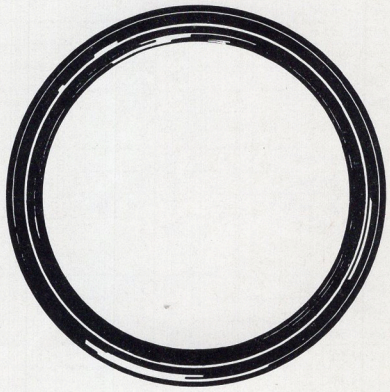
ALPA®

SWITZERLAND

PIGNONS S.A. - CH-1338 Ballaigues

# filters

Precision ground of finest optical glass dyed in the mass, plane parallel and coated, ALPA snap-in filters offer you a choice of more than 20 different tints. Only a few special tints are supplied in gelatine between glass.
All ALPA filters match the outstanding quality of the ALPA lenses and carry the same guarantee for optical excellence.



**Filters for color photography**

1. Compensating filters eliminate a dominant type of light, that is frequently imperceptible to the human eye.
Both haze and skylight filters eliminate the excessive blue caused by the invisible ultra violet rays, which are especially strong when taking pictures under hazy skies, in high altitudes, of snow or beach scenes. The same filters are also recommended to make distant views appear to be nearer. Other filters compensate for the dominant influence of the bluish light on days without sunlight (or of an electronic flash), for the orange light at dawn or dusk, etc.
2. Conversion filters adapt the color temperature of the light to the type of color film used (see also reverse side). Prime example is the use of indoor film (for artificial light) outdoors (in daylight).

**Filters for black and white photography**

Each filter lightens up its own color, but darkens the complementary colors of the grey scale. For instance, a yellow filter lightens up the yellow colors, while darkening blue and red colors.
Yellow filters are used to darken the sky, for more impressive results. An orange filter increases this contrast even more. And a red filter exaggerates the contrast to such an extent that a landscape photographed in bright sunlight looks like it was taken by moonlight, especially if slightly underexposed.

**Filters for both color or black and white photography**

Some filters, such as No 40, No 41 and No 51 can be used for either color or black and white photography, with somewhat different effects (see filter chart).

**Neutral density filters**

These grey filters for both color and black and white films are used instead of stopping down the diaphragm to a smaller f/stop, as indicated by their exposure factors. Neutral density filters are needed for mirror lenses without diaphragm or to maintain sharpness with intense light or a highly sensitive film.

**Polarizing filters**

Also usable for both color and black and white film, they eliminate or reduce certain direct as well as indirect reflections at an angle of about 35°, caused by water, lacquer, glass, leaves, etc. but not by any metallic surfaces. They also eliminate the excessive blue of the invisible ultra-violet rays (like haze and skylight filters, see above) and increase color saturation. Polarizing filters must be rotated, so as to find their best suitable position to eliminate undesirable reflections.

**Infrared filters**

These special filters are used exclusively with infrared film and suppress all wave lengths other than those of the infrared spectrum. The lens-to-film distance must be slightly increased, according to the red index mark on the lens mount.

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| Color tint | ALPA filter No | Kodak filter No | Exposure factor | |
|---|---|---|---|---|
| colorless | 40 □ ○ | 2 B | 1,2 | Haze filter, eliminates ultra violet rays caused by haze, high altitude, snow scenes, etc., reducing the cold bluish tones, making distant views appear to be nearer. |
| medium blue | 41 □ ○ | 80 B | 2,5 | Conversion filter for daylight film used indoors with artificial light. |
| pale blue | 502 □ | 82 A | 1,2 | Conversion filter for type A film used with 3200° Kelvin lamps, also for pictures taken at dawn or dusk. |
| salmon | 507 □ | 85 | 1,2 | Conversion filter for type A film used outdoors in daylight. |
| salmon | 508 □ | 85 B | 1,2 | Conversion filter for type B film used outdoors in daylight. |
| pale pink | 610 □ | 1 A | 1,4 | Skylight filter, same as 40, but stronger. |
| pink | 615 □ | 1 A | 2 | Same as 610, but stronger. |
| pale grey | 202 □ ○ | 96 (0,3) | 2 | Neutral density filter for exposure compensation. |
| medium grey | 204 □ ○ | 96 (0,6) | 4 | Same as 202, but twice as strong. |
| polarizing | □ ○ | – | 1,5 - 3 | Eliminates or reduces reflections from non-metallic surfaces, as well as ultra-violet rays (as 40, 610, 615), increases color saturation. |
| pale yellow | 42 ○ | 2 E | 1,5 | Same as 40, but stronger, for black and white films. |
| light yellow | 45 ○ | 3 | 1,5 | Increases contrasts, darkens blue tones slightly. |
| medium yellow | 47 ○ (□ IR) | 8 | 1,6 | Same as 45, but stronger. |
| dark yellow | 50 ○ | 9 | 2 | Same as 47, but much stronger, especially recommended for lenses of long focal length, when photographing distant views and mountain scenes. |
| pale green | 51 ○ □ | 6 | 1,2 | Softens hard contrasts, especially in winter. |
| light green | 55 ○ | 66 | 2 | Same as 51, but darkens red. |
| medium green | 53 ○ | 57 A | 3 | Same as 55, but stronger. |
| orange | 56 ○ | 22 | 4 | Increases contrasts even more. |
| light red | 58 ○ | 25 | 4 | Especially recommended for distant views, landscapes etc., when photographing with telephoto lenses. |
| medium red | 60 ○ | 26 | 5 | Increases contrasts to maximum effect, turns sunlight into moonlight scenes. |
| dark red | 64 ○ | 89 B | 15 - 20 | Used exclusively with infrared films. |

○ for black and white films □ for color films

## Color temperature

Each type of color film is sensitive to a particular part of the spectrum, which is expressed by the color temperature of the light source it should be used with. For instance, films for daylight use are balanced for a color temperature of approximately 5500° Kelvin or more. The color temperature of electronic flash lights varies between 5500° and 7000° Kelvin and is also suitable for daylight films. The color temperature of artificial light sources varies usually between 2800° and 3400° Kelvin. You can easily determine the color temperature of the light source by using a color temperature meter.

Differences between film sensitivity of the color film and the color temperature of the light source can be compensated with conversion filters, as shown in the filter chart.

Color temperatures can also be expressed in « mired » (**mi**cro-**re**ciprocal-**d**egrees), based on the following formula :

$$\text{value in « mired »} = \frac{1\,000\,000}{^\circ \text{ Kelvin}}$$

The color temperature chart shows both ° Kelvin and « mired ».

Each filter has a correction value based on the following formula :

$$\left(\frac{1}{T_2} - \frac{1}{T_1}\right) \times 10^6$$

$T_1$ corresponds to the color temperature of the original light source and $T_2$ to the color temperature as corrected by the filter.

## Typical color temperature

| Daylight : | Degrees Kelvin | « mired » |
|---|---|---|
| clear sky | 12 000 - 20 000 | 83 - 50 |
| overcast sky | 6 000 - 7 000 | 167 - 143 |
| completely covered sky or sun with clouds | 6 000 - 7 000 | 167 - 143 |
| sun without clouds | 5 000 - 6 000 | 200 - 167 |
| dawn or dusk | 5 000 | 200 |
| moon light | 4 000 - 4 500 | 250 - 222 |
| **Artificial light :** | | |
| electronic flash lights | 5 500 - 7 000 | 167 - 143 |
| blue flash bulbs | 5 500 - 6 000 | 182 - 167 |
| clear flash bulbs | 4 000 | 250 |
| sun arc | 5 500 | |
| arc with white flame | 5 000 | |
| standard arc | 4 000 | 250 |
| super charged lamps type S | 3 400 | 294 |
| super charged lamps type B | 3 200 | 312 |
| quartz-iodine halogen lamps | 2 850 - 3 400 | 351 - 294 |
| projection lamps | 2 500 - 3 200 | 400 - 312 |
| standard electric lamps | approx. 2 800 | 357 |
| candles | 1 900 | 526 |

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