

## Hoya Filters—The Difference is Clear

### How another large manufacturer makes filters

Some filters are made with a thin gel or even colored glue laminate sandwiched between two pieces of regular clear glass, similar to the glass used in window panes. These types of filters are cheap to produce, but inferior for several reasons:

1. Over time the expansion and contraction of the different materials can lead to de-lamination, which is a separation of the different materials. This will show up as bubbling, peeling, or discoloration, rendering the filter useless.
2. The color of the gel can shift or fade over a relatively short period of time.
3. If all six surfaces, three layers, two surfaces each, are not perfectly flat and perfectly parallel, the filter causes a “lens effect” which degrades the optical performance, or in extreme cases, shift or limit the focus of the lens it is used with.

### How Hoya Makes Filters

To make colored filters, Hoya adds different raw elements, like gold, and chemicals to its optical glass while it is in a molten state. This insures that filter glass is uniformly colored all the way through. There is never any risk of uneven coloration, shifting or fading of the color, or delamination. The two surfaces are ground and polished for perfect flatness.

### Hoya coating and multi-coating, the quality difference:

Hoya manufactures a full line of filters in both standard and Hoya multi-coated. The difference between Hoya's standard line and that of other manufacturers is that Hoya filters have one layer of anti-reflective coating applied to each surface of the glass. Other manufacturers standard filters are bare glass, and bare glass can reflect as much as 9% of the light hitting it. This greatly increases the risks of flare and ghosting.

To provide photographers with a higher quality professionals require, Hoya created the Multi-coated line of filters. These filters have a three layer coating system that further reduces light reflections off the surfaces of the glass, the average is only 1-2%. This means that 98-99% of the light striking the filter is going through it, and depending on the type of filter, into the camera lens and onto the film. These layers of anti-reflective coating are bonded to the surface of the glass in a furnace at a temperature of up to 800°F.

Beware, some manufacturers claim to have “coated” filters. But this coating is often only applied to the front side of the glass, not both sides like Hoya filters. Also, the coating on many filters is “painted” on or applied as a cold spray that wears off easily.

In 1996 Hoya introduced Super Multi-coated filters, which have a 5+1 layering system on each side of the glass: 5 layers of anti-reflective coating and a transparent easy-clean top coat, which reduces light reflections off the filter surface to an average of just 0.3%. This is the lowest reflective rate from any filter manufacturer.

### The Glass:

How is the glass itself made? How do filters get their color? Some manufacturers simply take two thin sheets of regular glass and sandwich a colored gel in-between. This process is called lamination. It is a very cost-effective process but not a high quality one. Remember, the disadvantage of this process is that over time the different materials can separate, causing bubbling or peeling (referred to as delamination,) rendering the filter useless. Also the thin gel used can shift its color so that the filter does not yield the same color rendition over time. The last drawback of this process is that all six surfaces of the three layers have to be perfectly flat and parallel. If they are not, the filter will have a “lens effect” which can greatly reduce image quality.

To insure consistency in glass manufacturing, Hoya uses a furnace called an Automatic V blender to mix the different materials at a highly controlled rate. This process creates glass that is pigmented all the way through. With pigmented glass there is no chance shifting over time. There is also no chance of delamination. Also, the two surfaces of the glass are ground and polished for perfect flatness.

The only exceptions are polarizer and circular polarizer filters. No matter the brand or quality, they all are made of a polarizing film, or a polarizing film and quarter wave plate in the case of the circular polarizer, sandwiched between two layers of glass.

### The Filter Frame:

Hoya believes the filter frame is an extremely important part of the filter as well. They use machined aluminum frames to hold the glass because it is strong enough to last for years of use. Some say that brass is a better material, Hoya disagrees and here's why; brass is a far more rigid material than either aluminum or the polycarbonates used in today's lens barrels. This means that, should the front of the lens get hit, the rigid brass filter ring will transfer almost all the force of the shock to the lens barrels and mechanics. An aluminum filter frame will absorb some of the shock by bending and at a certain point the glass will chip or break, which is what the filter is supposed to do, protect the lens. Replacing a filter is always preferable to getting a lens repaired.

### The Value in a Hoya Multi-Coated Filter

Today's photographers want to get the most speed, optical performance, and dollar performance from their investment. Say someone pays \$500.00 for a 28-70mm f/2.8 lens, and protects it with a cheap bare glass filter, which has a light reflection rate of 9%. This filter is literally slowing the lens down by 9%, effectively turning a \$500 f/2.8 lens into the equivalent of a slower f/3.0 lens worth \$455. The value of the lens drops 9% with the cheap filter on it. The cost savings of the less expensive filter do not offset the loss of lens speed, nor does it address the loss of sharpness or focus shift, which can have a noticeable impact on picture quality. For these reasons, Hoya multi-coated filters present the best value on the market today.

### Standard

These filters offer amateur and professional photographers Hoya's famous quality at reasonable prices. Hoya utilizes high quality optical glass and bonds a layer of anti-reflectant coating to each surface of the glass to suppress reflection and increase light transmission. Other manufacturer's standard filters are just bare glass that can reflect as much as 10% of the light striking it. Hoya standard single layer coating reduced that to 5%.

### HMC (Hoya Multi-Coated)

These filters are renowned for their ability to minimize reflection at the filter surfaces which reduces flare and ghosting. Hoya creates better images by taking its optical glass and bonding 3 layers of anti-reflectant coatings to each surface to reduce average reflection down to just 3.0% or less. The result is an average light transmission of over 97%, giving sharp contrast and well balanced color.

### HMC Ultra Thin Series

The same as the HMC filters (3 layers of anti-reflectant coatings bonded to each surface of the glass to reduce average reflection down to just 3.0% or less) except they use Hoya's ultra thin rings which are designed primarily to avoid vignetting problems which occur with wide angle lenses. The filters use rings just 3mm in thickness, except for the hybrid UV/Polarizer which has a 5mm rotating ring. To accomplish this, Hoya has removed the front threads from the filter but includes a "push-on" lens cap to protect the glass.

### S-HMC (Super HMC)

These outstanding filters offer revolutionary performance in light transmission and color balance. 6 layers of anti-reflectant coatings are bonded to each surface of the glass to reduce average reflection down to an industry leading 0.3% - that is an average transmission of 99.7%! Coupled with maximum surface precision, this increases resistance to flare and stunning images can be recorded at wide apertures without compromising lens performance. The circular polarizers have seven layers of multicoating applied to their rear surface to eliminate internal reflections and ghosting. Advanced thin selective film guarantees perfectly polarized light with neutral color balance. Their slim profile of just 5mm avoids any vignetting problems and makes them ideal for use with wide angle lenses. There is no front female thread, but they do accept Hoya's push-on lens caps.



77mm HMC Circular Polarizer



77mm HMC Pro 1 Circular Polarizer

### Super HMC PRO 1

Patented optical glass technology creates hardened glass only 1mm thick! This 1mm hardened glass has the same strength as standard Hoya optical glass that is 3mm thick, a Hoya exclusive! 6 layers of anti-reflectant coatings are bonded to each

surface of the glass to reduce average reflection down to an industry leading 0.3%. Low profile 4mm frame reduces the risks of vignetting, perfect for wide and ultra-wide angle lenses. PRO 1 filters are low profile but have front filter threads so a standard clip-on lens cap can be used.

### HOYA FILTER GUIDE - Circular Polarizer, UV, Skylight

Type of Filter	Hoya Coating	Frame Thickness	Glass Thickness	Front Threads	Size Availability	
<b>Circular Polarizer (Cir-PL)</b>						
Super HMC PRO 1	Cir-PL	Super HMC	4mm	1mm	Yes	49 to 82mm
S-HMC	Cir-PL	Super HMC	5mm	3mm	No	52 to 82mm
Ultra Thin Series	Cir-PL	HMC	5mm	3mm	No	58 to 77mm
HMC	Cir-PL	HMC	7mm	3mm	Yes	46 to 82mm
Circular Polarizer	Cir-PL	None	7mm	3mm	Yes	40.5, 43 to 82mm
MOOSE	Cir-PL	None	7mm	3mm	Yes	46 to 82mm
<b>UV / Skylight</b>						
Super HMC PRO 1	UV/SKY	Super HMC	4mm	1mm	Yes	49 to 82mm
S-HMC	UV/SKY	Super HMC	5mm	3mm	No	52 to 82mm
Ultra Thin Series	UV/SKY	HMC	3mm	3mm	No	58 to 77mm
HMC	UV/SKY	HMC	5mm	3mm	No	46 to 82mm
UV/SKYLIGHT	UV/SKY	Uni-Coated	5mm	3mm	Yes	40.5, 43 to 82mm

## GENERAL FILTERS



This group includes everyday filters which can be left on your lenses, such as Skylight 1B, UV and Polarizing. These are the first filters that every photographer should make sure they own. Skylight and UV filters should be constantly fitted to a lens to give improved clarity and color balance as well as offering protection to your lens. Polarizing filters have several uses such as eliminating unwanted reflections, increasing color saturation and enhancing contrast.

### UV (0)

Absorbs the ultraviolet rays which often makes outdoor photographs hazy and indistinct. A multi-purpose fine-weather filter for color as well as black and white films. Also serves as a permanent lens protector.

### Skylight 1B

Reduces the excessive bluishness that frequently occurs in outdoor color photography, especially in open shade under a clear, blue sky. The absorption peak is in the range which corresponds to the film's green spectrum. This means outstanding outdoor shots with superb color balance and clarity under all conditions. Also keeps skin tones free of colored reflections from nearby objects such as the shade of trees.

### Neutral

Mounted in an ULTRA slim 3mm ring, this is the ultimate in clear filters. Made from completely transparent superior grade optical glass, it will not affect the color balance or performance of your lenses in the slightest. However, constant use will protect your valued lenses from expensive front element damage which could be caused by dirt, knocks and scratches.



▲  
without  
Polarizer filter



▼  
with  
Polarizer filter



without UV (0)



with UV (0)

### Linear and Circular Polarizers

Light rays which are reflected by any surface become polarized and polarizing filters are used to select which light rays enter your camera lens. PL (Linear Polarizing) and PL-CIR (Circular Polarizing) filters have the same effect, but it is important that you choose the correct version for your camera. They allow you to remove unwanted reflections from non-metallic surfaces such as water, glass etc. They also enable colors to become more saturated and appear clearer, with better contrast. This effect is often used to increase the contrast and saturation in blue skies and white clouds. HOYA's polarizing filters do not affect the overall color balance of a shot.

### UV/Circular Polarizer

A revolutionary 'hybrid' design which combines the effect of two different filters in one ring. This filter eliminates ultraviolet rays to remove haze from outdoor shots as well as polarizing the light to remove reflections, and increase color saturation, without affecting the overall color balance. Fitted in a slim rotating 5mm ring, it will be invaluable to landscape and other photographers who need avoid vignetting with wide angle lens.

### Cleaning Your Filters:

Due to their high precision, filters should always be handled with care and kept clean whenever possible. Filters should be cleaned gently with just a lens tissue or soft cotton cloth. Never use any chemicals, such as lens cleaning fluid, on your filters, as these can damage the coatings. If any stubborn stains occur, these can usually be washed off with some clean water and a soft cotton cloth.

## GENERAL FILTERS

UV (0), SKYLIGHT, POLARIZER											
Filter Size (mm)	27	28	30	30.5	37	39	40.5	43	46	49	52
UV (0) #HOUV()	11.95	11.95	11.95	11.95	9.95	22.50	22.50	22.50	11.95	11.95	11.95
UV (0) HMC #HOUVMC()	17.95	17.95	17.95	17.95	11.95	—	—	—	17.95	17.95	17.95
UV (0) HMC Ultra Thin #HOUVU()	—	—	—	—	—	—	—	—	—	—	—
UV (0) S-HMC #HOUVSMC()	—	—	—	—	—	—	—	—	—	—	25.50
UV (0) S-HMC Pro-1 #HOUVP1SMC()	—	—	—	—	—	—	—	—	—	52.50	52.50
Skylight 1B HMC #HOSL()	—	—	—	—	—	22.50	22.50	22.50	11.95	11.95	11.95
Skylight 1B HMC #HOSLMC()	22.50	—	—	—	22.50	—	—	22.50	17.95	17.95	17.95
Skylight 1B HMC Ultra Thin #HOSLU()	—	—	—	—	—	—	—	—	—	—	—
Skylight 1B S-HMC #HOSLSMC()	—	—	—	—	—	—	—	—	—	—	—
Skylight 1B S-HMC Pro-1 #HOSLP1SMC()	—	—	—	—	—	—	—	—	—	52.50	52.50
Polarizer #HOP()	—	—	—	—	—	17.95	17.95	17.95	17.95	17.95	17.95
Circular Polarizer #HOCP()	32.95	32.95	32.95	32.95	29.95	29.95	32.95	32.95	32.95	32.95	32.95
Circular Polarizer HMC #HOCPMC()	—	—	—	—	—	—	—	—	64.50	64.50	64.50
Circular Polarizer S-HMC #HOCPSMC()	—	—	—	—	—	—	—	—	—	—	68.95
Circular Pola. S-HMC Pro-1 #HOCPP1SMC()	—	—	—	—	—	—	—	—	—	104.95	104.95

UV (0), SKYLIGHT, POLARIZER											
Filter Size (mm)	55	58	62	67	72	77	82	86	95	Bay 50	Bay 60
UV (0) #HOUV()	11.95	13.50	20.95	20.95	31.50	35.95	43.50	79.95	85.50	59.95	80.95
UV (0) HMC #HOUVMC()	17.95	20.95	29.95	29.95	37.50	40.50	58.50	—	—	89.95	103.50
UV (0) HMC Ultra Thin #HOUVU()	—	34.50	40.50	40.50	49.50	52.50	—	—	—	—	—
UV (0) S-HMC #HOUVSMC()	25.50	32.95	38.95	38.95	47.95	52.50	64.50	—	—	—	—
UV (0) S-HMC Pro-1 #HOUVP1SMC()	52.50	59.95	68.95	68.95	79.50	95.95	103.50	—	—	—	—
Neutral (Clear) HMC Ultra Thin #HONU()	—	34.50	40.50	39.95	49.50	52.50	—	—	—	—	—
Skylight 1B HMC #HOSL()	11.95	13.50	20.95	20.95	31.50	35.95	43.50	79.95	85.50	59.95	80.95
Skylight 1B HMC #HOSLMC()	17.95	20.95	29.95	29.95	37.50	40.50	58.50	—	—	—	—
Skylight 1B HMC Ultra Thin #HOSLU()	—	34.50	40.50	40.50	49.50	52.50	—	—	—	—	—
Skylight 1B S-HMC #HOSLSMC()	25.50	32.95	38.95	38.95	47.95	52.50	64.50	—	—	—	—
Skylight 1B S-HMC Pro-1 #HOSLP1SMC()	52.50	59.95	68.95	68.95	79.50	95.95	103.50	—	—	—	—
Polarizer #HOP()	17.95	20.95	20.95	20.95	34.50	40.50	56.95	97.50	113.95	64.50	80.95
Circular Polarizer #HOCP()	32.95	37.50	53.95	53.95	64.50	76.50	99.95	144.95	—	—	—
Circular Polarizer HMC #HOCPMC()	64.50	70.50	85.50	85.50	119.95	155.95	241.50	—	—	—	—
Circular Polarizer S-HMC #HOCPSMC()	68.95	77.95	94.50	94.50	137.95	172.50	259.95	—	—	—	—
Circular Pola. S-HMC Pro-1 #HOCPP1SMC()	104.95	122.95	157.50	157.50	190.50	224.95	329.95	—	—	—	—
UV/Circ. Pola. HMC Ultra Thin #HOUVCPU()	—	77.95	95.95	95.95	137.95	172.50	—	—	—	—	—

In the parenthesis insert the filter size. For example, a 58mm Skylight 1B HMC filter would be HOSL58.

For Bay sizes insert just the letter B and the number. For example, Polarizer in Bay 60 is HOPB60.

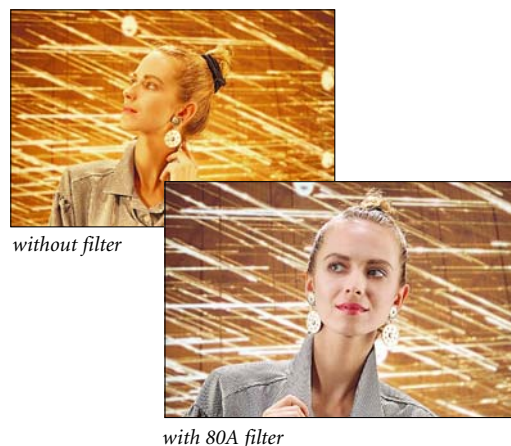
## COLORED FILTERS

As their names suggests, these filters use HOYA colored glass. They are used for color correction of different light sources when using color film, or for controlling contrast with Black & White film. Color correction filters are important as color films do not have the flexibility of the human eye to automatically adjust to different situations. Black & White films register colors as shades of grey and the rendition of each color in a scene is important, so filters can be used to control this. The color of the glass used in all these filters is carefully controlled and to reduce the possibility of color shift over a period of time, such high quality filters are coated or multicoated on both sides. This maintains the desired effect and gives a long service life.

### FL-W/FL-DAY

Used to correct the greenish tone that appears when daylight type films are used under fluorescent lighting. FL-W is for use with warm white or white type fluorescent lamps. FL-DAY is for use with daylight type fluorescent lamps.

It is recommended that auxiliary light sources be used when long exposures become necessary due to insufficient light.



**80A/80B/80C:** These are color conversion filters for the use of daylight type color films with artificial light source. 80A increases the color temperature from 3200°K to 5500°K for the use with 3200°K lamps. 80B increases the color temperature from 3400°K to 5500°K for the use of photoflood lamps. 80C increases the color temperature from 3800°K to 5500°K for the use of clear flash bulbs.



**85/85B/85C:** These are color conversion filters for the use of tungsten type color films in daylight. 85 decreases the color temperature from 5500°K to 3400°K for the use of Type A color films. 85B decreases the color temperature from 5500°K to 3200°K for the use of Type B color films. 85C decreases the color temperature from 5500°K to 3800°K. The effect obtained is the same as with daylight type color films used in daylight.

## COLORED FILTERS

### 82A/82B/82C

These are light balancing filters used to increase the color temperature slightly for a cooler (bluer) tone. Corrects the tendency toward reddish tones. For example, select the 82B when using tungsten Type B color film (3200°K) with ordinary household 100W electric bulbs (2900°K). These series filters are also used to prevent the reddish tones in early morning or late evening light for natural skin tones. These filters can be used together, but do not mix 81 and 82 series filters since they cancel out each other.



without filter



with 82A



with 82C

### 81A/81B/81C

These are light balancing filters used to decrease the color temperature slightly for a warmer (redder) tone. Corrects the tendency toward bluish tones. For example, the 81A should be selected when using tungsten Type B color film (3200°K) with photoflood lamps (3400°K). These filters can be used together.

**K2 (Yellow):** Especially useful for clear contrast between blue sky with clouds and foreground. Provides a natural tonal rendition. Often used for subjects at intermediate distances

**G (Orange):** Increases contrast between reds and yellows. Particularly useful for distant outdoor shots taken with a telephoto lens. Also useful in color photography for spectacular sunsets, seascapes, etc.

**25A (Red):** Especially effective for increasing contrast. Ideal for dramatic cloud effects in landscapes. Can also be applied creatively in color and infrared photography.



without filter

### X0 (Yellow Green), X1 (Green):

Used primarily for black and white photography. X0 is highly effective for outdoor portraits because red is rendered dark while green appears lighter. Great for correcting skin tones, bringing out facial expressions in close-ups and emphasizing the feeling of liveliness. X1 is highly effective for indoor portraits under tungsten lighting.



without X1



### For Color Film

These filters, such as K2 (Yellow), G (Orange), 25A (Red), X0 (Yellow/green) and X1 (Green) are primarily designed for use with Black & White film. However, they can be used with color film to produce special color effects.

### COLORED FILTERS

Filter Sizes (mm)	39	40.5	43	Filter Sizes (mm)	39	40.5	43	Filter Sizes (mm)	39	40.5	43
FL-W #HOFLW( )	22.50	22.50	22.50	82A #HO82A( )	22.50	22.50	22.50	K2 #HOY( )	22.50	22.50	22.50
FL-Day #HOFLD( )	22.50	22.50	22.50	82B #HO82B( )	22.50	22.50	22.50	G #HOG( )	—	—	—
80A #HO80A( )	22.50	22.50	22.50	82C #HO82C( )	22.50	22.50	22.50	25A #HOR( )	22.50	22.50	22.50
80B #HO80B( )	22.50	22.50	22.50	81A #HO81A( )	22.50	22.50	22.50	X0 #HOYG( )	22.50	22.50	22.50
80C #HO80C( )	22.50	22.50	22.50	81B #HO81B( )	22.50	22.50	22.50	X1 #HOG( )	22.50	22.50	22.50
85 #HO85( )	22.50	22.50	22.50	81C #HO81C( )	22.50	22.50	22.50				
85B #HO85B( )	22.50	22.50	22.50								
85C #HO85C( )	22.50	22.50	22.50								

In the parenthesis insert the filter size.

For example, a 43mm Skylight 82B filter would be HO82B43.

## COLORED FILTERS

COLORED FILTERS														
Filter Size (mm)	46	49	52	55	58	62	67	72	77	82	86	95	Bay 50	Bay 60
<b>80A (Standard)</b> #HO80A( )	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	80.95
<b>80A (HMC)</b> #HO80AMC( )	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	44.95	61.50	—	—	—	—
<b>80B (Standard)</b> #HO80B( )	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	80.95
<b>80B (HMC)</b> #HO80BMC( )	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	44.95	61.50	—	—	—	—
<b>80C (Standard)</b> #HO80C( )	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	80.95
<b>80C (HMC)</b> #HO80CMC( )	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	44.95	61.50	—	—	—	—
<b>85 (Standard)</b> #HO85( )	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	80.95
<b>85 (HMC)</b> #HO85MC( )	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	44.95	61.50	—	—	—	—
<b>85B (Standard)</b> #HO85B( )	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	80.95
<b>85B (HMC)</b> #HO85BMC( )	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	44.95	61.50	—	—	—	—
<b>85C (Standard)</b> #HO85C( )	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	80.95
<b>85C (HMC)</b> #HO85CMC( )	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	44.95	59.95	—	—	—	—
<b>82A (Standard)</b> #HO82A( )	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	80.95
<b>82A (HMC)</b> #HO82AMC( )	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	44.95	61.50	—	—	—	—
<b>82B (Standard)</b> #HO82B( )	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	80.95
<b>82B (HMC)</b> #HO82BMC( )	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	44.95	61.50	—	—	—	—
<b>82C (Standard)</b> #HO82C( )	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	80.95
<b>82C (HMC)</b> #HO82CMC( )	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	44.95	61.50	—	—	—	—
<b>81A (Standard)</b> #HO81A( )	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	80.95
<b>81A (HMC)</b> #HO81AMC( )	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	44.95	61.50	—	—	—	—
<b>81B (Standard)</b> #HO81B( )	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	80.95
<b>81B (HMC)</b> #HO81BMC( )	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	44.95	61.50	—	—	—	—
<b>81C (Standard)</b> #HO81C( )	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	80.95
<b>81C (HMC)</b> #HO81CMC( )	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	44.95	61.50	—	—	—	—

*In the parenthesis insert the filter size. For example, a 77mm 81C Standard filter would be HO81C77.  
For Bay sizes insert just the letter B and the number. For example, 82B (HMC) in Bay 50 is HO82BMCB50.*

## COLORED FILTERS

### COLORED FILTERS (CONTINUED)

Filter Size (mm)	46	49	52	55	58	62	67	72	77	82	86	95	Bay 50	Bay 60
<b>FL-W (Standard) #HOFLW( )</b>	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	—	—	104.95	—
<b>FL-W (HMC) #HOFLWMC( )</b>	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	52.50	—	—	—	—	—
<b>FL Day (Standard) #HOFLD( )</b>	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	—	—
<b>FL Day (HMC) #HOFLDMC( )</b>	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	52.50	—	—	—	—	—
<b>K2 Yellow (Standard) #HOY( )</b>	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	—
<b>K2 Yellow (HMC) #HOYMC( )</b>	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	52.50	61.50	—	—	—	—
<b>Orange (Standard) #HOO( )</b>	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	80.95
<b>Orange (HMC) #HOOMC( )</b>	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	52.50	61.50	—	—	—	—
<b>25A Red (Standard) #HOR( )</b>	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	—	104.95	64.50	80.95
<b>25A Red (HMC) #HORMC( )</b>	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	52.50	61.50	—	—	—	—
<b>XO Yellow/Green (Std) #HOYG( )</b>	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	80.95
<b>XO Yellow/Green (HMC) #HOYGC( )</b>	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	52.50	61.50	—	—	—	—
<b>X1 Green (Standard) #HOGR( )</b>	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	77.50	104.95	64.50	80.95
<b>X1 Green (HMC) #HOGRMC( )</b>	22.50	22.50	22.50	22.50	25.50	35.95	35.95	43.50	52.50	61.50	—	—	—	—

*In the parenthesis insert the filter size. For example, a 58mm 81C FL Day Standard filter would be HOFLD58.*

*For Bay sizes insert just the letter B and the number. For example, 25A Red (HMC) in Bay 50 is HORMCB50.*

### Moose Filter-Warming Circular Polarizer

Collaboration between respected wildlife photographer and conservationist B. Moose Peterson of Wildlife Research Photography and Hoya has created a circular polarizing filter that uses 81A optical glass instead of the clear optical glass of a normal circular polarizer.

When using a camera with a split beam metering system (which is most of today's autofocus cameras), traditional linear polarizers will cause exposure errors do to their light absorption properties. Circular polarizers yield the same optical effect while not causing exposure problems with modern metering systems. For many years, polarizers have been used to remove reflections from non-metallic surfaces such as water and glass as well as being used to darken blue skies to increase contrast in scenic photography.

A side effect of both linear and circular polarizes is they "cool down" or make the over-all color balance of a scene slightly bluish. The addition of the 81A glass corrects the color temperature, bringing the scene back to the original 5500K for daylight film's color balance. The 81A glass creates a much more pleasing and "warm" color balance to the entire scene while the circular polarizer increases color contrast and reduces the effect of atmospheric haze.



### MOOSE - WARMING CIRCULAR POLARIZER

Filter Size (mm)	46	49	52	55	58	62	67	72	77	82	Bay 60
<b>Warm Circular Polarizer (Moose) #HOWCP( )</b>	46.50	46.50	46.50	46.50	55.50	79.50	79.50	98.95	118.95	152.95	155.95

## COLOR EFFECT FILTERS

**Color-Spot:** A colored glass filter with a hole in its center. Available in yellow, green, red and gray. The central image stands out clearly while the background appears the color of the filter.

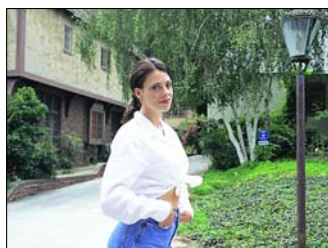


with Green Color-Spot & Spectral Cross



with Half Color

**Half Color:** Made by sandwiching a gelatin filter between two optical glass plates. Similar to Dual-Color except one-half is clear. Set in a rotating frame for added effectiveness. Color options are Pink, Yellow, Orange, Red, Emerald, Green, Brown, Blue, Violet, Light Gray, and Dark Gray.

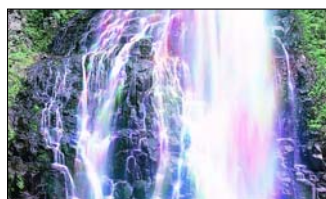


without filter



with Sepia

**Sepia:** These two filters give a nostalgic effect to otherwise ordinary color photographs. Sepia tones are produced across the whole image, as if taken many years ago in Black & White, having then discolored with age. Sepia B has a stronger effect than Sepia A.



**Pop Filter Set:** Available in a set of three color filters: blue, green and red. Used individually or in combination, extremely original color effects can be obtained. Also great for multi-exposure creativity.

**Fantasy Color Set:** This set of three strongly colored filters in Moonlight Blue, Vivid Pink and Deep Mauve can be used to give a single color effect over the whole of a picture. Used in daylight, the Moonlight Blue filter gives the effect of a nighttime moonlit scene whilst the other two filters allow graphic and unusual images to be produced for special impact.



**Graduated Color:** Acrylic filters similar to half-color, except that color density gradually decreases near the center of the filter allowing emphasis of foregrounds or backgrounds. Mounted in a rotating frame. 7 colors are available: Pink, Yellow, Emerald, Tobacco, Blue, Mauve, Gray. Their color gradually fades out so the boundary between the colored and transparent sections will not become apparent even with the lens aperture stopped down.

**Dual-Color:** Available in three types: O/G (orange/green), Y/P (yellow/purple) and R/B (red/blue). Made by sandwiching gelatin filters between two pieces of optical glass, DUAL-COLOR is available in a variety of two-color combinations. Contrasting foreground and background, land and sea, are only a few of the fantastic possibilities.

**Tricolor:** Divided into three color sections (PARA: blue, yellow and pink, TRI: blue, green and red) for imaginative three tone effects. Available in two types: Parallel and Triangle. The effect varies depending on the length of the lens used and the aperture.



with Tricolor



R/B Dual-Color



O/G Dual-Color ▶

**PL-Color:** Available in four types: B(blue), Y(yellow), O(orange) and R(red). A combination of gray and colored polarizing filters. Any color from gray to the full color of the filter can be obtained by rotating the filter frame.

**Vario PL-Color:** Available in five types: Y/B, Y/G, Y/R, R/B, and R/G. This filter is a combination of one gray polarizing filter and two colored polarizing filters. The color can be varied by rotating the filter frames. Many color possibilities help create new emotional effects never seen before.

**Pol-Conversion:** This unique filter combines the advantages of a polarizer with an 85B color conversion filter allowing tungsten film to be shot under daylight conditions.

## SOFT DIFFUSED EFFECT FILTERS



**Center-Spot:**  
A close-up lens with a hole in the center. The periphery of the picture is rendered a delicate, soft-focus effect while the central image is sharply focused.

◀ Center-Spot

**Sand Screen and Soft Screen Soft Spots:** Both have a clear center spot which makes the central image stand out clearly. SAND SCREEN has a smoky appearance while SOFT SCREEN has an irregularly uneven surface. With SOFT-SPOT, the size of the clear part in the center of the picture varies depending on the lens and aperture used.



with Sand Screen



with Soft Screen

**Misty-Spot:** Available in four types: Gradual, Breeze, Windmill and Halo. They have a sharp central image with a pleasant blurring of the outer field. With Gradual, blurring that appears to emanate from the center. Breeze has an unidirectional streaky blurring of background. With Windmill, blurring that appears to swirl about the center, and with Halo, blur that appears to radiate from a single point at the edge of the field.



Misty-Spot Windmill



Misty-Spot Halo



Misty-Spot Gradual

**Rainbow-Spot:** Made of glass, and provided with rotating frames. 1,270 ultra-fine parallel grooves per inch pick up and diffract each tiny point of light into a rainbow of color.



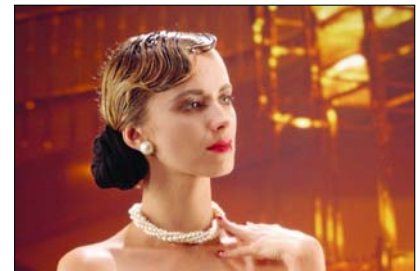
### Fog Filter:

Lightly veils the entire picture in white. Available individually or as a set of two: FOG(A) and FOG(B) with 'B' having a stronger effect than 'A'. Both can be used together to produce an

effect similar to dense fog. The effect can be varied by changing the aperture of the lens, but stopping down too far will reduce the effect.

### Diffuser, Duto:

Both are diffusion type filters, but DIFFUSER gives a soft-focus effect due to its irregularly uneven surface while DUTO has fine concentric lines etched on its surface. The center of the picture is usually sharp with DUTO but DIFFUSER gives an overall soft-focus effect. Both are particularly effective in portraiture and commercial photography



with Diffuser

### Softener (A and B):

A filter randomly arranging minute lens shaped like drops of water on the surface of a acrylic board, scatters the light and results in a soft focus. It creates a picture with a clear focus and a soft gradation. This effect is especially evident with an object with a point light source. Color reproduction is easy, and there is no need for exposure adjustment.



with Softner (A)



with Softner (B)

**Spectral Cross:** An overall soft-focus effect is obtained for portraits, etc., outdoors with direct lighting, while back lighting or point light sources at night create heightened cross effects. The effect is somewhat softer than with cross screen and diffraction of the light produces a slight amount of flare. A filter made by sandwiching black gauze-like fiber between two pieces of colorless, transparent optical glass in a rotating frame. Producing both soft focus and cross effects.

## COLOR EFFECT & SOFT DIFFUSED EFFECT FILTERS

COLOR EFFECTS & SOFT DIFFUSED FILTERS										
Filter Size (mm)	46	49	52	55	58	62	67	72	77	82
<b>Color Spot Yellow</b> #HOCSY( )	—	35.95	39.95	35.95	40.50	50.95	50.95	59.95	74.95	—
<b>Color Spot Green</b> #HOCSGR( )	—	35.95	39.95	35.95	40.50	50.95	50.95	59.95	74.95	—
<b>Color Spot Red</b> #HOCSR( )	—	35.95	39.95	35.95	40.50	50.95	50.95	59.95	74.95	—
<b>Color Spot Gray</b> #HOCSG( )	—	35.95	39.95	35.95	40.50	50.95	50.95	59.95	74.95	—
<b>Half Color Pink</b> #HOHCP( )	—	32.95	32.95	32.95	38.95	41.95	44.95	56.95	64.50	76.50
<b>Half Color Yellow</b> #HOHCY( )	—	32.95	32.95	32.95	38.95	41.95	44.95	56.95	64.50	76.50
<b>Half Color Orange</b> #HOHCO( )	—	32.95	32.95	32.95	38.95	41.95	44.95	56.95	64.50	76.50
<b>Half Color Red</b> #HOHCR( )	—	32.95	32.95	32.95	38.95	41.95	44.95	56.95	64.50	76.50
<b>Half Color Green</b> #HOHCGR( )	—	32.95	32.95	32.95	38.95	41.95	44.95	56.95	64.50	76.50
<b>Half Color Brown</b> #HOHCBR( )	—	32.95	32.95	32.95	38.95	41.95	44.95	56.95	64.50	76.50
<b>Half Color Blue</b> #HOHCBL( )	—	32.95	32.95	32.95	38.95	41.95	44.95	56.95	64.50	76.50
<b>Half Color Violet</b> #HOHCV( )	—	32.95	32.95	32.95	38.95	41.95	44.95	56.95	64.50	76.50
<b>Half Color Light Gray</b> #HOHCLG( )	—	32.95	32.95	32.95	38.95	41.95	44.95	56.95	64.50	76.50
<b>Half Color Dark Gray</b> #HOHCDG( )	—	32.95	32.95	32.95	38.95	41.95	44.95	56.95	64.50	76.50
<b>Sepia A</b> #HOSA( )Q	—	37.50	37.50	37.50	39.95	49.95	49.95	57.95	59.95	—
<b>Sepia B</b> #HOSB( )Q	—	37.50	37.50	37.50	39.95	49.95	49.95	57.95	59.95	—
<b>Pop Filter Set</b> #HOPFS( )	—	74.95	74.95	74.95	85.95	—	—	—	—	—
<b>Fantasy Color Set</b> #HOFCS( )	—	82.95	89.95	89.95	97.50	—	—	—	—	—
<b>Graduated Color-Emerald</b> #HOGE( )	—	20.95	20.95	20.95	32.50	—	—	—	—	—
<b>Graduated Color-Yellow</b> #HOGY( )	—	20.95	20.95	20.95	32.50	—	—	—	—	—
<b>Graduated Color-Blue</b> #HOGBL( )	—	20.95	20.95	20.95	32.50	—	—	—	—	—
<b>Graduated Color-Pink</b> #HOGP( )	—	20.95	20.95	20.95	32.50	—	—	—	—	—
<b>Graduated Color-Mauve</b> #HOGM( )	—	20.95	20.95	20.95	32.50	—	—	—	—	—
<b>Graduated Color-Tobacco</b> #HOGT( )	—	20.95	20.95	20.95	32.50	—	—	—	—	—
<b>Graduated Color-Gray</b> #HOGG( )	—	20.95	20.95	20.95	32.50	—	—	—	—	—
<b>Tri-Color (Blue/Red/Green)</b> #HOTCT( )	47.95	47.95	47.95	47.95	56.95	64.50	64.50	73.50	—	—
<b>Tri-Color (Blue/Yellow/Pink)</b> #HOTCP( )	47.95	47.95	47.95	47.95	56.95	64.50	64.50	73.50	—	—
<b>Dual-Color (Orange/Green)</b> #HODCOG( )	—	29.95	29.95	29.95	34.95	—	—	—	—	—
<b>Dual-Color (Red/Blue)</b> #HODCRB( )	—	29.95	29.95	29.95	34.95	—	—	—	—	—
<b>Dual-Color (Yellow/Purple)</b> #HODCYP( )	—	29.95	29.95	29.95	34.95	—	—	—	—	—

## COLOR EFFECT & SOFT DIFFUSED EFFECT FILTERS

COLOR EFFECTS & SOFT DIFFUSED FILTERS										
Filter Size (mm)	46	49	52	55	58	62	67	72	77	82
PL-Color (Orange) #HOPO( )	—	58.50	58.50	58.50	64.50	79.50	79.50	94.50	—	—
PL-Color (Yellow) #HOPY( )	—	58.50	58.50	58.50	64.50	79.50	79.50	94.50	—	—
PL-Color (Blue) #HOPBL( )	—	58.50	58.50	58.50	64.50	79.50	79.50	94.50	—	—
PL-Color (Red) #HOPR( )	—	58.50	58.50	58.50	64.50	79.50	79.50	94.50	—	—
Vario PL-Color (Red/Blue) #HOVPRB( )	—	59.95	59.95	59.95	64.50	—	—	—	—	—
Vario PL-Color (Red/Green) #HOVPRG( )	—	59.95	59.95	59.95	64.50	—	—	—	—	—
Vario PL-Color (Yellow/Blue) #HOVPYB( )	—	59.95	59.95	59.95	64.50	—	—	—	—	—
Vario PL-Color (Yellow/Green) #HOVPYG( )	—	59.95	59.95	59.95	64.50	—	—	—	—	—
Vario PL-Color (Yellow/Red) #HOVPYR( )	—	59.95	59.95	59.95	64.50	—	—	—	—	—
Pol-Conversion #HOPC( )	—	44.95	44.95	44.95	54.95	73.50	73.50	97.50	104.95	—
Center-Spot #HOCS( )	—	20.95	20.95	20.95	22.50	29.95	29.95	38.95	—	—
Sand Screen & Soft Screen Set #HOSSS( )	—	32.95	32.95	32.95	37.50	49.50	49.50	58.50	64.50	—
Misty-Spot Breeze #HOMSB( )	—	22.50	22.50	22.50	—	—	—	—	—	—
Misty-Spot Gradual #HOMSG( )	—	22.50	22.50	22.50	—	—	—	—	—	—
Misty-Spot Halo #HOMSH( )	—	22.50	22.50	22.50	—	—	—	—	—	—
Misty-Spot Windmill #HOMSW( )	—	22.50	22.50	22.50	—	—	—	—	—	—
Rainbow-Spot #HORS( )	—	47.95	47.95	47.95	56.95	64.50	64.50	73.50	—	—
Fog A #HOFA( )	—	22.50	22.50	22.50	23.95	—	—	—	—	—
Fog B #HOFB( )	—	22.50	22.50	22.50	23.95	—	—	—	—	—
Fog Set (A&B) #HOFS( )	—	40.50	40.50	40.50	50.95	61.50	61.50	73.50	91.50	—
Diffuser #HOD( )	—	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95
DUTO	—	—	—	—	—	—	—	—	—	—
Softener A #HOSA( )	—	28.50	28.50	28.50	34.50	44.95	44.95	52.50	52.50	—
Softener B #HOSB( )	—	28.50	28.50	28.50	34.50	44.95	44.95	52.50	52.50	—
Spectral Cross #HOSC( )	—	31.50	31.50	31.50	32.95	—	—	—	—	—

In the parenthesis insert the filter size. For example, a 62mm Fog B filter would be HOFB62.

## SPECIAL EFFECTS FILTERS

**Half NDx4:** One half of this filter is NDx4 Neutral Density and the other half is clear, with a soft boundary between the two. It is used to control bright/dark contrast, by reducing half the shot by 2 stops. Particularly useful in landscape photography, the rotating mount allows bright skies to be easily controlled for dramatic effect.



with Multivision 4F

with Multivision 6F



**Multivision:** Available in five types: 3PF, 3F, 5F, 6F, and 6PF. Made of optical glass precisely cut into a variety of facets, MULTIVISION helps create exotic, fantastic compositions of color patterns and combinations. Effect is strongest with a relatively dark background and at larger apertures. The multi-images appear closer together with wide-angle lenses and farther apart with telephoto lenses.

**Vari-Multivision:** Two 2-face MULTIVISIONS set in independent rotating frames. Creates multi-images that can be varied from 2- to 4-face by rotating the frames.

with 4F

Vari-Multivision

with Color Multivision



**Color-Multivision:** Available in two types: (3F) with three faces in blue, green and red; and (5F) with five faces evenly divided into green and orange. These filters produce the dynamic professional color multi-images often seen in TV or commercial photography. Results are striking with either still or movie cameras.

**Close-up:** Available in sets of +1, +2, and +4 diopters for close-up photography. Depth-of-field is shallow so use as small an aperture as possible. Close-ups offer a world of new creativity.

### Macro Close-up:

A lens of 2-element, 2-group construction and a +10 diopter rating. Resolution is outstanding and focusing is possible at 10cm for super close-ups of insects, flowers and other small objects. The magnification is about 1:2 with a 50mm standard lens (35mm camera), roughly equivalent to a 100mm telephoto lens. The lens should be stopped down as much as possible to get maximum depth-of-field.



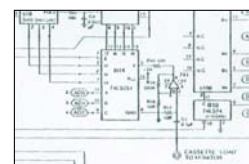
### Pol-Fader:

A combination of two gray polarizing filters set in independently rotating frames. Rotating the frames varies the amount of light passed. Useful with exceptionally strong light sources, such as in solar



photography, scientific applications, etc. Useful with movie cameras for fadeouts.

**Infrared:** Used for photography with infrared films. Infrared film is also sensitive to ultraviolet rays and the shorter wavelengths of the visible spectrum so it is necessary to filter out all but the infrared rays. R72 passes only infrared rays above 720nm; RM90 passes only that above 900nm. Often used in crime detection, medical photography, detection of distribution of vegetation, etc. In ordinary photography with infrared film or infrared color film, the Y(K2), O(G), R(25A) and other filters can also be used to change the contrast or color effect.



## SPECIAL EFFECTS FILTERS



**Split-Field:** One-half of a close-up lens with the other half open. One-half of the picture receives a close-up effect while the other half is normal. Both very close and far subjects can be in focus at the same time. Or one-half of the picture can be out of focus for special effects.

**Dual-Image:** One half of dual-image is transparent while the other is black. Used for producing special effects by taking double exposures. For example, the same person can be photographed on both sides of the same picture. When taking such photographs with this filter, refer to the instruction manual of your camera, and the use of tripod is recommended.



with Cross Screen

with Star-Eight

### 4x Cross Screen, Star-Six, Star-Eight:

Cross Screen adds a dramatic four-cross flare to very bright areas, giving a soft-focus effect. Ideal for photographs of ladies wearing jewellery or other objects with strong reflections. Star-Six (6-pointed light flares) and Star-Eight (8-pointed light flares) can also be used for a variety of effects.

**Variocross:** Two colorless glass plates with etched parallel lines on each surface and set in independent rotating frames. By rotating these frames, the effect can be varied to produce any desired expression for any highly reflective scene.



**NDx2, NDx4, NDx8:** In conditions of extreme light intensity, such as sunshine on snowy mountains or on the beach, or when using a camcorder, ND (Neutral Density) filters are recommended as essential. Neutral Density filters are often ignored by photographers, but they have several uses and offer the possibility to achieve otherwise unachievable results. ND filters appear grey and reduce the amount of light reaching the film, they have no effect on color balance.



with NDx8

### They have four main uses:

- To enable slow shutter speeds to be used, especially with fast films, to record movement in subjects such as waterfalls, clouds, cars, seas etc.
- To decrease depth of field by allowing wider apertures to be used, which helps separate subjects from their background.
- To decrease the effective ISO of high speed film (ie: above ISO400) and allow it to be used outdoors in blight situations.
- To allow cine and video cameras (which have fixed shutter speeds) to film subjects such as snow, sand or other bright scenes which would normally cause over-exposure.



without filter



with Center ND

**Center ND (x2):** This filter combines two curved optics, one of which is neutral density and the other is clear. This gives the effect of a gradual fade towards the edges, with a difference of 1 stop from centre to edge. It is used primarily to remove vignetting which occurs with large format cameras when using wide-angle lenses, to give an evenly illuminated shot.

**NDx400:** Photographing solar eclipses and ultra-bright light sources can be extremely dangerous. This filter reduces light values by 9 stops to less than 1/500th of its original intensity and allows safe photography. It can also be used to achieve super slow shutter speeds in daylight to render moving subjects invisible.

## SPECIAL EFFECTS FILTERS

FILTERS

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SPECIAL EFFECTS FILTERS														
Filter Size (mm)	46	49	52	55	58	62	67	72	77	82	86	95	Bay 50	Bay 60
Split Field #HOSF( )	—	32.95	32.95	32.95	35.95	38.95	38.95	49.50	—	—	—	—	—	—
Dual Image #HODI( )	—	31.50	31.50	31.50	34.50	43.50	43.50	52.50	62.95	—	—	—	—	—
4x Cross Screen #HOCSS4( )	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	—	—	64.50	80.95
6-Point Star #HOS6( )	—	22.50	22.50	22.50	25.50	37.50	37.50	43.50	49.50	59.95	—	—	—	—
8-Point Star #HOS8( )	—	22.50	22.50	22.50	25.50	37.50	37.50	43.50	49.50	59.95	—	—	—	—
Variocross #HOVC( )	—	50.95	50.95	50.95	50.95	—	—	—	—	—	—	—	—	—
Pol-Fader #HOPF( )	—	47.95	47.95	47.95	53.95	—	—	—	—	—	—	—	—	—
NDx2 (Standard) #HOND2( )	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	80.95
NDx2 (HMC) #HOND2MC( )	22.50	22.50	22.50	22.50	25.50	34.95	34.95	43.50	52.50	61.50	—	—	—	—
NDx2 (Ultra-Thin) #HOND2U( )	—	—	—	—	44.95	39.95	39.95	49.50	52.50	—	—	—	—	—
NDx4 (Standard) #HOND4( )	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	80.95
NDx4 (HMC) #HOND4MC( )	22.50	22.50	22.50	22.50	25.50	34.95	34.95	43.50	52.50	61.50	—	—	—	—
NDx4 (Ultra-Thin) #HOND4U( )	—	—	—	—	31.50	39.95	39.95	49.50	52.50	—	—	—	—	—
NDx8 (Standard) #HOND8( )	16.50	16.50	16.50	16.50	19.50	29.95	29.95	37.50	44.95	56.95	97.50	104.95	64.50	80.95
NDx8 (HMC) #HOND8MC( )	22.50	22.50	22.50	22.50	25.50	34.95	34.95	43.50	52.50	61.50	—	—	—	—
NDx8 (Ultra-Thin) #HOND8U( )	—	—	—	—	44.95	39.95	39.95	49.50	52.50	—	—	—	—	—
Center NDx2 (HMC) #HOCNDMC( )	—	—	—	—	—	209.95	254.95	299.95	—	—	—	—	—	—
NDx400 (HMC) #HOND400MC( )	—	67.50	67.50	67.50	79.95	112.50	112.50	128.95	146.95	—	—	—	—	—
Half NDx4 #HOHND4( )	—	54.95	54.95	54.95	62.95	—	—	—	—	—	—	—	—	—
Multivision 3PF #HOMV3PF( )	—	49.50	49.50	49.50	55.50	73.50	73.50	89.95	97.50	—	—	—	—	—
Multivision 3F #HOMV3F( )	—	49.50	49.50	49.50	55.50	73.50	73.50	89.95	97.50	—	—	—	—	—
Multivision 5F #HOMV5F( )	—	55.50	55.50	55.50	61.50	89.95	89.95	97.50	113.95	—	—	—	—	—
Multivision 6F #HOMV6F( )	—	59.95	59.95	59.95	77.95	94.50	94.50	118.95	128.95	—	—	—	—	—
Multivision 6PF #HOMV6PF( )	—	—	59.95	22.50	77.95	94.50	94.50	118.95	128.95	—	—	—	—	—
Vari-Multivision #HOVMV( )	—	74.95	74.95	74.95	—	—	—	—	—	—	—	—	—	—
Vari-Multivision 3F #HOVMV3F( )	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vari-Multivision 5F #HOVMV5F( )	—	—	—	—	—	—	—	—	—	—	—	—	—	—

## SPECIAL EFFECTS FILTERS

SPECIAL EFFECTS FILTERS												
Filter Size (mm)	46	49	52	55	58	62	67	72	77	82	86	95
Close-Up (+1, +2, +4) #HOCUS( )	37.50	37.50	37.50	37.50	44.95	62.95	62.95	80.95	89.95	—	—	—
Close-Up (+1, +2, +4) HMC #HOCUSMC( )	56.95	56.95	56.95	56.95	64.50	85.50	85.50	—	—	—	—	—
Macro Close-Up (+10) Lens #HOMCU( )	—	80.95	80.95	80.95	—	—	—	—	—	—	—	—
6-Point Star #HOS6( )	—	22.50	22.50	22.50	25.50	37.50	37.50	43.50	49.50	59.95	—	—
8-Point Star #HOS8( )	—	22.50	22.50	22.50	25.50	37.50	37.50	43.50	49.50	59.95	—	—
RM72 Infrared #HOIR72( )	40.50	40.50	40.50	40.50	47.95	80.95	80.95	263.95	283.50	—	—	—
RM90 Infrared #HOIR90( )	253.50	253.50	253.50	253.50	308.95	359.95	359.95	404.95	454.95	—	—	—

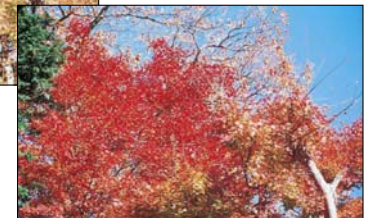
In the parenthesis insert the filter size. For example, a 49mm 6-Point Star filter would be HOS649.

### Enhancing Filters

**Enhancer (Intensifier):** Also known as a 'didymium' filter, this is used to enhance red, orange and brown subjects to give more color saturation and contrast, while having very little effect on other colors. It can be used in many situations such as architecture where certain building features need emphasising, or for landscapes to enhance foliage and rocky features.



without filter



with Enhancer

**Blue Intensifier:** Intensifies and enhances colors in the blue region of the spectrum without adversely affecting other colors. It is particularly useful for brightening seascapes and pale or cloudy skies, but also suitable for when, due to the sun's direction, polarizing filters are ineffective in increasing the saturation of a blue sky. Combination use with PRO 1 UV(0) or Circular Polarizer is recommended for increased contrast and sharpness.



without filter



with Blue Intensifier

**Green Field (Intensifier):** Intensifies and enhances colors in the green region of the spectrum without adversely affecting other colors. It is particularly useful for improving outdoor shots which include nature, flowers, landscapes and water. It can also be used as permanent lens protection filter. Combination use with PRO 1 UV(0) or Circular Polarizer is recommended for increased contrast and sharpness.

**Portrait:** Enhances pink and reduces both yellow and orange to make human skin tones more vivid and clear. Combination use with PRO 1UV(0) is ideal when shooting under fine blue skies.

ENHANCING FILTERS												
Filter Size (mm)	46	49	52	55	58	62	67	72	77	82	86	95
Enhancing #HOE( )	—	35.95	35.95	35.95	44.95	58.50	58.50	64.50	77.95	—	—	—
Blue Intensifier #HOBI( )	—	35.95	35.95	35.95	44.95	58.50	58.50	64.50	77.95	—	—	—
Green Field #HOGFI( )	—	35.95	35.95	35.95	44.95	58.50	58.50	64.50	77.95	—	—	—
Portrait #HOCSG( )	—	35.95	35.95	35.95	40.50	50.95	50.95	59.95	79.95	—	—	—