COLOR BALANCE FILTERS FOR HASSELBLAD CAMERAS

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HASSELBLAD
TECHNICAL INFORMATION
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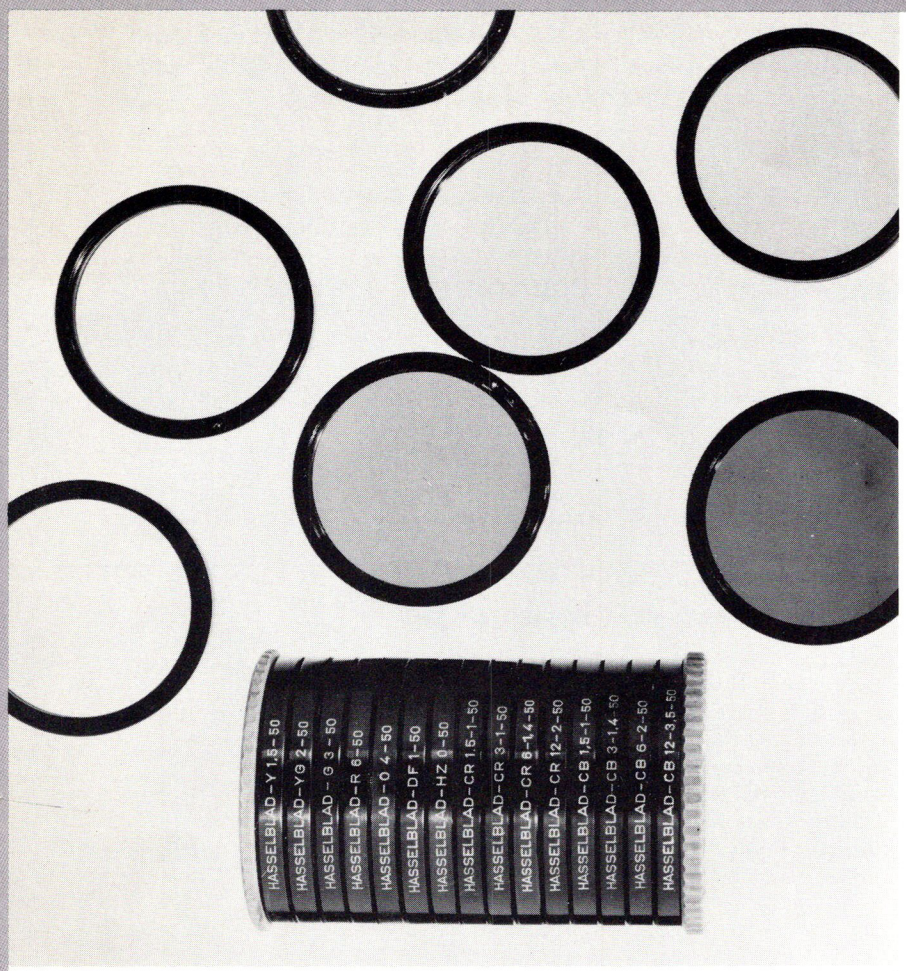
DECAMIRED FILTERS



Hasselblad filters for black and white and color photography have a bayonet mount for convenient mounting and storing.

With the many different types of color film available today, a great variety of filters is necessary to balance the films for the various light sources and lighting conditions. With ordinary conversion and color balance filters there is no relationship between film types and filter numbers and it is, therefore, necessary to consult charts and instructions for each new lighting situation. With the Decamired system of filter, light source and film type designation, on the other hand, the choice of filter is made easier because there is a direct relationship between the decamired value for the filter, light source, and film and simple subtraction gives the number of the required filter.

For example, a Type F color film has a decamired value of 26; photofloods with a color temperature of 3400°K have a decamired value of 29, therefore a color balance filter with a value of 3 (29-26) is necessary. If the number for the light is higher than for the film, as above, a blue or B-3 filter is necessary. If the value for the light is lower, a red decamired filter is used.

With decamired filters, the degree of change is the same at any color temperature, for instance, a B-3 raises the color temperature the same amount whether it is used in daylight of about 6000°K or with photofloods at 3400°K. This is not the case with conventional filters where the degree of change of a filter with one light source is not the same as at another. For example, an 82C filter used with studio lights raises the color temperature by 400°K while in daylight the increase is 550°K.

Another advantage of the Decamired system is the possibility of combining filters of the same color in order to get the desired value. For example, a decamired value of 4.5 is obtained by combining a 3 and 1.5 filter. One set of decamired filters, therefore, is all that is necessary to obtain a filter for any film-lighting combination and whatever new light sources or films may be introduced in the future, the decamired filters may be used and it is not necessary to buy new, or additional filters.

Selecting the correct Decamired filter may be based on the charts in this technical bulletin or by means of a color temperature meter engraved in decamired values.

Charts are completely satisfactory when it is only necessary to obtain pleasing color pictures. When it is necessary, however, to have matched color rendition in pictures taken at different times, different locations or under different lighting condtions, using a color temperature meter is recommended because light sources have a tendency to vary. Daylight varies considerably according to the time of day, weather conditions, the color of the sky and other factors. Color temperature meters are not reliable, however, with fluorescent lights, since these lights do not produce a continuous spectrum. Although color corrections with negative color films may be made in printing, it is recommended to use a decamired filter on the camera to bring the light close to 3800°K (26 DM). This will assure more uniform color balance.

The 8 Hasselblad decamired filters are solid optical glass, optically ground and coated to assure top image quality and a minimum loss of light due to reflections, even when several are used in combination.

They have bayonet mounts to fit the Planar 80mm;

(OVER)

Sonnar 150mm and Sonnar 250mm lenses. The Distagon 60mm wide angle takes standard series VIII filters.

Filter factors for the Hasselblad decamired filters are engraved on the filter following the color and the density. (i.e. CB 3-1. 4-50 means Color balance blue, decamired value of 3, with a factor of 1.4 and a diameter of 50mm, the diameter of the Hasselblad Planar and Sonnar lenses.)

The filter factors for the complete set with corresponding corrections in f stops, when used in daylight between noon and 3 p.m., are shown below. When using them in other types of light, the increase in exposure will vary depending upon the type of light and film used, the weather and the geographical location. It is impossible to give fixed filter factors for all working conditions. These must be determined by each photographer with his own methods, materials, and equipment.

FOR DAYLIGHT (NOON TO 3 P.M.) THE FACTORS FOR INCREASING EXPOSURE ARE:

RED FILTERS		BLUE FILTERS	
CR— 1.5	0	CB— 1.5	1.2X (⅓ f stop)
CR— 3	1. 2X (⅓ f stop)	CB— 3	1.4X (½ f stop)
CR— 6	1. 4X (½ f stop)	CB— 6	2X (one f stop)
CR— 9	1. 7X (¾ f stop)	CB— 9	2.6X (1½ f stops)
CR—12	2. 0X (one f stop)	CB—12	3.5X (two f stops)

DECAMIRED VALUES OF VARIOUS LIGHT SOURCES AND FILMS

LIGHTSOURCE	DM VALUE	FILM
Blue Skylight (for pictures in shade)	8	
Light Overcast Sky	13	
Cloudy Sky	15	
Electronic Flash	15—18	
Sunlight (9 a.m.–3 p.m.)	18	Daylight Type
Sunlight–early morning, late afternoon	20	
Clear Flash Lamps	26	Type F
Photofloods (3400°K)	29	Type A
Studio Lights (3200°K)	31	Tungsten & Type B
Household Tungsten Lamps	35	
Candlelight	50	

DECAMIRED FILTERS AND FILM COMBINATIONS

R 1.5	to use Daylight Color films with Electronic Flash
	to use Tungsten (Type B) Color films with 3400°K Photofloods.
R 6	to use Tungsten (Type B) Color films with clear flashbulbs.
R 12	to use Kodacolor film with Electronic Flash
R 15	to use Tungsten (Type B) color films in daylight
B 3	to use Kodacolor and type F films with 3400°K Photofloods
B 6	to use Kodacolor and type F films with 3200°K Lamps
B 9	to use daylight color films with clear flashbulbs
B 12	to use daylight color films with 3400°K photofloods
	to use Ansco daylight films with 3200°K Lamps

FILTER CONVERSION TABLE

WRATTEN	82	82A	82B	82C	82+82C	80C	82C+82C	80B	80B+82A	81	81A	81B	81C	81D	81EF	85C	85	85B
DECAMIRED	B 1.5	B 3	B3	B 4.5	B 6	B 7.5	B 9	B 12	B 15	R 1.5	R 1.5	R 3	R 4.5	R 6	R 6	R 9	R 12	R 15

DECAMIRED FILTERS WITH VARIOUS FILMS & LIGHT SOURCES

	TYPE OF LIGHT				
Type of Film	Daylight From 9 a.m. to 3 p.m.	Electronic Flash	Clear Flashbulbs	Photofloods 3400°K	3200°K Lamps
Anscochrome Daylight	None	R 1.5	Not Recommended	B 12	B 12
Super Anscochrome Day	None	R 1.5	B 9	B 12	B 12
Ektachrome Day. E2	None	None	B 9	B 12	B 13.5
Ektachrome Day. E3	None	See Instructions	B 9	Not Recommended	Not Recommended
High Speed Ektachrome Day.	None	None	B 9	Not Recommended	Not Recommended
Ektachrome Type F	R 9	Not Recommended	None	B 3	B 6
Super Anscochrome Tungsten	R 15	Not Recommended	R 6	R 1.5	None
High Speed Ektachrome B	R 15	R 15	R 6	R 1.5	None
Kodacolor	R 9	R 12	None	B 3	B 6