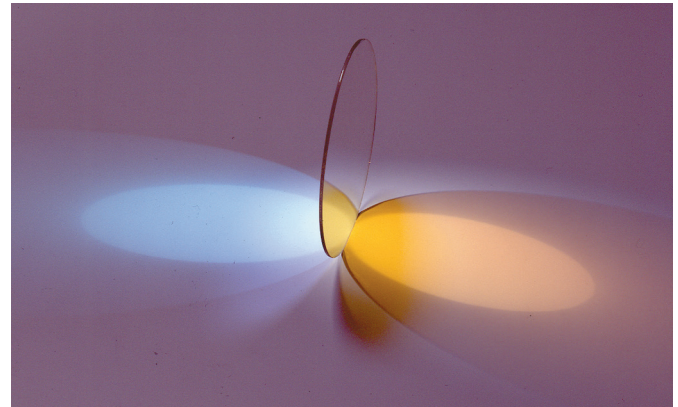


Rosco Permacolor glass dichroic filters are durable, high temperature, high transmission glass color filters, that change the color of the light emanating from the fixture.



## STANDARD COLORS

6500 Primary Red	1030 Lt. Salmon Pink	4954 Primary Green	3203 3/4 CTB
1080 Primary Blue	1048 Purple Fusion	1064 Lt. Steel Blue	3204 1/2 CTB
6100 Flame Red	1054 Lavender Accent	1059 Indigo	3208 1/4 CTB
1002 Bastard Amber	1025 Orange Red	3388 Gaslight Green	3216 1/8 CTB
1018 Amber Blush	1062 Booster Blue	1384 Midnight Blue	3699 370nm D.C. UV Pass
1019 Fire	1065 Mediterranean Blue	1076 Light Green Blue	3660 Double Coated UV Pass
1010 Med. Yellow	5700 Sea Blue	3114 Victorian Gold	8000 IR/UV Block
5200 Yellow	5590 Cyan	3407 CTO	3026 White Diffusion
5401 Amber	5400 Sky Blue	3408 1/2 CTO	4000 UV Block
5600 Med. Orange	5100 Lt. Blue Green	3411 3/4 CTO	3402 ND .3
5900 Orange	4600 Med. Red Blue	3409 1/4 CTO	3415 ND .15
1033 Light Pink	4200 Deep Purple	3410 1/8 CTO	3403 ND .6
1337 Pale Pink	1073 Peacock Blue	3313 1/2 Minus Green	7200 Infrared Pass
4758 Med. Pink	4853 Turquoise	3314 1/4 Minus Green	420 nm Blue Block
4630 Hot Pink	1086 Industrial Green	3318 1/8 Minus Green	
4763 Deep Magenta	4959 Lt. Yellow Green	3315 1/2 Plus Green	
4640 Vivid Magenta	5156 Fern Green	3202 Full CTB	

Library colors also available. Contact Rosco for more information.

## PRODUCT NUMBER / ORDERING INFORMATION

For most common sizes, 1.75mm and 3.3mm thickness as standard. 1.1 also available.

Product number: **120 + Permacolor number + size suffix**

Larger sizes also available. Almost any size or shape is possible. Call for details.

## DELIVERY LEAD TIME

Lead times are dependent on existing production schedules and order quantity. Contact Rosco for a confirmed delivery date.

Permacolor™ Dichroic	
Size	Suffix
2" (50.8 mm) square	2050
1.95" (49.5 mm) round	2049
5.25" (133 mm) round	2133
6.3" (160 mm) round	2160
8.25" (209 mm) round	2209
Custom cut	2999

## MANUFACTURING INFORMATION

Rosco Permacolor dichroic filters are manufactured to exacting tolerances in a state-of-the-art, Physical Vapor Deposition System. This optimally sized manufacturing line allows for unprecedented control of color and film density. Permacolor filters are extremely durable and precisely repeatable, meeting the high expectations of entertainment and architectural lighting designers throughout the world.

## DESCRIPTION OF FILM COATING

All films are manufactured using dielectric materials (TiO<sub>2</sub> and SiO<sub>2</sub>) that are evaporated by an electron beam source in a high vacuum and high temperature environment. This produces a dense film that is highly resistant to damage from abrasion, humidity, chemicals and spectral radiation. Dielectric films are porous by nature. Long term exposure to high humidity or high temperature environments, may cause color shifts of  $\pm 5$  nm.

## SPECIFICATIONS

Dimensions		Abrasion:	Passes Mil. C-48497 (Moderate; 50 strokes with cheesecloth under 1 lb. force, and Severe, 20 strokes with coarse eraser under 2 lbs. of force)
Standard sizes:	2" (50.8 mm) square 1.95" (49.5 mm) round 5.25" (133 mm) round 6.3" (160 mm) round 8.25" (209 mm) round Almost any size or shape - call for details.	Temperature Substrate:	Maximum short term (< 1 hour): 450° C Maximum Continuous (> 24 hours): 400° C
Cutting Tolerance:	$\pm .25$ mm Tolerance can depend on glass thickness or texture.	Coating:	Maximum Short Term (< 1 hour): 250° C Maximum Continuous (> 24 hours): 200° C RTD < 90K (hot spotting)
Standard Thickness:	1.1mm $\pm 0.2$ mm 1.75mm $\pm 0.2$ mm 3.3mm $\pm 0.2$ mm Other thicknesses are available as a special order	Humidity:	Passes Mil. C-48497 (95 - 100% at 50° C per 24 hour period)
Aperture:	> 95% (guaranteed useable area)	Color Tolerance:	$\pm 5$ nm of designed Half Height
Surface Defects:	80 - 50- Mil. O-13830 Scratch/Dig Test (.08mm Scratch or .5mm Dig per 20 sq. Viewed by unaided eye w/40 watt source)	Angle of Incidence:	0° to 45° Wavelength movement can depend on overall film thickness.
Adhesion:	Passes Mil. C-48497 (Cellophane Tape Test)	Transmission:	Spectral distribution curves are available for all Permacolor filters. Contact Rosco for specifics.

## APPROPRIATE LUMINAIRES

Determining whether dichroic filters are appropriate for use with a given fixture requires consideration of three different factors: filter size, beam spread and fixture wattage.

**Beam spread:** Fixtures with beam spreads wider than 45° may exhibit color shifting at the periphery of the beam. The wider the beam spread, the more significant the color shift will be. This shift on the periphery can be alleviated with use of a donut, black foil such as Cinefoil, or use of a bezel.

**Heat:** Dichroic filter coatings are rated for continuous exposure to 200° C and short term exposure to 250° C temperatures. A combination of factors such as lamp type, reflector type, reflector design and position of the filter within the optical system determine the temperature of the filter and fixture placement. Refer to the luminaire manufacturer's specifications for temperature measurements or perform your own tests as needed.

## INSTALLATION

Dichroic filters can be installed with either the coated side of the filter towards or away from the lamp. This may be application dependent. To determine the coated side of the filter, touch the point of a pen or pencil to the glass. If you are touching the coated side, the tip will appear to touch its reflection in the glass. On the un-coated side, the reflection appears with a small gap between the points.

## COLOR FRAMES

Whenever possible, dichroic filters should be mounted in frames designed specifically for glass filters. Contact the fixture manufacturer to determine if the appropriate holder is available. Rosco can supply holders for many typical theatrical fixtures as well as customized frames. In certain cases dichroic filters can be mounted within the lens assembly using heat-resistant silicon adhesive. **UNDER NO CIRCUMSTANCES SHOULD DICHROIC FILTERS BE USED TO REPLACE THE MANUFACTURER'S INSTALLED SAFETY GLASS.** Rosco's borofloat substrate is a high-heat resistant glass but it is not tempered or chemically treated.

Rosco has several frame options: 6.25", 7.5", 10" - square with safety grids.  
Custom frame size/shapes also available, size/shape dependent.

## PRICING

Dichroic filter prices are determined by the size, quantity, and type of coating required. Some technical coating prices may differ from standard dichroic color pricing.

## DEFINITION OF FAILURE

All tests are based on the mechanical properties of the film to resist cracking, flaking, peeling or blistering. They do not include spectral performance or color shifting tolerances caused by extreme temperature and humidity conditions. These are highlighted as side notes with the appropriate subjects.

### DISCLAIMER

The statements regarding the above subjects are theoretical in nature and are assumed to be accurate. Testing for adhesion and abrasion was performed on a 3" x 3" sample of #3650, the thickest coating available in the Permacolor range and therefore most likely to fail during testing. Additionally, a "Torch Test" was conducted in which the coated surface of the filter was slowly heated with a propane torch until the substrate failed (~450° C) with no visible damage done to the coating. Rosco guarantees coating quality and all tolerance adherences at the time the product ships. We make no warranties on applications of use: site conditions, installation and handling, weather or climate conditions or other unknowns that may adversely affect and shorten the condition and lifespan of the glass and coatings.