

## PRODUCT DESCRIPTION

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

36500 Primary Red	31062 Booster Blue	43407 CTO
31080 Primary Blue	31065 Mediterranean Blue	43408 1/2 CTO
36100 Flame Red	35700 Sea Blue	43411 3/4 CTO
31002 Bastard Amber	35590 Cyan	43409 1/4 CTO
31018 Amber Blush	35400 Sky Blue	43410 1/8 CTO
31012 Bright Straw	35100 Lt. Blue Green	43402 ND .3
31013 Goldenrod	34600 Med. Red Blue	43415 ND .15
35200 Yellow	34200 Deep Purple	43403 ND .6
35401 Amber	31073 Peacock Blue	43313 1/2 Minus Green
35600 Med. Orange	34853 Turquoise	43314 1/4 Minus Green
35900 Orange	31086 Industrial Green	43318 1/8 Minus Green
31033 Light Pink	34959 Lt. Yellow Green	43203 3/4 CTB
31337 Pale Pink	35156 Fern Green	43208 1/4 CTB
34758 Med. Pink	35055 Primary Green	43204 1/2 CTB
34630 Hot Pink	31050 Mauve	43202 CTB
34763 Deep Magenta	31059 Indigo	33660 Double Coated UV Pass
34640 Vivid Magenta	33388 Gaslight Green	38000 IR/UV Block
34965 Lavendar	31057 Lavender 57	43026 White Diffusion
31048 Purple Fusion	31076 Light Green Blue	
31054 Lavender Accent	33114 Victorian Gold	
31055 Lilac		

Custom colors and Library colors also available. Contact Rosco for more information.

## PRODUCT NUMBER/ORDERING INFORMATION

For most common sizes, 1.75mm thickness:

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

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

Almost any size or shape is available, call for details.

3.3mm and 1.1mm thickness also available, call for details.

## DELIVERY LEAD TIME

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

## MANUFACTURING INFORMATION

---

Rosco Permacolor™ glass 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 ±5 nm.

## PRODUCT SPECIFICATIONS

---

### Dimensions:

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
- Other sizes and shapes are available, call for details.

### Cutting Tolerance:

±.25mm. Tolerance can depend on glass thickness or texture.

### Angle of Incidence:

0° to 45°

Wavelength movement can depend on overall film thickness.

### 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)

### Humidity:

Passes Mil. C-48497 (95 - 100% @ 50C per 24 hour period)

### Transmission:

Spectral distribution curves are available for all Permacolor filters. Contact Rosco for specifics.

### Thickness:

Standard thickness: 1.75 mm ±0.2mm  
3.3mm ±0.2mm

Optional thickness: 1.1mm ±0.2mm

### Temperature:

Maximum short term (< 1 hour): -50° C to 450° C

Maximum continuous (> 24 hours): 200° C

RTD < 90K (hot spotting)

### Color Tolerance:

± 5nm of designed Half Height

### Adhesion:

Passes Mil. C-48497 (Cellophane Tape Test)

### Abrasion:

Passes Mil. C-48497 (Moderate, 50 strokes with cheesecloth under 1 pound force, and severe, 20 strokes with coarse eraser under 2 pounds of force.)

### Aperture:

>95% (guaranteed usable area)

## 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 filters are rated for continuous exposure to 200° C and short term exposure to 450° 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. 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.

## PRICING:

---

Dichroic filter prices are determined by the size of the filter required, irrespective of the color specified.

### 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 No.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