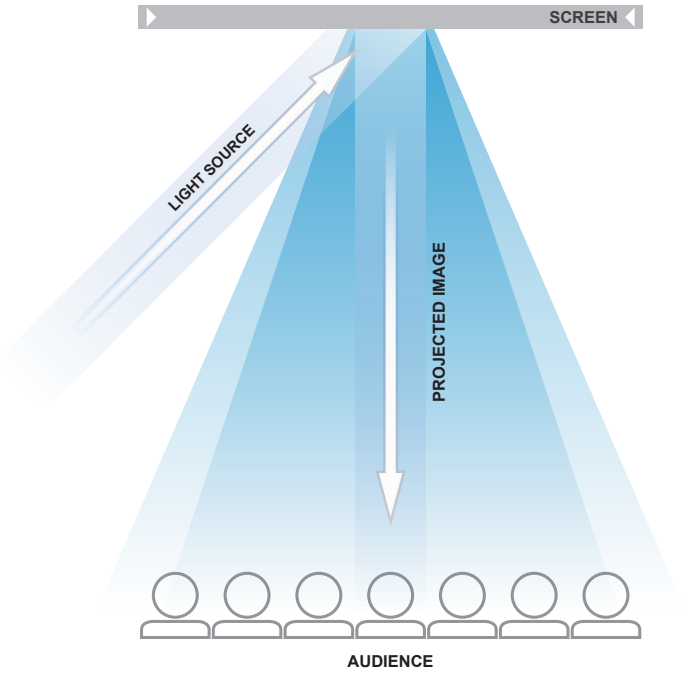
FRONT PROJECTION SCREENS

Front projection is the use of a source to bounce an image off a surface and back to the viewer.

In this case, the surface should be highly reflective for the audience to get the brightest possible image. On equalintensity, distance, and the size-of-image basis, a front projection is brighter than a corresponding rear projection. In short, **it takes less wattage to project the same image from the front than from the rear**. The source is normally hidden from the audience, but must be placed with a clear throw to the surface. If the throw is very long, a source with the appropriate wattage should be chosen.

This method is best for situations where the source is not very strong, as a highly reflective surface will maximize the amount of light being bounced back at the user. A front projected image maintains its intensity, clarity, and contrast through a wide angle of vision, meaning those sitting house right and left can see the image almost as well as those in the center of the audience.



Using a front projection surface has some disadvantages.

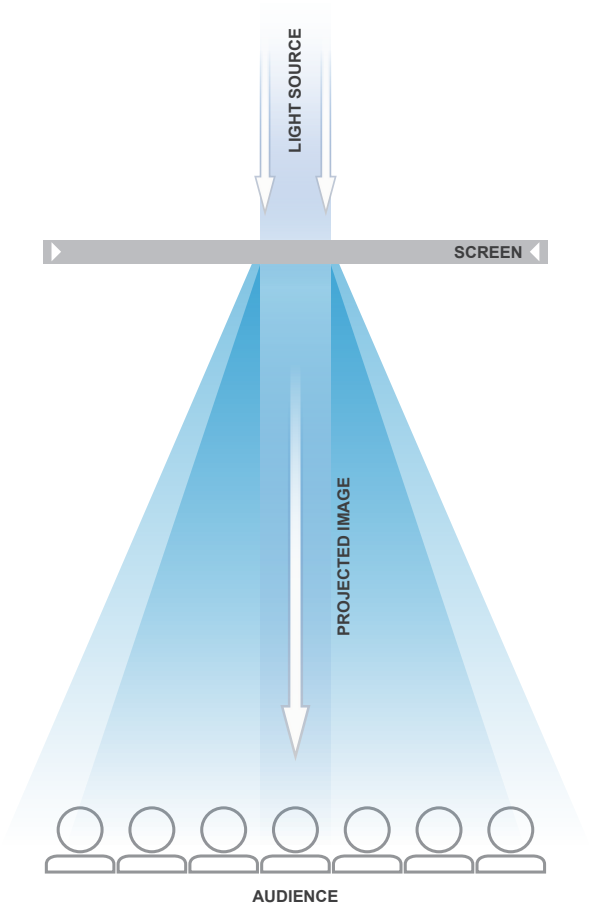
First, having a very light colored surface on stage can be distracting. Some designers feel their audiences are left "waiting for the movie to start". The bright surface may reflect ambient light causing the image to look washed out, if care is not taken in lighting the areas adjacent to the surface. Backlighting and sidelighting actors and scenery becomes very important in this situation in order to keep the actor's shadow off the projection surface. Hiding the source in an extreme lighting position to avoid casting shadows can cause distortion in the image and may require keystone correction.

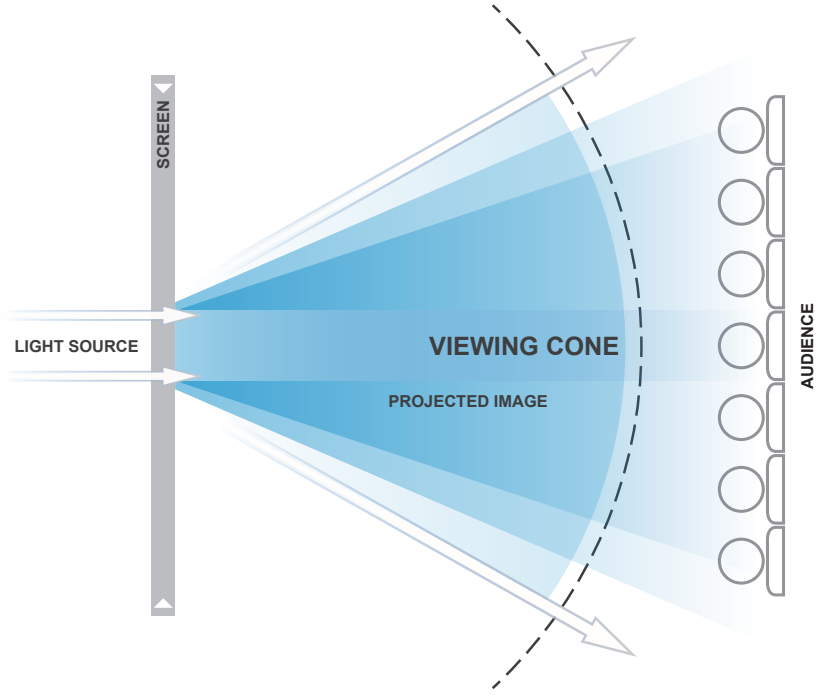
REAR PROJECTION SCREENS

Rear projection is the use of the source to transmit the image through a screen to the viewer.

In this case, the surface should transmit an image with true optical clarity and brightness. A higher intensity source is necessary as the light rays are forced through the surface of the screen to the viewer. By definition the source is masked to the audience, but space must be left backstage between the source and the surface, in order to prevent the actors and crew from casting shadows on the surface. The darker colors included in the rear projection palette allow the surface to blend inconspicuously into the scenery. Actors can stand in front of the screen without blocking the image. Because the image is usually projected on an angle directly perpendicular to the surface, distortion is not a problem.

If the surface is painted, varied and interesting effects can be achieved by projecting them from behind so that they blend with the painted picture. Day to night effects are a perfect example of this.





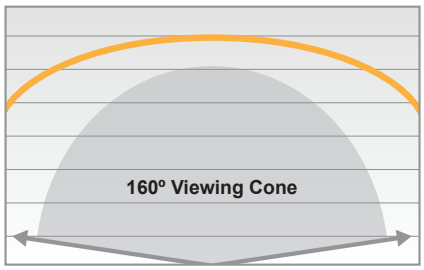
A rear projection surface also has its disadvantages.

In order to allow the image to pass through it, and because the viewer is usually looking almost directly at the source through the screen, a “hot spot” is often visible at the center of rear projected images. Because of density of the material required to diffuse the image and prevent hot spotting, the image quality falls off sharply when the viewer is seated outside the 60 to 110 degree viewing cone. (see diagram) The actual size of the viewing cone is dependent on the color of the surface chosen, with darker surfaces “falling off” fairly close to the center axis.

SCREENS FOR FRONT AND REAR PROJECTION

Twin White screen is Rosco's most versatile screen. Its milky white color makes for equally bright images whether front or rear projected. This means that the designer can cross fade between front and rear projection unnoticed. The viewing cone on this screen is almost 180 degrees, giving everyone in the audience an undistorted image. Because the screen is light colored for front projection reflectance, ambient light will affect the image quality, so care should be exercised in lighting around the screen.

Twin White Screen Optical Properties



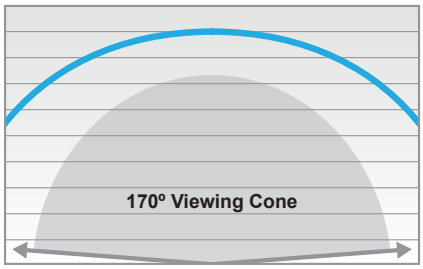
Viewing Angle: 160°
(80° off normal axis)

Gain: Front 0.68
Rear 0.35

SCREENS FOR FRONT PROJECTION ONLY

Front White projection screen is a highly reflective, opaque material. Front White is best for those situations requiring the brightest images combined with the widest viewing angles. Because the reflectiveness is so high, this screen will pick up any ambient light. Therefore, care must be exercised in the lighting design to minimize bounce light.

Front White Screen Optical Properties



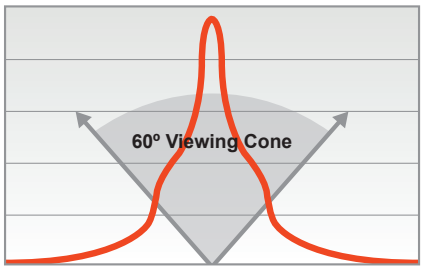
Viewing Angle: 170°
(85° off normal axis)

Gain: 0.90

SCREENS FOR REAR PROJECTION ONLY

Black projection screens are best used in situations with high quantities of ambient light. The dark grey color comes magically to life with fine detail resolution when back lit with STRONG (bright) image. The color makes the screen inconspicuous within the framework of the set, but its viewing cone is limited to 60 degrees. The direct light transmission is only about 6%, but the excellent contrast between light and dark make for an image that appears substantially brighter. Black is particularly well suited for ballet and opera where the dark surface absorbs the reflections of follow-spots on the floor.

Black Screen Optical Properties

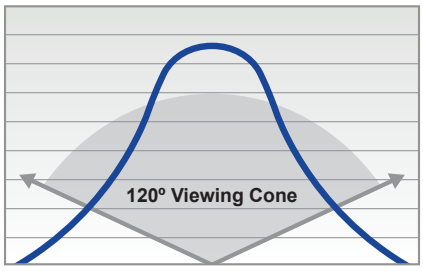


Viewing Angle: 60°
(30° off normal axis)

Gain: 2.30

Grey projection screens have many of the advantages of black screens while opening up the viewing angles to accommodate a wider audience. The medium grey color still helps the screen blend into the scenery, and provides true-to-life images, color and clarity. The viewing cone opens up to 120 degrees, and the lighter color means higher light transmission, and therefore, a brighter image.

Grey Screen Optical Properties

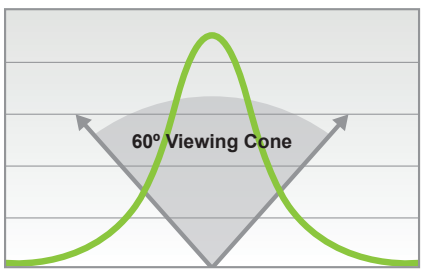


Viewing Angle: 120°
(60° off normal axis)

Gain: 1.55

Light Translucent projection screen is a slightly opaque, very light grey screen with a variety uses. For projection, it is best used in high ambient light situations, particularly in outdoor installations (see care and maintenance instructions), because the extremely high light transmission of the screen allows the image to compete with the bright ambient light. Care should be exercised in avoiding the line of sight between the viewer and the projector, however, due to the hot spot that would be seen because the screen is so translucent. *Light translucent screen is an excellent choice for bounce drops and diffusion materials.*

Light Translucent Screen Optical Properties



Viewing Angle: 60°
(30° off normal axis)

Gain: 4.40

SPECIFYING AND ORDERING THE ROSCO SCREEN YOU NEED

You can most easily order your Rosco Screen through your Rosco dealer, usually the same people who supply you with Rosco Scenic Paint or Roscolux Color Filters.

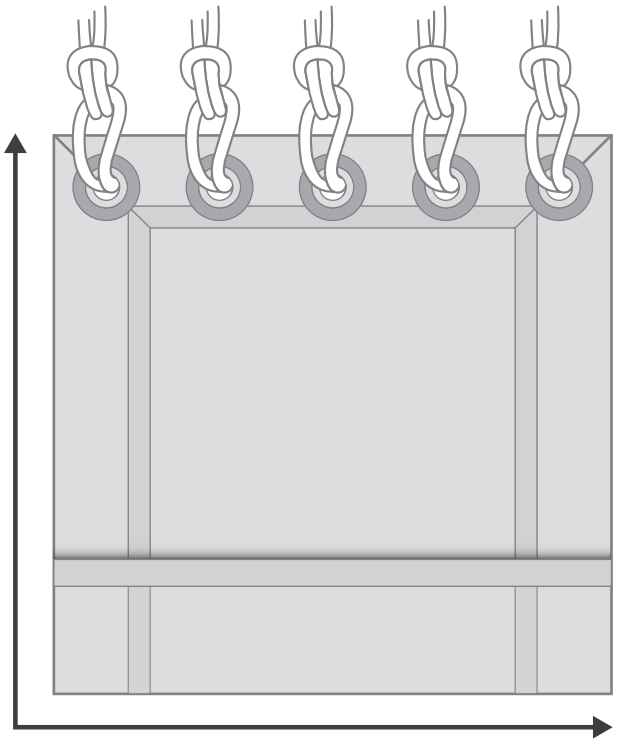
You need to tell them the type and color of screen you want (Twin White, Front White, Black, Grey or Light Translucent).

Screens are priced and sold by the square foot, so you need to know the height and width you wish to work with. Custom Rosco Screens are welded using multiple panels; the number will depend on final width desired.

The custom price includes grommets on 12" centers on any of the fours sides, a 4" pipe pocket, skirt, and edge finishing. Special finishes such as snaps, hook and loop fasteners, and grommets on other than 12" centers need to be custom priced.

Note: If your screen is not square or rectangular, you'll need to supply a drawing.

Timing is always a factor in screens for production. That's why it's best to be in touch with your Rosco dealer as early in the process as possible. In many cases we can deliver your screen in as little as 2 weeks.



SQUARE AND RECTANGULAR SHAPED SCREENS
WIDTH X HEIGHT = SQUARE FEET

Stretch-N-Hooks not included but can be purchased separately.

USING SCREENS AS CYCLORAMAS IN THEATRES, DANCE, AND TELEVISION

The Benefits of Vinyl

The cyclorama is a background surface used in theatre, dance, television and film to give the illusion of open sky or horizonless staging. Any time or place can be represented with a change in lighting color or intensity, offering set and lighting designers a highly flexible design tool. While in the United States muslin has been the traditional choice for cyclorama material, in Europe vinyl has been the preferred medium for decades. It's easy to see why this is so. Vinyl screens are durable, easy to care for, and can be made up to 40 feet high, with no limit on width. Once a mark gets on a muslin cyc, there is little to be done except spot cleaning. Vinyl screens can be wiped clean with mild detergent.

Vinyl cycloramas are inherently flame retardant. This is important as your screen can last as much as a decade, depending on conditions. The process of flame retarding a large fabric cyc can be daunting for both practical and financial reasons, and is required every 3-5 years in most cities. You will never need to flame proof a vinyl cyclorama.

A muslin cyc cannot be used for rear projection if images. Using a vinyl cyclorama allows designers to take advantage of the current trend in front AND rear projected images in scenery. Rosco's Twin White screen is particularly useful as a cyc for theatre, television, and film. The milky white color diffuses light exceptionally well, with no scalloping to give away lighting positions. Beautiful, infinitely varied effects can be achieved by lighting the cyc with lighting instruments positioned at the top and bottom of the screen, behind the cyc. In addition, Twin White has a better video whiteness than muslin cyc yielding cleaner, crisper, brighter images.

In comparison to wide width seamless muslin, vinyl cycloramas are competitively priced. Coupled with their difussion qualities, durability, flame retardency, and flexibility, it's an easy choice.

What About The Seams? Are They Really Invisible?

Rosco Screens are welded together in a special ultrasonic welding process, producing the most invisible seams possible. The edges of the material are butted together to eliminate the shadow created by rear projecting through two layers of screen. The seams become invisible to the eye at a normal viewing distance of about 10 feet. The seam will always be less visible in front projection than rear, as the eye is focusing just in front of the weld, whereas in rear projection the eye looks through the weld.

CARE AND MAINTENANCE OF YOUR ROSCO SCREEN

Screen ships folded in a box for economical transport. Because vinyl has a "memory" (the tendency to retain fold and wrinkles), your screen must be hung as soon as possible after it is received in a warm environment (70° F / 20° C).
Please note: if there is ANY possibility the screen has frozen it must remain untouched until the vinyl has returned to room temperature. Attempting to handle frozen screen may result in cracked fabric.

Once hung, weighting the bottom will help pull out some of the wrinkles. Do not use a pipe greater than 1-1/2" diameter as this will cause the vinyl to stretch. It is best to use one length of pipe in the pocket as a break will cause wrinkles on the surface radiating from the pipe pocket. Your Rosco Screen will hang out to a smooth, flawless projection surface in up to 48 hours. It must be hung in a warm environment (70° F / 20° C).

Please note: Never use a heat gun to warm the vinyl as the intense, concentrated heat will damage the PVC.

A vinyl cyclorama will provide years of service, provided it is properly cared for.

SCREEN ACCESSORIES

Stretch-N-Hook™

Item Code	Description
500 05100 0010	Stretch-N-Hook

This multi-purpose fastener was designed to maintain constant tension between materials such as grommeted projection screens and supporting structures.

Minimum order: 12 units.

Transparent Screen Tape

Item Code	Description
851 05100 4850	Rosco Screen Tape

For temporarily seaming screen yardage together for a production, or for temporary repairs of screen material.

Taped seams may spread within two months 2" x 55 yards.