

SELECTING THE RIGHT SCREEN

Da-Lite offers a wide array of screens each with a choice of projection surfaces. Selecting the right combination to meet your needs is important for optimum results.

The following pages offer guidelines for selecting a screen that suits your application. Although these recommendations will work in most situations, each must be looked at not as a strict rule, but rather as a guideline for determining your actual needs based on your own situation.

For additional help in selecting screens, contact Da-Lite for the free publications "Guide To Selecting Front Projection Screens". Of course, your Da-Lite Sales Partner is also happy to assist you.

Four Steps to Selecting the Right Screen

■ Pick the **type of screen** that best suits your particular needs. For example, choose from front projection (page 11) screens in either portable, wall or ceiling mounted models in either manual or electric versions or rear projection (page 75). Generally, if your projection application is permanent, then wall and ceiling screens are your best choice. If, however, you find your needs require moving the screen to different locations then a portable screen is a better alternative.

■ Determine the optimum **screen size** based on room dimensions, planned audience seating size and arrangement. The rule of thumb is to fit the screen to the audience - not to the projector. Da-Lite recommends the following formula for determining screen size:

- Screen height should be approximately equal to 1/6 the distance from the screen to the last row of seats, allowing text to be read and detail to be seen in the projected image. Ideally, the first row of seats should be approximately two screen heights away.
- The bottom of the screen should be a minimum of 4 feet above the audience floor, allowing those seated toward the rear of the audience to see the screen. This may require additional screen "drop" for ceiling hung screens (see next page for information).

■ Select the appropriate **format** for your projection application. Common formats are as follows:

Common Applications	Aspect ratio Width/Height
NTSC Video	1.33
PAL Video	1.33
HDTV Video	1.78
Letterbox Video	1.85
Cinemascope	2.35
35 MM Filmstrip	1.32
2x2 Standard 35MM Double-Frame Slides	1.50
SXGA	1.25

■ Choose the **screen surface** that best suits your projection and viewing requirements. For your convenience, pages 6 and 7 provide descriptions and performance characteristics for each front screen surface and pages 8 and 9 provide descriptions and performance characteristics for each rear projection screen surface. If the screen will be used for multiple projection methods, choose the screen surface that meets the requirements of the lesser performing projection method.

CALCULATE A CUSTOM SCREEN SIZE

How to Calculate a Custom Screen Size

Use the following formulas to calculate a custom size. These formulas will assist you in finding the viewing area only.

NTSC (1.33)

Video Format

Diagonal/1.667 = Height
 Height x 1.33 = Width
 Width/1.33 = Height
 Height x 1.667 = Diagonal

HDTV (1.78)

Video Format

Diagonal x 0.49091 = Height
 Diagonal x 0.87247 = Width
 Height x 2.0395 = Diagonal
 Width x 1.14585 = Diagonal
 Height x 1.78 = Width
 Width x 0.561837 = Height

Letterbox (1.85)

Video Format

Diagonal x 0.4762 = Height
 Diagonal x 0.88 = Width
 Height x 2.11 = Diagonal
 Width x 1.135 = Diagonal
 Height x 1.85 = Width
 Width x 0.5405 = Height

SXGA (1.25)

Video Format

Diagonal x 0.625 = Height
 Diagonal x 0.78125 = Width
 Height x 1.60 = Diagonal
 Width x 1.28 = Diagonal
 Height x 1.25 = Width
 Width x 0.80 = Height

Screen Size Conversion Chart

Use the following chart to convert an existing NTSC video format screen size to either an HDTV or Letterbox format size.

Calculated using existing height

NTSC (1.33) Viewing Area H x W	HDTV (1.78) Viewing Area H x W	Letterbox (1.85) Viewing Area H x W
43 x 57	43 x 77	43 x 80
50 x 67	50 x 89	50 x 90
57 x 77	57 x 102	57 x 105
60 x 80	60 x 107	60 x 111
69 x 92	69 x 123	69 x 128
87 x 116	87 x 155	87 x 161
105 x 140	105 x 187	105 x 194

Calculated using existing width

NTSC (1.33) Viewing Area H x W	HDTV (1.78) Viewing Area H x W	Letterbox (1.85) Viewing Area H x W
43 x 57	32 x 57	31 x 57
50 x 67	38 x 67	36 x 67
57 x 77	43 x 77	42 x 77
60 x 80	45 x 80	43 x 80
69 x 92	52 x 92	50 x 92
87 x 116	65 x 116	63 x 116
105 x 140	79 x 140	76 x 140

Screen Borders and Drop

Black masking borders are standard on most Da-Lite front projection screens at no extra charge. Borders enhance the perceived brightness of an image on a screen. The human eye perceives the image to have more contrast and a sharper picture with brighter colors. Borders also allow the projected image to “bleed-off” the screen for professional appearing presentations.

Drop is also available on most Da-Lite wall, ceiling and electric screens. Drop is extra fabric added to the top or bottom of the screen to adjust the screen surface to within normal viewing heights. Drop can be specified in either black or white.

Note: Tensioned electric screens are standard with 12" black drop at the top in all sizes except for 200" diagonal which is standard with 2" black drop.

FRONT PROJECTION SCREEN SURFACES

Screen surface can be cleaned.	Flame retardant.	Mildew resistant.	Indicates Goniophotometer reflectance readings. The higher the number, the greater light transmitted to the audience.	Number shows the optimal width of the ideal viewing half angle.
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MATTE WHITE

One of the most versatile screen surfaces and a good choice for situations when presentation material is being projected and ambient light is controllable. Its surface evenly distributes light over a wide viewing area. Colors remain bright and life-like, with no shifts in hue.

50° 1.0

HIGH CONTRAST MATTE WHITE

Designed for moderate output DLP and LCD projectors, this screen surface is a great choice when video images are the main source of information being projected and where ambient light is moderately controlled. With its specially designed gray base material and reflective top surface, this screen material is able to provide very good black levels without sacrificing the white level output.

45° 1.1

VIDEO SPECTRA™ 1.5

This screen surface is specially designed with a reflective coating, which provides an increased amount of brightness with a moderately reduced viewing angle. The increased gain of this surface makes it suitable for environments where ambient lighting is uncontrollable and a projector with moderate light output is utilized.

35° 1.5

GLASS BEADED

A glass beaded screen surface has the ability to achieve a higher gain by reflecting more of the projected light back along the projection axis making it a good choice for situations where the projector is placed on a table-top or in the same horizontal viewing plane as the audience. Glass beads impregnated in the screen's surface provide additional internal reflectance, which results in an unparalleled screen surface for vibrant, life-like color reproduction at moderate viewing angles. Not recommended for areas where the screen will be subject to abuse or soiling.

30° 2.5

SILVER MATTE

A uniquely designed screen surface with a specially designed silver finish. This surface is perfect for situations where a silver surface is necessary for polarized 3-D projection. The matte finish of this surface successfully rejects ambient light.

30° 1.3

HIGH POWER

This screen surface is a technological breakthrough, providing the reflectivity and optical characteristics of a traditional glass beaded surface with the ability to clean the surface when necessary. Its smooth textured surface provides the highest gain of all front projection screen surfaces with no resolution loss. The moderate viewing angle and its ability to reflect light back along the projection axis make this surface the best choice for situations where there is a moderate amount of ambient light and the projector is placed on a table-top or in the same horizontal viewing plane as the audience.

30° 2.8

DA-MAT™

A screen surface with a smooth, white vinyl finish for precise image reproduction. Provides an exceptionally wide viewing angle and no resolution loss. It is a highly flexible fabric that may be folded or rolled. Its versatility makes it a great choice for situations with good control over ambient light and where an exceptionally wide viewing angle is necessary.

50° 1.0

FRONT PROJECTION SCREEN SURFACES

CINEMA VISION

A unique non-supported vinyl fabric that offers a bright, uniform image with no color shift at any viewing angle. This surface is designed to provide a higher amount of brightness for lower output projector types such as CRT. Its increased reflectivity will help enhance the image brightness in situations where a low level of ambient light is present. As a fabric approved by the Imaging Science Foundation, this surface is a good choice when producing video images.

    45°  1.3

PEARLESCENT

A non-supported vinyl fabric, offering a higher degree of reflectivity and brilliance without loss of image quality or resolution. This surface is a good choice when producing video images with a lower output projector and where there is a high amount of ambient light present.

    40°  1.5

AUDIO VISION

Designed for applications where a more realistic soundstage is desired, this fabric allows for the installation of speakers to be placed behind the surface. With virtually no sound loss and good image quality, this fabric provides the same optical characteristics as the Da-Mat surface with specially designed perforations to allow sound to pass through the screen material.

    50°  1.0

HIGH CONTRAST DA-MAT™

With a special gray surface, this screen material is designed for use with today's high output LCD, DLP and D-ILA projectors. By lowering the black levels of the projected video image, this surface creates a more film-like image and is a good choice when video is the main source of projected information. This screen surface is best used when there is good control of ambient lighting and a moderately wide viewing angle is desired.

    45°  0.8

HIGH CONTRAST CINEMA VISION

Designed for today's moderate output DLP and LCD projectors, this screen surface is a great choice when video images are the main source of information being projected and where ambient lighting is moderately controlled. With its specially designed gray base surface and a reflective top surface, this screen material is able to provide very good black levels without sacrificing the white level output. With its enhanced black levels and brilliant white levels, this screen surface provides deep life-like colors and greater detail and sharpness to the image.

    45°  1.1

HIGH CONTRAST AUDIO VISION

With the same optical characteristics as the High Contrast Da-Mat material, this surface is designed to provide the viewer with a more realistic soundstage by placing speakers behind the screen and allowing the sound to be transmitted through the material. This screen surface is best used when there is good control of ambient lighting and a moderately wide viewing angle is desired.

    45°  0.8

HIGH CONTRAST CINEMA PERF

With the same optical characteristics as High Contrast Cinema Vision, this surface is perforated to allow placement of a center channel speaker behind the screen surface while allowing the sound to transmit through the material. Ideal for use in environments with moderate control of ambient light.

    45°  1.1

SILVER VISION

This screen surface is uniquely designed with a specially formulated silver finish. This surface is perfect for situations where a silver finish is necessary for polarized 3-D projection. The silver finish of this surface successfully rejects ambient light. It is a highly flexible fabric that must be tensioned.

    25°  1.5

REAR PROJECTION SCREEN SURFACES



Screen surface can be cleaned.



Flame retardant.



Mildew resistant.



Indicates Goniophotometer reflectance readings. The higher the number, the greater light transmitted to the audience.



Number shows the optimal width of the ideal viewing half angle.

Da-Lite offers three types of Rear Projection Screens: diffusion, profiled and flexible fabric screens. Da-Lite's Polacoat Diffusion Screens offer two types of substrates, transparent acrylic (Da-Plex) or glass (Da-Glas) and a choice of five extremely fine, precise optical coatings. Da-Lite profiled screens feature a lens on the back surface which is formed by a series of concentric circular grooves each cut at a different angle. These grooves reduce the incident angles of light rays from the projector making more light available for transmission directly to the audience. Flexible fabric screens are generally used for situations where portability is a prime concern. It offers high light transmission for optimal viewing.

Custom gain performances are available upon request.

Polacoat Diffusion Screens

Substrates

DA-GLAS™

A glass substrate for long service life with good optical quality and maximum sound isolation. Standard sizes up to 10' x 20' and larger by request.

DA-PLEX™

A rigid acrylic substrate for increased breakage resistance. It offers lightweight, high optical quality and good sound isolation. Standard sizes up to 9' x 18' and larger by request.

Polacoat Optical Coatings

DA-100

A neutral gray diffusion coating that provides contrast enhancement while maintaining uniformity and color rendition. Its versatility makes it a good choice for situations with good control over ambient light and where a wide viewing angle is necessary. It is also well suited for high resolution applications.

35° 1.0

DA-130

A neutral gray diffusion coating designed to provide a moderate amount of brightness for applications where ambient light is controllable and moderately wide viewing angles are required.

34° 1.3

DA-150

A neutral gray screen designed to provide a higher amount of brightness and contrast for situations where a low level of ambient light is present or where a projector with moderate output is utilized.

32° 1.5

DA-180

A neutral gray screen offering a higher on-axis gain for situations where a moderate output projector is utilized and where there is a high amount of ambient light present. This coating is well suited for applications where the viewing angles are not wide and a higher gain coating is needed for on-axis viewing.

30° 1.8

DA-230

A neutral gray coating with high gain and a moderate viewing angle. The increased gain of this surface makes it suitable for environments where ambient light is uncontrollable and a projector with moderate light output is utilized. Good for situations where the audience is centered within a 50-degree cone from the center of the screen.

25° 2.3

REAR PROJECTION SCREEN SURFACES

VIDEO VISION

A special coating process generates a screen ideal for video projection under controlled light conditions. This material offers an exceptionally wide field of view so each audience member will observe a uniform, bright, sharp image with no color shift. As a coating approved by the Imaging Science Foundation, this screen material is a good choice when producing video images with a projector that has good black levels.

 55°  1.0

Profiled Type Display Screens

POLACOAT ULTRA

This revolutionary screen combines your choice of a Polacoat diffusion coating and a Fresnel lens. This design offers the best center to edge uniformity obtainable from multiple lens projection systems or a single lens projection system utilizing a short throw lens option. Available in sizes up to 125" diagonal. Gain and viewing angle depend on the Polacoat diffusion coating selected.



DA-VIEW

A profiled type display screen that offers a bright image at a relatively wide field of view perfect for single image display. This screen is a single element double profile cast acrylic with a back surface comprising a Fresnel lens and the front surface exhibiting an array of lenticulations. Fresnel grooves have a pitch of .5 mm and the lenticulations have a .28 mm pitch.

 32°  3.5

WIDE ANGLE SCREEN

This profiled type display screen is a single element double profile cast acrylic with a back surface comprising a Fresnel lens and the front surface exhibiting an array of lenticulations. Fresnel grooves have a pitch of .19 mm and the lenticulations have a .25 mm pitch. Offers a bright image at a relatively wide field of view perfect for single image display.

 32°  3.5

GRAPHICS SCREEN

This profiled type display screen is a double element system with four active lens surfaces. The rear element includes a Fresnel lens towards the front surface. The front element consists of a lenticular lens array. The front side has a unique wide angle lenticular array with a pitch of .33 mm. Ideal for multiple image displays.

 32°  3.5

GIANT SCREEN

This screen is a single element optical system with two active lens surfaces. The back surface is a Fresnel lens with a pitch of .5 mm and the front surface is a lenticulation array with a pitch of 0.8 mm.

 21°  3.0

Flexible Fabric Screens

DA-TEX™

A translucent, neutral gray vinyl fabric that allows rear projection in applications where a rigid acrylic or glass screen are not possible. This specially designed gray vinyl surface offers the same high transmission and low reflectance values as a rigid rear projection screen for optimal viewing. It yields excellent color rendition, image contrast and a wide viewing angle. Ideally suited for both lace and grommet and snap button type screens used in portable installations. This material requires tensioning due to its flexible nature.

 30°  1.8

DUAL VISION

A unity gain flexible projection fabric capable of both front and rear projection. The Dual Vision surface is ideal for video projection under controlled light conditions. With an exceptionally wide viewing cone, each seat in the audience will observe a uniform, sharp image with no color shift. Surface requires tensioning due to its flexible nature.

 50°  1.0

ORDERING INFORMATION

Simply mail, fax 574-267-7804 or call your Da-Lite Sales Partners
at 574-267-8101 for your free literature.

Name _____

Title _____

Company _____

Address _____

City _____ State _____ Zip _____

Business Phone (_____) _____

Please check here for the literature that you wish to receive.

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