PREMIUM SCREEN SOLUTIONS

- TEN SURFACES, ONE TO FIT YOUR SPECIFICATION, ALL ARE ISF CERTIFIED AND 8K READY

DRAPER®
FOCUSED ON INNOVATIVE SOLUTIONS

HOW TECVISION® MAKES A DIFFERENCE IN OPTICAL PERFORMANCE

THE REASON SCREENS VARY IN VIEWING QUALITY

You spend a lot of money on AV equipment, so you want to make sure that you receive a quality product that provides optimal viewing performance. But not all screens offer optimal viewing performance because most screens are manufactured by firms whose primary business is producing textiles for other purposes.

WHY DOES THIS MATTER?

A lack of focus on the viewing surface directly affects the end product. Purchasing multi-purpose fabric for projection screen usage means the chemistry of the viewing surface will not offer the technology needed to increase optical performance and this will directly impact your viewing experience.

HOW DO WE DO IT?

At Draper, we understand screen surfaces, and we find ways to improve optical performance. This has led to significant investments in equipment, expert personnel, and research time which has resulted in a world-class testing lab. Draper's work with consultants and key suppliers to identify and refine ingredients to improve the optical performance of our surfaces led to the introduction of ten TecVision® surfaces that address specific needs within the marketplace.

THE TECVISION® ADVANTAGE

Out of that exhaustive research, we refined the process to manufacture screen surfaces to much stricter tolerances for unparalleled performance and quality, and TecVision® was born.

Quality — Dedicated TecVision® production and lab staff use custom-designed equipment to continuously monitor the process. Multiple checks are performed to ensure the highest picture quality possible.

Precision Manufacturing — With a consistency of gain, contrast, and gloss across the entire screen, no viewing surface anywhere offers better uniformity than TecVision®. These surfaces are also manufactured to be optically seamless — no visible seams in sizes through 23' x 69'.

Unique Properties — TecVision® surfaces offer unparalleled performance and features that set them apart from the competition.

Research and Development — We continually research and develop new formulations, but also change existing formulations to make the best even better. The latest example of this is CS1200X ALR. Formerly known as CH1200X ALR, this surface rejects 82% of ambient light. The change to an "S" represents superior contrast because of the dark grey color. For details on CS1200X ALR, see page 5.

WHY TECVISION®?

- Ten exclusive formulations available on Draper tab-tensioned and permanently-tensioned screens.
- Imaging Science Foundation(ISF) certified for optimal color accuracy and fidelity. No other line of viewing surfaces in the AV industry can make this claim.
- Better off-axis performance than the competition with similar product specifications.
- Minimal surface variance in gain spec and optimal uniformity.
- Light absorbing dark backing to prevent picture degradation from light behind the screen.
- Surface 8K ready to ensure optimal image performance under the highest resolutions.
- Optimized contrast ratio and color fidelity in a broad range of settings and at a variety of light levels.
- Four ALR grey surfaces offer better ambient light performance qualities (XH900X ALR, MS1000X ALR, CS1000X ALR and CS1200X ALR).
- Five white surfaces available with gains ranging from 1.0 to 1.8 across remarkably wide viewing cones.
- Grey surface for specific applications like blending and short throw applications in controlled ambient light

These premium surfaces are only available through qualified Draper dealers.

Draper has developed the new standard in surface planning tools: the Draper Projection Planner. Visit *draperinc.com/DraperPro* to register and get access to this and the other great tools Draper offers.

TECVISION® AWARD WINNING SURFACES

DELIVERING UNPARALLELED PERFORMANCE FOR THE MOST DEMANDING APPLICATIONS

The following are the ten surfaces that make up the TecVision® family of viewing surfaces and the applications for which they are best suited. Watch for additions to the TecVision® line of surfaces as we uncover additional needs in the AV industry.

All TecVision® surfaces are engineered for high contrast, precise resolution, color accuracy and the broadest possible viewing cone.

8K READY! All TecVision® surfaces offer superior quality, consistency, uniformity and are 8K ready.

isf® Vewing surfaces are certified by the Imaging Science Foundation for excellent color reproduction and fidelity.
For more information about this strict industry standard visit: *imagingscience.com*

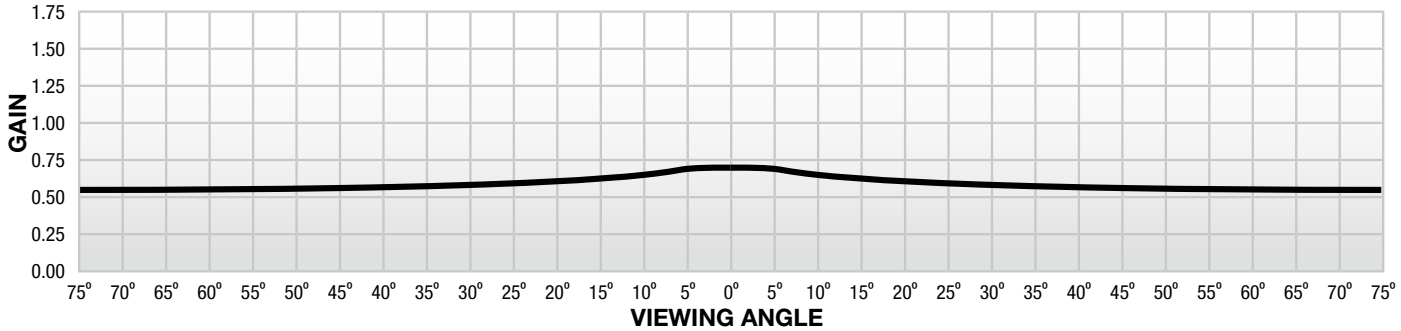
Also available in acoustically transparent perforated or nanoperforated surfaces. Perforated surfaces are not recommended for viewing less than 20' (6 m) from the screen. Nanoperforated surfaces are not recommended for viewing less than 10' (3 m) from the screen.

XH700X GREY PREMIUM HIGH CONTRAST GREY SURFACE

Extra Wide Viewing Cone/ High Contrast/On-Axis Gain of 0.7

XH700X Grey viewing surface performs best in moderate ambient light when optimal uniformity is desired, and wide viewing angles (blending and blending on screens with great curvature).
Lens/Throw distance ratio for best brightness uniformity: no minimum.

Gain Chart—XH700X Grey



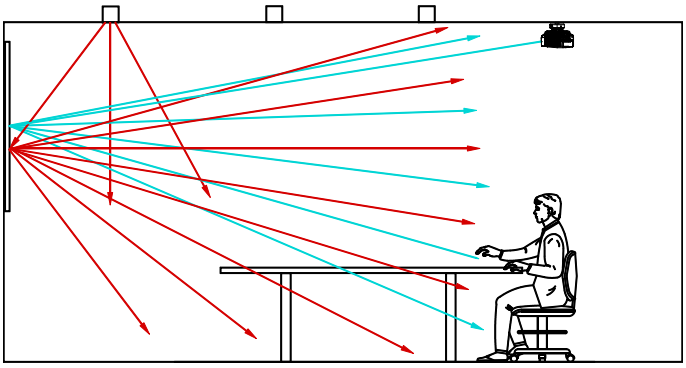
TECVISION® HOW AMBIENT LIGHT REJECTION WORKS

AND WHY IT MATTERS

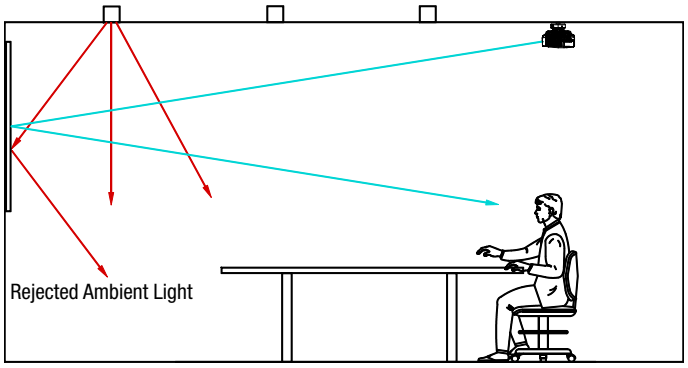
Ambient Light Rejecting (ALR) surfaces are best for rooms with moderate to high ambient light. They have reflective properties in the fabric that reflect off-axis ambient light away from the audience to keep projected images from washing out. ALR surfaces are best for rooms with moderate to high ambient light. In the past, ALR materials were expensive, not available in larger sizes, or could not be rolled for use in electric screens. Thanks to Draper technology, TecVision® ALR materials have reasonable cost, sizes up to 23' x 69' (701 cm x 2,103 cm) and available in electric or fixed frame screens.

ALR surfaces have reflective components uniformly added to the formulation making the surface more angular reflective. These surfaces reflect light at an opposite angle of incidence more than they diffuse. Projection light that hits the screen surface directly reflects right back on an opposite angle of incidence into the audience. Off-axis ambient light hits the surface at a more indirect angle then reflects off the surface at an opposite angle of incidence away from the audience.

ALR surfaces are used mostly to deal with light fixtures that are too close to the screen. ALR screens can help some with light coming in from a side window, but the strength of the sun is so strong that only a certain percent of strong sunlight can be reflected away. For that reason, shades should still be used in rooms with projection systems.



Red = Ambient Light, Blue = Projection Light



Red = Ambient Light, Blue = Projection Light

WHY ALR MATTERS

Typical white or grey surfaces that are more diffusive in character are meant for dark or controlled light environments where little light hits the surface. In these applications, a white or grey surface can spread the light in very wide seating configurations. An increase in ambient light levels and these materials diffuse all light, both projection light, and ambient light. Because the material cannot differentiate between the two types of light, the lights compete when they end up at the viewer's eye, which causes the image to be washed out.

There are many screen surfaces on the market that are grey, but are not ALR. The grey tint can only help black levels to a degree. These surfaces are still more diffusive in character and cannot reject or reflect off-axis ambient light the same as an ALR surface can. Most ALR screen surfaces that can be rolled and are vinyl based, typically have a darker grey tint with characteristics that are more angular reflective than diffusive in how they handle light hitting their surface. The darker grey tint helps increase contrast since there is more black within the tint itself, this will contribute to improving the black levels in the image.

There are currently three ALR materials with uses dependent upon seating configuration and lens/throw distance ratio. Because these materials have a darker grey tint which absorbs more light from a projector than white material, the projector should be one that is 15%-18% brighter than one used with a typical Matt White material. Doing this compensates by bringing the image's white levels up to an appropriate level, while the material helps produce better black levels. TecVision® ALR materials are ISF certified for color accuracy. They do not cause color shift and are 8K ready.

The photo to the right shows a screen with TecVision MS1000X ALR material with a fluorescent light mounted approximately 24" from the top of the screen and about 14 foot candles of light hitting the surface of the screen. This is a high amount of ambient light close to the screen. A sample of Matt White is compared showing the difference in system contrast ratio. The screen with MS1000X ALR has much better black levels, deeper colors, more detail, and better overal image quality.

XH900X ALR AMBIENT LIGHT REJECTING SURFACE

Wide Viewing Cone/High Contrast/On-Axis Gain of 0.9/ALR: 60%

XH900X ALR performs very well in spaces where there is moderate ambient light and wide viewing angles.

Lens/Throw distance ratio for best brightness uniformity: 1.2:1 or longer.

MS1000X ALR AMBIENT LIGHT REJECTING SURFACE

Moderate Viewing Cone/Very High Contrast/On-Axis Gain of 1.0/ALR: 73%

MS1000X ALR performs very well in spaces where there is moderate to high ambient light and moderate viewing angles.

Lens/Throw distance ratio for best brightness uniformity: 1.4:1 or longer

CS1000X ALR AMBIENT LIGHT REJECTING SURFACE

Narrow Viewing Cone/Superior Contrast/On-Axis Gain of 1.0/ALR: 82%

CS1000X ALR performs very well in spaces where there is high ambient light and narrow viewing angles.

Lens/Throw distance ratio for best brightness uniformity: 1.6:1 or longer

CS1200X ALR AMBIENT LIGHT REJECTING SURFACE

Narrow Viewing Cone/Superior Contrast/On-Axis Gain of 1.2/ALR: 82%

CS1200X ALR performs very well in spaces where there is high ambient light and narrow viewing angles.

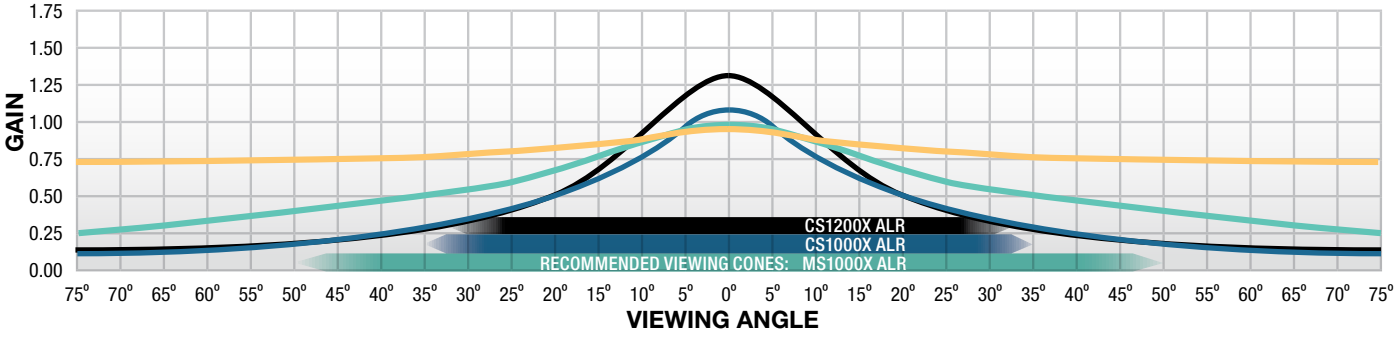
Lens/Throw distance ratio for best brightness uniformity: 1.7:1 or longer

ALL FOUR of these screens are also available with acoustically transparent perforated or nano perforated surfaces in limited sizes.

ALL TecVision® surfaces are 8K ready and ISF certified for color accuracy and fidelity. The screens do not affect the color of the image enough for the human eye to perceive based on chromaticity measurements.

Gain Chart—

XH900X ALR	**Half Gain Angle: Brightness never drops to half gain**	**Tint: Grey**
MS1000X ALR	**Half Gain Angle: 35°**	**Tint: Dark Grey**
CS1000X ALR	**Half Gain Angle: 20°**	**Tint: Dark Grey**
CS1200X ALR	**Half Gain Angle: 18°**	**Tint: Dark Grey**



TECVISION® PREMIER WHITE SURFACES

SCREENS FOR CONTROLLED AMBIENT LIGHT AND SPECIFIC PROJECTION QUALITIES

XT1000X WHITE PREMIUM WHITE SURFACE

Extra Wide Viewing Cone/Typical Contrast/On-Axis Gain of 1.0

XT1000X White is best in controlled ambient light where optimal uniformity and wide viewing angles are required (screening rooms, home theater and blending applications).

Lens/Throw distance ratio for best brightness uniformity: no minimum.

XT1100X WHITE PREMIUM WHITE SURFACE

Extra Wide Viewing Cone/Typical Contrast/On-Axis Gain of 1.1

XT1100X White is recommended when projector brightness and screen size dictate the need for a modest increase in brightness.

Lens/Throw distance ratio for best brightness uniformity: 1.0:1 or longer.

XT1300X WHITE PREMIUM WHITE SURFACE

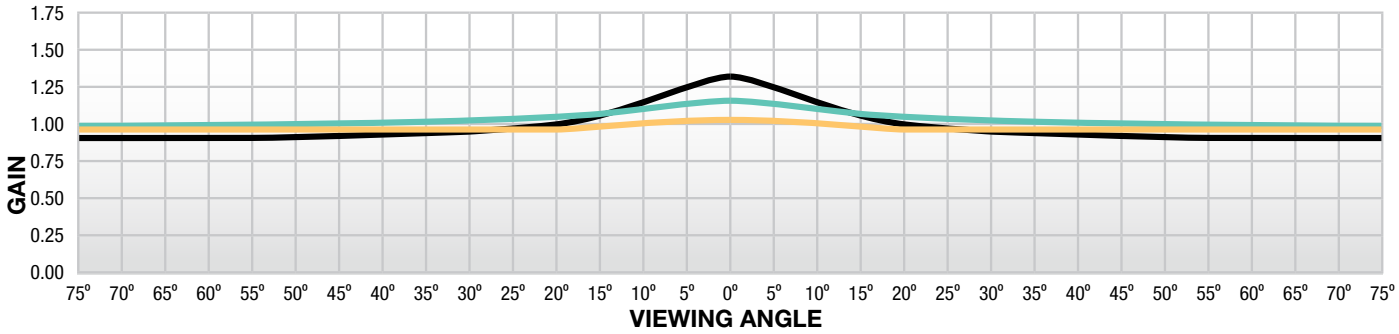
Extra Wide Viewing Cone/Typical Contrast/On-Axis Gain of 1.3

XT1300X White performs best in controlled ambient light and projector brightness is slightly lower than desired.

Lens/Throw distance ratio for best brightness uniformity: 1.2:1 or longer.

These three screens are also available with acoustically transparent perforated or nano perforated surfaces in limited sizes.

Gain Chart— **XT1000X WHITE Half Gain Angle: Material does not reach half gain**
XT1100X WHITE Half Gain Angle: Material does not reach half gain
XT1300X WHITE Half Gain Angle: Material does not reach half gain



XT1600X WHITE PREMIUM WHITE SURFACE

Extra Wide Viewing Cone/Typical Contrast/On-Axis Gain of 1.6

XT1600X White performs best in controlled ambient light and projector brightness is moderately lower than desired.

Lens/Throw distance ratio for best brightness uniformity: 1.5:1 or longer.

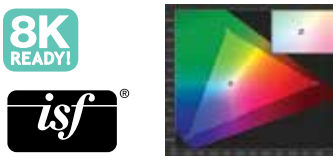
XT1800X WHITE PREMIUM WHITE SURFACE

Extra Wide Viewing Cone/Typical Contrast/On-Axis Gain of 1.8

XT1800X White performs best in controlled ambient light and projector brightness is significantly lower than desired. Perfectly suited for Active 3D or color combining passive 3D systems.

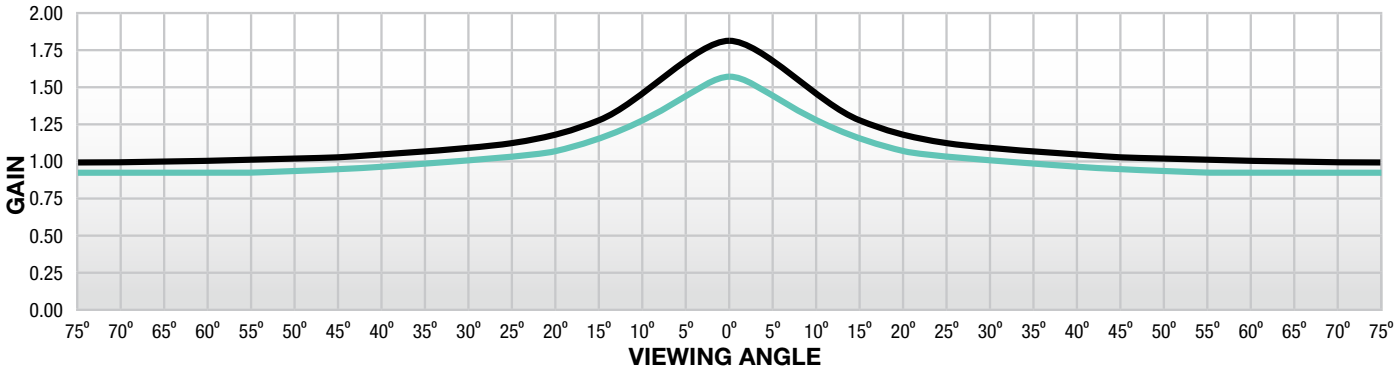
Lens/Throw distance ratio for best brightness uniformity: 1.7:1 or longer.

These two screens are also available with acoustically transparent perforated or nano perforated surfaces in limited sizes.



ALL TecVision® surfaces are 8K ready and ISF certified for color accuracy and fidelity. The screens do not affect the color of the image enough for the human eye to perceive based on chromaticity measurements.

Gain Chart— XT1600X WHITE Half Gain Angle: Material does not reach half gain
XT1800X WHITE Half Gain Angle: Material does not reach half gain



TECVISION® SCREEN MODELS

The following Draper projection screen models are available with TecVision® engineered screen technology surfaces. Watch for additional model inclusions at: *draperinc.com/projectionscreens/TecVision.aspx*

- Access V
- Access FIT V
- Access XL V
- Access MultiView V
- Artisan V
- Clarion
- Premier C
- Edgeless Clarion
- FocalPoint
- Lace & Grommet
- Onyx
- Paragon V
- Premier
- StageScreen
- Profile+
- ShadowBox Clarion
- Signature V
- Silhouette C
- Silhouette V
- Truss Cineperm
- Ultimate Access V

TECVISION®
ENGINEERED SCREEN TECHNOLOGY

CUSTOM SCREENS

Whether you need a wall mounted, ceiling mounted, ceiling recessed, tab-tensioned or non-tab tensioned screen, Draper has the right product for your application. We have installed screens in a variety of public, and private institutions including businesses, schools, churches, and private residences. Our screen fabrics and surfaces are second to none in the business, especially our unique TecVision® surface technology. All of our motorized screens will be custom built for every application. Combine the perfect screen with one of our great control options and you have a quality product that delivers on performance.

Learn more:
draperinc.com/whitepapers_casestudies.aspx

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