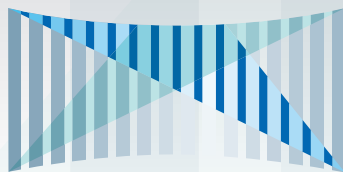


TAKE **DIGITAL CINEMA**
TO THE NEXT LEVEL



HARKNESS SCREENS™

Consistency. Quality. Performance.

Harkness Screens™

Founded in 1929, Harkness Screens™ supplies thousands of screens annually for cinema, film production, special effects, live events, and custom AV applications to customers in over 50 countries. We specialise in the manufacture of custom screens and frames of virtually any shape and size. We manufacture high-performing products of consistently exceptional quality, and strive to consistently meet or exceed our customers' service and delivery requirements.

The results speak for themselves. After 80 years of service excellence in the cinema industry, we are proud to be the world's leading manufacturer of large projection screen surfaces.



Overview

WHAT SETS OUR SCREEN SURFACES APART?

Harkness Screens™ offers the best possible cinema viewing experience. Our screen surfaces are engineered and constructed using the highest quality materials and manufacturing processes to ensure an outstanding finish with excellent brightness, colour rendition, and contrast.

- A proprietary and unique seam welding process ensures our screens have no visible seams under projection conditions
- Advanced coating technology and application processes ensure a smooth finish and consistent brightness across the entire screen surface while minimising hot spotting
- The highest quality materials help our screens avoid discolouration or loss of structural integrity over time
- All Harkness 3D screens are suitable for use in both 2D and 3D presentation

HARKNESS' HIGH PERFORMANCE SCREEN RANGE:

- **Matt Plus** screens for post-production facilities, preview theatres, and small 2D auditoria
- **Perlux®** screens for larger 2D auditoria and 3D technologies using non-polarised light
- **Spectral™** screens for 3D technologies using polarised light
- **Matt Preview** screens for exceptional image quality in close viewing situations

“high-performing
products of consistently
exceptional quality...”

Matt Plus

Matt Plus is a versatile screen surface intended for a variety of auditoria, generally in dark conditions. The flexible PVC-based material is manufactured to a unique formulation and specification providing wide viewing angles, high contrast, bright pictures, and excellent colour temperature.

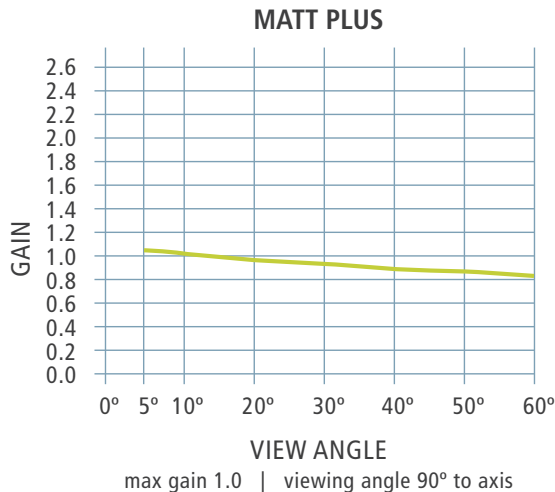
APPLICATIONS:

- Cinema – 35mm film, 2D digital, and 3D digital
- Home cinema
- Film production
- Events

Screens are available in either perforated or non-perforated forms depending on speaker placement. The surface is foldable for ease of transportation, cinema access, and installation.

Matt Plus Mini-Perf (MP) is recommended where there are behind-screen speakers and close viewing conditions apply. It has smaller diameter perforations (less than half the diameter of other Harkness projection surfaces) to provide the ultimate surface type for close viewing.

VIEWING PERFORMANCE



Matt Preview

Matt Preview screens are considered by leading cinema exhibitors and laboratories worldwide to be the premier projection surface for screening rooms and preview theatres.

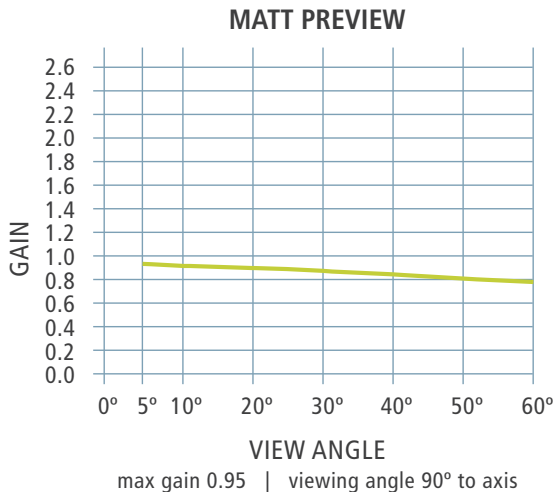
Matt Preview screens are used in preview theatres and in small theatres where seating positions are close to the screen and the projector power is relatively high, generally in dark conditions. The flexible PVC-based material is manufactured to a unique formulation and specification providing wide viewing angles, high contrast, bright pictures, and excellent colour temperature.

APPLICATIONS:

- Cinema
- Home cinema
- Film production

Screens are available in either perforated or non-perforated forms depending on speaker placement. Matt Preview screens are not foldable and all must be rolled for transportation.

VIEWING PERFORMANCE



Perlux®

Perlux® brand gain screens, our most popular projection surfaces, are considered by leading cinema exhibitors worldwide to be the premier gain projection surfaces because they reflect more light back to the audience than matt white surfaces while still offering high contrast and wide viewing angles. Perlux® screens are available in three gain levels to meet the needs of any auditoria. Harkness Screens™ recommends Perlux® screens particularly for digital cinema auditoriums because they can cut digital operating costs in half—without compromising performance—by enabling reduced power consumption, smaller lamps, and less frequent lamp replacements.

Screens are available in either perforated or non-perforated forms depending on speaker placement, and can be shipped either rolled or folded.

■ PERLUX® 140

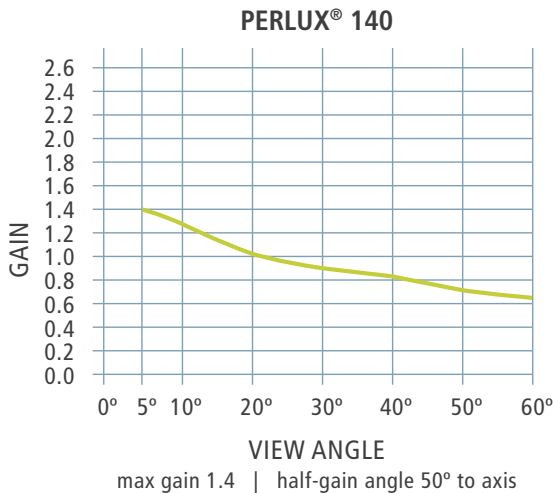
APPLICATIONS:

- Cinema – 35mm film, 2D digital, and 3D digital
- Events
- Convention halls

RECOMMENDED SIZES:

- 35mm film projection – width up to 14m (46ft)
- Digital film projection – width up to 12m (40ft)

VIEWING PERFORMANCE



■ PERLUX® 180

APPLICATIONS:

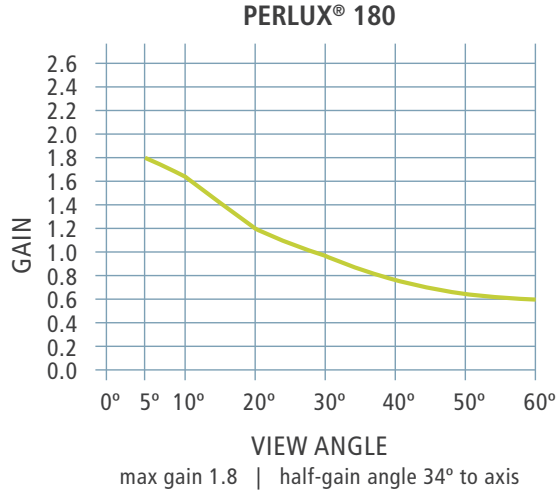
- Cinema – 35mm film, 2D digital, and 3D digital
- Events
- Convention halls

RECOMMENDED SIZES:

- 35mm film projection – over 14m (46ft)
- Digital film projection – over 12m (40ft)

(The screen frame should be curved.)

VIEWING PERFORMANCE



■ PERLUX® 220

Perluxe® 220 is a special ultra-high brightness screen intended for 3D non-polarised light systems such as Dolby® and active glasses technologies. It is also well suited for very large 2D digital auditoria. It offers high contrast and very bright pictures, though it has a narrower viewing angle than screens with lower gain.

APPLICATIONS:

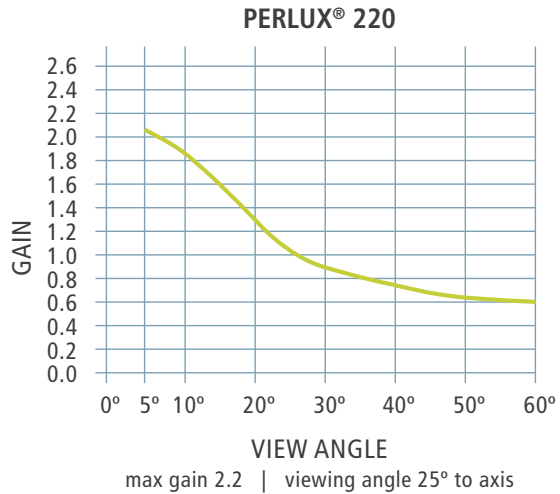
- Cinema – 2D digital and 3D digital

RECOMMENDED SIZES:

- Digital 2D projection – over 20m (66ft)
- Digital 3D projection – over 12m (40ft)

(The screen frame should be curved.)

VIEWING PERFORMANCE



Spectral™ 240

Spectral™ 240 3D screens are considered by cinema exhibitors and special venue operators worldwide to be the optimum 3D projection surface for "passive" 3D applications using polarised light such as RealD. It also performs well under 2D conditions. An aluminium flake-based coating applied to the unique base material provides high gain characteristics, a high extinction (signal to noise) ratio, and a good viewing angle.

APPLICATIONS:

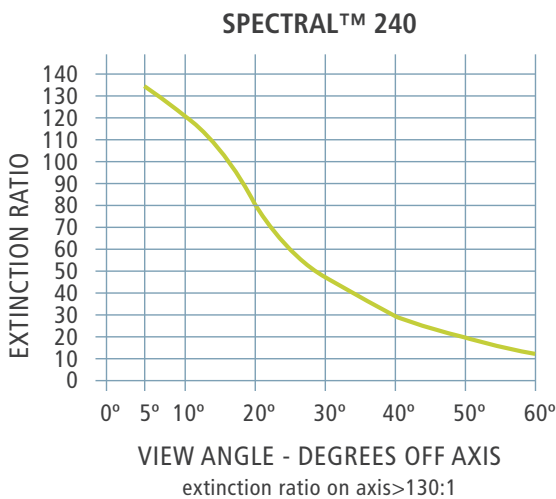
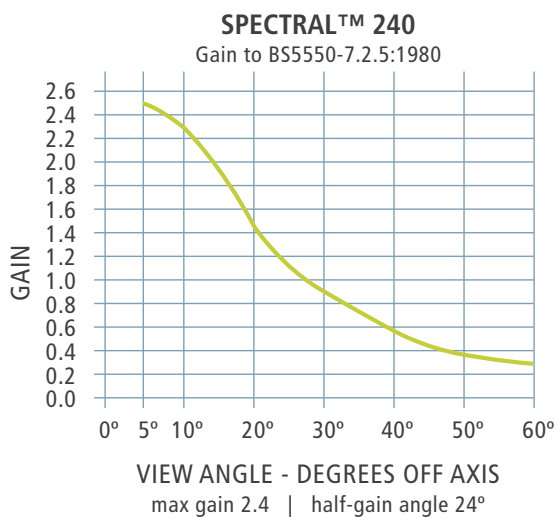
- 3D cinema
- Large format
- 3D/4D rides
- Simulators
- Special effects

Screens are available in either perforated or non-perforated forms depending on speaker placement. Spectral™ 240 cannot be folded and must be rolled for transportation.



Spectral™ 240

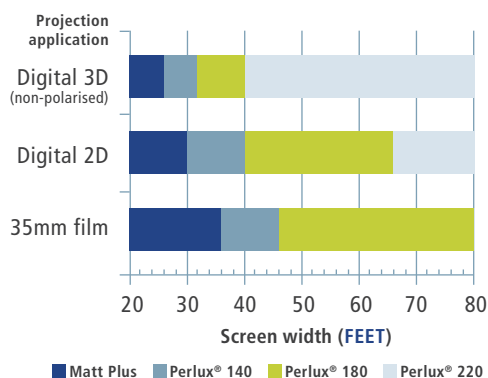
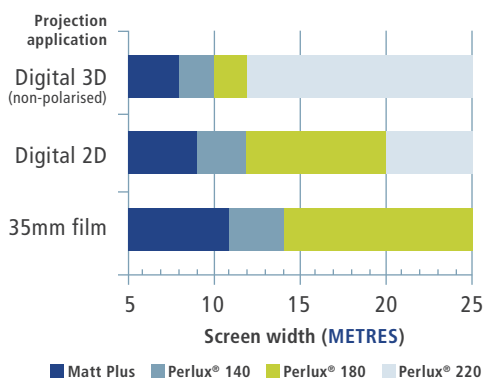
VIEWING PERFORMANCE



General Cinema Screen Sizing Reference

To achieve the best possible presentation while simultaneously managing operating costs, Harkness Screens™ recommends selecting screen surface products based on the desired width of your screen. Please refer to the sizing chart and graphs below as a guideline for making screen selections for your 35mm film, digital 2D, or non-polarised digital 3D auditorium.

	MATT PLUS	PERLUX® 140	PERLUX® 180	PERLUX® 220
DIGITAL 3D	Up to 8m (26ft)	Up to 10m (33ft)	Up to 12m (40ft)	over 12m (40ft)
DIGITAL 2D	Up to 9m (30ft)	Up to 12m (40ft)	Up to 20m (66ft)	over 20m (66ft)
35MM FILM	Up to 11m (36ft)	Up to 14m (46ft)	over 14m (46ft)	na

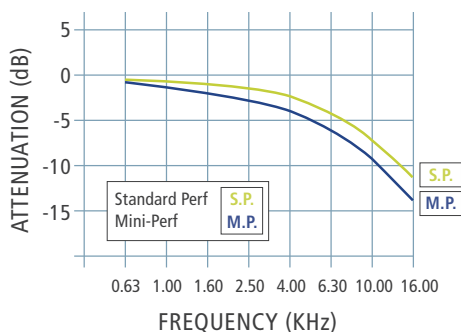


Acoustic Performance

Screens are perforated to optimise the acoustic performance of behind-screen speakers. For most cinema auditoria, standard perf pattern is used. For close viewing (less than 5m/16ft), Mini-Perf (MP) products such as Matt Preview Mini-Perf (MP) are recommended. It has smaller diameter perforations (less than half the diameter of other Harkness projection surfaces) to provide the ultimate surface type for close viewing conditions.

Non-perforated screens are available for use when there are no speakers situated behind the screen.

SOUND REDUCTION COMPARISON



Perforated Form	Hole Size	Open Area
Standard Perf	1.2mm (0.047°)	4.5%
Mini-Perf	0.5mm (0.020°)	1.7%

Specifications

MATT PLUS

MATERIAL	PVC
COLOUR	White
PERFORATION	Standard or mini-perf
WEIGHT	0.43 kg/m ² (0.09 lb/ft ²)
THICKNESS	0.3mm
MAXIMUM SIZE	No specific limit
PACKING METHOD	Folded; rolled as option

MATT PREVIEW

MATERIAL	PVC with matt white coating
COLOUR	White
PERFORATION	Mini-Perf recommended
WEIGHT	0.50 kg/m ² (0.10 lb/ft ²)
THICKNESS	0.3mm
MAXIMUM SIZE	USA plant: 23.77 x 12.19m (78' x 40') Europe: 33 x 11m (108'3" x 36'1")
PACKING METHOD	Rolled

PERLUX® 140, 180

MATERIAL	PVC with pearlescent coating
COLOUR	White
PERFORATION	Standard or mini-perf
WEIGHT	0.43 kg/m ² (0.09 lb/ft ²)
THICKNESS	0.3mm
MAXIMUM SIZE	USA plant: 22.94 x 11.87m (75' 3" x 38' 11")
PACKING METHOD	Folded

PERLUX® 140+, 180+, 220+

MATERIAL	PVC with pearlescent coating
COLOUR	White
PERFORATION	Standard or mini-perf
WEIGHT	0.50 kg/m ² (0.10 lb/ft ²)
THICKNESS	0.3mm
MAXIMUM SIZE	USA plant: 23.77 x 12.19m (78' x 40') Europe: 33 x 11m (108'3" x 36'1")
PACKING METHOD	Rolled

SPECTRAL™ 240

MATERIAL	PVC with aluminium coating
COLOUR	Silver
PERFORATION	Standard or mini-perf
WEIGHT	0.50 kg/m ² (0.10 lb/ft ²)
THICKNESS	0.3mm
MAXIMUM SIZE	USA plant: 23.77 x 12.19m (78' x 40') Europe: 33 x 11m (108'3" x 36'1")
PACKING METHOD	Rolled

Visit Harkness-Screens.com to find the screen that meets your needs with our

DIGITAL**SCREEN**SELECTOR

CONTACT US:

UK

Harkness Screens™
Unit A, Norton Road
Stevenage, Herts.
SG1 2BB
United Kingdom

Calls within UK:

Tel: 01438 725200
Fax: 01438 344400

Calls outside UK:

Tel: +44 1438 725200
Fax: +44 1438 344400

AMERICAS AND ASIA- PACIFIC (EXCLUDING CHINA)

Harkness Screens™
10 Harkness Blvd
Fredericksburg
VA 22401
USA

Calls within USA:

Tel: 540-370-1590
Fax: 540-370-1592

Calls outside USA:

Tel: +1 540-370-1590
Fax: +1 540-370-1592

CHINA

Harkness Screens™ (Beijing)
Room 503
A20 Xinde Street
Beijing
China 100088

Calls within China:

Tel: 010 62023923
Fax: 010 62042398

Calls outside China:

Tel: +86 1062023923
Fax: +86 1062042398

EUROPE

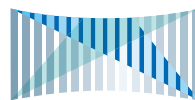
S.A.S. Demospec
8 Arquemont
45340 St. Loup Des
Vignes
France

Calls within France:

Tel: 0238 332575
Fax: 0238 332980

Calls outside France:

Tel: +33 238 332575
Fax: +33 238 332980



HARKNESS SCREENS™

WWW.HARKNESS-SCREENS.COM