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**SPECTRAL™ 240 3D MP
FRONT PROJECTION SCREEN
DATA SHEET**

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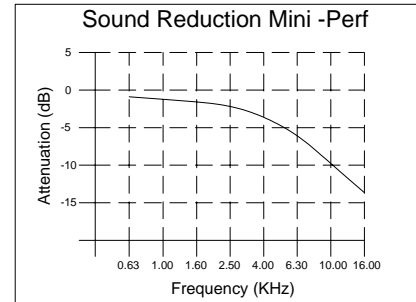
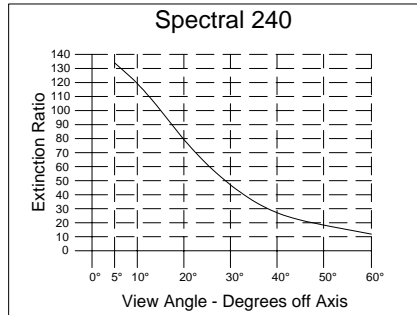
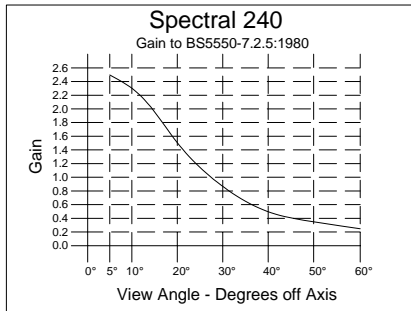
Spectral™ 240 3D MP screens are considered by leading cinema exhibitors and special venue operators worldwide to be the optimum 3D projection surfaces. Silver aluminium flake based coating applied to a unique base material provides high gain characteristics, very low depolarisation level (extinction ratio) and excellent colour temperature. The surface type also supports conventional 2D pictures. The surface has smaller diameter perforations (less than half of standard perforation) to provide an excellent surface for close viewing while providing strong acoustic performance. MP can be used in digital cinema where larger perforations can interfere with pixel generated images. Noted for invisible seams under normal projection conditions.

Application

Spectral™ 240 3D MP screens are recommended for a wide range of applications where close viewing conditions apply including:

- Preview Theatre • Cinema • Digital Cinema • Screening Room • Roller Screen • 4D Themed Rides

Surfaces suitable for use in flat or curved frames and roller screens.



General Detail

View Distance	Minimum of 1.5mtr (5')	
Maximum Size	USA manufacture	24.1m x 12.4m (79'3" x 40'7")
	Europe manufacture	26.5m x 11m (87' x 36')
Perforation Size	Ø0.5mm (0.020")	
Perforation Density	1.7%	
Weight	0.50kg/m ² (0.10lb/ft ²)	
Eyelet Spacing	150mm (6") nominal (US) / 200mm (8") France	

Surface Edging Options

- Web and eye (grommet). Triple fold web integral with surface
- Preformed pipe pocket any size on any side
- Cloth web and fixings (snaps) for press stud frames
- Straight sides or shaped to special order
- Cut square (unfinished edge)

Fire Retardancy

Certification to the following standards:

- UK
- USA NFPA 701
- France M1
- Germany B1
- Japan BT-08-050 (regulation requires certification by importing company)
- Korea (regulation requires certification by importing company)

Typical Packing

Rolled in a cardboard tube; packed in a long wooden box when height is over 7m (23').

Despatch/Storage

Screens should normally be transported and stored at temperatures between 5°C and 30°C (40°F and 85°F), with relative humidity less than 80%.

If screens are very cold (e.g. following air transport) then they must be allowed to warm up before unpacking, otherwise cold cracking may occur. Screens should be installed within a maximum of 2 months of shipping. Packages should be handled with care to avoid damage.

Installation

The following principles should be followed when installing Harkness Spectral™ 240 3D MP screen surfaces:

- The auditorium should be clean with no building works taking place.
- Installation should be at ambient temperature (20/24°C-68/75°F).
- Care should be taken to avoid the screen coming into contact with sharp objects during installation.
- Excessive loads should not be placed on any specific point of the screen.
- Use of cotton gloves is recommended.
- The viewing surface should not be touched (the rear of the screen is identified by the product label).
- The surface should not be creased during installation.

There are two principal methods to install the screen:

- Flying the screen by attaching several tie lines to the top of the screen, passing these over the top of the frame and using them to pull the screen into place.
- Unrolling the screen vertically across the front of the frame.

Using one of these methods, the screen surface is loosely attached to the top of the frame. After this, the top of the screen is fully attached to the top lacing bar by working from the centre outwards using each eyelet.

The lower edge of the screen should then be laced from the centre outwards, applying sufficient tension to pull the screen flat. Typically, the screen can be stretched up to 5% of its height at ambient temperature of 20/24°C-68/75°F using sisal cord lacing. Side lacing should be from the top down and sufficient to remove the flutes. Excessive side tension should be avoided, particularly on a curved frame, as it will result in straightening of the screen across the curve (belly).

Springs or elasticated ties are not recommended to install Harkness screen surfaces.

The above method can be used for both lace-in and for wrap-round frames. Normally, two people are sufficient to install a screen surface.

Care and Maintenance

The general environment where the screen is installed should be kept reasonably clean to avoid dirt and dust build-up. Screens can be periodically cleaned using a soft brush or cloth, doing this vertically with limited pressure. Under no circumstances should the screens be made wet or cleaned with any material containing bleach or other chemicals.

In the interest of product enhancement, Harkness Screens reserves the right to introduce modifications or alterations without notice