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**GENERAL GUIDANCE
SURFACE SIZING
DATA SHEET**

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Harkness screen surfaces can be used on either lace-in or wrap-round frame designs.

Lace-in frames

Lace-in frames can be used with moving (top or side) masking systems or with fixed masking.

The ideal frame size is the biggest image size plus 600mm (24") added to both the width and height of the image.

Note: The biggest image will normally be cinemascope (2.35:1) if the design incorporates moving side masking; it will be widescreen (1.85:1) if moving top or moving top and bottom masking systems are incorporated.

The optimum screen surface size is calculated from the frame size as follows:

Surface width = frame width minus 300mm (12")

Surface height = frame height minus 300mm (12") minus 5% stretch allowance

Harkness screens should normally only be stretched vertically; side tensioning of the screen surface should be the minimum necessary to get the ripples out. (Note: Excessive side tensioning in a curved frame will create a "belly" in the surface).

See individual product data sheets for installation recommendations.

Sisal is recommended to lace screens in position. This material is unaffected by heat and does not relax over time (unlike springs or bungees). It is also very easy to re-tension the screen surface, if it has been originally installed below the ambient operating temperature of the cinema.

Wrap-round frames

Assuming the frame is floating (i.e. has no masking in front of the screen surface), then the frame size is the same as the image size. If masking is fitted (fixed or moving) then the frame size must be calculated in accordance with the image size and the masking positions.

The screen surface size is then determined in relation to the frame size as follows:

Surface width = frame width plus 300mm (12") wrap-round allowance

Surface height = frame height plus 300mm (12") minus 2% stretch allowance

Sisal lacing is recommended.

Note: The wrap-round allowance will need to be reduced if the lace-rail is close to the periphery of the frame.

It is recommended that when a gain screen is used on a wrap-round frame, Harkness Perlux+ is used. Normal Perlux (which is foldable) is intended for use in lace-in frames but may also be used on wrap-round frames provided care is taken with the installation, as it is thinner and can be damaged. If foldable Perlux is being used, a stretch allowance of 4% should be assumed, not 2%.

Curved frames

If the frame is curved, allowance for this must be made in calculating the screen width.

Please note that with moving masking systems consideration also needs to be given to:

- Stacking space: As a guide, 15% of the masking travel plus the leading edge width, is the approximate space needed for stacking a top or side masking system, but this varies with the masking system design. The stacking space requirement may affect the size of frame and image that is achievable.
- Sight line: With very acute viewing angles (e.g. if the front row of seats is close to the screen) both the frame and screen may need to be bigger to avoid seeing the webbing at the edge of the screen. This may also be necessary if the masking is more than 150mm (6") in front of the screen surface.

These notes are only guidelines.

The purchaser must ultimately satisfy himself that the sizing is correct for the installation.

Please ask Harkness Screen Sales if further advice is required.