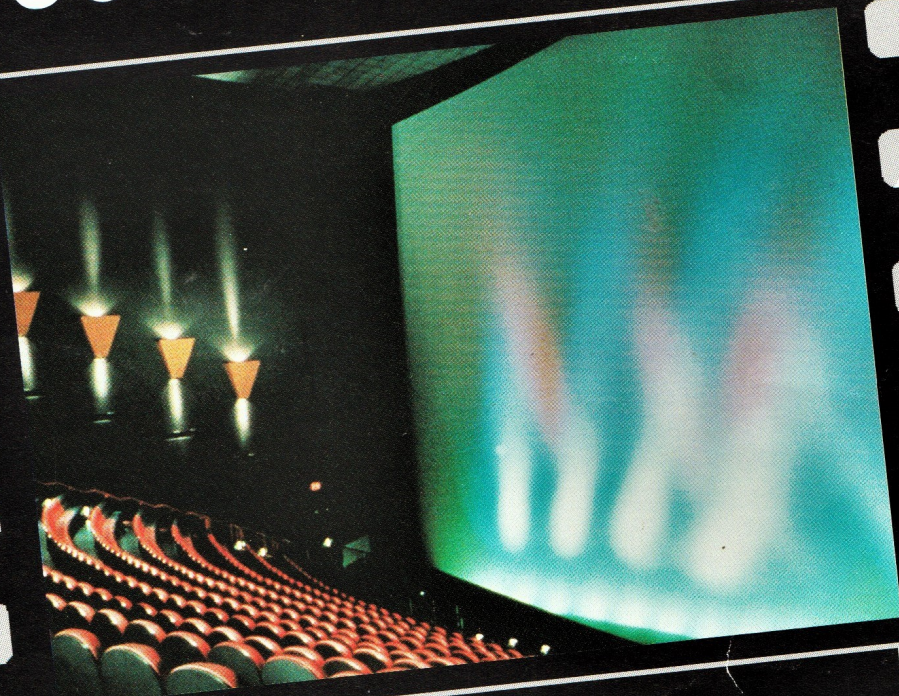
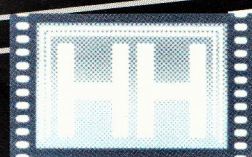


**HARKNESSES HALL LIMITED**

**SCREENMAKERS**



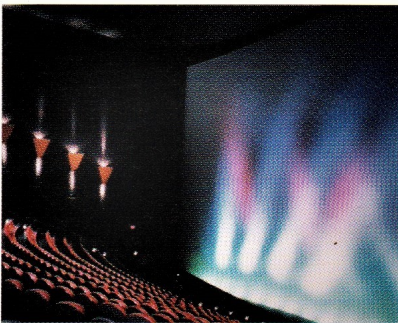
**TO THE WORLD**





**The correctly designed screen surface, in combination with the right type of screen frame or roller system, will ensure perfect pictures every time.**

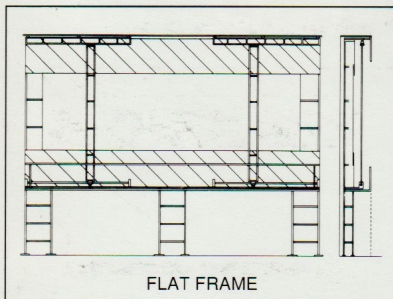
**Established over 70 years ago, Harkness Hall is the undisputed leader in auditoria screen technology. Designing, manufacturing and installing the world's finest screens and screen systems - anywhere and everywhere.**



**Whenever there is a need for the highest quality screen surface 'perfectly' combined with the operational system - Harkness have the answer.**

## FLAT FRAMES

The most popular system for general cinema and auditoria use, the flat frame, is readily adaptable for most projection requirements.



Flat frames can be supplied with fixed or moving masking systems, or a combination of both, which can be electronically or winch operated.

Moving side, top and bottom masking systems fully available.

Standard flat frames are 150mm deep with additional depth for moving masking systems. Flat frames can be modified to carry additional track systems for curtains, etc.

Electric controllers (motors) used to drive masking and curtain systems are normally floor fixed but can be frame or wall mounted. Motor units are approximately 450mm cube.

Flat frames are generally floor standing with brace stabilisation to the rear. Can be supplied with ladder section stools to allow unit to straddle obstructions such as ducting.

Standard units are formed from pre-fabricated sections manufactured from 25mm square section steel tube. Sections are bolted together and/or clamped.

Flat frames up to 13.4m are standard with much larger units being available as 'specials'.

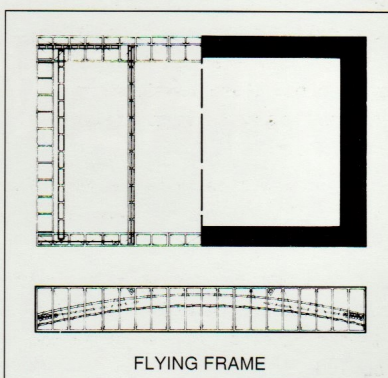
Speaker mounting brackets can also be incorporated within the frame, if required.

Frame screens always require a webbed and eyeletted screen surface which is laced into the frame, with the lacing area covered by Black masking.

Mobile frame units mounted on trolleys can also be supplied.

## FLYING FRAME

Very similar in general construction to the flat frame, but structurally strengthened to allow the frame, with ancillary equipment, such as masking systems, etc, to be suspended from cables above the stage area in order that the entire unit can be raised or 'flown' above the Proscenium Arch when not in use.



Depending on size, the frame will be raised and lowered by electric hoist, manual winch or counterweight system.

Flying frames can be designed to take all fixed and moving masking systems,

curtain systems, speaker assemblies, and even stage lighting in the bottom section.

Moving side masking systems of the full close-over type are recommended for flying frames, to ensure maximum protection of the projection surface, when the unit is in the raised position. A typical overall depth of a flat flying frame complete with motorized moving side masking systems is around 500mm. Flying frames up to 13.4m are standard, larger units available as 'specials'.

Webbed and eyeletted screen surfaces are laced into the frame, the lacing area being covered by masking cloths.

## CURVED FRAMES

**Most types of frame can be curved, though this seldom applies to screen units below 9m wide.**

## STATIC FRAMES

Front and rear members are curved in parallel. This system provides a consistent frame depth across full width of unit and minimises overall weight.

## FLYING FRAMES

Flying frames normally incorporate a single curve within a box frame structure.

Rise on chord will determine total depth of screen unit.

All flat and curved screen units can be supplied with fixed and/or moving masking systems as applicable with frame mounted controllers.

## WRAPROUND FRAMES

A popular screen system for cinema, video and AV use where a simple fixed screen system is required. Capable of carrying all standard front projection surfaces.

Frame and picture sizes are the same, peripheral fixed masking is not required. When wall mounting, for example, the projection area appears to 'float' in front of the wall.

***Provides maximum picture area in minimum space.***



Unit is fabricated from round tubular steel.

A webbed and eyeletted surface is placed over the frame and laced to the rear. Lacing cannot be seen by the audience.

Wrapround screens can be manufactured with tilting facilities for OHP if required. The tilting mechanism can be electrically or winch operated. Tilting versions are only suitable for wall fixing.

Normal tilting is from the top outwards, but this can be reversed if required.

The normal frame depth is 150mm, on smaller units this can be reduced to 100mm if required.

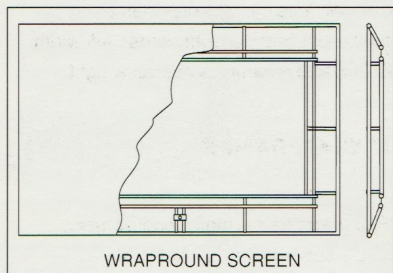
The tilting mechanism is mounted behind the main screen frame and will increase overall depth of the unit.

Wrapround screens can be flat or curved on the horizontal axis.

Generally designed for simple wall fixing, the wrapround screen can be modified for floor standing.

Available as standard up to 13.4m wide.

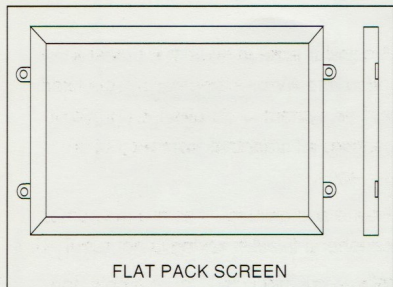
Standard units are formed from pre-fabricated sections, bolted and clamped together.



WRAPROUND SCREEN

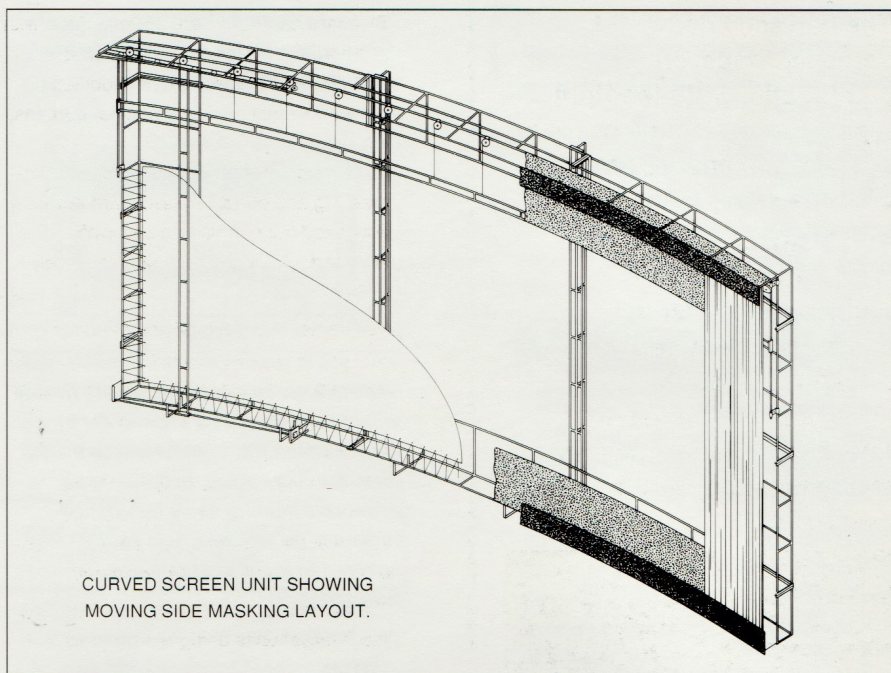
## FLAT PACK SCREENS

A wall-mounted "picture frame" type system which when assembled, comprises a matt black anodised peripheral frame 64mm (2 1/2") wide with mirror type screw plates for simple face fixing.



FLAT PACK SCREEN

The flat pack screen is ideal for "through-wall" rear projection situations using any of the Translite range of flexible rear projection surfaces.



CURVED SCREEN UNIT SHOWING  
MOVING SIDE MASKING LAYOUT.

The system can accept all standard front projection surfaces and is particularly useful where a "slim-line" wall mounted front projection screen is required.

Flat pack screens are suitable for picture sizes up to 3.66m x 2.74m

(12' x 9') and are normally supplied unassembled for ease of transit.

## ROLLER SCREENS

All Harkness roller screens are manufactured on a space frame-beam principle, which imparts maximum strength with minimum weight.

The whole is clad in black plastic coated steel, for maximum durability.

Denham, Elstree and Ealing roller screen units incorporate unistrut channel suspension systems which enable fixings to be picked up at any point within the length of box. Unistrut system also enables fixings to be obtained at angles across the box.

Standard brackets are designed for ceiling fixing. Wall, beam or barrel fixing also available.

Harkness roller screens can be fitted with perforated or non-perforated surfaces of all types. Screens can be edge masked, if required.

Moving or roll down masking systems can be fitted to the face, or within the box, as required. This may increase the overall size of the unit.

**For best possible surface hang, it is recommended that screen drop does not exceed 2/3 of width.**

## ELSTREE ROLLER SCREEN

The Elstree is a top roller screen with an in-line Tube motor.

Unit comes with limits factory pre-set to drop of surface.

Surface is weighted at the bottom with a timber batten. Maximum surface width 6.1m (20').

General Dimensions of box:

Length = surface width plus 203mm (8")

Height = 337mm (1' 1 1/4")

Depth = 314mm (1' 0 3/8")

Comes complete with ceiling fix brackets as standard. Wall brackets and other fixings available on request.

Single phase operation only. 220/240V 50HZ is standard. Rated 3 amps.

Other voltages/frequencies available.

Electrical connection actor's left as standard.

Remote radio control available.



ELSTREE

## EALING ROLLER SCREEN

Similar to the Elstree but with smaller box dimensions.



Maximum surface width 4.87m (16').

General dimensions of box:

Length = surface width + 203 mm (8")

Height = 337mm (1' 1 1/4")

Depth = 203mm (8").

Single phase operation only 220/240v,  
50Hz. Other voltages/frequencies available.  
Electrical connection actor's left as standard.

Remote radio control available.

### EALING MANUAL ROLLER SCREEN

A winch operated single cable gravity roller system. Unit comes complete with a wall fixing header pulley and wall mounted winch. Cables run actor's left as standard.

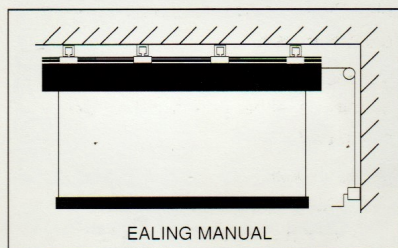
Maximum surface width 4.87m (16').

General dimensions of box:

Length = surface width + 254mm (10")

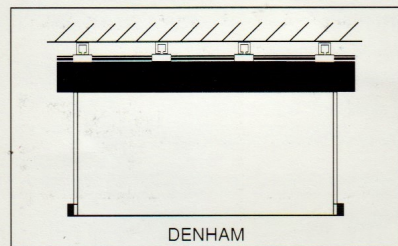
Height = 337mm (1' 1 1/4")

Depth = 203mm (8")



### DENHAM ELECTRIC

The Denham is a bottom roller type of screen unit, with a unique centre drive system, integral within the box. Limits are factory pre-set to drop of screen surface.



Maximum surface width 14.6m (48')

General dimensions of box:

Length = surface width + 688mm (2' 3 1/16")

Height = 489mm (1' 7 1/4")

Depth = 457mm (1' 6")

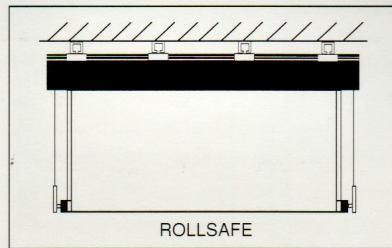
Standard brackets for ceiling fixing. Wall brackets and other fixings available upon request.

Single and three phase units available.

### DENHAM ROLLSAFE

The Rollsafe device can be fitted to any

Denham electric screen at the time of manufacture and is recommended for units above 9m wide.



*The Rollsafe is a patented safety device which incorporates a second set of cables which run in unison with the main hauling cables. In the unlikely event of a hauling cable failure, the roller will be arrested, and safely lowered to the lowest position for maintenance.*

With the Rollsafe fitted, the overall box length increases to surface width plus 1156mm (3' 9 1/2")

All other dimensions as Denham Electric.

### DENHAM MANUAL

Mechanical principles are similar to the electric version, but cable winding is via an external winch.

Cables are usually routed through a wall fix diversion pulley.

Cables run actor's left as standard.

Winch operation is not recommended for screens greater than 10m wide.

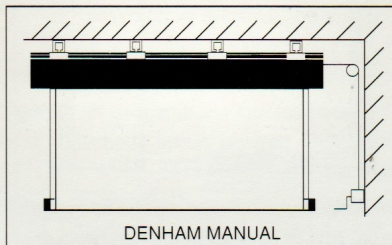
General dimensions of box:

Length = surface width + 688mm (2' 3 1/16")

Height = 337mm (1' 1 1/4")

Depth = 308mm (1' 0 1/8")

*For best possible surface hang, it is recommended that screen drop does not exceed 2/3 of the width.*



### CONTROLLERS (MOTORS)

Frame and flying screens with electrically operated masking systems, and electrically operated roller screens, utilize the following types of motors.

### STANDARD CONTROLLERS (MASKING SYSTEMS)

These motor drives comprise an electric motor/gear box/limit arrangement and cable winding drum. A reversing 2 stop contactor with remote push button control completes this product.

These are made 0.25kw up to 0.55kw with associated gear box and winding drums to suit any application.

Limits can be either 2 stop mechanically operated or any number P.L.C. controlled limits, normally eight.

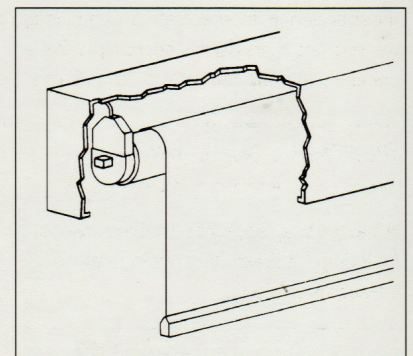
Controllers can be supplied single or three phase any voltage 50Hz or 60Hz.

### IN-LINE MOTORS (TOP ROLLER SCREENS)

Standard units are 220/240V 50HZ. Other single phase voltages and frequencies available to special order.

The units comprise an electric motor, integral gear box and 2 stop mechanical limits which are easily adjusted within the range available.

Normally found in Elstree and Ealing top roller electric screens, they will satisfactorily operate roller units for screen surface widths up to 6.1 m.



In-line motors are also used to power standard tilting wrapround screens and roll-down masking systems for roller screen units.

Unit comes complete with 3 position press and hold switch.

Relay units are required if 2+ operating positions involved.

Unit draws maximum of 3 amps.

### DRIVE SYSTEMS - MOVING MASKING

Harkness masking systems are normally operated by wire ropes of varying thickness through a series of



pulleys to a cable winding drum which is an integral part of a controller (electric motor).

Controllers normally incorporate between 2 and 8 limit switches depending on user operational requirements. Can be P.L.C. controlled for increased flexibility.

### MOVING SIDE MASKING

Available single and double wire systems, both of which are engineered to ensure a smooth positive drive in both directions.

### MOVING TOP MASKING

This system incorporates a special leading edge and counterweight system which enables picture height to be varied with no change to BPL (bottom picture line).

### MOVING BOTTOM MASKING

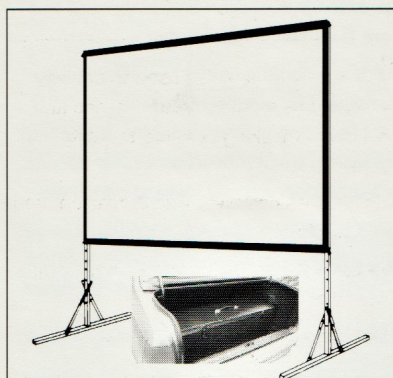
Performs the same function as the moving top system.

In this case, there is no change to top picture line.

Moving top and bottom systems are generally linked together but can move independently. In association with a linked moving side masking system can provide a series of optically centred projection formats.

### PORTABLE SCREENS

An extensive range of portable screens, including the Easi-Rect folding frame screen, is available.

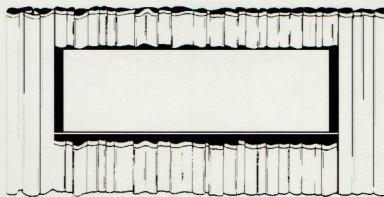


EASI-RECT FOLDING FRAME SCREEN  
FOLDS COMPLETELY INTO CARRYING CASE

Easi-Rect frame screens can be supplied with snap on front and/or rear projection surfaces, and Perlux high gain surface for video projection.

Standard sizes to 4.26m x 3.2m (14' x 10' 6").

Larger sizes manufactured to customer requirements.



Handsome crush proof velour drape sets (optional), surround the screen on four sides giving a professional and attractive stage front to the audience.

### CURTAINS AND CURTAIN TRACKING SYSTEMS

We can supply cinema or theatre curtains to any style in fire-retardant qualities through our own curtain manufacturing facility.

We can also provide manual or electrically operated curtain tracking systems, including festoons.

**A correctly designed screen surface will ensure that the projected image will resemble as near as possible, the colour, brilliance and quality of scene from which the shot was taken.**

**Throughout any projected presentation, all eyes will be on the screen, it is essential therefore that the screen should be the best available for the job.**

**The right screen surface will totally complement the quality of the projector, film content, and sound system.**

**Select from the extensive range of projection surfaces available from Harkness Hall, and guarantee maximum effectiveness every time the picture is 'on screen'.**

### FRONT PROJECTION SURFACES

#### MATT WHITE

In addition to being an excellent projection material in its own right this material also provides the base for:

Perlux, Spectral 2000,  
and T32 high reflectance silver.

Two gauges of material are available.

#### MATT WHITE II \*

A PVC surface with 'memory' containing optical brighteners, designed primarily for use in cinemas where the screen will be webbed and eyeletted and stretched within a static frame.

Matt White II surfaces can be folded for ease of transit.

Material can be supplied to any dimension, either perforated or non-perforated.

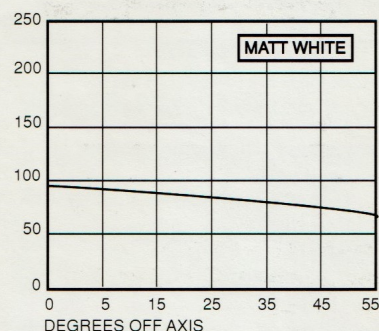
Complies with

BS5867 PT II (BS 3120) ;  
DIN 4102 B1 ; FRENCH M2 ;  
CAN 4 S102-2 ; AWTA 7-446772-CO

**\* Low sound attenuation product in perforated form.**

#### MATT WHITE I

This is a heavier gauge of material, normally used for wraparound screens, or for the provision of Matt White projection surfaces for roll-down screens.



Preferred method of packing on rollers in fibreboard tubes. The only limitation to maximum size may be the mode of transport.

Available either perforated or non-perforated.

Unique welding processes ensure that seams are not visible under normal projection conditions.



Complies with

BS5867 PT II (BS3120) ;  
DIN 4102 B1 ; FRENCH M2 ;  
CAN 4 S102-2

### PERLUX ®

Cinema exhibitors worldwide consider this the 'premier' projection surface. Perlux is a pearlised white surface, with excellent high gain characteristics, which will ensure very bright pictures combined with good viewing angles and excellent colour temperature.

Rectifier settings can usually be lowered without loss of picture quality or clarity, with a considerable saving on power and a noticeable extension in the life of xenon bulbs.

All Perlux screens are factory coated during manufacture using a special process which ensures that seams are totally invisible under projection conditions.

### PERLUX II ® \*

Perlux II was specially developed by Harkness technicians to meet the worldwide demand for a Perlux surface which is foldable for transportation. Screen sizes up to 98' x 36' (20m x 11m) can be produced as regular production items. Larger sizes are possible as 'specials'.

Perlux II screens are recommended for stretching into frames, normally in a webbed and eyeletted form. Can be pocketed.

Perlux II can be supplied either perforated or non-perforated.

Complies with

BS5867 PT II (BS 3120) ;  
DIN 4102 B1 ; FRENCH M2 ;  
CAN 4 S102-2 ; AWTA 7-446777-CO.

**\* Low sound attenuation product in perforated form.**

### PERLUX I

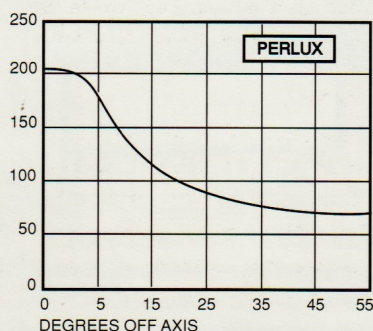
A heavier gauge material normally used in roll-up/roll-down situations. It is also the recommended surface for wraparound frames.

Can be supplied either webbed or eyeletted, pocketed, or in a cut-square format, both perforated and non-perforated.

Material is normally despatched on a roller in a fibreboard tube.

Complies with

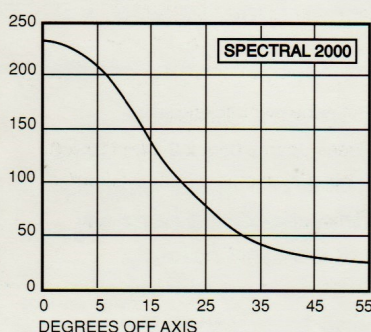
BS5867 PT II (BS 3120) ;  
DIN 4102 B1 ; FRENCH M2 ;  
CAN 4 S102-2.



### SPECTRAL 2000 \*

Spectral 2000 has been specially developed for the exhibitor who requires a single surface for both 3 Dimensional and conventional front projection of films.

The Harkness special coating process ensures uniformity of surface and 'invisible' seams irrespective of size.



Spectral 2000 adds a 'crispness' to the picture, which combined with colour temperature and viewing angles, generally better than conventional silvers, will ensure maximum enjoyment of the presentation by the audience.

Spectral 2000 screens are normally webbed and eyeletted.

In common with all silver type surfaces, Spectral 2000 screens cannot be folded for shipment.

Spectral 2000 surfaces are not recommended for roll-up/roll-down applications **unless original equipment in a Harkness system.**

Available either perforated or non-perforated.

Complies with

BS5867 PTII (BS 3120) ;  
DIN 4102 B1 ; FRENCH M2 ;  
CAN 4 S102-2 ; AWTA 7-446780-CO.

**\* Low sound attenuation product in perforated form.**

### T32 EXTRA HIGH-GAIN SILVER SURFACE

This surface is available to special order only.

Gain on centre line in excess of 4. Highly directional, not recommended for viewing above 25° off projection axis.

Available perforated or non-perforated.

Complies with

BS5867 PT II (BS 3120)

### DEEP CURVE

This highly specialised surface was designed by us for 70mm and similar presentations. The screen has a specially formulated 'low scatter' coating which ensures no risk of cross reflection in screens curvable up to 120°. Deep curve surfaces are not suitable for folding.

Can be supplied perforated or non-perforated.

### TRANSLITE REAR PROJECTION

**Full range of flexible and rigid rear projection surfaces available under the Translite generic name.**

### FLEXIBLE - NATURAL TINT

Suitable for fitting to frames, roller screens or simple wooden frame.

Translite natural is cream/grey and is the recommended surface for rear projection viewing under cinema conditions. Viewing angle and colour temperature is excellent as is light transmittance. Translite natural has excellent diffusion characteristics and there is no risk of flare or hot spotting.

There are no dimensional limitations with Translite. The unique Harkness manufacturing process enables screens of any size to be produced as seams cannot be seen under normal viewing conditions.

### FLEXIBLE - DARK TINT

Translite dark tint is dark grey in colour and is recommended for locations where satisfactory viewing in low ambient light conditions is required.

It is the preferred surface for general exhibition use, or in training situations where a level of lighting is required for note taking, etc.



## FLEXIBLE - SUPER II

A single surface for front and rear projection. The product has a scientifically balanced pigment loading which is sufficient to hold a good image on front projection, but has sufficient light transmittance to provide a good image under rear projection. Suitable for frames, roll-up/roll-down units and wooden frames.

This surface should be used under cinema type darkened conditions.

**Translite screens are not normally folded for transit.**

All Translite screens comply with  
BS 5867 Pt II (BS 3120)

## RIGID

**Standard Translite Rigid is a medium grey acrylic based material with high abrasion resistance.**

**It can be easily and safely cleaned.**

**Standard Translite Rigid available to size 1.66m x 1.10m x 3mm (5' 5" x 3' 7" x 1/8") from stock.**

**Other sizes to 6m x 3m x 10mm (19' 8" x 9' 9" x 3/8") available to special order.**

**Recommended method of installation is within suitable metal/wooden frame of a window type, with the matt surface facing the audience.**

## RIGID - DA-GLAS

This is a glass screen available to thicknesses 12mm.

Maximum size available as single screen is 6.1 m x 3.05m (20' x 10').

Standard coating DA-3N is neutral grey in colour and fits most rear projection requirements.

DA-1 N wide angle coating also available if required.

Da-glas screens are available with Protek coating which improves durability and abrasion resistance.

**It is recommended that all large glass screens be ordered complete with factory installed frames for in-wall placement.**

**Choice of silver or bronze aluminium.**

## POLACOAT LENS III

Polacoat is a medium grey, flexible rear projection material, suitable for viewing in both cinema and ambient light conditions.

Material has a normal width of 3.05m (10'), webbed and eyeletted surfaces up to 2.9m high (9' 6") x any width can be supplied without seams.

Polacoat can be constantly re-folded without risk to optical qualities.

**A separate leaflet with transmittance graphs available on complete rear projection range.**

## SPECIAL PRODUCTS

Harkness Hall Limited stock 3M Scotchlite High Gain front projection material (7610).

Scotchlite is used for front projecting of backgrounds in TV, film and photographic studios, where rear projection facilities are not available.

Material comes 2 feet on the roll and has a self adhesive backing.

Screens up to 3.05m x 2.44m (10' x 8') can be manufactured to special order.

## BLACK MASKING MATERIALS

### STANDARD BLACK MASKING

Standard Black masking cloths available to any dimension for static and moving side, top and bottom systems.

Complies with

BS5867 PT II (BS 3120) ;

AWTA 7-446774-CO

### SOUND 2000M

Sound 2000M is an acoustically transparent black masking material with excellent light absorption properties. It is the ideal choice for all installations where high quality sound is required on formats when "behind screen" peripheral speakers might be covered by masking elements.

Complies with

BS5867 PT II (BS 3120) ;

AWTA 7-446771-BO

## INSTALLATION SERVICES

**Teams of experienced engineers are available to install any Harkness Screen system.**



**Engineering services are also available for routine maintenance or refurbishment of previously supplied Harkness screen systems.**

**The engineering facility can undertake screen changes, modernisation, refurbishment etc. of non-Harkness screen systems, subject to survey.**

**Supervising engineers are also available for overseas installations.**

## STAGE EQUIPMENT

**A comprehensive range of Stage Equipment items are available from our Stage Products Division.**

**A separate catalogue is available on request.**

## PRODUCT IMPROVEMENT

In the interests of product improvement, the company reserve the right to introduce modifications or alterations without notice.





Harkness Hall Limited  
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Boreham Wood  
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England

Telephone:

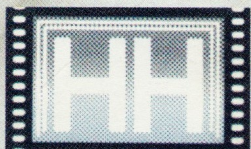
(+44) 0 181 953 3611

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Fax:

(+44) 0 181 207 3657

*Dealer Name*





HARKNESS HALL LIMITED

**MATT WHITE II**

HARKNESS HALL LIMITED

**PERLUX II**