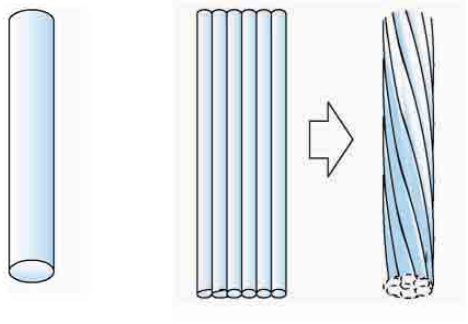
MURAKAMI SCREEN USA

Technical Newsletter

www.murakamiscreen.com - 800.562.3534 - 323.980.0662

Murakami's Pre Stretched Screens with Smartmesh:

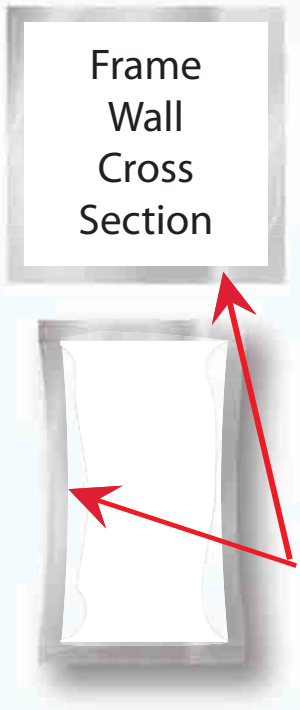
Screen mesh technology has come a long way from the 12xx multifilament mesh days. For those too young to know what 12xx means; this was a typical mesh made of multiple threads that screen printers used before monofilament polyester mesh was developed.



Monofilament Multifilament

Monofilament Polyester mesh has significant advantages in clean up and image dehazing but when it was first introduced the elongation of the thread was enough to render a screen useless on a tight registration print. Then along came low elongation monofilament mesh and screen printing explored tight dot on dot registration and no trap overlap in the art. Recently Murakami introduced Smartmesh that improved not only elongation, but *accumulated* elongation that occurs when repeated print strokes can cause momentary elongation as the screen warms up to the print process. Murakami Smartmesh also developed balanced warp and weft threads so the screen stretches proportionally in both warp and weft during printing. The combination of better balanced threads in Smartmesh results in higher retained tensions that prolong the printable life cycle of the screen whle providing better prints and production yields.

Higher retained tension from Murakami Smartmesh reduces the amount of labor needed on retensionable screens to keep them at working tensions, but the real benefit is apparent on stretch and glue frames where higher retained tensions yield a longer work life on a less expensive frame. However, the quality of the frame and the stretch method are often overlooked when purchasing stretch and glue frames or stretching them yourself. In the following sections we will explore why Murakami's Pre Stretched Frames offer exceptional print quality and production value that overcomes some of the issues in stretching mesh yourself.



The frame wall thickness of an aluminum frame determines the tension levels that mesh can be stretched to. Too thin a sidewall will cause the long section of the frame to bow in and lose tension. This can also cause the frame to warp into a potato chip shape when too much tension is applied. If the frame cannot hold recommended tension levels then print performance is compromised.

Thin frame wall cross sections can cause the frame to bow in and warp the screen into a potato chip shape.

Murakami frames are custom made to our specifications with thicker wall profiles to resist bending or warping. If your goal is to grow your company, quality mesh on a strong frame is one area that can make your prints better than the competition and in the long run produce more prints per hour due to superior registration qualities. .

Shirt Photo Courtesy Ningbo, China

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Stretching Equipment

The type of stretcher can play a major role in the quality of the pre-stretched screen. There is a direct relationship between how square the mesh is to the frame and the ability to image halftones well. Imagesetters, ink jet positives and CTS machines maintain near perfect alignment of the halftone angle to the edge of the film or screen. Measured with a protractor, a 22 degree halftone angle called out in the RIP is output at exactly 22 degrees, but this halftone print also needs the mesh to be square to the frame to prevent moire. Mesh can also be stretched on the 'bias' to allow halftones to be imaged vertically and horizontally on the screen for graphic impact. Murakami Pre-stretched screens are available with bias stretching where the thread angle can be set to a non moire angle. One usage of a bias stretched screen is to place halftones in a vertical and horizontal alignment with square halftones to create an interesting tonal grid effect.

Bar Stretchers

Most bar stretchers come with bars that are longer than needed for the screen. This is a design function to accomodate different size frames. However most shops use a standard sized frame, especially on automatics. Figure 1 shows bars centered on the screen with optimum corner separation. Centered bars pull the threads perpendicular to the frame while offset bars do not as seen in figures 2. Using the bars in the offset position causes angles in the mesh that form in the corners of the screen. This tweaking of the threads can cause spot moire to form in these areas while the center of the screen may not. The more perpendicular the threads are to the frame over the entire print area, the better the halftone reproduction.

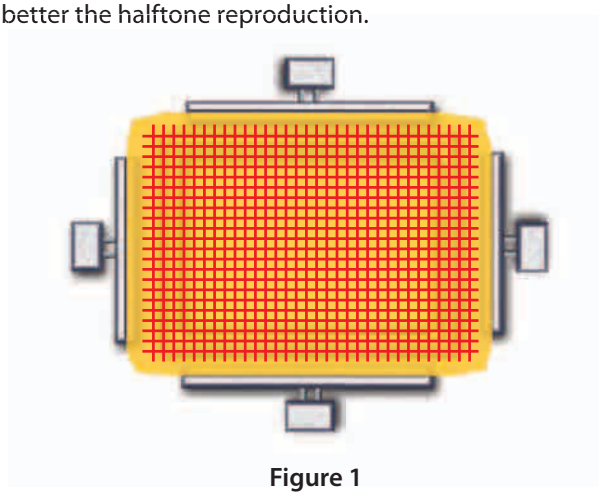


Figure 1
Centered bars will provide better control over thread direction.

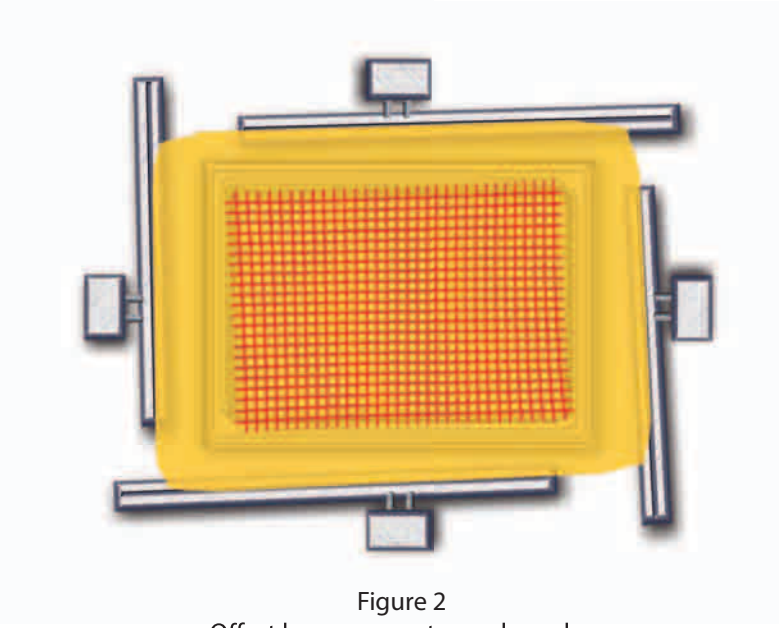
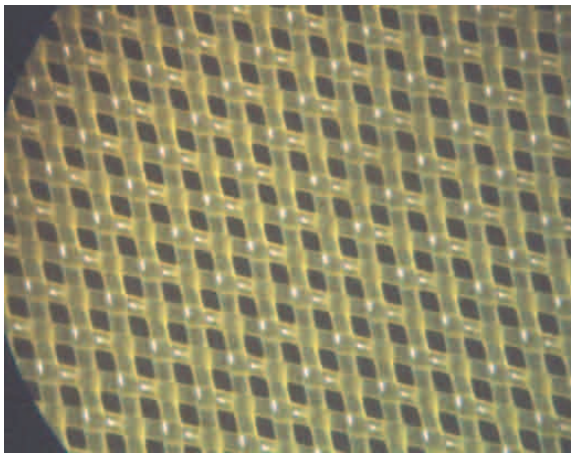


Figure 2
Offset bars can create mesh angles that will be capable of moire.



The picture above shows how mesh is pulled out of square by poor capture methods, uneven tensioning, or stretchers that don't maintain a square orientation to the screen frame.

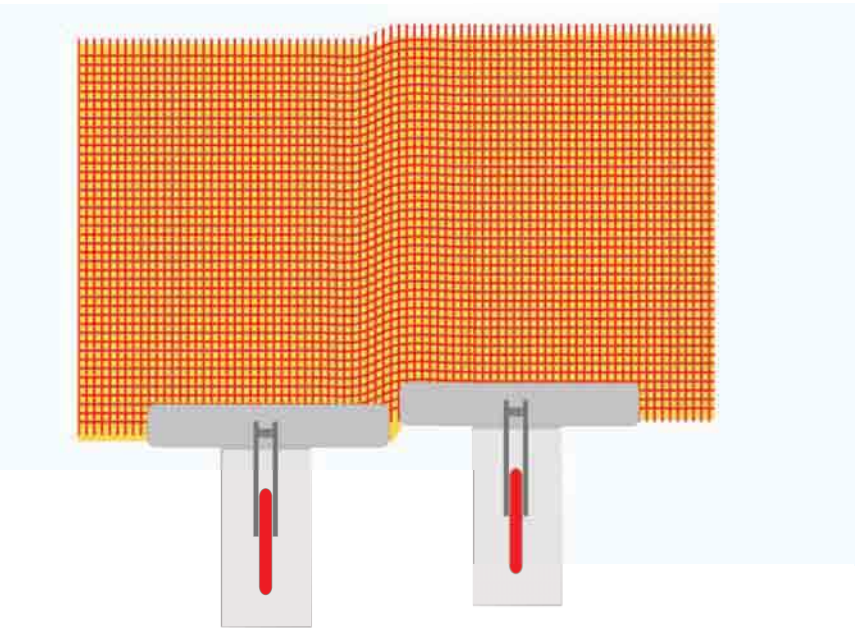
If your shop doesn't print halftones the stretching issues discussed here won't affect your spot color prints. It will however affect durability of your stretched screens by introducing 'pinch points' within the mesh, especially at higher tensions that can cause mesh to 'pop'.

Retensionable Frames

Retensioniable frames can be stretched with Smartmesh panels from companies like Shurloc or can be ordered through your Murakami Dealer or with the typical manual method. One technique to capture mesh as square as possible to the frame is to draw a line parallel to the threads with a soft #2 pencil to serve as a line up guide when inserting the retaining clips in the channel. It is important to insure that opposing bars are turned equally to prevent pulling the threads unevenly. Tension needs to be taken up by all four rollers equally to insure mesh threads are square to the frame.

Individual Air Clamp Cylinder Stretching

Individual air clamps can also cause the threads to be bent depending on the accuracy of the capture method, or when air cylinders pull unevenly causing a ripple in thread direction. It is important to maintain the air manifolds that direct air to banks of cylinders so that they pull equally. Maintaining the clamps and air cylinders so that they can pull smoothly will tension the mesh better and avoid pinch points that can cause mesh to pop or have thread alignment issues.



Murakami Pre Stretched Frames

Murakami Pre Stretched frames are unique:

• They use over built aluminum frames that resist bowing and warping when mesh is stretched to optimal printing tensions for the mesh being used. Select from the entire Murakami mesh inventory:

http://www.murakamiscreen.com/documents/MeshGuidefromCatalogweb.pdf

• Murakami Smartmesh simply prints better. Better registration, higher retained tensions, balanced warp and weft threads for repeatable precise printing all add up to a great printing screen.

• Murakami Pre-Stretched screens are stretched on a proprietary automatic stretching machine that has superior automatic mesh capture and stretching techniques unavailable from any other source. Our in house stretcher is a state of the art stretching device that insures your pre-stretched frames arrive with closely matched tensions for any mesh count, stretched to optimum print tension levels and captured square to the frame for optimum halftone imaging.

• Murakami Pre-stretched screens can be requested from your local Murakami dealer and drop shipped from our stretching facility here in Southern California. We also stretch on your frames. Your frames must be dent free and clean, no ink, mesh or tape.

Available in the following sizes:
20”x24”
23”x31”
25”x36”
Custom Orders