

The Unseen Foundation of a Perfect Print

A Masterclass in Screen Printing Mesh



Insights from 35 Years of Professional Practice.



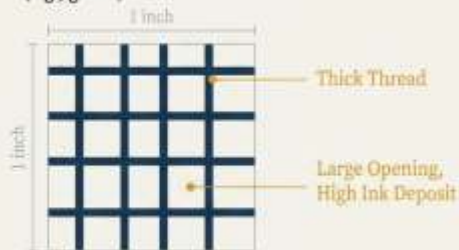
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by Stefan Mertes  NotebookLM

Understanding Mesh Count: The Language of Detail and Ink Deposit

Screen printing mesh count is the number of threads per inch (TPI) or per centimetre (TPC). This single value dictates the balance between image detail and the amount of ink applied to the substrate.

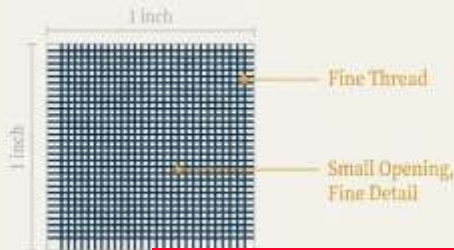
Low Mesh Count

- Fewer, larger holes.
- Allows more ink to pass through (heavier deposit).
- Ideal for bold designs, under-bases, or inks with particles (e.g., glitter).



High Mesh Count

- More, smaller holes.
- Allows less ink to pass through (thinner deposit, softer feel).
- Essential for fine lines, photorealistic images, and high detail.



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Beyond the Count: Decoding Thread Diameter with S, T, and HD

The letters following the mesh count describe the diameter of the thread itself. While there are several types, textile printers primarily work with "T" and sometimes "S".



S - Serigraphic Grade

A thinner thread diameter.
Creates a larger mesh opening for a given count, allowing for finer detail.



T - Textile Grade

The industry standard for garment printing. A robust, all-purpose thread.



HD - Heavy Duty

Thicker, more durable threads for heavy-duty industrial applications.



HD Super

Even thicker threads, not typically used for standard garment printing.

Increasing Thread Diameter →



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Matching the Mesh to the Mission: A Practical Selection Guide



Heavy Deposit / Low Detail

45-110 TPI (18-43 TPC)

Glitter & sparkle inks (which require 18-30 TPC), thick athletic prints, laying down a heavy under-base where edge definition is not critical.



Heavy Deposit / Good Definition

110-195 TPI (43-77 TPC)

The workhorse range. Ideal for general textile printing, spot colours, block letters, and designs with solid definition. Puff inks should use a 43 TPC mesh for a good deposit.



Thin Deposit / Fine Detail

195-355 TPI (77-140 TPC)

Highly detailed prints, halftones, fine lines, and printing on paper or hard surfaces. Produces a softer-feeling print on garments.



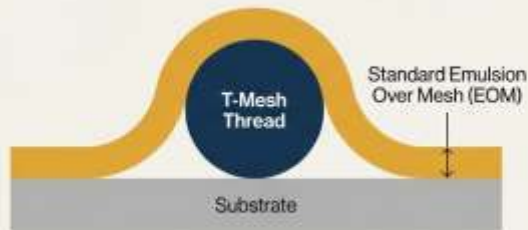
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The Specialist's Choice: T-Mesh vs. S-Mesh

For a given mesh count, an S-Mesh has thinner threads than a T-Mesh. This results in a larger open area, impacting both ink deposit and stencil creation.

T-Mesh (The Standard)

- Thicker filament, more durable.
- The reliable choice for most textile jobs.



S-Mesh (The Detailer)

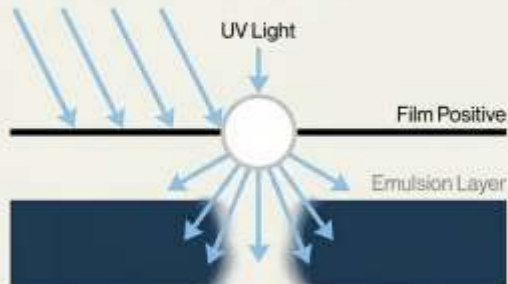
- Thinner filament, larger opening.
- Allows ink to release more easily for finer details.
- Requires less EOM, but is much more sensitive and delicate.
- Best used for detailed under-bases or highly sophisticated designs.



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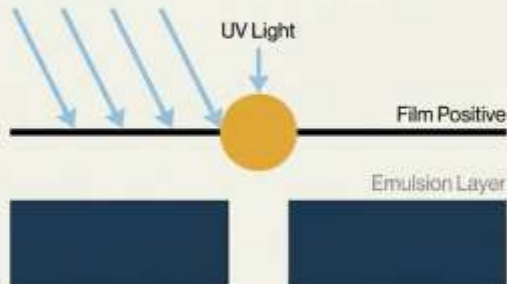
The Pursuit of Sharpness: Why Your Next Screen Should Be Yellow

The Problem with White Mesh



During exposure, UV light can pass through white mesh threads and reflect off the fabric surface. This scattering 'undercuts' the edges of your stencil, causing thin lines or halftone dots to be lost or underexposed.

The Solution with Yellow Mesh



Yellow is a complementary colour that absorbs UV light. A yellow mesh prevents light from scattering under the film positive, resulting in a much sharper, more accurate stencil with crisp outlines.



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The Foundation of a Flat Field: Mastering Screen Stretching

The fabric must be stretched with perfect, even uniformity to ensure consistent printing results. This is best achieved with a mechanical device.

Common Method: Pneumatic Systems

Uses a series of cylinders to exert the same pull in all directions. Highly effective and common in professional shops.



The Expert's Preference: Manual Stretcher

"While many prefer pneumatic systems, a simple manual device offers greater control and has fewer parts that can break."
— Stefan Mertes



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PRO TIP: A LESSON IN PATIENCE

“When stretching your frame, do not do it too quickly. Don’t try to pull all at once. Go slowly, pull, let it rest, pull, let it rest, until you have the Newton level you want. Give it some time!”

- Stefan Mertes, 35 Years of Screen Printing



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Speaking in Newtons: The Science of Screen Tension

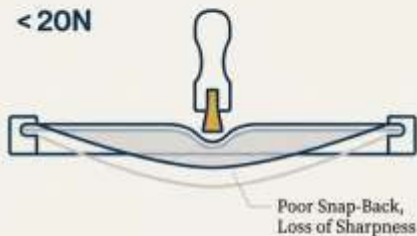
What is a Newton?

Tension is measured in Newtons (N). One Newton is the force needed to accelerate 1kg of mass at 1 metre per second squared. For printers, it is the standard measure of mesh tightness.

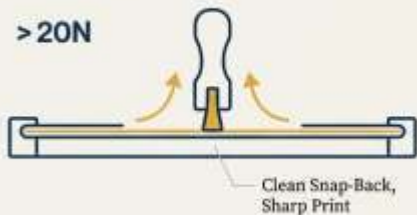
Why It Matters

Proper tension is critical. Too little (<20N) can cause registration problems and loss of sharpness as the mesh fails to snap back after the squeegee pass.

< 20N



> 20N



The Golden Rule

My belief is that anything over 20 Newtons will work well.

A Word of Caution

Don't just blindly push your mesh to 40 Newtons. The finer the mesh count, the less tension it can hold. Always consult your mesh supplier's guidelines.



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How to Measure Tension Accurately and Safely



The Tool

To measure tension, you will need a Newton Meter (or tension meter).

The Process

Place the meter on the mesh, typically near the corners, and take a reading. Check multiple points to ensure evenness.

Critical Warning

Handle with care! This is a precision instrument that can be easily dropped and broken.



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Building to Last: Choosing the Right Frames and Adhesives

Frames: Aluminium is the Professional Standard

Durable, and resistant to breakage, bending, and corrosion. Wooden frames are suitable for occasional hobbyists but are not reliable long-term.

Investment Tip: Choose a frame with a profile over 3.5cm x 3.5cm. A quality aluminium frame will last a lifetime.



Adhesives: The Critical Bond

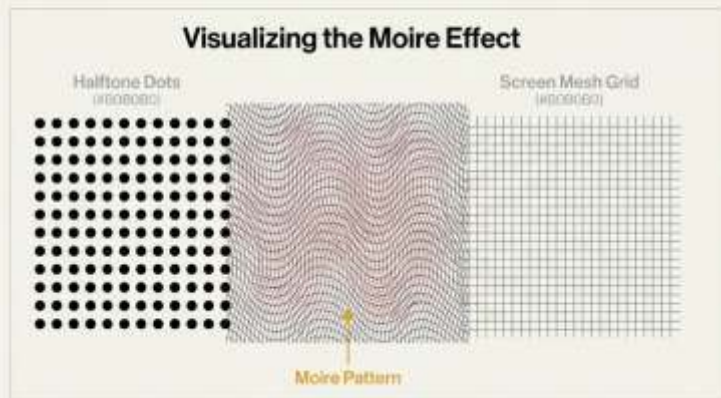
The adhesive must penetrate the mesh fabric to form a strong bond with the frame. Prioritise high-performance, chemical-resistant adhesives over cheaper alternatives to ensure your tension holds.



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Troubleshooting the Unwanted: How to Prevent the Moire Effect

****What is it?**** Moire is a visual interference pattern that occurs when the grid of your halftone dots conflicts with the grid of your screen mesh.



Prevention Strategy

1. Use a RIP

Create films using a Raster Image Processor (RIP) program.

2. Set the Angle

Position your halftone dots at a specific, non-conflicting angle (the RIP often handles this).

3. Ensure Proper Sizing

Aim for four or more open mesh squares for each single halftone dot to minimise interference.



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The Essential Toolkit: Identifying Mesh Count Instantly

The Problem

It can be difficult, if not impossible, to determine the mesh count of a screen with the naked eye.

The Solution

Use a mesh count calculator. It's a special film you place on the screen.

How it Works

As you move the film over the mesh, a star-like pattern will appear, pointing directly to the correct mesh count on the film's gauge.



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Reference: Mesh Count Conversion Chart

A quick reference for converting between the imperial (Threads Per Inch) and metric (Threads Per Centimetre) systems.

Threads per Inch (TPI)	Threads per Centimetre (TPC)
45 TPI	18 TPC
76 TPI	30 TPC
110 TPI	43 TPC
137 TPI	54 TPC
156 TPI	61 TPC
195 TPI	77 TPC
230 TPI	90 TPC
305 TPI	120 TPC
355 TPI	140 TPC



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The Synthesis of Mastery: Principles of the Perfect Print

- **Mesh Count** Governs Detail: The right TPI is the first step to matching your print's ambition.
- **Yellow Mesh** Creates Sharpness: Control light during exposure to build a flawless stencil.
- **Even Tension** Ensures Consistency: A screen stretched above 20N is the foundation for sharp registration and a clean ink transfer.
- **The Right Tools** Last a Lifetime: Invest in quality aluminium frames and professional tools to guarantee reliable results.

Mastering the screen mesh is not just about numbers; it's about controlling the variables that separate a good print from a great one.



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