Needle Primer

Knowing which needle to use when is a must for project success.

One of the most important yet often overlooked elements of any sewing project is the needle. Over the years needle manufacturers have recognized the variety of fabrics, thread and applications we are using and are producing needles to suit our needs.

The basics

Neddles are manufactured from high carbon steel wire. This wire is transformed into a needle as it passes through 30 or more steps of shaping and polishing. One of the final processes is the electroplating of a micrometer thin layer of chromium on the entire needle surface. This layer of chromium reduces the friction caused when embroidering, and protects the needle from abrasion and corrosion.

A new development has been to add a titanium-nitride ceramic finish over the chromium. The titanium finish is two times harder than the chromium alone and makes the needles attractive for large and densely stitched designs.

What do all those numbers and letters on the needle and on the packaging mean? Which needle is the best for your fabric choices? How do needles help prevent the thread from breaking? To answer these questions lets begin by looking at the anatomy of a needle.

A needle is made of six parts:

♦ The shank is the upper portion of the needle, which is inserted into the sewing machine. Needles have a shank that is rounded on the front side and flat on the back.

♦ Can’t remember the last time you replaced the needle? Then it’s time to put in a new one.

♦ Twist embroidery threads and threads with yarn-like properties will need a larger eye—go up one needle size.

♦ Choose one needle size up if the thread is breaking or shredding.

♦ Choose one needle size down if the stitches are skipping or the thread is bouncing.

♦ Check the needle plate, bobbin case and hook often, any small burrs or imperfections may snag the thread as it passes and cause breakage.

♦ Clean the machine often. The machine is doing a lot more work when embroidering compared to sewing a garment; a lot more lint will build up above the needle and in the bobbin area.
- The shaft is the lower portion of the needle. The size of the needle is determined by the diameter of the shaft. The smaller the number, the smaller the shaft will be. The eye will increase in size proportionately to the size of the shaft.
- The groove is on the needle front. The groove is designed to allow the thread to lie tightly against the needle as it passes through the fabric.
- The eye is the hole in the lower portion of the shaft. Thread passes from the front to the back of the needle through the eye. Test the thread in the needle; it should flow freely and not snag or get caught.
- The scarf is an indentation on the back of the needle that allows the hook to pass closely to the needle to form the stitch. The size of the needle will affect the distance of the scarf in relation to the hook.
- The point penetrates the fabric and allows the needle to deliver the thread to the hook to form the stitch. The shape of the point is designed to penetrate different fabric types.

**Needle types**

**Ballpoint** has a rounded tip that goes between the fibers of the fabric rather than cutting them. Use a ballpoint needle for knit fabrics.

**Embroidery** is designed with the eye one size larger than a corresponding size needle. Embroidery thread is not as tightly twisted as sewing thread, thus the embroidery thread has less tensile strength. The larger eye allows the embroidery thread to flow through the eye with less drag so there is less breakage.

**Jeans** is a thick needle with a sharp point and a flat back that will sew through multiple layers of dense fibers like denim and canvas.

**Leather** has a wedge shaped point for cutting through leather and man-made leather type fabrics. A longer stitch length is recommended so there’s extra distance between the holes created by the needle.

**Metallic** needles have a very long eye which helps avoid heat build-up as metallic thread passes through the needle.

**Quilting** needles are designed to penetrate several layers of fabric. The point is slightly more round than a universal point.

**Sharp point** has a very fine point that makes small holes in the fabric. These needles are excellent for woven fabrics.

**Titanium** has a larger eye and a specialty coating for embroidery. The price is about twice the price

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**needle sizes**

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<th>65</th>
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<th>75</th>
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<td>Medium</td>
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<td>Upholstery</td>
<td>Denim</td>
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MARCH/APRIL 2004  Creative Machine Embroidery  13
of an uncoated embroidery needle but it will sew five times as long under normal conditions.

**Topstitching** needles feature an extra sharp point, extra large eye and a large groove to accommodate a heavier thread.

**Universal** is for general embroidery of most woven and knit fabrics as the tip is slightly rounder than a sharp, but not as round as a ballpoint.

**Needle selection**

When selecting a needle for embroidering, there are two things to consider: fabric (point) and thread (eye). Select the point best suited for the fabric. Always select the smallest needle size for the fabric. Keep in mind the size of the eye grows with the size of the shank.

Consider the age of the needle. With every needle penetration there is wear to the point. After several hours of embroidery a new point will become dull. Don’t wait for the telltale signs of a dull needle—snagged fabric, thread breakage, tension difficulties or a punching sound as the needle penetrates the fabric. By the time these things happen there has already been damage done.

**Purchasing**

Look at the packaging when purchasing needles. Labels indicate the type of needle (embroidery, metallic, etc.) and the size. Look for the needle with the point and eye appropriate for the fabric and thread you’ll be using for embroidery.
Needles are often color-coded. There's no standardization of the color-coding. If you use one brand exclusively it is a convenient way to recognize the type of needle in the pack. Refer to the package labeling not the color-coding when shopping for needles.

When embroidering any project it's a good idea to test the needle as well as stabilizer and thread on a sample of the project fabric. Experiment with different needle types when creating unusual embroidery techniques. For example, try using a quilting needle when quilting several layers and stitching with a heavier quilting thread. G

Nancy Fiddler is a freelance designer/writer and teaches creative sewing techniques locally and nationally. She also designs and markets just Fiddlin’ Around patterns.

Editor's note: Other needle types are available—we featured those most commonly used for embroidery.