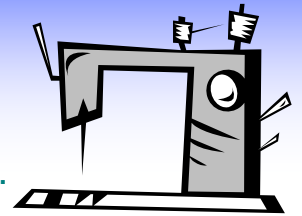


Machine Needle Know How



To ensure a project's success, you need to select the right needle.

Most of us can't tell the difference by looking at needles. But put the wrong needle in your machine, or use the wrong needle for your fabric and/or thread and you will see the difference. You can get puckered seams, break or shred thread, punch holes in your fabric and, at the very least, produce an inferior stitch. Whatever your machine, even the latest computerized model, needle selection can make or break your stitch.

Selecting Machine Needles

Before selecting a machine needle, you must choose the type of thread you plan to use.

The needle and the thread affect stitch quality. They go hand in hand and create a successful sewing experience that eliminates skipped stitches, puckered seams and broken threads.

Several things can determine the type of needle to pick: the fabric you're using; the thread you've chosen (for example, metallic or embroidery); or the type of stitch you plan (for instance, topstitching or hemstitching). When you're doing regular, not decorative sewing, the type of fabric determines the shape of the needle's point, and the fabric's weight determines the needles' size.

Anatomy of a needle

The key features of a standard machine needle are itemised below. Their configuration varies from needle type to type.

Shank

Top of needle that inserts into machine; most often has round front and flat back, which seats needle in right position.

Shaft

Body of needle below shank. Shaft thickness determines needle size.

Front groove

Slit above needle eye, should be large enough to "cradle" thread for smooth stitches.

Point

Needle tip that penetrates fabric to pass thread to bobbin, hook

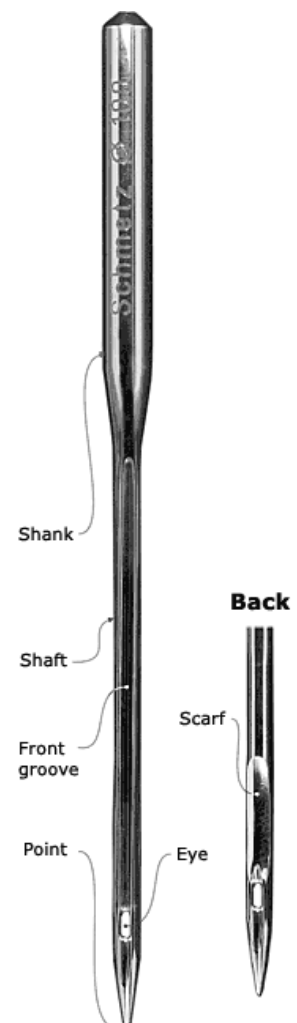
and form stitch. Shape of point varies among needle types.

Scarf

Indentation at back of needle. A long scarf helps eliminate skipped stitches by allowing bobbin hook to loop thread more easily. A shorter scarf requires a more perfectly timed machine.

Eye

Hole in end of needle through which thread passes. Needle size and type determine size and shape of eye.



Stitching Tips

Always start with a fresh, new needle for every sewing project. If stitching problems occur, always change the needle. A dull or burred needle can cause snags and puckering. Select the size of the needle based on the weight of the fabric and the size or type of thread being used. Thicker fabrics require a heavier, larger size needle. Just as sewing machine technology has become more sophisticated, so have the types of needles available. Understanding the parts of a needle will help you select the proper needle for a project.

The correct machine-needle size is determined by the weight of the fabric to be sewn. The numbering system for needle sizes varies depending on the brand; some are numbered according to the U.S. system of sizes, while others are numbered according to the European system.

Test for Right Size Needle

Use a piece of fabric from the garment you will be sewing and sew through 2 layers of fabric to see if you have the correct needle.

Change your machine needle often especially when sewing on synthetics. A new needle assures you of no needle damage to fabric

Needle Sizes

There are two numbering systems — the European (based on metric) and the American. Most needle packages list both sizes.

American	European	American	European
Size 8	60	Size 14	90
Size 9	65	Size 16	100
Size 10	70	Size 18	110
Size 11	75	Size 19	120
Size 12	80		

Needle types grouped into three categories

1. Standard Needles
2. Decorative Needles
3. Special purpose Needles

1) Standard needles

The configuration of these needles is based on the particular fabric to be sewn.

Universal needle

- Uses:** Safest needle choice for most fabrics.
- Configuration:** Has slightly rounded point and elongated scarf to enable almost foolproof meeting of needle and bobbin hook.
- Troubleshooting:** When fabric is not medium-weight woven, consider needle specifically suited to fabric. For example, size 18 universal needle works on heavy denim, but size 18 jeans needle works better.





Ballpoint and stretch needles (yellow)

- Uses:** Ballpoint needle for heavier, looser sweater knits; stretch needle for highly elastic fabrics, like Spandex, or Lycra.
- Configuration:** Both have rounded points that penetrate between fabric threads rather than pierce them. (Stretch-needle point is slightly less rounded than ballpoint.)
- Troubleshooting:** Test-stitch knits with ballpoint, stretch, and universal needles to see which doesn't cut yarn and yields best results. If ballpoint skips stitches, try the stretch needle.

Microtex and sharp needles (purple)



- Uses:** Sewing microfiber, silk, synthetic leather; precisely stitching edges; and heirloom sewing.
- Configuration:** Has an acute point.
- Troubleshooting:** Essentially trouble-free, but fabric may require a Teflon, roller, or even/dual-feed presser foot.



Leather needle

- Uses:** Excellent for sewing natural leather.
- Configuration:** Has slight cutting point (almost like an arrowhead).
- Troubleshooting:** On synthetic leather, unless it's very heavy synthetic, cuts rather than pierces stitch hole and can tear leather. Most synthetic leathers require Microtex or sharp needle.

Denim (jeans) needle (blue)



- Uses:** For heavyweight denim, duck, canvas, upholstery fabrics, artificial leather, and vinyl.
- Configuration:** Has deeper scarf, acute point, and modified shaft to sew without pushing fabric down into needle-plate hole. Goes through fabric and meets bobbin hook better on dense woven fabrics.
- Troubleshooting:** If stitches skip when sewing very heavy fabrics, try larger needle and sew more slowly or walk needle through fabric (by turning hand crank).



2) Decorative needles

Are mostly used to embellish fabric.

Topstitching needle

- Uses:** Topstitching.
- Configuration:** Has extra acute point, extra-large eye, and large groove for heavy thread.
- Troubleshooting:** Use smallest size needle that accommodates your thread to avoid punching large holes in fabric.

Embroidery needle (red mark)

- Uses:** Machine embroidering or embellishing with decorative thread.
- Configuration:** Has light point (neither sharp nor ballpoint) and enlarged eye to keep decorative threads from shredding or breaking, and prevent skipped stitches.
- Troubleshooting:** If thread still shreds on dense or heavily stitched design, use larger size needle or Metallica needle.



Metallic (Metafil and Metallica) needle

- Uses:** Sewing with decorative metallic threads.
- Configuration:** Has universal or standard point; large, elongated eye; and large groove to allow fragile metallic and synthetic filament threads to flow smoothly.
- Troubleshooting:** Metallic threads are very sensitive to problems in machine: Tiniest burr on thread path or needle can cause problems.



Quilting (stippling) needle (turquoise)

- Uses:** Piecing, quilting, and stippling.
- Configuration:** Has special tapered shaft to prevent damaging fabrics when stitching multiple layers.
- Troubleshooting:** Move the fabric smoothly without pulling on needle when free-motion stitching to prevent breaking needle.



3) Special-purpose needles

These needles are used only with front-to-back threading machines with zigzag features. Make sure your throat-plate needle hole is wide enough to accommodate the needle's width, and zigzag width function is set at zero to prevent sideways movement.

Hemstitch (wing) needle

- Uses:** Hemstitching or heirloom embroidery on linen and batiste.
- Configuration:** Has fins on sides of shank to create holes as you sew.
- Troubleshooting:** Stitch is more effective when needle returns to same needle hole more than once. If needle pushes fabric into needle hole, put stabilizer under fabric.



Twin (double) needle

- Uses:** Topstitching, pin tucking, and decorative stitching.
- Configuration:** Two needles on single shaft produce two rows of stitches. Measurement between needles ranges from 1.6mm to 6mm, and needles come with universal, stretch, embroidery, denim, and Metallica points.
- Troubleshooting:** Be sure throat plate allows for distance between needles.



Triple needle

- Uses:** Same uses as for double needle.
- Configuration:** Cross bar on single shaft connects three needles to sew three stitching rows. Comes with universal point in 2.5mm and 3mm widths.
- Troubleshooting:** Same as for double needle



Thread should pass easily through eye of needle

How smoothly the thread pulls through the needle's eye is also a factor in producing even, regular stitches. So if you have trouble threading the needle and problems with the stitches, the thread and needle aren't matched correctly. Lay your thread in the needle's front groove; it should fit "snuggle" in.

In the end, most sewers just want to get professional-looking results. Knowing more about needles brings you closer to that goal, since needle choice greatly affects your outcome. For every correctly chosen, new needle you put into your machine, you should have **8 to 12 continuous hours** of trouble-free sewing.

Tension control, stitch length, foot pressure, and other invisible settings on automatic machines are set for medium-weight fabrics, threads, and needles. If you're a middle-of-the-road sewer, using mid-weight, woven fabrics, you could be happy using a size 12/80 universal needles for the rest of your life. But when you want improved stitch quality, learn which specific needles to use for various jobs.

The formation of a stitch begins when the needle penetrates the fabric and descends to its lowest point.

The bobbin hook then slides by the needle's scarf, catching the upper thread, and carries it around the bobbin and bobbin thread.

The thread is then pulled up into the fabric, completing the stitch

