

# UNDERSTANDING MACHINE EMBROIDERY NEEDLES: Which ones to use and when to change them.

## Machine Embroidery Needle Basics

Madeira USA provides a wide range of top quality machine embroidery needles. Madeira Large Eye stainless steel needles are precision manufactured in Germany. Large eye needles are manufactured specifically for high speed commercial embroidery Machines.

**Needle Shank** – Embroidery needles are available in Round shanks and Flat-Sided shanks:

- **Round shank needles** are for commercial embroidery machines. These needles are aligned manually.
- **Flat-Sided shanks needles** are for use in most home and Brother PR embroidery machines.

**Needle Eye** – The needle eye type determines if they are manufactured for machine embroidery or for sewing thread:

- **Large Eye Needles (DBxK5)** have an enlarged eye. The enlarged eye ensures smooth and carefree machine embroidery thread. Most embroiderers use this type of needle for machine embroidery.
- **Standard Eye Needles (DBx1)** have a smaller eye than large eye needles. They are typically used for sewing and construction. Embroiderers may choose to use this type of needle as they have a bit more strength on the sides of the needle eye. Typically used with tougher fabrics when breaking needles is an issue.
- **Universal Eye** are noted with “UNIVERSAL” on the needle packages. Universal eye needles are typically flat-sided shank needles. The eye of the needle is slightly enlarged and is used with single needle home embroidery machines.

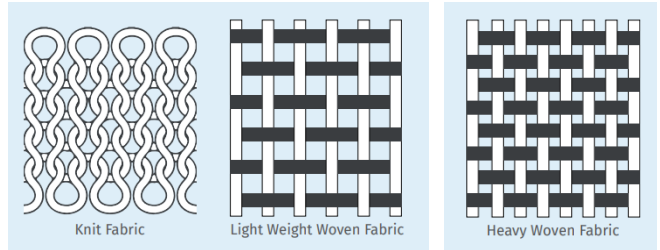
**Needle Size** – needle sizes range from size #60/8 to #100/16. Thread type and thicknesses determine the recommended needle size:

- **Smaller needles** are used for thinner threads
- **Larger needles** are used for thicker threads
- *Check out the chart on the next page for a complete Madeira thread chart with needles*

**Needle Point** - Needle points or tips are chosen based on the type of fabric being embroidered on:

• **Ballpoint needles** are for use with knit fabric and lightly woven fabric. (code on packaging SES & SUK)  
Ex: Polo shirts, knit sweaters, sweatshirts, polyester performance wear fabric

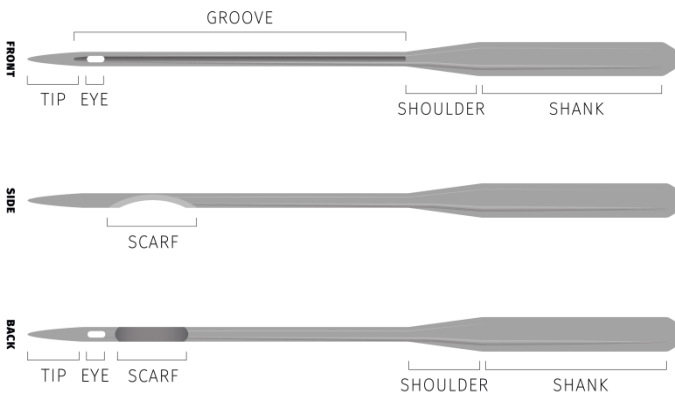
• **Sharp Point needles** are for use with tightly woven fabric. (code on packaging: RG)  
Ex: Baseball caps, denim, heavy twill, canvas



**Ballpoint Needle for knits  
& lightly woven fabric**

**Sharp Point Needle for  
tightly woven fabric**

## Anatomy of a Needle



**Needle Shoulder** – The shoulder of a needle is the angled taper between the thicker shank and the thinner blade.

**Needle Blade** – The blade is the area between the shoulder and the needle eye.

**Needle Groove** – The groove runs down along the needle blade on the front side of the needle. Its purposes is to guide the embroidery thread smoothly from the machine thread path into the needle eye.

**Needle Scarf** – The scarf is an indentation the back of the needle. It is located just above the needle eye. Its purpose is to provide a space for the hook to grab the upper thread and loop it together with the bottom thread.

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# A COMPLETE GUIDE TO HELP YOU CHOOSE THE CORRECT NEEDLES FOR MACHINE EMBROIDERY

## Choosing Machine Embroidery Needles Based on Thread Type

Thread Thickness	Madeira Thread Name	Thread Weight	Needle Size	Item # for Ballpoint (knit & lightly woven fabric)	Item # for Sharp Point tightly woven fabric)
<b>Thin Threads</b>	Classic Rayon	#60	#60/8 #65/9	102-60-B 102-65-B	102-60-S 102-65-S
	Polyneon	#60	#60/8 #65/9	102-60-B 102-65-B	102-60-S 102-65-S
	Polyneon	#75	#60/8	102-60-B	102-60-S
	FS Metallic	#50	#65/9 #75/11	102-65-B 102-75-B	102-65-S 102-75-S
<b>Standard Threads</b>	Classic Rayon	#40	#65/9 #75/11	102-65-B 102-75-B	102-65-S 102-75-S
	Polyneon	#40	#65/9 #75/11	102-65-B 102-75-B	102-65-S 102-75-S
	Polyneon Green	#40	#65/9 #75/11	102-65-B 102-75-B	102-65-S 102-75-S
	Frosted Matt	#40	#65/9 #75/11	102-65-B 102-75-B	102-65-S 102-75-S
	CR Metallic	#40	#65/9 #75/11	102-65-B 102-75-B	102-65-S 102-75-S
	FS Metallic	#40	#65/9 #75/11	102-65-B 102-75-B	102-65-S 102-75-S
<b>Thick Threads</b>	Classic Rayon	#30	#75/11 #80/12	102-75-B 102-80-B	102-75-S 102-80-S
	Classic Rayon	#12	#100/16	102-100-B	102-100-S
	FS Metallic	#30	#90/14	102-90-B	102-90-S
	FS Metallic	#20	#100/16	102-100-B	102-100-S
	FS Metallic	#15	#100/16	102-100-B	102-100-S
	Supertwist	#30	#90/14	102-90-B	102-90-S
	Burmilana BurmilanaCo	#12	#100/16	102-100-B	102-100-S
<b>Specialty Threads</b>	Fire Fighter	#40	#75/11 #80/12	102-75-B 102-80-B	102-75-S 102-80-S
	Luna	#40	#75/11 #80/12	102-75-B 102-80-B	102-75-S 102-80-S
	Reflect		#75/11	102-75-B	102-75-S

When more than one needle size is recommended, choose the smaller size for delicate designs and fabric. Otherwise use the larger needle size for optimal performance.



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## Understanding the Information on Needle Packages



## How long does a machine embroidery needle last?

The average life span of a machine embroidery needle is 8 hours of running time. At high speeds the needle eye wears out over time creating a thinner side wall around the eye. Once this happens the needle will eventually break. The idea is to change out the needle before this happens. Using worn out needles causes looping, missed stitches and thread breaks. Keep track of how old your needles are and change them before they break.

## The Needle Ease – Needle Changer – Item# 139-282

Inserting and aligning a machine embroidery needle is quick, easy and accurate every time with this tool!

Most commercial embroidery machines run best when the embroidery needle is inserted perfectly straight from front to back. Swapping out needles can be a challenge.

This revolutionary tool ensures proper needle alignment with commercial embroidery needles. The unique mechanism locks into the groove on the front of the needle allowing you to change needles easily and with precision every time!



Still have questions?

Call and speak to one of our experienced Customer Sales & Support representatives for further questions and assistance!

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