

## General Information

Domestic sewing machines today basically use the one needle system (705/130 or HAX1) but they are available in a variety of sizes and types. Selecting the right needle and thread for the fabric is one of the most fundamental steps to achieving a successful stitching result.

Machine Needles come in sizes ranging from 60 to 120, the lower the number, the finer the needle. Thread, however, is the opposite, the finer the thread, the higher the number.

When sewing, the thread lies in the needle groove, if the needle is too fine for the thread, the thread will not fit into the groove causing faulty stitching.

The needle must be in perfect condition, stitching problems occur from using a needle that is blunt, bent or if the tip has been damaged.

**WHEN IN DOUBT - CHANGE THE NEEDLE!**

Some common stitching problems that may be caused by the needle

PROBLEM	POSSIBLE CAUSE
* Machine noisy	Blunt needle
* Machine skips stitches	Damaged needle or wrong size or type
* Seams pucker when stitched	Damaged needle or wrong size or type
Machine jams	Damaged needle
* Upper thread breaks <i>why?</i>	Needle too small, damaged or wrong type
Tension is unbalanced	Needle size too small, Thread too thick

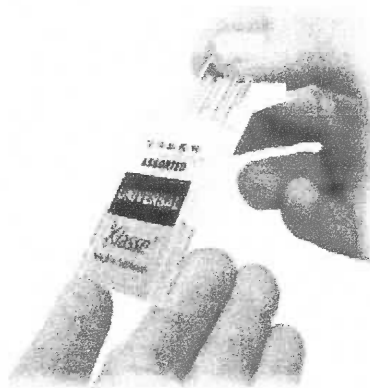
## MADE TO THE WORLD'S HIGHEST STANDARDS.

*Klasse'* needles are to the German GSN standards which are the highest in the world.

*Klasse'* needles are the premium brand from the factory which was the largest in Germany, (largest in Europe), and continue to use the latest integrated technology to make the World's highest quality machine needle.

*Klasse'* needles are being made to a higher degree of hardness and tempering, so as to protect the sewing machine.

Home sewing has changed dramatically in recent years. The latest sewing machines are capable of a much wider range of sewing, such as used in craft, home decorating, embroidery etc., with new fabrics, materials and threads to use. However the design of the needle has remained the same.



# Needle **breakage**

## QUALITY NEEDLES ARE DESIGNED TO BREAK

"It is true, that the higher the quality of the needle, the more likely it will break, and a low quality needle will almost never break but bend!"

**Why is this so?** A machine needle is a precision made tool, which is designed to perform within very fine tolerances and at temperatures that vary from room temperature to over 200 degrees Celsius. One of the performance criteria's for a quality needle is that it must break cleanly when deflected more than 15 degrees from the vertical.

The reason for this is that the needle is operating within very fine clearance of the sewing machine hook mechanism, and this expensive and critical part of the sewing machine must be protected from damage.

If the Hook (which catches the needle thread and carries it around the bobbin to form the lock stitch) is scratched or damaged by the needle, this could result in stitching and tension problems and ultimately an expensive repair bill.

If during the stitching process, the needle is deflected more than 15 degrees, or if it is bent and remains bent, it is likely that damage to important parts of the sewing machine will result.

So good quality sewing machine needles are designed to break when something is wrong, so as to protect the expensive mechanism of the machine. When a needle breaks regularly, look for the cause - don't blame the needle!



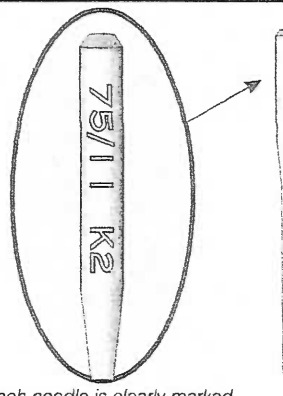
## Possible causes of needle breakage.

- Bent needle
- Needle too fine for fabric
- Stitching over pins or zipper
- Wrong needle system for machine model
- Upper tension too tight
- Changing needle position with needle in the needle hole
- Bobbin case incorrectly fitted
- Loose presser foot
- Needle not properly set or loose
- Material too thick
- Pulling fabric with needle still in fabric
- Pulling fabric towards the front
- Pulling fabric without raising the presser foot
- Bobbin incorrectly set

### **Needle Markings**

All Klasse' machine needles are stamped with the needle type and size. This information is invaluable, as once a needle is taken from the pack, it is virtually impossible for an untrained eye to identify one needle from another. The needles are stamped with metric and imperial sizes, followed by the relevant codes listed below.

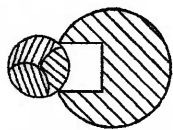
- |                 |               |                 |
|-----------------|---------------|-----------------|
| K0 - Universal  | K4 - Leather  | K8 - Embroidery |
| K1 - Ball Point | K5 - Sharp    | K9 - Metalic    |
| K2 - Stretch    | K6 - Quilting | K10 - Topstitch |
| K3 - Jeans      | K7 - Overlock |                 |



Each needle is clearly marked

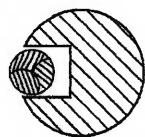
# Needle size and Thread diameter **Relation**

In general the sewing thread diameter should be about 40% of the needle size (Nm).  
The reason for this is the ratio of the needle size to the cross-section of the long groove.



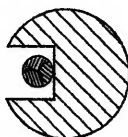
Thread too thick for  
needle groove

The long groove down the front of the needle plays a critical role in the formation of each stitch. The width of this groove is 40% of the needle diameter, i.e. in a size 100 needle ( which is 1.00mm thick ) the groove size is 0.40mm. The thread must fit nicely into this groove, and if the thread is too thick as shown in this first drawing, the thread can jam and all types of stitching problems will occur: such as thread stripping, thread breaking, missed stitches ,uneven tension etc.



Thread ideal size for  
needle groove

When the thread size fits neatly into the long groove, this creates the optimum conditions for the best stitch, the best tension and hassle free stitching.



Thread too fine for  
needle groove.

When the thread is much thinner than the groove, this creates a situation where an excessive amount of thread can form in the groove, which in turn may reduce the size of the loop and skipped stitches, uneven tensioning etc can result.

**FURTHER INFORMATION ON CHOOSING THE CORRECT NEEDLE & THREAD SIZES CAN BE FOUND IN OUR KLASSE BOOKLETS.**

