11 STEPS

FOR MAKING

A NEEDLE

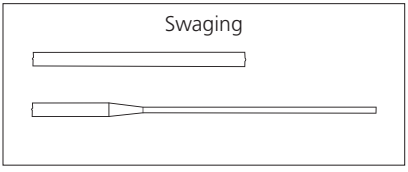
Needle making is a fascinating technology. There are thousands of types of needles and each needle goes through more than 100 steps before emerging as a finished needle. Needle making is a combination of precision engineering, chemical engineering and metallurgy. The following is a brief outline of the major steps in manufacturing a needle.

1. SELECTION OF WIRE

Correct composition of wire is the key to a high quality needle. High carbon steel wire is the main raw material. The wire is tested for its diameter, tensile properties and absence of surface defects. For this purpose, a number of chemical and metallurgical examinations are conducted before the supplied wire is taken into production.

2. SWAGING

The wire is cold forged to the final thickness of the needle blade.



3. SHANK MARKING

The shank is marked with the unique trademark of Beissel as well as the size of the needle.

Shank Marking

4. DIE PRESSING AND PUNCHING

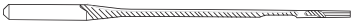
This is the most important operation and forms the core of needle technology. A master tool is made which is used to press the eye section of the needle. Every needle is accurately die-pressed to give the same depth of scarf, perfect eye rounding and other dimensions which are critical for stability in sewing.

Die Pressing

5. MILLING

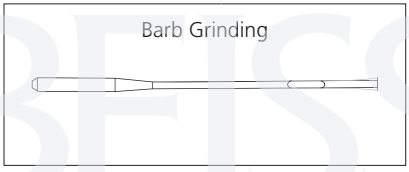
The long groove of the needle is milled in a special purpose machine. The thread travels through this groove.

Milling



6. BARB GRINDING AND SOFT POINTING

During the die press operation, a "barb" results which has to be removed by grinding. This is done in an automatic machine. This is followed by soft pointing of the needle to give the point its initial shape. Precise pointing - be it round, ball or cutting point - is done at a later stage after the needle has gone through hardening or the heat treatment process.



7. HARDENING

This process gives the needle its strength and elastic properties for superior performance. This happens in a special furnace protected by creating a special oxygen-free atmosphere to prevent oxidation of the surface and also to ensure that there is no loss of carbon from the steel. Needles coming out of the furnace are quenched in an oil bath and finally kept for a pre-determined period in a deep cooler at a temperature below minus 70 degrees centigrade. This operation transforms the remaining austenite and increases the toughness of the needle.

8. CHEMICAL DEBURRING

This is a very important operation that leaves the surface of the needle smooth all over. Once upon a time, thread polishing of the eye of the needle was done to give it smoothness. Lammertz invented the chemical deburring process that gives a silky smooth surface finish not just to the eye but also to the groove as well as other parts of the needle. All needle manufacturers now follow this chemical deburring technology.

9. STRAIGHTENING

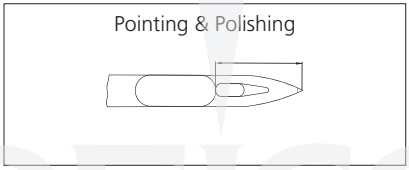
This stage involves straightening of the needle that might have become bent as a result of all the previous processes.
Straightening of the needle is done using state-of-the-art technology that detects bends, rectifies them and also checks for straightness before it comes out of the machine.

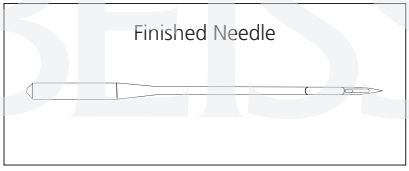
10. PLATING

Industrial sewing machine needles are chrome plated and household needles are nickel plated. This operation is carried out in a large, completely automated operation without human interference. The plating gives a glossy appearance to the needles and also protects the needles from corrosion, wear and tear, besides reducing friction during sewing. The needle has now reached its final destination!

II. FINAL POINTING AND POLISHING

After plating the needle is readied for precise pointing and polishing.





That, in brief, is the production process. We hope the above details give you an idea of the complexity and the intense effort required to make a high quality needle. We've skipped several intermediate operations because they are way too many to describe.