Photo credits: Fiedler SA

Lending a hand to time

In this series of articles entitled 'Behind the Scenes' of the watch industry, Europa Star*'s Sophie Furley takes to the road again, this time to learn about the art of fabricating watch hands.*

›Sophie Furley

At the height of business back in the 1960s, there used to be over 60 watch hand manufacturers in Switzerland, but now there are only half a dozen left serving the watch industry. Maybe it was this limited number, or the fact that the watch hand is such a delicate object, that somehow I thought that my visits to Fiedler SA in Geneva and Waeber HMS in Fleurier would bring me to traditional, artisanal operations…how wrong I was!

The fabrication of the watch hand has to be one of the most sophisticated and high tech manufacturing processes in the watch industry. It makes sense really, when producing thousands and thousands of watch hands per year with as many different references, a certain sense of organisation is obviously *de rigueur*. Plans, bar codes, manufacturing orders, production activity controls, quality controls, production flows make the creation of the watch hand a streamlined affair. But behind the organisation and the efficiency, at the heart of the machines, lies the same artisanal savoir-faire from the beginning of watch time, it's just that time (and good management) have thankfully granted a little speed to production. But first, let's take a look back in time.

Historical hands

The very first timepieces only had one hand for the hours and it wasn't until 1691 that the British watchmaker Daniel Quare introduced the central minute hand. The hands at this time had to be almost indestructible as there was no glass to protect the dial and setting involved physically pushing the hands to the correct time.

It wasn't until the middle of the 18th century that hands became slimmer and more elegant.

Fiedler SA

The watchmakers of the time fondly christened their creations with names such as Bâton, Dauphine, Feuille, Sword, Spade, Poire, Breguet, Moon or Skeleton hands. However, nowadays, there are so many different varieties that it would be impossible to name them all individually.

The first hands were made and decorated by hand, but around 1764 watchmakers developed a system of stamping out hands from a sheet of metal using a hammer, and in 1800 the first hand presses were developed to ease the process further.

Fiedler SA

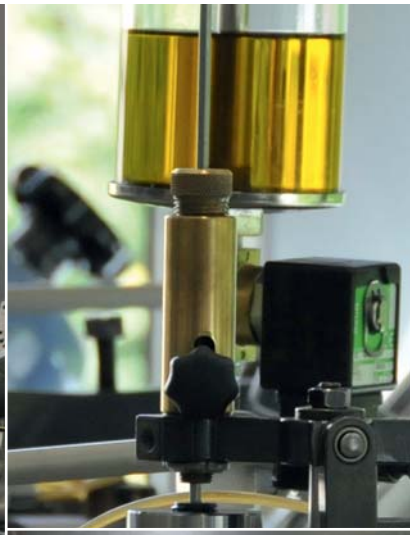
Hand machines

These systems of punching out the hands from a sheet of metal haven't changed much. The stamping presses at both Waeber and Fiedler use variants on this technology. All the machines have been created especially for each company's individual needs and is the reason why both have in-house mechanical departments to make adaptations and create the tools that are so specific to the metier. "You just can't buy a machine for making watch hands," explains Roger Waeber, CEO of Waeber HMS SA. "You have to create it yourself, often with the help of two or three different suppliers."

The art of hand craft

The process for making a watch hand starts with rolls of metal, usually in brass, bronze, gold or pfinodal (a copper-based alloy), that look similar to old fashioned film reels. Each roll is passed through a machine, like a projector if we follow the film analogy, where small holes are punched out to create a guide for all the following operations.

Metal rolls

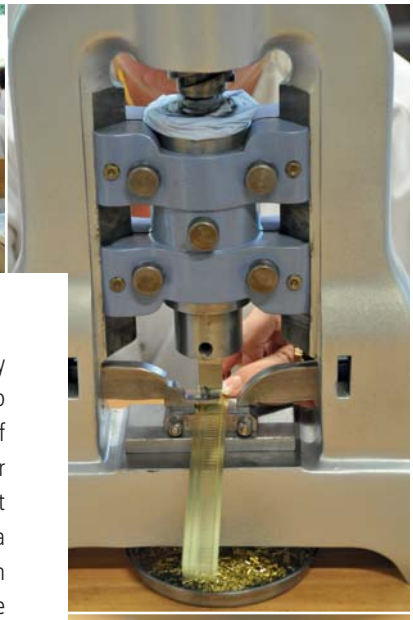


Preparing the canons

Cannoning

The rolls are then inserted into another press which will push the material around the 'guiding' hole outwards to create a lip. This lip, or canon as it is called in hand making terms, will eventually sit on the canon pinion that connects the hands to the movement. The raw surface is then diamond polished to ensure a perfect, uniform height and finish.
Not all watch canons can be made in this way. The second hand is often too fine to have its canon pushed out, and some hands need a longer canon that cannot be achieved in this way. The solution is to rivet a separate canon onto the hand afterwards and this is a delicate process which takes a lot of dexterity as the canons are minute. ›

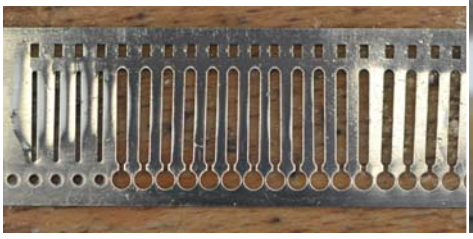
Blanking process

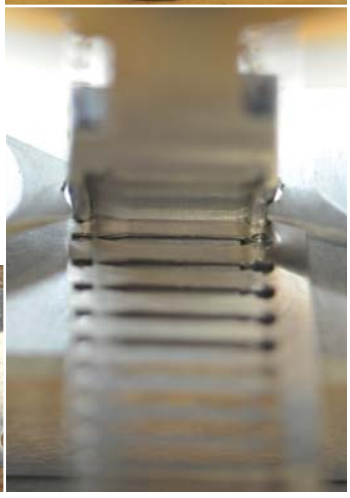


Blanking

The next stage is blanking, a process whereby the hand is cut out of the metal using a stamp specifically created for each and every type of hand (For information Fiedler has over 25,000 references and Waeber 13,500 in just ten years of existence – meaning there is a stamp that has been made in-house for each one). The hands are cut out one by one as the metal band is fed through the machine. Hands that are destined to be luminescent will be cut two times – first the outer form is cut and then an opening is cut inside the hand where the SuperLumiNova will be subsequently painted on.

Metal roll after cutting





Aligning hands before polishing

A perfect finish

Once the hand is cut out from the metal it is then diamond-cut using the latest technology. Next, it is glued to a support and polished. The finishing of the hands is where the work really begins as there are countless ways to decorate a hand. It can be facetted (two or three facets), curved, flat, highly polished, matt, coloured and more. Many of the processes are carried out by diamond cutting machines, but there are also ancient machines that can create finishes that can't be achieved as well with CNC machines.

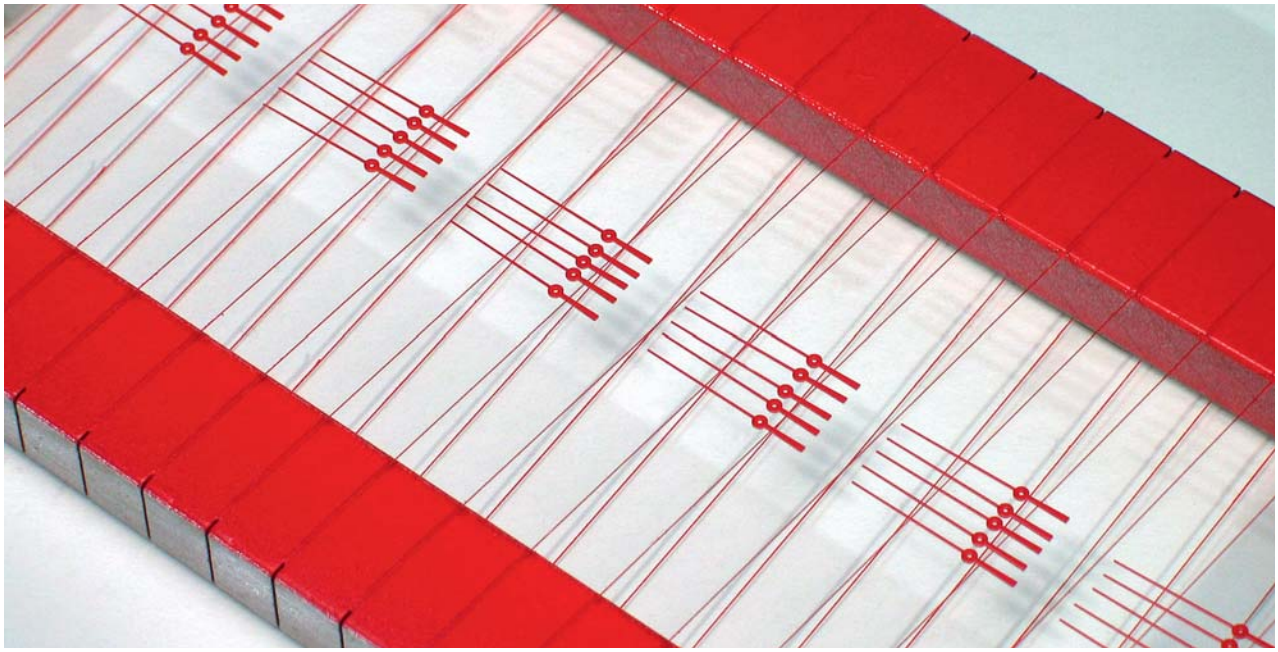
FIEDLER SA

The Fiedler hand manufacturer was founded in 1848 and has remained 100 per cent independent since the very beginning. The company specialises in producing high-end watch hands for Switzerland's most prestigious brands and employs over 135 people. Isabelle Chillier, Director, is the fourth generation of the Fiedler family to run the family business. She started her career as an economist and then went to work in Paris in the art world before joining her father at the helm of the company. "I suddenly realised what a great opportunity I had to work with my father and continue the family business," she shares, and she hasn't looked back since.

WAEBER HMS SA

Roger Waeber founded his company Waeber HMS SA ten years ago after a long career at Universo (now part of the Swatch Group). Together with his son and daughter, they run a high-tech company in a Minergie labelled, environmentally friendly building that is like something from the future. The company makes hands for numerous high-end, Swiss watch brands as well as mid-range brands too. In the very near future, the company will also be producing indexes in addition to hands. Roger Waeber is very positive about the road ahead. "I am looking forward to news from the Swiss Watch Federation regarding the new Swiss Made regulations," he shares. "Hopefully a number of brands will stop having their hands produced in Asia and return to Switzerland." Time will shortly tell.

Duco painting



A handful of colour

Hands in brass and bronze can be coloured using galvanizing processes that plate the hands with pink or yellow gold. Other galvanizing treatments include rhodium, ruthenium and a black oxidation that is currently very popular. Reds, oranges and yellows, popular on sports watches and chronographs, are mainly varnishes that are applied by hand. It is also possible to varnish part of a hand, like the arrow of a second hand, for example.

Transfer pressing

Transfer pressing is most common on dials to print the numerals and company logos, but it is also possible to use the same technique to add a fine line or detail to a watch hand.

The famous blue hands

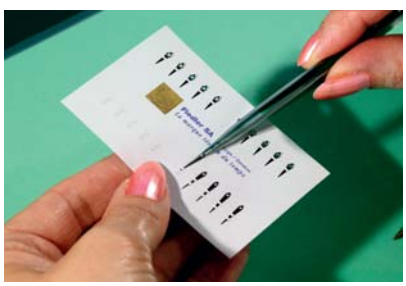
The blue hands that are favoured on high-end timepieces are fabricated by heating steel hands to high temperatures for a determined period of time to create the beautiful blue effect. In fact, steel goes through a whole range of colours as it is heated - from yellow, orange, pink, purple through to blue and turquoise – although these other colours aren't often seen in a watch.

Seeing SuperLumiNova

SuperLumiNova is very popular on hands and it is delicately painted on the backside of the hand so as to leave a perfect view from the front of the hand. SuperLuminova can come in a variety of shades including white, green, light green, yellow, orange, blue and red.

Quality control and card preparation

One of the problems, or inconveniences should we say, with watch hand production is that each watch hand cannot be transported around the factory on its own. Batches of hands are carried together in a container with hundreds of other hands, so they rub against each other, scratching, scraping and causing irreparable damage. The quality control centre is therefore one of the most important processes in the delivery of the perfect hand to the client.



Fiedler's quality control centre is a hive of activity with rows of patient young women sorting and eliminating about 40 per cent of production. The remaining hands are then individually placed in cards to be sent to the client. A process that takes a steady and patient hand, especially when you consider that it is repeated millions of times per year.

Trends

Different trends affect many of the watch industry's crafts, including hands. "Watch hands have definitely become bigger and longer, following the trend for bigger watches," explains Isabelle Chillier, Director of Fiedler SA. "Technical, sporty looking hands are also popular and we are seeing a return to classic styles," she continues. Roger Waeber has also noticed this return to the classic style, "Retro hand shapes are popular as the vintage style of the 1950s is making a comeback," he shares.

Paying attention

We tend to take watch hands for granted, but they are such an integral part of a timepiece that they are worth a second glance, a special mention, a little extra attention. Because without them, there would be absolutely no way of knowing what time it is! ❮