The Use of Precious Metals in the Watch Industry

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Ladies and gentlemen, good morning. Many years ago, my father told me, ‘This is a watch you are going to have one day.’ It was a gold watch: in my father’s generation, for a watch to have any value, it had to be gold. Today, that still holds true; however, I would say that design, brand name and complexity of movement are also very important. Recent developments in the use of precious metals are good news, for us producers of components in precious metal.

The topic I will be covering today encompasses the demand for precious metals in the watch industry; I will look at some of the statistics and characteristics of this demand. When you make a case, bracelet or tube for the watch industry, you do not use fine gold; you use alloys. My speech will cover alloying in gold and the platinum group metals (PGMs). I will also discuss how the recent increase in precious metal prices has put tremendous pressure on the industry to increase processing speed. Last but not least, we will look at the future.

Here is an interesting statement I found in the Sunday Times last month: ‘The primary function of any watch is not to tell the time. It is to tell other people, right down to the nearest penny, exactly how rich or powerful you are. If your watch says something about you, a bigger watch will say it louder.’

Yes: the bigger, the better. If you attended the Basel World Fair during the last three years, you might have noticed that both men’s and women’s watches are getting bigger and bigger. Brands today are concentrating their selling and marketing activity for women on new products that are practically the same size as men’s. This is good news.

For the industry, 2005 was a record year, but from the volume side, per unit, precious metal usage remains small compared to steel. However, the value side is a different picture. Growth in volume in precious metal usage over recent years has been quite slow, around 2%, whereas value has risen by about 15%. Why has there been such an increase in value in the watch industry?

Higher precious metal prices have had an influence; however, I must emphasise the fact that brands today are reluctant to directly index the price of a watch to precious metal prices, because what would happen if, one day, those prices were to plummet? Manufacturers would not then lower their prices; that is not clearly in line with their image. So the increase in prices has had an influence, but a relatively small one.

You will see more precious stones on watches and higher value per movement – more complicated functions and limited edition series. Last but not least, what is important is a substantial increase in precious metal weight per watch (by over one-third). Today my father’s watch would be the size of a case that is being sent to the big brands, which shows to what extent there has been a consistent increase in size.
Which precious metals are most commonly sold to the watch industry? Gold, mainly 18-carat and above, and bimetal.

Bimetal mainly refers to gold and steel; however, you probably will have seen on the market a new industry development called ‘fusion’. This does not refer to fusion cooking, but fusion watch making – combining gold, ceramics and all sorts of new metals. Bimetal, by the way, represents the highest area of growth – still not very strong growth, but the highest rate of growth in this area.

Regarding gold alloys, there are different percentages of gold, ranging from 38% for 9-carat on the low side up to 100%, which is no longer an alloy, but pure. In the past, most gold watches manufactured in Switzerland were 14-carat. Today the majority of Swiss watch exports are 18-carat, and I would say that there is a worldwide development towards 18-carat. Platinum and palladium alloys are mainly 95%. These are bimetal alloys.

Why do we make alloys? There are various reasons. When you mix iridium and ruthenium, it acts as a doping element for casting. It makes grain finer. Ruthenium affects hardening in platinum alloys. Manganese, nickel and copper also have a hardening affect. Copper allows age hardening. Zinc decreases the melting range use for braising alloys and reduces oxidation at high temperature. Indium and gallium are used as age hardening agents in white gold.

This all sounds very scientific, and it is. However, I sometimes have endless discussions with my colleagues, the metallurgists. Using exactly the same recipe for alloying, cast in exactly the same way, will bring different results on different days. They will say; ‘But Martin, today there is a full moon’ or ‘it has been raining.’ I can say that throughout the years, I have learnt that casting alloy depends very much on the skill, the knowledge and the professionalism of the caster. This is extremely important.

You can also alloy for colour. When nickel and palladium are added to gold, the result is white gold. Copper is added to gold to create more reddish effects – the more you add, the deeper the effect. Greenish shades are created by adding silver to gold. Last year, in the Basel World Fair, red gold was in. This year, it was white instead – it changes from year to year. Many customers come to us to talk about new colours. They want blue gold, black gold, brown gold – obviously, for Swiss watches, chocolate gold is important. There is also purple gold.

I would like to underscore the fact that in the great majority of cases, these colours are created by surface treatment. With surface treatment, as you know, you have a wear effect over time. However, I would also like to underline the fact that this industry needs to spend far more time and money on R&D to ensure that we can satisfy the customers, who are increasingly looking for innovation.

We talked about the effect of the price of precious metal on processing speed. Here are photographs depicting some of these processes.
On the left hand side, you have the recipe for an alloy that goes in an oven. Clearly, you end up with an ingot. You take a sample of this ingot to make sure that the content is, for instance, 75% gold. It will be assayed. After that, it will go through heat treatment and then cooled again. If you want to make a watch case, you will take the ingot and systematically flatten it down. Again, after each stage, it will have to be heat treated and cooled. You will bring it down to the thickness that you require.

If you want to make tubes or profiles, the ingots are a slightly different shape, and you will be pulling to make sure that you end up with a longer shape – tubes, profiles, wires. Once again, between the different stages, you will need to heat treat and cool. It is a long process.

Five years ago, delivering components to the watch industry with a three-month delay was – perhaps I am exaggerating slightly – common practice. Today that would be unheard of. All of the processes I have showed you have had to be reduced by at least 50% in duration in order to stay in business, due to the price of precious metals.

Once you have created a sheet, you have to cut it to the shape you require for the case and then stamp it. Between each stamp, you have to heat treat it, anneal, and cool it again. If you want to stamp it, you need a tool-maker. As I mentioned, this is quite a long process: repeatedly cutting, annealing, cooling and stamping. Most importantly, the sheet needs to go back to the furnace as fast as possible.

On one side, you have the supply of semi-finished precious metal components that are sent to the companies that supply the finish and end up working on the components. Once again, this is a process that takes time. Then you end up delivering the product to the watch assembly. The watch assembly – the brand in the majority of cases – will send you the precious metal, or at least part of the precious metal. With today’s prices, they want this precious metal back quickly, so you have to accelerate your processes.
The other process that is so important for us is the scrap from the semi-finished manufacturer and from the finished component manufacturer, which has to go through refining. As always, speed here is essential.

Looking towards the future, I would say that the emerging markets for precious metals, where precious metals are intrinsically valued and sought after, will definitely have a positive effect.

We do not know what will happen in the future, but recently we have seen that the rising gross prices are having a positive effect for luxury watches. The brands will tell you sometimes that the more expensive a watch is, the more it sells. Last but not least, the variety of exclusive designs and the increase in tailor-made alloys, resulting in a reduction of manufacturing lot sizes, will continue to place immense pressure on the industry supply chain.