Photographer: Aidan Yeoh

INSIDE BREVA: MAKING THE GENIE 01

A CONVERSATION WITH VINCENT DUPONTREUÉ & JEAN-FRANÇOIS MOJON AND A TRUE PIONEER IN A NEW BREED OF SCIENTIFIC COMPLICATIONS.

By Jonathan Ho Complications by and large are the lifeblood of the Swiss watchmaking industry – they're means of establishing your primacy and supremacy in a field where ebauches (though increasingly restricted) and modules are readily available and any brand can simply slap on the name of some long dead but eminent watchmaker and call themselves a manufacture (much like how bespoke tailors find themselves in a similar battle with the made-to-measure variety). Scientific instrument complications are the rarest (due to niche nature rather than complexity) of an already rarefied genre including striking, chronograph, everyday (GMT/World timers), astronomical and grande complications.

In terms of scientific complications, Jaeger-LeCoultre unveiled on over five years ago at SIHH 2009, a pink gold 46 mm timepiece dubbed Master Compressor Diving Pro Geographic Navy SEALS with a mechanical depth gauge hidden within the compression chamber on the left of the watch case. Never mind that if you were a real diver or SEAL for that matter, you'd probably have a dedicated depth gauge strapped on your other arm already. Then suddenly 2013 had a "slew" (relatively speaking) of three – the apt Bell & Ross BR 01 Altimeter; garish Hyetis Crossbow Swiss Mechanical Smartwatch with altimeter, thermometer and 41 megapixel camera for your creepy, stalker needs, and then we have the positively sublime and classically elegant Breva Genie 01.

Using a combination of aneroid barometer and altimeter, because mercury and water-based barometers tend to be used in a fixed location usually at zero-sea level (or at least still on Terra firma), the Genie 01, being a wristwatch, has to account for the proclivity of its potentially high flying, First Class sitting, owner.

HOW THE BREVA GENIE 01 WAS CONSTRUCTED

Using a custom made aneroid capsule engineered with Michel Dourde and patented by Breva, the barometric instrument had to be sufficiently 'micro-nised' in order not to make the timepiece nigh unwearable. With the capsule possessing a max deformation of 0.2mm, the mechanism also had to be amplified 200 times so as to make the display legible. More importantly, worn on the wrist and exposed to shock, accuracy of the device had to be preserved by protection from G-forces. Enter Jean-François Mojon, a man industry-insiders call a mechanical wizard.

Consider this, your typical timepiece finds a great enemy in three things: shocks, gravity and water. How does one take measurements of atmospheric conditions rife with moisture whilst at the same time, keeping your watch telling components moisture-free?

The pusher at 4 o'clock allows air in on-demand. Giving the capsule the chance to equalise with external air pressure, and while the ambient air carries in water particulates and dust which would compromise a mechanical movement, a medical grade Teflon membrane while allowing air free passage, keeps moisture out; working in concert with the gasket, air valve and air pusher lock mechanism.

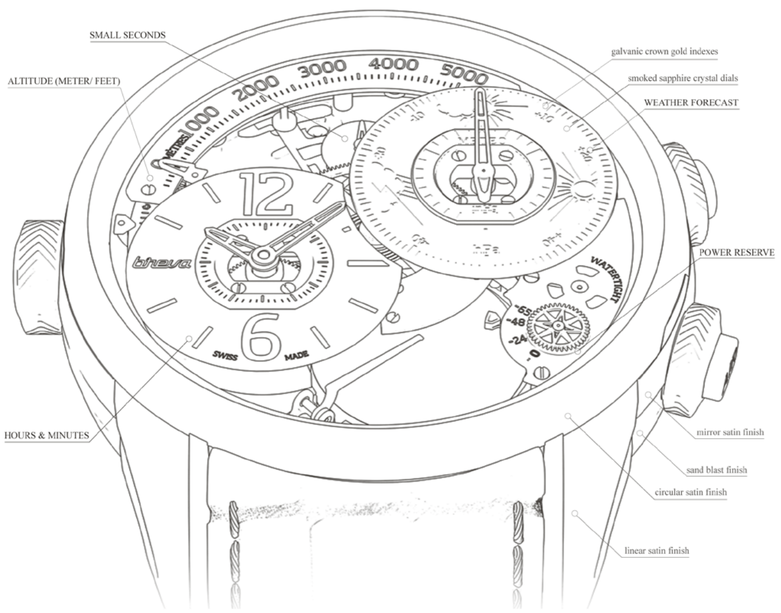
AND THE WEATHER FORECAST IS...

By taking air pressure measurements over tranches of time, the watch is able to calibrate its barometer to 0 HPA and take a reading of current air pressure. After 3 hours, the pressure changes can be observed, lower HPA tends to indicate potential rain or cloudy weather while a gain of HPA, tends to indicate clear or sunny skies. The complication therein was that pressure tends to be higher closer to zero sea-level and if you were Tenzing Norgay, climbing Everest, pressure would be lighter leading to erroneous weather predictions. The 01 solves this by including a pusher ring at 2 o'clock that can be rotated to compensate for altitude intake according to a scale engraved on the case back to determine the HPA compensation. Pushing the 2 o'clock pusher instead, corrects the altimeter +/ – 300m.

Recently making its Asian debut, I spoke to Vincent Dupontreué and Jean-François Mojon about their experience working together on the Genie 01's integrated movement architecture and innovative water-permeable yet water-resistant case design.

Was choosing to work with Jean-François a no brainer for you?

Vincent Dupontreué: It was very different. I did the initial research for the concept on my own. As I was not an engineer, I just wanted to make sure that we could build a team that would succeed in building it. So I introduced Jean-François to an engineer in weather forecasting and barometric pressure and then together, we continued further research and development into what I wanted to develop and then Jean-François had my full confidence to develop the time keeping component of the Genie 01. Putting both technologies together was only possible through Jean-François. Wanting to work with him was one part of the battle, him saying yes is another. He's not a watchmaker. He's a visionary as you can see with some of his other collaborations. Few watchmakers would dare to work on a concept like this; and we wanted to do something never-before-seen, not simply create another watch differently. Breva is not just about watchmaking but also about monitoring the environment so Jean-François was the only partner I felt could understand what I was trying to create and succeed.



Considering that you have made so many different watches during your career, what was your most challenging?

Jean-François Mojon: In terms of technical aspects, it was the De Grisigono Mechanical. Other challenging projects were mostly because of the short times required to get them developed and produced – the Opus 10 was especially short. Breva is also incredibly challenging especially since the core of it comes from another field.

You admitted once that the Urwerk surprised you. Was it the same feeling when Vincent came to you with the Genie 01?

Jean-François Mojon: The first time we saw the brief, we weren't really sure what was going on but that didn't deter us. We studied it further and decided to say yes to the challenge.

It's widely known that Breva was a result of you looking for the perfect watch and that you were inspired by Lake Breva, what drove you to create a watch that could measure atmospherics?

Vincent Dupontreué: It was because it made sense. I wanted to buy a watch for myself and I did find myself a shortlist of watches on the market but nothing gave me 100% satisfaction? So I decided to do one and decided that it had to be better, different and not a "me too". During the brainstorm stage, I realised that when you wake up in the morning, the first thing you usually want to do is know what your day was going to be like and apart from your appointments and meetings for the day, how would you dress for the weather and after a long time, I decided that this would be good for a first watch but one watch would not make the brand. The plan then, is to have a watch related to La Breva or the "winds of La Breva" and each time, it would be a new grand complication never seen on the market.

For you as a mechanical watchmaker, did you feel the brief was just crazy?

Jean-François and Vincent start laughing in unison.

Jean-François Mojon: The first time I was taken by surprise. Crazy? I wouldn't say that in a negative way. It had a mechanical base movement and then I had to study how it was possible to put all the components and display in the case.

Vincent Dupontreué: The first challenge was that it had to be water-proofed because if it wasn't, people wouldn't buy it. But yet at the same time, it couldn't be water-proof because how else would the 01 take an atmospheric reading? So in that respect, we have succeeded in having the two components together and yet independent. It's not about the movement this time but the case. It allows humidty and moisture in without comprising the time telling components. Second, the size of the watch had to classical and easy to wear rather than huge so we had to keep the shape small – small enough to be worn by men and women and then we had to have the small barometric capsule and I didn't want to build layers on layers. Third, we had to build something that could handle forces and shock and not have the hand on the capsule moving; finally multiply the indicator on the capsule by 200 so we could produce a readable indication on the dial.

A traditional barometer is mounted on a wall or a desk and so we needed an altimeter to regulate the barometer since this watch would be travelling in any manner to any location instead of being fixed in one place.

So your first job would have been to secure the time telling element to make that waterproof?

Jean-François Mojon: The first would be to work on those cells (the weather reading components) to find them in the right shape in order to build the rest of the movement around it.

Vincent Dupontreué: Suppliers have never worked with the watchmaking industry so they're not used to producing that level of quality. It was quite hard to ensure we had the quality and sensitivity required.

Jean-François Mojon: We have to get the raw materials together and then finish everything so it looks seamless. The standard in the watch industry is really high.

When it comes to a timepiece that can forecast weather, it's easy to be philosophical about it but Breva is still a business, where do you see your second timepiece coming out? Is it going to be atmosphere related again?

Vincent Dupontreué: It's going to be out in a month. It's kind of related to the atmosphere but the third one would be totally unrelated.

And the new watches will see a continuation of the relationship with Mr. Mojon?

Vincent Dupontreué: Yes, it's a very good partnership and not just one of client and supplier. We benefit from the relationship mutually. During my hard times, Mr. Jean-François supported me; we keep an easy relationship.

Jean-François Mojon: (he interjects) We share the risks, the results and the trouble.

Jean-François Mojon & Vincent Dupontreué

Vincent Dupontreué on Jean-François Mojon:

He's not a watchmaker. He's a visionary as you can see with some of his other collaborations. Few watchmakers would dare to work on a concept like this.

Vincent Dupontreué: We've been working together for 4 years. There has been tension at times but that happens when you want open and honest opinions from each other. Thankfully, we share similar goals and objectives and though we're not in each other's minds, we are on the same wavelength.

Speaking of risk, even with the beauty of the depth and complexity of the timepiece, there must have been some fear when it comes to the viability of the watch when accurate weather is a smartphone away?

Vincent Dupontreué: I knew it was a technical possibility, it wasn't something impossible to create. If Jean-François had said no, it would have been more difficult but not impossible. Jean-François is having a hard time with the 03 though and I'm sure he will overcome it.

Jean-François, you could have said "no", beyond the challenge, was there another reason you said "yes"?

Jean-François Mojon: The relationship was important due to the long term working relationship. We had to understand each. The technical aspect was interesting for us because I was involved in avionics previously and my team was really encouraging as well.

Vincent Dupontreué: It's the same for the team at Breva. We have a good relationship and both teams are deeply involved with each other and you know how difficult it is for people to work late and in close proximity, we never had any issues among both teams. The end result is a reliable product built to high quality standards with the heart of the craftsmen behind it.

Jean-François Mojon: The product has to be nice, it has to be innovative but at the end, it's the people that make the difference. I have watchmakers who are very excited to build this kind of never-before-seen watch and each of them don't want to give up assembly to another , they wish to handle it from start to finish. From the serial number, we can even tell which watchmaker has worked on it. This is testament to Breva and we have three watchmakers focused on Breva.

Jean-François, do you feel there's a potential that others would follow in Breva's footsteps and create a watch that can measure atmospherics?

Jean-François Mojon: It's my opinion that they won't. But it's also a great strength for Breva to be the pioneer in this new genre.

How many do you expect to sell?

Vincent Dupontreué: There are 55 each in rose gold and white gold. The Genie line would be a limited edition and the next line would be launched in 2015 and this would not be a limited line but certainly more affordable and not a grand complication.