THE ULTIMATE INNOVATIOVE TOURBILLON

JEAN DUNAND CAROUSEL TOURBILLON

The entire tourbillon escapement of this ethereal timepiece orbits around the central watch hands once every hour.

THE HEAVENLY BODY - JEAN DUNAND TOURBILLON ORBITAL

CHRISTOPHE CLARET AND PARTNER THIERRY OULEVAY CREATE AN INCREDIBLE TOURBILLON THAT IS BOTH A FLYING TOURBILLON AS WELL AS A CAROUSEL TOURBILLON.

The profile view shows how the tourbillon is fixed between two mobile plates that rest on ball bearing races — not the additional gold pillars (GP) which have been added to create balance around the perimeter of the movement for better rotation.

BUSTING OUT OF THE DARK nebula of horological ennui like a high complication supernova is a watch that almost defies description. While the rest of the world has been focused on creating tourbillons that turn on multiple axes or even in faster revolving carriages, Jean Dunand has created one of the most totally original concepts in tourbillon movement design since Breguet patented his 'whirlwind' in 1801.

This should come as no surprise as the technical mastermind behind Jean Dunand is none other than the undisputed master of the tourbillon: Christophe Claret. The difference here is that rather than being a gun-for-hire at Jean Dunand, Claret actually co-founded the brand with friend and business partner Thierry Oulevay; one of the men involved in the rebirth of Bovet. Together they decided to name their new marque after one of the Art Deco movement's favorite sons.

So what makes the Tourbillon Orbital so ingenious? The movement comprises of a flying tourbillon escapement and a main spring barrel set opposite each other and fixed between two plates. These two plates then rotate on their own central axis completing one revolution every hour. In technical terms this means that the Tourbillon Orbital is both a traditional tourbillon with a balance and escapement that rotates on its own axis, as well as a carousel tourbillon where the entire mechanism rotates around an external axis! The result is a tourbillon that appears to transmigrate around the circumference of the dial, orbiting around the central watch hands once every hour.

If, through just this description you became enchanted… you are not alone. Thierry Oulevay was also mesmerized by the concept of the orbital tourbillon. He admits: "I am not a technician. I am not a watchmaker and that can be an asset. When many people heard about what Christophe wanted to do with the Orbital Tourbillon, they said: "It's crazy; it's never going to work." For me I looked at this project purely from the perspective of someone who loves métiers des arts or 'artisanship'. I love enameling and engraving and the Art Deco aesthetic. When I thought about how fascinating it would be to read time in this unconventional manner and how this caliber would merge with the aesthetic direction we wanted, I told Christophe, this is exactly what we need."

This winding mechanism couples to the barrel using a central wheel and a ball bearing. It is also used to set the time.

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Notice how the upper plate has been skeletonized (SK) on the side opposite the tourbillon aperture to create perfect weight distribution for this plate.

A moon-phase indicator provides an unexpected dose of visual charm.

However, realizing their dream provided a different set of challenges for Oulevay and Claret. Claret explains that the primary difficulty with this watch was related to finding a way to wind it when its barrel never stays in one fixed position. "Many people didn't think it was possible because they couldn't think of how to wind the watch," says Claret. "With a normal crown and stem this was impossible. We solved this by using a winding key in the back of the watch." This winding key couples with the barrel using a central wheel and a ball bearing and works regardless of where the barrel is during the rotation of the two plates carrying the tourbillon. In addition the winding key is also used to set the watch.

When asked why he would create such a challenge for himself, Claret humbly laughs: "Today many people are doing multiple axes tourbillons so I thought this was a more original way to go." One positive effect Claret discovered of his orbital system: "Timing tests show that the combination of the rotation of the tourbillon and the rotation of the movement significantly improves the rate of stability (accuracy) for the watch, returning the tourbillon to its original role as a precision device."

So how exactly does the Tourbillon Orbital work? The movement consists of two fixed plates that carry the flying tourbillon escapement. The top plate includes the revolving dial decorated with Art Deco engraving. These plates also carry the watch barrel which contains the mainspring. The barrel unwinds against a central pinion. This action causes the rotation of the two plates and tourbillon around the dial. The tourbillon escapement serves to regulate the speed at which this rotation occurs.

The upper plate is skeletonized with Art Deco decoration to literally create balance between both sides of the top plate. Claret points out: "The side of the upper plate with the aperture in it for the tourbillon was lighter than the other side. So we skeletonized the other side to reduce mass by the exact amount equal to the material we removed to create the aperture. This gives balance in the plate."

Similarly, looking at the architecture of the movement you'll see that the upper plate and lower plate are joined using small pillars. In fact, two additional gold pillars were added to improve weight distribution all around the perimeter of the movement, which translates into easier rotation.

In addition to its unique orbital tourbillon, this ethereal timepiece also boasts a power reserve indicator that uses a vertical needle like the fuel gauge in a car. A moon-phase indicator has been added beside the winding key on the watch back: a bit of capricious charm. Finally the tourbillon escapement is mounted using a black ceramic jewel. Thierry Oulevay explains: "The original idea was to have precious stones. By cutting a ruby or emerald that thin you lose all the color. So, instead, we decided to use ceramic." ★