

TOURBILLON SOUVERAIN

A New Tourbillon Souverain to Celebrate the 20th Anniversary of the Tourbillon Souverain



The innovative and revolutionary horological creator François-Paul Journe has inspired a generation of contemporary watchmakers with the originality of his creations, his quest for precision, his timeless and immediately recognisable style, and his respect for horological ethics and traditions.

Fascinated by the tourbillon since his youth, François-Paul Journe began to make his first watch when he was 20 - entirely by hand. It was a tourbillon pocket watch. In 1991, he created his first tourbillon wristwatch, selling the very small number of examples to a handful of knowledgeable collectors. In 1999, he launched the first Tourbillon Souverain with remontoir d'égalité in wristwatch form. It was sold by subscription and was much sought-after by collectors and F.P.Journe aficionados, who rival with each other to get on the short list of 20 examples.

The year 2003 saw the birth of the new generation of Tourbillon Souverain, to which François-Paul Journe added natural deadbeat second. Then, to make the watches even more desirable, he produced his haute horlogerie movements in 18k rose Gold, a first in the world of modern mechanical watchmaking.

To celebrate the 20th anniversary of this emblematic wristwatch, F.P.Journe has developed a tourbillon whose cage is vertical, rather than the traditional horizontal cage. "I designed this vertical tourbillon so that the tourbillon's functions remain constant whether the watch lies flat or is placed on its band, and the amplitude is the same, whether using a deployant clasp or an ardillon buckle".

This vertical tourbillon with remontoir d'égalité and deadbeat second makes one revolution every 30 seconds. This is faster than the usual time of one minute, making the technical prowess even more visually astonishing.

Surrounding the cage, a cone-shaped mirror-polished ring concentrates light, reflecting the tourbillon cage. A second reflector was created on the movement side to provide light around the tourbillon cage.

The 4N gold bridges that form the dial are decorated with "Clous de Paris" guilloché, with for the first time an enamel hour dial at 3 o'clock.

The Tourbillon Vertical also features a 80-hour power reserve at 12 o'clock and small seconds at 6 o'clock; the remontoir d'égalité is placed at 7 o'clock. The 42 mm case is available in platinum or in 18k 6N gold.

The constant-force device

“From ancient times, humankind has constantly attempted to measure time by dividing it into equal fractions and inventing the notion of isochronism! Only with the arrival of the first mechanical clocks did specialists begin to seek a means of equalising the force reaching the escapement. The balance-spring did not yet exist and the so-called “foliot” balance had an irregular beat due to irregular transmission of force because of the imperfections of the gearing. At the time, clocks were equipped with just one hand, which completed a revolution once every 12 hours, since their degree of imprecision did not permit the measurement of minutes. After the invention of the mainspring, which would enable the construction of table-clocks, 15th century watchmaker Jost Bürgi had the idea of adding an extra gear representing an independent system wound in short spurts by the mainspring.

The escapement thus ensured a more constant flow and allowed several months of autonomy: this was the first remontoire or constant-force device!

Later, 17th century Dutch watchmaker Christiaan Huygens invented the balance-spring and the pendulum. These innovations would give both clocks and watches an unprecedented degree of precision timekeeping: the minute hand became widespread and the constant-force device fell into oblivion for around a century. With the arrival of the 18th century, known as the Age of Enlightenment, the high requirements relating to astronomical observations and calculations of longitude for maritime navigation called for ever higher levels of precision. As new technical solutions were found, the seconds hand became a common feature on watches of the period. In England, Thomas Mudge invented a constant-force device for the H.3 marine chronometer, while famous French watchmaker Robert Robin – Watchmaker to the King – also invented one for his precision regulators. Paradoxically, it was in the 19th century that the constant-force device became widely used in the construction of clocks intended for buildings – not to remedy any flaws in the springs (since all these clocks ran by driving-weights), but to isolate the time mechanism from the outside hands. This was because the latter were exposed to strong winds and might disturb the mechanism.

Nonetheless, making a constant-force device was a complex and tedious task, causing it to be almost entirely abandoned in the 20th century, apart from a few rare exceptions: English watchmaker Georges Daniels used it in a tourbillon pocket-watch; his contemporary Anthony Randall built it into a table-clock based on the principle of John Harrison’s H.4; and I myself have incorporated it into three tourbillon pocket-watches, a so-called “sympathique” clock and more recently for the very first time in wristwatch form with the first model in the F.P.Journe – Invenit et Fecit – collection, the Tourbillon Souverain.

What is fascinating in the principle of the constant-force device is that each watchmaker who has set out to build one has his own personal interpretation: only the basic idea remains the same.”

The dead-beat second - the art of making time stand still...

Towards the late 17th century, as clocks were becoming increasingly precise, watchmakers added a hand that enabled them to measure seconds. These “clocks”, which became “pendulum clocks” thanks to the invention of the pendulum balance by the Dutch watchmaker Huygens, were almost naturally equipped with a 1 meter-long balance with a period of 1 second. The dial was marked out into 60 subdivisions so that the hand could jump from one second to the next.

When the first watches indicating seconds were made, some 18th century watchmakers wanted to achieve the same visual effect as on clocks. To do so, they invented systems extending the period of the balances, the best-known being the “crown-wheel escapement with pendulum” or the huge balance by Mr. Pouzait. Nonetheless, these systems were rapidly abandoned, since they were detrimental to precision.

Thus, without an additional system, the hand started to beat out the half-second, the most widespread frequency of the time.

The extreme ease with which time could be read thanks to a seconds-beating hand, which remained motionless and only moved when the second changed, gave 19th century watchmakers some new ideas.

Three systems known as “deadbeat seconds” came into use:

- **The first** consisted of a small additional gear train activated by a spring connected to the mainspring. Each second, the hand was released by the watch escapement. This so-called “independent deadbeat

seconds" offered the advantage of not affecting the precision of the watch and could be disconnected at will by the user.

- **The second** comprised an additional gear-train running from the escape-wheel to an additional seconds wheel equipped with 60 teeth held by a spring. This extremely simple system was extremely prejudicial to precision.

- **In the third**, a so-called "single-beat escapement" waited for the balance to complete two oscillations in order for the escape-wheel to move forward every second. These escapements were extremely popular in watches produced in China, since according to Chinese philosophy, this corresponded to making time stand still. Time was no longer in control, since it was mastered by the wearer...

Today, the TOURBILLON SOUVERAIN is equipped with a "natural deadbeat seconds" device. The latter is mounted on one of the wheels of the constant-force device and cannot in any way affect the precision of the watch.

François-Paul Journe

TOURBILLON SOUVERAIN_ Technical specifications

Movement	Calibre F.P.Journe 1519 in 18K rose Gold, Geneva made Manual winding / 20 turns of crown	
Dimensions of the Movement	Overall diameter:	34.60 mm
	Cased-up diameter:	34.20 mm
	Overall height:	10.00 mm
	Height of winding stem:	3.66 mm
	Diameter of stem thread:	S1.20 mm
Balance	4 inertia weights	
	Flat Anachron balance spring with Philips overcoil	
	Pinned stud	
	Free-sprung	
	Spring pinned to collet	
	Frequency:	21'600 VPH, 3 Hz
	Inertia:	11.00 mg*cm ²
	Angle of lift:	52°
	Amplitude:	0 h dial up: > 260°
		24 h vertical: > 260°
Main characteristics	Vertical Tourbillon with constant force and dead second	
	2 position winding crown	
	Manual winding in position 1	
	Time adjustment by crown in position 2	
Escapement	15 tooth escape wheel	
	90° anchor fork	
Indications	Hours and minutes at 3h	
	Small second at 6h	
	Power reserve at 12h	
	Vertical Tourbillon at 9h	
Power reserve	80 ± 2 hours	
Decoration	High quality	
	Guilloche Clous de Paris on bridges	
	Circular Geneva Waves on base plate	
	Screw heads polished and bevelled	
	Pegs with polished rounded ends	
Case	Platinum or 18K 6N Gold	
	Diameter:	42.00 mm.
	Height:	13.60 mm.
Dial	Movement in 18K 4N Gold, with hour dial in enamel on white Gold	
Number of components	Movement:	230
	Cased on leather strap:	260
	Jewels:	32