



New Duomètre Sphérotourbillon

Dual-Wing, the mechanical movement that is revolutionising the watch industry

“An evolution? No, a revolution.”

Jérôme Lambert, CEO Jaeger-LeCoultre

“In devising its unprecedented Dual-Wing mechanism, the Manufacture Jaeger-LeCoultre not only laid the cornerstone of a new collection named Duomètre, but also added a whole new chapter to watchmaking history.

Not so long ago, entrusting a traditional watch movement with the mission of driving an additional complication alongside its time indications implied the risk of jeopardising its operating accuracy. The wealth of ingenuity deployed by the finest watchmakers could not counteract physical laws nor overcome micromechanical limits. Nonetheless, the movements they succeeded in making were deemed satisfactory depending on whether the focus was on technical performance, precision or aesthetics – but a choice had to be made between one or other of these three parameters.

Owning a complication watch uniting these three ingredients appeared to a utopian pipedream. And then one day, in the workshops of the Manufacture Jaeger-LeCoultre, at the heart of the Vallée de Joux, in Switzerland, an idea emerged: what if one were to begin with a blank page? What if, instead of improving existing technical solutions, one were to start from scratch? What if, rather than aiming for evolutions, one were to opt for a revolution? This reasoning would give rise to the Dual-Wing concept, featuring two separate and independent mechanisms housed within a single case: one of them responsible for powering the time indications, and the other for driving an additional function.

Two separate and independent mechanisms united in one case? If that were in fact all it took, the Jaeger-LeCoultre watchmakers would “merely” have created a masterpiece of miniaturisation. They actually did far more by linking the two mechanisms to a single regulating organ, thereby guaranteeing chronometer-worthy operating accuracy.

So yes, the Dual-Wing concept that was the starting point for the Duomètre collection is indeed a revolution, since it now affords the possibility of possessing a watch reconciling accuracy with unprecedented horological complexity.

While the principle was a watch connoisseur’s dream, the theory still had to be translated into concrete reality. The first challenge of the Dual-Wing concept was to power a chronograph,



and the birth of the new Duomètre à Chronographe represented one of the major events of the 2007 watchmaking year.

Then came the turn of the calendar, a much sought-after complication, to benefit from the Dual-Wing concept: 2010 saw the release of the Duomètre à Quantième Lunaire.

2012 brings the introduction of the Duomètre Sphérotourbillon. A new revolution in the art of horological precision...”



Duomètre Sphérotourbillon

Jaeger-LeCoultre invents the new generation of complication watches

In 2012, the Grande Maison in the Vallée de Joux is propelling watchmaking firmly into the third millennium. The Duomètre Sphérotourbillon is a truly original model uniting peerless technical performance, elegance and a spectacular complication, thereby meeting the expectations of the most demanding connoisseurs and collectors.

Gyrotourbillon 1, Reverso Grande Complication à Triptyque, Reverso Gyrotourbillon 2, Duomètre à Grande Sonnerie, Master Grande Tradition à Grande Complication, Reverso Répétition Minutes à Rideau... Over the past decade, the Manufacture Jaeger-LeCoultre, building on a longstanding tradition of inventiveness and unique expertise, has displayed exceptional creativity, achieving technical performances that have enabled it to develop some of the most noteworthy complications of the early 21st century.

Armed with exceptional horological know-how, Jaeger-LeCoultre gladly starts with a blank page for each new creation in order to combine aesthetic elegance, technical performance and unique functions. This approach has given rise to the Gyrotourbillon, the Crystal Gong, the expression of civilian, celestial and perpetual time on three separate faces, the tourbillon that won the first timing competition of the 21st century, the Tourbillon with cylindrical balance-spring, the Flying Tourbillon indicating celestial time, the Minute Repeater activated by a metal curtain, as well as the Grande Sonnerie faithfully reproducing the Westminster chime.

When Jaeger-LeCoultre began reflecting in parallel on a new chronograph movement capable of maintaining the same precision, whether or not the chronograph function were activated, watchmakers did not imagine that they were going to create a whole new watch movement concept. The latter proved so innovative that it paved the way for unprecedented functions and gave rise to the Duomètre line.

The principle behind the revolutionary Dual-Wing concept involves two independent mechanisms, each with its own source of energy, but sharing a common regulating organ. This principle gave rise to the first chronograph maintaining the same level of precision whether in chronograph on or off mode, the first calendar-display watch adjustable to the nearest 1/6th of a second, and the first Grande Sonnerie model to faithfully reproduce the tune chimed by Big Ben.



Another distinctive feature of the Duomètre line is the arrangement of the dial displays, which reflects the dual structure of the Dual-Wing concept. An hour display off-centred along the 3 – 9 o'clock axis; twin indications of the respective power reserves; hands in two different colours; grained silver-toned finish: all these fascinating details combine to endow each of the Duomètre models with a unique aesthetic and a strong identity.

A striking design, a unique function and an aura of refinement in harmony with the finest watchmaking traditions: the new Duomètre Sphérotourbillon combines all these ingredients. This Grande Complication model vividly demonstrates that it is in fact possible to combine technical performances, discreet aesthetic elegance and spectacular horological complexity.

The Sphérotourbillon : a precision-adjusted tourbillon

Precision is the cornerstone of the Dual-Wing concept and was the watchword for the Jaeger-LeCoultre watchmakers in their reflection leading to the creation of the Duomètre Sphérotourbillon. The result is a watch that can legitimately claim to be the first tourbillon watch adjustable to the nearest second. For what's the point of precision if you can't display it?

There are indeed very few tourbillon models with an extremely readable display of the seconds in a dedicated subdial, and even fewer with a stop seconds device. Certainly none until now had ever enabled the user to stop the seconds hand and bring it back to zero in order to perform an ultra-accurate time setting.

Using the Dual-Wing concept enabled the Jaeger-LeCoultre watchmakers to create the first precision-adjusted tourbillon. A push-piece at 2 o'clock serves to bring the small seconds hand positioned beneath the tourbillon back to zero, according to the flyback principle.

One special feature of this flyback system is that it does not halt the operation of the regulating organ. The small seconds hand is reset to zero and begins running again instantly. This means the watch maintains optimal precision even when accurately adjusting the time to the nearest second.

A multi-axis tourbillon

Above and beyond its exemplary reliability, the chief characteristic of this Sphérotourbillon watch, the fourth exceptional model in the Duomètre line, is its tourbillon.

Initially devised for pocket-watches, the traditional tourbillon does not serve to compensate for the effects of gravity in all positions. An additional rotation axis must be added in order to



achieve a three-dimensional rotation movement and thus prove itself more effective in all positions that a wristworn watch may adopt.

The openworked dial provides a fascinating view of the tourbillon performing an extremely unusual rotation movement. As well as revolving around the axis of its titanium carriage, the tourbillon also spins around a second axis, inclined at a 20° angle. The combination of these two distinct and fast rotations (respectively 30 and 15 seconds per revolution) serves to free the watch from the effects of gravity.

This spectacular tourbillon incorporates all the innovations that enabled Jaeger-LeCoultre to win a brilliant victory in the first official timing competition of the 21st century. The carriage machined from a single block of titanium features a combination of lightness and extreme precision. The cylindrical balance-spring with its two terminal curves beats with a concentricity impossible to achieve with a traditional balance-spring. The balance with its generous inertia oscillates at a cadence of 21,600 vibrations per hour. The balance-spring stud-holder is protected by a screw-locking system from the effects of shocks and vibrations to which the watch is subjected.

For enhanced visual pleasure, a transparent caseback provides an admirable “backstage” view of the intricate working of the hand-assembled and decorated movement, Jaeger-LeCoultre Calibre 382.

Making complexity beautiful

This technological complexity nonetheless remains extremely beautiful. The innovative spirit of the watch merges with an inspired design inspired by vintage pocket-watches and designed to endow it with a blend of elegance and refinement.

The level of finishing of the ébauches made in non-treated nickel silver accentuates the sense of exclusivity exuded by the Duomètre Sphérotourbillon. Jaeger-LeCoultre’s signature “côtes soleillées”, clean-cut exterior and internal angles, harmonious shapes: the appearance of Jaeger-LeCoultre Calibre 382 is the very epitome of the watchmaking art.

Demonstrating profound respect for ideal proportions and watchmaking design codes, expressed through the sophisticated pink gold case, the restrained, highly readable dial, the polished bezel and lugs, and the satin-brushed case middle, the signature aesthetic characteristics of the Duomètre are meticulously preserved in this model and create a striking contrast with the level of complexity of the movement housed within.

The Dual-Wing concept is reflected on the dial by the presence of two separate zones: to the left sits the opening revealing the secrets of the Sphérotourbillon; and to the left the main dial indicating local time and the date, subtly placed on a lower level all around the dial.



An additional 24-hour subdial occupying the upper part of the dial serves to display the time in another time-zone, while the small seconds appear in the lower part.

In developing this Duomètre à Sphérotourbillion, the first tourbillon accurate to the nearest second thanks to the Dual-Wing concept combined with the small seconds flyback function, did the Jaeger-LeCoultre watchmakers realise that they were in fact creating one of the most exceptional models of this early 21st century?



Duomètre Sphérotourbillon

Technical specifications

Movement

- Mechanical manually-wound Jaeger-LeCoultre Calibre 382, crafted, assembled and decorated by hand, nickel silver bridges and mainplate
- 2 barrels
- 50-hour power reserve
- 460 parts
- 55 jewels
- 10.45 mm thick
- 33.70 mm in diameter

Sphérotourbillon

- 105 parts
- Tourbillon carriage: grade 5 titanium
- Total rotation speed: 30 seconds for a complete revolution
- 2 combined movements. Carriage axis rotation speed: 15 seconds for a complete revolution. Carriage rotation speed: 30 seconds for a complete revolution
- Carriage inclination: 20°
- Carriage diameter: 11.50 mm
- Carriage mass: 0.518 grams
- 14-carat gold balance with eccentric inertia blocks in 14-carat gold, inertia = 12.5 mg.cm², 21,600 vibrations per hour
- Cylindrical balance-spring

Functions

- Hours (travel time), minutes and small seconds with flyback function
- Power reserves (indications and movement)
- Pointer-type date display
- 24-hour reference time-zone
- Sphérotourbillon

Case

- 18-carat pink gold
- Diameter: 42 mm
- Thickness: 14.1 mm (including the sapphire crystal)
- Polished and satin-brushed finish
- Domed glareproofed front and back sapphire crystals, hardness n°9



- Water resistance : 5 bars

Dial

- Crystalline grained
- pink gold appliques

Hands

- Hours and minutes: "leaf" type
- Small seconds: baton type with pear-shaped counterweight, blued steel

Crowns

- One crown to wind the watch, set the time (travel time-zone), adjust the date and adjust the travel time-zone
- One push-piece at 2 o'clock to activate the small seconds flyback mechanism

Strap

- Hand-sewn crocodile leather, 18-carat pink gold pin buckle

Reference:

- 605 25 20



Dual-Wing concept : the pioneering movement

With its Duomètre line and its Dual-Wing concept, Jaeger-LeCoultre once again plays a pioneering role in the field of Fine Watchmaking by creating a movement with an entirely innovative structure giving rise to unprecedented functions.

With the Dual-Wing concept, the watchmakers of the Manufacture Jaeger-LeCoultre have developed a solution that at last provides a response to a recurrent problem on complex mechanical watches: any complication naturally uses up some of the energy provided by the barrel. This energy consumption perturbs the constant supply required by the meticulously adjusted regulating organ in order to fulfil its mission with absolute accuracy.

One time, two movements

This concept, christened Dual-Wing and serving to separate the provision of energy to the complication from that of the movement which is fed by its own barrel in order to guarantee the constancy of its energy supply, spelled a revolution in the field of Fine Watchmaking.

First unveiled in 2007, it enabled Jaeger-LeCoultre to reinvent the chronograph by endowing the Duomètre à Chronographe with chronometer-worthy precision, while displaying the time thus counted off to the nearest $1/6^{\text{th}}$ of a second.

It was then given a new application in 2010 on the Duomètre à Quantième Lunaire, guaranteeing this model exceptional accuracy and making it the first watch enabling $1/6^{\text{th}}$ of a second time adjustment without interrupting the operation of its regulating organ.

DUAL-WING IN A NUTSHELL:

A revolutionary watch concept based on a unique construction: two distinct mechanisms united within a same case and providing scope for unprecedented functions.



Duomètre à Chronographe, the chronograph as accurate as a chronometer

To make a chronograph watch as accurate as a chronometer was the challenge taken up in 2007 by the watchmakers at Jaeger-LeCoultre in developing the first Duomètre. Their secret weapon was the Dual-Wing concept.

The Manufacture Jaeger-LeCoultre chose to equip the first model in the Duomètre collection with the chronograph function. This led to the Duomètre à Chronographe model, featuring a style and technical characteristics that immediately earned it a place in the highest echelons of artistic horology.

The first movement to use this new construction principle was Jaeger-LeCoultre Calibre 380, boasting the major asset of displaying the time with chronometer-worthy precision.

In accordance with the Dual-Wing concept, the first going train is entirely dedicated to the time function (hours, minutes, seconds), while the second going train is exclusively devoted to the chronograph function and features a 1/6th second jumping seconds.

Each of these two mechanisms is powered by its own barrel ensuring a 50-hour power reserve (50 hours for the time, 50 hours for the chronograph). There are no transfers of energy between the two.

To simplify use and for aesthetic reasons, a single crown serves to wind both barrels: turning the crown clockwise winds the time, and turning it counter-clockwise winds the chronograph.

This Calibre 380 makes the first Duomètre the very first wrist chronograph watch to operate without a coupling-clutch to handle the stop/start time measurement functions. A single push-piece ensures perfect synchronisation of all five chronograph counters.

With its new case featuring welded lugs, its grained dial and this unprecedented Calibre 380, the first representative of the Dual-Wing lineage, the Duomètre released in 2007 brilliantly reinvented the great watchmaking classic.



Duomètre à Quantième Lunaire 40.5

Day, date month... Gear wheels, adjustments, energy... Because running such an elaborate complication as a calendar within a classic watch naturally has a detrimental effect on the precision of the time indications, the watchmakers at Jaeger-LeCoultre knew they had found in the Dual-Wing concept an instrument capable of creating a perfect alchemy: a calendar watch that was as accurate as a chronometer.

Arranged on the elegant and easily readable dial, the hours, minutes, seconds and moon-phase displays appear to make the Duomètre à Quantième Lunaire a classic watch model. But inside the case and partially hidden from view beats Calibre 381, a prodigious movement boasting unprecedented precision based on the Dual-Wing concept and which propels the watch firmly into the spheres of Haute Horlogerie.

The truly extraordinary appearance of the watch lies in the actual concept behind the Dual-Wing movement, which is distinguished by the presence of two independent energy sources: the first, regulated by the escapement and the balance, is entirely dedicated to the precise measurement of the passing of time; whereas the second source of energy is devoted to the display of the functions: hours, minutes, seconds, calendar and moon phases for both hemispheres. Their synchronisation is ensured by the jumping seconds hand mechanism.

This Duomètre à Quantième Lunaire brilliantly illustrates the extreme research undertaken in the laboratory-workshops of Jaeger-LeCoultre: this watch reaches the heights of precision with a jumping seconds hand moving in sixth of a second increments while displaying the date and the moon phase on a separate subdial.

Through in-depth study and a willingness to challenge the fundamental principles of horological theory, the Jaeger-LeCoultre specialists have succeeded in creating a calendar watch in accordance with the Dual-Wing concept – a principle featuring exceptional characteristics that enable a degree of rating precision that was previously the exclusive preserve of timepieces free of any complications.

Only the expertise accumulated over 178 years could thus enable Jaeger-LeCoultre to begin writing a new chapter in the history of Fine Watchmaking...



Duomètre à Quantième Lunaire 40.5

Technical specifications

Movement

- Mechanical manually-wound Jaeger-LeCoultre Calibre 381, crafted, assembled and decorated by hand
- 21,600 vibrations per hour
- 50-hour power reserve
- 367 parts
- 40 jewels
- 7.25 mm thick
- 33.70 mm in diameter
- Two independent barrels

Functions

- Hours, minutes, seconds, and jumping stop seconds with zero/reset system, date, age and phase of the moon (for both hemispheres), power reserve
- Regulator power reserve

Dial

- Crystalline grained
- Pink gold appliques

Hands

- Hours and minutes : "leaf" type
- seconds : baton type with pear-shaped counterweight

Crowns

- One crown to wind the watch and adjust the hours and minutes
- One push-piece to adjust the date
- One corrector to adjust the moon phase

Case

- ø 40.5 mm, thickness : 13.07 mm
- 18-carat pink gold
- Polished and satin-brushed finish
- sapphire crystal, cambered on the dial side, hardness no. 9, glareproofed on front and back
- water resistance : 5 bar

Strap

- in chocolate-toned alligator leather with 18-carat gold pin buckle

Reference

- Q6042521, 18-carat pink gold