



JAEGER-LECOULTRE PRACTICES THE ART OF PRECISION WITH THE NEW MASTER GRANDE TRADITION GYROTOURBILLON WESTMINSTER PERPÉTUEL

Jaeger-LeCoultre was founded in 1833 in the Vallée de Joux, the cradle of complicated Swiss watchmaking. Since then, it has relentlessly pursued innovation in aid of precision timekeeping. One of the first inventions of founder Antoine LeCoultre was the millionometer, the first instrument able to measure the micron. Ambitious and industry-defining innovation, combined with haut-de-gamme finishing and artistry, are honoured traditions at Jaeger-LeCoultre, which has created more than 1,200 watch calibres to date, counts 180 different watchmaking and watch-related skills as part of its in-house expertise, has over 400 registered patents and has revived age-old decorative techniques such as guillochage and grand feu enamelling in its in-house Métiers Rares atelier. The 2019 Salon International de la Haute Horlogerie will see La Grande Maison present the Master Grande Tradition Gyrotourbillon Westminster Perpétuel, the first multi-axis tourbillon with a constant-force mechanism, Westminster chime and perpetual calendar.

Key points of the Jaeger-LeCoultre Master Grande Tradition Gyrotourbillon Westminster Perpétuel

- The fifth multi-axis tourbillon from Jaeger-LeCoultre, with a size reduction in the redesigned tourbillon component to create a more wearable watch
- A Westminster carillon minute repeater that replicates the chime of the famed Big Ben clock tower in London, with a silence-reduction mechanism to optimise melody cadence
- Incorporates a one-minute constant-force mechanism to provide consistent energy to the sensitive tourbillon, resulting in a precisely jumping minute hand and a more precise minute repeater mechanism
- A sleek new contemporary aesthetic that pairs traditional *haut-de-gamme* finishing with modern, wearable watches at the top of the mechanical watchmaking hierarchy



JANUARY 2019 — The Master Grande Tradition Gyrotourbillon Westminster Perpétuel is the latest generation of multi-axis tourbillon to emerge from Jaeger-LeCoultre, following the 2004 Master Gyrotourbillon 1, the 2008 Reverso Gyrotourbillon 2, the 2013 Master Grande Tradition Gyrotourbillon 3 Jubilee and the 2016 Reverso Tribute Gyrotourbillon.

Precision tourbillons are a noted speciality of Jaeger-LeCoultre, as proven by the 2009 Concours International de Chronométrie timing competition, in which the top two prizes were awarded to Jaeger-LeCoultre. The strength in creating high-precision tourbillons goes hand-in-hand with the mastery required to engineer the visually spectacular Gyrotourbillon watches. Even with the considerable energy demands of the large multi-axis tourbillon, chronometric performance must not be affected. Reconciling the needs of the Gyrotourbillon with impeccable chronometric requirements is a balancing feat that can only be accomplished with the experience and skill of a 186-year-old watchmaking manufacture.

Further advancing the art of multi-axis tourbillons, the Master Grande Tradition Gyrotourbillon Westminster Perpétuel features a tourbillon that is significantly smaller than those in the preceding Gyrotourbillon timepieces. As a rule, reducing the size of a mechanism also reduces its error tolerance, which is why successful miniaturisation efforts are so highly valued and complex. In creating a smaller tourbillon, Jaeger-LeCoultre has created a truly wearable Gyrotourbillon, bringing high complication out of the watch safe and onto the wrist for everyday enjoyment.

The Westminster chime is familiar to everyone as the famous melody of the Big Ben clock at the Palace of Westminster in London. Its four-phrase melody is composed of four notes played in different sequences and different quantities at each quarter of the hour. The Master Grande Tradition Gyrotourbillon Westminster Perpétuel uses four sets of gongs and hammers to create the Westminster chime to indicate the quarters when the minute repeater is activated, incorporating a complex mechanism that places it at the most prestigious tier of chiming watches.

The most beautiful chime can be marred by interruptions and gaps of silence between the strikes. In order to create a chime of unmatched euphony, the Master Grande Tradition Gyrotourbillon Westminster Perpétuel has a silence-reduction function built into its chiming mechanism. This ensures that even when the full set of Westminster quarters is not struck, there is no time delay corresponding to the missing quarters before the minutes are struck. In every instance of the chime when the Master Grande Tradition Gyrotourbillon Westminster Perpétuel is activated, the hour strikes, quarter strikes and minute strikes are seamlessly joined.

Precision lies at the heart of the Master Grande Tradition Gyrotourbillon Westminster Perpétuel, with a one-minute constant-force mechanism that provides a consistent level of power for the energy-hungry tourbillon without affecting its chronometric ability. The constant-force



mechanism consists of a spring, known classically as a *remontoir d'égalité*, that is periodically re-armed by the mainspring and acts as a secondary power source to protect the regulating organ of the movement.

In the Master Grande Tradition Gyrotourbillon Westminster Perpétuel, the constant-force mechanism has an additional advantage. It regulates the motion of the minute wheel, creating a jumping minutes hand that offers greater precision in time display. More significantly, the mechanism that controls the minute strike also follows this one-minute jumping system, which completely eliminates the chiming error that can occur when the repeater is activated between minutes, when the chime played and the time shown can be one minute apart.

Besides the multi-axis tourbillon, which highlights the cinematic virtuosity of fine watchmaking at Jaeger-LeCoultre, and the minute repeater, which showcases in-house mastery of the most sophisticated complications, the Master Grande Tradition Gyrotourbillon Westminster Perpétuel also features the one horological function with the greatest everyday relevance and pragmatic value — the perpetual calendar. As the name suggests, the perpetual calendar is designed to work in perpetuity. It automatically displays the correct date without the need for manual adjustment between months of different lengths. It even takes into account the extra day at the end of February during leap years. The most common configuration of the perpetual calendar mechanism can only be adjusted in one direction, but the Master Grande Tradition Gyrotourbillon Westminster Perpétuel emphasises the experience and convenience of the user, and its date can be adjusted forwards or backwards without harming the movement. The pointer-style date indication further reinforces the precision aspect of the timepiece, as it jumps over the tourbillon aperture in order to provide the best possible view of the visually stunning rotating escapement.

The Master Grande Tradition Gyrotourbillon Westminster Perpétuel is the result of 186 years of fine watchmaking expertise and a spirit of innovation that continues to this day. Reflecting the blend of patrimony and modernity is the design of the watch, which emphasises the round profile of the Master Grande Tradition case. A retractable minute repeater pusher, first seen in the Master Ultra Thin Minute Repeater Flying Tourbillon, preserves the smooth lines of the case. Hand guilloché, fine hammering (*martelage*) and *grand feu* enamel are part of the canon of fine watchmaking finish and have been practiced at Jaeger-LeCoultre throughout its history — most outstandingly in the dazzling Hybris Artistica collection. In the Master Grande Tradition Gyrotourbillon Westminster Perpétuel, however, these finishes are expressed in a subtle and contemporary way, culminating in the openworked dial — produced either in a striking deep-blue *grand feu* enamel or in a more classic silver-grained version — showcasing the mesmerising multi-axis tourbillon. These age-old techniques are skilfully practised by master artisans from the in-house Metiers Rares atelier of Jaeger-LeCoultre, where *haut-de-gamme* traditional finish is also applied to the movement by hand.



The Sound of Precision

There are extremely few watchmaking manufactures that possess in-house expertise in sonnerie wristwatches. There are even fewer that have been making them since 1870, accumulating one and a half centuries of experience and savoir-faire. There is only one watchmaking manufacture in the world that has over 200 chiming watch calibers in its historical and modern inventory — La Grande Maison du Sentier.

The Master Grande Tradition Gyrotourbillon Westminster Perpétuel brings together a panoply of chiming innovations and improvements that were first debuted by Jaeger-LeCoultre, representing the epitome of horological creativity and ingenuity at La Grande Maison.

In the 19th century, repeater chimes were regulated primarily by an anchor-and-flywheel mechanism, which resulted in a characteristic buzz that can be heard underlying the chime of antique repeaters and some modern watches that still use the old system. Jaeger-LeCoultre patented a new silent strike governor in 1895 that uses friction and centripetal forces to regulate chiming. Today, this mechanism is used in the majority of chiming watches, including the Master Grande Tradition Gyrotourbillon Westminster Perpétuel.

The minute repeater of the Master Grande Tradition Gyrotourbillon Westminster Perpétuel also benefits from more recent innovations, such as the patented crystal gongs that first appeared in the Master Minute Repeater Antoine LeCoultre in 2005. These crystal gongs were welded to the dial crystal of the watch, capitalising on the superior sound transmission qualities of synthetic sapphire crystal to produce the loudest and clearest wristwatch chime ever created. Trebuchet hammers, articulated and sprung to deliver strong and quick strikes to the gongs, can be found in the Master Grande Tradition Gyrotourbillon Westminster Perpétuel, as they first appeared in the only other Westminster chime wristwatch of Jaeger-LeCoultre, the 2009 Hybris Mechanica Duomètre à Grande Sonnerie. Gongs with circular cross sections are the norm in minute repeater watches, but the square cross-section gongs seen in the Master Grande Tradition Gyrotourbillon Westminster Perpétuel are engineered to provide the greatest area of contact with the striking hammers, and have been a mainstay of Jaeger-LeCoultre chiming watches since 2006.

The Whirlwind of Precision

Of utmost importance in any watch movement is the regulating organ, the balance and hairspring assembly that allows a watch to measure time in precise beats. The tourbillon is a chronometric amplifier that can improve the timekeeping performance of a regulator by averaging out its positional errors. The in-house expertise of Jaeger-LeCoultre in tourbillons is unmatched, extending over a range of rotating escapements from the award-winning classic tourbillon calibre 978, the unbridled flying tourbillon, the various multi-axis Gyrotourbillon



watches, the inclined-axis Sphérotourbillon and the groundbreaking flying tourbillon with flying balance in the Master Ultra Thin Minute Repeater Flying Tourbillon.

Along with this unparalleled variety of tourbillons comes an equally profound understanding of hairspring technology, which Jaeger-LeCoultre has developed with its own in-house tools to form the sophisticated spherical hairsprings used in some of its most evolved tourbillon watches.

The Master Grande Tradition Gyrotourbillon Westminster Perpétuel takes this exploration of precision to a new level with its constant-force mechanism. With the inclusion of the constant-force spring remontoir, the focus on precision is expanded far beyond the whirling dimensions of the tourbillon and its precision regulation. The Master Grande Tradition Gyrotourbillon Westminster Perpétuel constant-force mechanism highlights the precision of power delivery in one-minute cycles, the precision of time display in the jumping minutes hand and the precision of the repeater chime.

Master Grande Tradition Gyrotourbillon Westminster Perpétuel

Dimensions: 43 mm

Thickness: 14.08 mm

Calibre: 184 - Manual

Case: White gold

Water resistance: 3 bar

Functions: Hour/Minute, Jumping Date, Two-way perpetual calendar (Day/Date/Month/Year), Gyrotourbillon, Minute repeater with Westminster chime

Power reserve: 52 h

Dial: Blue guilloché enamel or Silver grained

Case Back: Open

Limitation: 18 pieces

Reference: Q52534E1, Q5253420

Jaeger-LeCoultre

Since its creation, Jaeger-LeCoultre has made precision an art form in its own right, balancing skills and artistry with sophistication and esthetic finesse. In keeping with the inventive spirit initiated in 1833 by its founder Antoine LeCoultre, the artisans of the Manufacture create collections which have been at the forefront of fine watchmaking: Reverso, Master, Jaeger-LeCoultre Polaris, Rendez-Vous and Atmos – this rich legacy built by the Grande Maison over centuries serves as a constant source of inspiration in ever so pushing the boundaries through unprecedented timepieces.

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