

Legacy Machine N°2

MB&F





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'Friends' responsible for Legacy Machine N°2

MB&F – Genesis of a concept laboratory

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Summary

Legacy Machine No.2 lies at the highest end of the horological spectrum. When it was first presented in 2013, it was one of the most forward-looking expressions of traditional mechanical watchmaking in the market. In 2023, MB&F is happy to bring back this beacon of innovative horology in a new palladium case, showcasing a beautiful aquamarine sunray dial, with subtle pale green, grey and blue tones. Most importantly, this new take on the Legacy Machine N°2, offers the same breath-taking view on its hypnotic engine in a case that is discreet yet precious.

Legacy Machines are wondrous reinterpretations of significant horological inventions by the greatest watchmakers in history. So the contemporary look endowed by the otherworldly appearance of Legacy Machine No.2's dual flying balances, suspended high above the dial from four gracefully arcing arms, may at first appear paradoxical. But make no mistake; LM2 is a timepiece tracing its lineage back over 250 years to three of the greatest watchmakers who ever lived: Abraham-Louis Breguet (1747-1823), Ferdinand Berthoud (1727-1807) and Antide Janvier (1751-1835). These horological legends of the 18th century are united not only by their inventive genius, but also by the fact that they have all constructed clocks and watches with two balances.

Oscillating on high, the exalted double balance wheels of LM2 were inspired by, and pay homage to, one of the rarest mechanisms in the history of watchmaking: the dual regulator. And rarer still, the average rates of Legacy Machine No.2's dual regulators are transmitted by a differential to a single gear train, where the majority had two separate movements.

On display under a domed sapphire crystal cupola, the dial of Legacy Machine No. 2, which is actually the top plate of the exquisitely finished movement, is an object lesson in symmetrical simplicity. Top to bottom: the white stretched lacquer sub dial at 12 o'clock, with its blued hour and minute hands, is visually balanced by the large, raised differential at 6 o'clock. Left to right: the two flying balances and their escapements are identical mirror images, right down to the position of the stud holders pinning their balance springs.

While the levitated oscillating balance wheels of the binary regulators catch and hold the viewer's gaze, it is the large planetary differential sitting proud of the dial that is the real heart of Legacy Machine No.2. In an incredible feat of micro-engineering - and the sheer



paucity of timepieces with multiple regulators connected via a differential attests to the enormous difficulty in creating such a complex high-precision mechanism - the differential has three roles: 1. Transferring power to each of the regulators; 2. Receiving the individual timing rates from each balance; and 3. Transmitting the average rate of the two regulators to the gear train, where it finally manifests itself as the displayed time.

The movement of Legacy Machine No.2 was developed to MB&F's specifications by award-winning watchmaker Jean-François Mojon (Best Watchmaker at the 2010 Grand Prix d'Horlogerie de Genève) and his team at Chronode. Acclaimed independent watchmaker Kari Voutilainen ensured that the movement's aesthetic style was consistent with high-quality traditional timepieces of the 19th century and for specifying the superlative hand-finishing.

Immaculate Geneva waves, gold chatons, mirror-polished bevels and bridges designed with deliberate internal bevelled angles (which cannot be finished by machine) showcase the movement's finishing. Moreover, the new Palladium edition offers a new NAC finish, offering a deep anthracite colour to give even more character to the precious timepiece. Consistent with MB&F's spirit of transparency, the names of the two men responsible for the movement are hand engraved on the back.

Two and a half centuries after three of the world's greatest watchmakers put two balance wheels into their movements, MB&F celebrates their pioneering works with LM2, a timepiece with two balances hovering outside the movement.

Legacy Machine No.2 was launched in 2013 in 18k red gold, 18k white gold and a limited edition of 18 pieces in platinum 950. A limited edition of 18 pieces in titanium with a green face was added in 2017, and 2018 was marked by a limited edition of 12 pieces in white gold with purple face. In 2019, a red gold blue limited edition was launched in just 12 pieces. And finally, the new Palladium model joins the collection in a limited edition of 18 pieces.





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History of dual regulator timepieces

Even today with computer aided design programs (CAD) and ultra-high-precision CNC machines, the sheer complexity of high-end mechanical watch movements requires skilled assembly and regulation to achieve good timekeeping over a range of positions. Whether the watch is laid flat, vertical (on its edge), crown up or crown down, slightly affects the components inside – and the balance in particular – which in turn slightly changes the timing rate.

In the 18th century, higher manufacturing tolerances coupled with low-quality oils meant that it was virtually impossible to regulate a movement to the high precision we have come to expect today. So it should come as no surprise that the greatest horologists of the period experimented with a wide variety of mechanisms to improve timekeeping.

While Ferdinand Berthoud (1727–1807) averaged his two regulators mechanically, Abraham-Louis Breguet (1747–1823) and Antide Janvier (1751–1835) both created double regulator timepieces using the phenomena of resonance to average the rate of the two balances. It should be noted that the majority of dual regulator timepieces, especially those using resonance to couple the two systems, had two complete movements rather than just two regulators.

The fact that these horological geniuses made such a limited number of clocks and watches with double regulators (just a few each) indicates that they doubted that the reward was worth the effort.

Nearly 100 years later, in the 1930s a few of the very best students at the Watchmaking School of the Vallée de Joux made double regulator pocket watches with the rates of two balances averaged by a planetary differential. The students usually made two pieces each – one for themselves and one for the school – and it is thought that 10 such timepieces exist.

Philippe Dufour, an independent watchmaker based in the Vallée de Joux saw one of these pocket watches and was inspired to create his Duality. Launched in 1996, the Duality was the first known wristwatch to feature two balances joined by a differential. There have been a (very) few other double balance wristwatches coupled via differentials.

The advantage of using a planetary differential is that the two balances beat at their natural rate, with the differential supplying the average of the two completely

independent frequencies. Other mechanisms when coupled have one balance slowing down or speeding up the other to achieve an average rate and this induces slight stresses in the system.

Dial side

While superficially Legacy Machine No.2 may look like a traditional round watch, its three-dimensional architecture offers visual treats on multiple levels. What looks at first glance to be the main dial is actually the top plate of the movement, which has been finely engraved, plated and then hand-engraved with Legacy Machine below the differential.

Slightly raised above the surface is the hour-minute sub dial, its fine gold circumference highlighting the pure white of the stretched lacquer dial, which is created by applying and heating multiple layers of lacquer, causing them to stretch tightly over the surface of the dial. The white contrasts superbly with the bright blue hands. The hands are slightly curved to follow the slightly convex surface of the sub dial. To ensure aesthetic purity of the dial and its traditional Roman numerals, a sophisticated fixation underneath negates the necessity of visually obtrusive screws.

The planetary differential also sits proud of the surface, supported by a stunning double-arc mirror-polished bridge inset with three large jewels. The complex differential is the key element in the double regulator system and raising it just above the movements enables the mechanism to be better appreciated.

Suspended above both the sub dial and the differential are the two oscillating bespoke balance wheels. The dual balances feature Breguet overcoils, inset with four fully functional timing screws. The two balances are mirror images of each other so that they react differently to different forces. The distance between the balance wheels has been carefully and deliberately calculated to avoid resonance, as this would negatively interfere with regulation. Those elegant majestically curved arms suspending the flying balances are sculptural works of art in themselves.

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Fine finishing and historical fidelity

Independent master watchmaker Kari Voutilainen assumed responsibility for ensuring the historical accuracy of the style and specifying the finishing of the Legacy Machine No.2 movement.

A finely engraved sun-ray pattern on top of the movement plate (dial side) subtly catches the eye at certain angles without distracting attention from the pure white sub dial, flying balances and raised differential. But it is in the style and finish of the bridges and plates visible through the display on the back of the movement that Voutilainen has excelled in providing exquisite historical fidelity, both the shape of elegantly curved bridges and the traditionally wide spaces between the bridges and between the bridges and the case.

On the back of the movement, over-sized ruby jewels set in highly-polished countersunk gold chatons provide striking visual counterpoints to the Geneva waves traversing the sensually curved bridges. While providing historical links with the large jewels seen in high-grade antique pocket watch movements, the ruby bearings have a practical application in reducing wear by accommodating large diameter pinions and holding more lubricating oil.

Inspiration and realisation

Maximilian Büsser has had a long affinity with pocket watches of the 18th and 19th centuries. Virtually all horological complications we see today were not only imagined in that period, they were developed using just paper and pen (no sophisticated computer programs), components were produced to extremely high precision using – by today's standards – fairly primitive machines (no electricity) and finely finished, assembled and regulated to an incredibly high quality that we still strive to match today. Their generous size compared with modern wristwatches allowed for uncluttered movement architectures with beautifully shaped bridges and plates.

While MB&F's futuristic Horological Machines have a firm foundation in the very best of traditional horology, Büsser wanted to pay homage to that rich tradition by imagining the type of timepieces he might create if he had been born 100 years earlier, i.e. 1867 instead of 1967. With its two flying balances, raised planetary differential, historical bridge designs and classical fine-finishing, LM2 celebrates historical dual regulator watches with flair and passion.

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Legacy Machine N°2



Technical specifications

- Launch editions in 18k red gold, 18k white gold and a limited edition of 18 pieces in platinum 950;
- Grade 5 Titanium Green edition limited to 18 pieces;
- White gold Purple edition limited to 12 pieces;
- Red gold Blue edition limited to 12 pieces;
- Palladium edition limited to 18 pieces.

Engine

Three-dimensional horological movement developed exclusively for MB&F by Jean-François Mojon at Chronode and Kari Voutilainen
Manual winding with single mainspring barrel

Power reserve: 45 hours

Differential: Planetary differential comprising 3 gears and 5 pinions

Balance wheels: Two bespoke 11mm balance wheels with four traditional regulating screws floating above the movement and dials

Balance spring: traditional Breguet curve terminating with stud holder

Balance frequency: 18,000bph / 2.5Hz

Number of components: 241

Number of jewels: 44

Superlative hand finishing throughout respecting 19th century style; polished internal bevel angles highlighting handcraft; polished bevels; Geneva waves; gold chatons with polished countersinks; hand-made engravings; NAC finishing for the Palladium edition.

Functions & indications

Hours and minutes

Planetary differential transmits the average rate of the two regulators to the single gear train.

Case

Materials: 18k red gold, 18k white gold, platinum 950, grade 5 titanium or palladium.

Dimensions: platinum, red and white gold editions: 44mm x 20mm; redesigned edition in titanium and palladium: 44mm x 19mm

Number of components: 45 (platinum, red and white gold editions), or 41 (redesigned edition in titanium and palladium)

Water resistance: 30 m / 90' / 3 atm

Sapphire crystals

High domed sapphire crystal on top and sapphire crystal on back with anti-reflective coating on both sides.

Strap & buckle

Black, brown or blue hand-stitched alligator strap with 18k gold, platinum, or titanium tang buckle matching the case.

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Concept: Maximilian Büsser / MB&F

Design: Eric Giroud / Through the Looking Glass

Technical and production management: Serge Kriknoff / MB&F

Movement development: Jean-François Mojon / Chronode

Movement design and finish specifications: Kari Voutilainen

R&D: Thomas Lorenzato and Robin Cotrel / MB&F

Methods and laboratory: Maël Mendel and Anthony Mugnier / MB&F

Wheels: Jean-François Mojon / Chronode

Balance wheel bridge: Benjamin Signoud / AMECAP

Balance wheel: Precision Engineering

Springs and wheels: Alain Pellet / Elefil Swiss

Plates and bridges: Benjamin Signoud / AMECAP

Hand-engraving of movement: Glypto

CVD treatment: Pierre-Albert Steinmann / Positive Coating

Hand-finishing of movement components: Jacques-Adrien Rochat and Denis Garcia / C-L Rochat

Movement assembly: Didier Dumas, Georges Veisy, Anne Guiter, Emmanuel Maitre, Henri Porteboeuf, Mathieu Lecoultre and Amandine Bascoul / MB&F

Quality control: Cyril Fallet and Jennifer Longuepez / MB&F

In-house machining: Alain Lemarchand, Jean-Baptiste Prétot and Stéphanie Carvalho Correia / MB&F

After-Sales Service: Thomas Imberti / MB&F

Case: Giuseppe Di Stefano / STG Creation

Buckle: Dominique Mainier / G&F Châtelain

Dials: Hassan Chaïba and Virginie Duval / Les Ateliers d'Hermès Horloger

Hands: Pierre Chillier and Isabelle Chillier / Fiedler

Sapphire crystals: Econorm

Strap: Multicuir

Presentation box: ATS Atelier Luxe

Production logistics: David Lamy, Ashley Moussier, Fanny Boutier, Mélanie Ataïde, Thibaut Joannard and Maryline Leveque / MB&F

Marketing & Communication: Charris Yadigaroglou, Vanessa André, Arnaud Légeret, Paul Gay and Talya Lakin / MB&F

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M.A.D. Gallery: Hervé Estienne / MB&F

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Film: Marc-André Deschoux / MAD LUX

Portrait photography: Régis Golay / Federal

Website: Stéphane Balet / Idéative

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Founded in 2005, MB&F is the world's first-ever horological concept laboratory. With almost 20 remarkable calibres forming the base of the critically acclaimed Horological and Legacy Machines, MB&F is continuing to follow Founder and Creative Director Maximilian Büsser's vision of creating 3-D kinetic art by deconstructing traditional watchmaking.

After 15 years managing prestigious watch brands, Maximilian Büsser resigned from his Managing Director position at Harry Winston in 2005 to create MB&F – Maximilian Büsser & Friends. MB&F is an artistic and micro-engineering laboratory dedicated to designing and crafting small series of radical concept watches by bringing together talented horological professionals that Büsser both respects and enjoys working with.

In 2007, MB&F unveiled its first Horological Machine, HM1. HM1's sculptured, three-dimensional case and beautifully finished engine (movement) set the standard for the idiosyncratic Horological Machines that have followed – all Machines that tell the time, rather than Machines to tell the time. The Horological Machines have explored space (HM2, HM3, HM6), the sky (HM4, HM9), the road (HM5, HMX, HM8) and the animal kingdom (HM7, HM10).

In 2011, MB&F launched its round-cased Legacy Machine collection. These more classical pieces – classical for MB&F, that is – pay tribute to nineteenth-century watchmaking excellence by reinterpreting complications from the great horological innovators of yesterday to create contemporary objets d'art. LM1 and LM2 were followed by LM101, the first MB&F Machine to feature a movement developed entirely in-house. LM Perpetual, LM Split Escapement and LM Thunderdome broadened the collection further. 2019 marked a turning point with the creation of the first MB&F Machine dedicated to women: LM FlyingT; and MB&F celebrated 10 years of Legacy Machines in 2021 with the LMX. MB&F generally alternates between launching contemporary, resolutely unconventional Horological Machines and historically inspired Legacy Machines.

As the F stands for Friends, it was only natural for MB&F to develop collaborations with artists, watchmakers, designers and manufacturers they admire.

This brought about two new categories: Performance Art and Co-creations. While Performance Art pieces are MB&F machines revisited by external creative talent, Co-creations are not wristwatches but other types of machines, engineered and crafted by unique Swiss Manufactures from MB&F ideas and designs. Many of these Co-creations, such as the clocks created with L'Epée 1839, tell the time while collaborations with Reuge and Caran d'Ache generated other forms of mechanical art.

To give all these machines an appropriate platform, Büsser had the idea of placing them in an art gallery alongside various forms of mechanical art created by other artists, rather than in a traditional storefront. This brought about the creation of the first MB&F M.A.D. Gallery (M.A.D. stands for Mechanical Art Devices) in Geneva, which would later be followed by M.A.D. Galleries in Taipei, Dubai and Hong Kong.

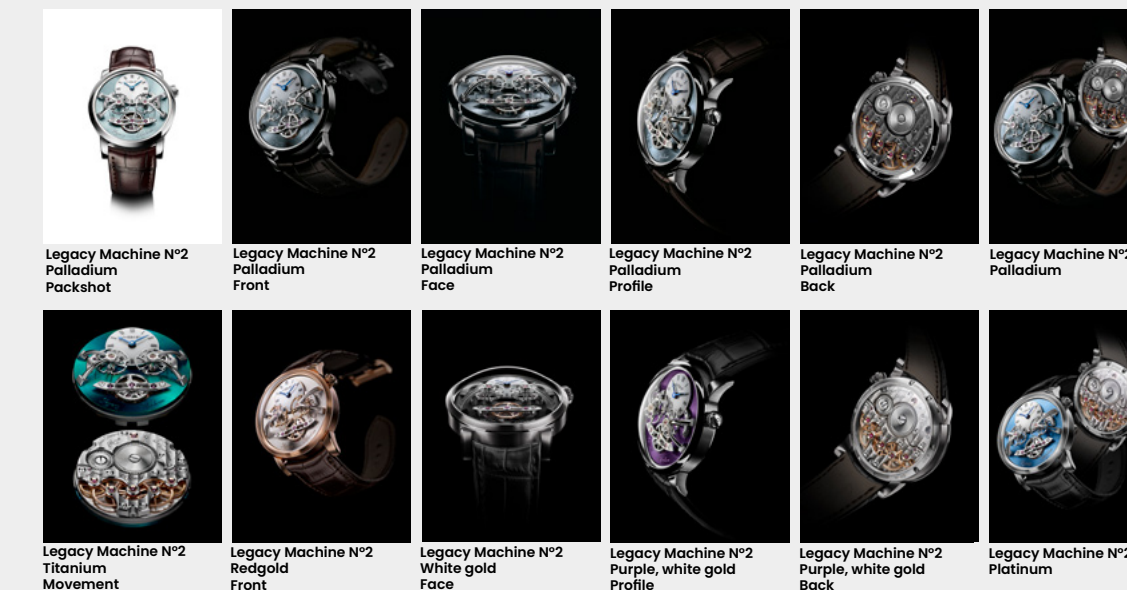
There have been distinguished accolades reminding us of the innovative nature of MB&F's journey so far. To name a few, there have been no less than 9 awards from the famous Grand Prix d'Horlogerie de Genève, including the ultimate prize: the "Aiguille d'Or", which rewards the best watch of the year. In 2022, the LM Sequential EVO was awarded the Aiguille d'Or, while the M.A.D.1 RED won the 'Challenge' category. In 2021, LMX won the Best Men's Complication and the LM SE Eddy Jaquet 'Around The World in Eighty Days' was awarded in the 'Artistic Crafts' category. In 2019, the prize for Best Ladies Complication went to the LM FlyingT; in 2016, LM Perpetual won the Best Calendar Watch award; in 2012, Legacy Machine No.1 was awarded both the Public Prize (voted for by horology fans) and the Best Men's Watch Prize (voted for by the professional jury). In 2010, MB&F won Best Concept and Design Watch for the HM4 Thunderbolt. In 2015 MB&F received a Red Dot: Best of the Best award – the top prize at the international Red Dot Awards – for the HM6 Space Pirate.

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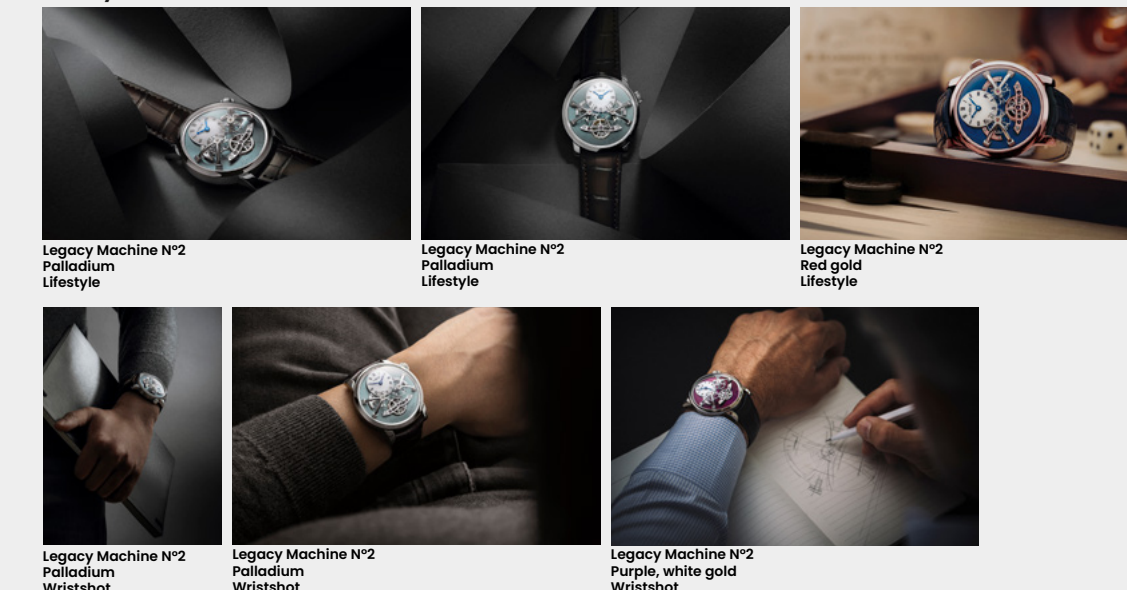
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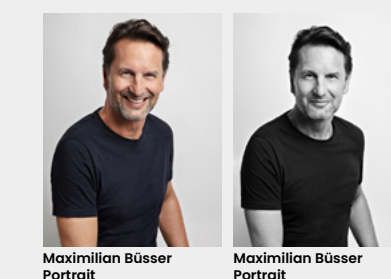
The machine



Lifestyle



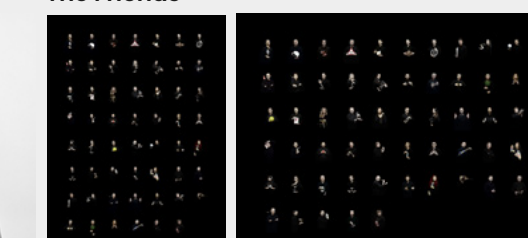
Maximilian Büsser



Maximilian Büsser Portrait

Maximilian Büsser Portrait

The Friends



Friends Portrait

Friends Landscape

Film



Legacy Machine N°2 movie



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