**LEGACY MACHINE PERPETUAL EVO**

Over the past 15 years, MB&F creations have transported their wearers to destinations that exist only on maps of the imagination: from star-cruisers to deep-sea jellyfish, Maximilian Büsser’s Machines are the mechanical cartographers of the multiverse.

But the greatest journey has yet to be undertaken, and true progress is marked by evolution. Presenting Legacy Machine Perpetual EVO: with this new Machine, you are the navigator; the map is your life. On this journey, you’ll never have to leave your watch behind.

A 44mm case in zirconium, a lustrous silvery-grey metal with material properties surpassing stainless steel and titanium. A new case profile that emphasises openness and extreme clarity. A specially developed monobloc shock-absorbing system – “FlexRing” – that makes for the most robust Machine ever to emerge from MB&F. The LM Perpetual Engine, designed by Stephen McDonnell, an award-winning perpetual calendar that replaces traditional constructions with an innovative mechanical processor. Three options of PVD/CVD dial-plate colour, including — for the first time in a high-end piece of Swiss watchmaking — atomic orange. And a closely-fitted, integrated strap for the smoothest wearing experience of any MB&F Machine ever.

The MB&F collection has welcomed several complications and horologically prestigious mechanisms over the past 15 years, including the record-smashing TriAx that debuted in 2019’s Legacy Machine Thunderdome. In terms of combining prestige, tradition and innovation, however, Legacy Machine Perpetual has remained at the apex of MB&F watchmaking savoir-faire since it was introduced five years ago. With a new case of zirconium — lighter than steel and more durable than titanium — the LM Perpetual Engine gains a new level of liberation. Those already familiar with MB&F’s affinity for material experimentation will know how rare it is to see zirconium used in watchmaking. Zirconium is known to spontaneously ignite in powdered form, making it highly dangerous to machine. Balancing out the risk incurred during the manufacturing process however, are the hypoallergenic and anti-microbial properties of zirconium, qualities which make it popular in biomedical applications and the perfect material for an active-lifestyle watch.

Although the 44mm diameter is unchanged from its 2015 iteration, the new EVO case design features a no-bezel construction, with the domed sapphire crystal fused directly to the case. The increased openness of this design highlights the equilibrium between the legibility of LM Perpetual EVO’s calendar indications and the cinematic play of the engine components — surmounted by the iconic MB&F hovering balance wheel. This expansive new presentation of the LM Perpetual Engine was no simple design reconfiguration. New geometries for the sapphire crystal had to be calculated, achieving the mechanically opposing aims of maintaining structural strength and decreasing its height-to-diameter ratio. Freeing LM Perpetual EVO from the bezel also necessitated the use of a sophisticated thermal bonding system between the sapphire crystal and the zirconium case.

The previously circular pushers for adjusting the perpetual calendar have been enlarged into double-sprung oblong actuators, boosting the tactile comfort and ease of adjustment. For the first time in any MB&F creation, the LM Perpetual EVO is rated at 80m of water resistance, enabled by its screw-down crown. A small, but essential, detail of implementing a screw-down crown is the *débrayage* of the winding stem, disengaging the crown from the winding mechanism when it is pushed in and tightened, which eliminates the chance of manually over-winding the mainspring barrel.

An additional new element of the LM Perpetual EVO is the FlexRing: an annular dampener fitted between case and movement, providing shock protection along the vertical and lateral axes. Machined from a single block of stainless steel, the dampener imparts exceptional robustness to the perpetual calendar, a function that is associated with classicism and elegance, but is arguably the most pragmatic and utilitarian of all the high complications.

When Stephen McDonnell set out to redesign the perpetual calendar for MB&F, he proposed a system that rethought the entire mechanical basis of the complication. The LM Perpetual uses a “mechanical processor” consisting of a series of superimposed disks. This revolutionary processor takes the default number of days in the month at 28 — because, logically, all months have at least 28 days — and then adds the extra days as required by each individual month. This ensures that each month has exactly the right number of days, and removes the possibility of the date jumping incorrectly. An inbuilt safety feature disconnects the quickset pushers during the date changeover, so that even if the pushers are accidentally actuated whilst the date is changing, there is no risk of damage to the movement.

Reinforcing the dynamism and durability of the LM Perpetual EVO is a new dial plate colour — a shade of orange that is as bright as it is difficult to achieve. Although dark shades of PVD and CVD coating have been used for years in watchmaking, with colours towards the cooler end of the visible light spectrum becoming more common recently, warmer hues such as yellow, orange and red have always remained unattainable. A combination of technical innovations in the areas of coating material and coating technique allows the LM Perpetual EVO to don this atomic shade, bringing the next level of horological heat to your wrist. Two other dial-plate colours, black and blue are also available, with each of the three shades produced in a limited series of 15 pieces – celebrating the brand’s 15th anniversary.

In design, in technique, in spirit, Legacy Machine Perpetual EVO is an evolution of your story with MB&F.

The LM Perpetual EVO is not a watch for sports. It is a watch for life.

**LEGACY MACHINE PERPETUAL EVO IN DETAILS**

**A MATTER OF MATERIALS**

The LM Perpetual EVO comes in a case of zirconium, a metal rarely used in watchmaking due to the extreme requirements involved in machining this high-risk material. When zirconium is finely divided into a powder, as might happen when it is being worked into different forms by industrial tools, it is known to combust. During conventional machining processes, when metallic particles are constantly being created and dispersed through the environment, zirconium has proved extremely dangerous. The creation of zirconium metal parts has to be conducted under controlled, secure conditions.

Previously, this challenging metal was used in MB&F’s HM3 Frog and HM5. Zirconium’s biocompatibility and hypoallergenic and anti-microbial properties made it the ideal material for the organic curves of MB&F’s favourite amphibian, while its technical appeal and physical properties (lighter than steel, more durable than titanium) were a perfect fit for the motoring-inspired HM5. The LM Perpetual EVO introduces a new paradigm for MB&F — the use of zirconium is not in support of the journey of imagination initiated by the watch concept; it is the means by which LM Perpetual EVO will keep pace with whatever journey you choose to embark upon.

**CALENDRIC COMPUTATION**

Conventional perpetual calendars are generally modules comprising the complication, which is fitted on top of an existing movement. The calendar indications are synchronised by a long lever running across the top of the complication and passing through the centre. As the date changes, this long lever transmits information to the appropriate components and mechanisms by moving backwards and forwards. This traditional system, while beautiful in its interplay of levers and components, is also extremely unwieldy, restricting movement construction in several key ways that would make something like Legacy Machine Perpetual a mechanical impossibility.

Created by Stephen McDonnell and premiered in 2015, the LM Perpetual Engine was — and still is — one of the most innovative perpetual calendar systems to exist in modern watchmaking.

In the traditional system, perpetual calendars assume that, by default, all months have 31 days. At the end of months with fewer than 31 days, the mechanism quickly skips through the superfluous dates before arriving at the 1st of the new month. Any manipulation or adjustment of the date during changeover can result in damage to the mechanism, requiring expensive repairs by the manufacturer. The dates can also jump or skip during changeover, negating the whole point of the perpetual calendar in the first place, which is not requiring adjustment for years. Or decades.

Legacy Machine Perpetual uses a “mechanical processor” consisting of a series of superimposed disks. This revolutionary processor takes the default number of days in the month at 28 – because, logically, all months have at least 28 days – and then adds the extra days as required by each individual month. This ensures that each month has exactly the right number of days. There is no "skipping over" redundant days, so there is no possibility of the date jumping incorrectly.

Using a planetary cam, the mechanical processor also enables quick-setting of the year so that it displays correctly in the four-year leap year cycle, whereas traditional perpetual calendar mechanisms require the user to scroll through up to 47 months to arrive at the right month and year.

The mechanical processor also enables an inbuilt safety feature that disconnects the quick-set pushers during the date changeover, eliminating any risk of damage while the date is changing.

In 2015, Legacy Machine Perpetual premiered the world's longest balance wheel pinion, connecting the hovering balance to the escapement on the back of the engine. This technical feat has since been showcased elsewhere in the MB&F collection, namely the Legacy Machine Split Escapement.

**ORANGE ALERT**

Finding a new shade of PVD or CVD treatment may seem at first to be a purely aesthetic endeavour that requires little in the way of technical expertise or innovation, but that could not be further from the truth. Colours that are a result of PVD or CVD (physical or chemical vapour deposition), are not simply applications of ordinary pigments. PVD/CVD coatings were originally reserved for utilitarian purposes, providing a thin layer of protective material for reasons of tribology, or to extend the longevity of mechanical parts.

Applications of PVD and CVD for design purposes came later, but even when used for decoration, these coatings remain high-performance solutions for surface treatments, requiring aesthetic and material stability over the long term.

Although PVD and CVD coatings are no more than a few nanometers thick, the colours they exhibit are known for their brilliance and intensity. This is due to an optical effect known as thin-film interference, where light is either disrupted or reinforced to drive only certain wavelengths of visible light back into our eyes, which we then perceive as colour. Dark PVD/CVD coatings are common, with colours that appear along the cooler end of the visible light spectrum becoming more familiar in watchmaking. Yellow, orange and red remain tantalisingly out of reach for all except the most technically advanced specialists, who keep their material compounds and application methods a close professional secret.

The LM Perpetual EVO is the first timepiece to exhibit a bright orange shade of CVD coating, in line with the game-changing approach to watchmaking at MB&F.

**LEGACY MACHINE PERPETUAL EVO**

**TECHNICAL SPECIFICATION**

Legacy Machine Perpetual EVO is available in three variations of 15 pieces each:

* Zirconium case with orange CVD dial plate
* Zirconium case with blue CVD dial plate
* Zirconium case with black PVD dial plate

**Engine**

Fully integrated perpetual calendar developed for MB&F by Stephen McDonnell, featuring dial-side complication and mechanical processor system architecture with inbuilt safety mechanism. Manual winding with double mainspring barrels. Bespoke 14 mm balance wheel with traditional regulating screws visible on top of the movement. Superlative hand finishing throughout respecting 19th century style; internal bevel angles highlighting hand craft; polished bevels; Geneva waves; hand-made engravings.

Galvanic black dials with both SLN numerals and hands (except for the leap year and power reserve)

FlexRing: an annular dampener fitted between case and movement, providing shock protection along the vertical and lateral axes.

Screw down crown

Power reserve: 72 hours

Balance frequency: 18,000bph / 2.5Hz

Number of components: 581

Number of jewels: 41

**Functions/indications**

Hours, minutes, day, date, month, retrograde leap year and power reserve indicators

**Case**

Material: Zirconium

Dimensions: 44 mm x 17.5 mm

Number of components: 70

Water resistance: 80m / 8 ATM / 270 feet

**Sapphire crystals**

Sapphire crystals on top and display back treated with anti-reflective coating on both faces

**Strap & buckle**

Rubber strap with titanium folding buckle.

**'FRIENDS' RESPONSIBLE FOR LMP EVO**

**Concept**: Maximilian Büsser / MB&F

**Product design**: Eric Giroud / Through the Looking Glass

**Technical and production management**: Serge Kriknoff / MB&F

**Movement design and finish specifications**: Stephen McDonnell and MB&F

**Movement development**:Stephen McDonnell, MB&F

**R&D**: Simon Brette, Thomas Lorenzato and Robin Anne / MB&F

**Wheels, bridges, pinions and axis**: Jean-François Mojon / Chronode, Atokalpa, Paul-André Tendon / Bandi, Daniel Gumy / Decobar Swiss, Rodrigue Baume / HorloFab, DMP, and Le Temps Retrouvé.

**Balance wheel**: Andréas Kurt / Precision Engineering, Benjamin Signoud / AMECAP and Marc Bolis / 2B8

**Barrel**: Stefan Schwab / Schwab-Feller and Swiss Manufacturing

**Perpetual calendar parts**:Alain Pellet / Elefil

**Hand-engraving of movement**: Glypto

**FlexRing**: Laser Automation

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

**PVD/CVD-treatment**: Pierre-Albert Steinmann / Positive Coating

**Movement assemblage**: Didier Dumas, Georges Veisy, Anne Guiter, Emmanuel Maitre, and Henri Porteboeuf / MB&F

**After-Sales service:** Thomas Imberti / MB&F

**Quality Control**: Cyril Fallet / MB&F

**Case and movements components**: Alain Lemarchand and Jean-Baptiste Prétot / MB&F

**Case** **decoration**: Bripoli

**Dial**: Hassan Chaïba and Virginie Duval / Les Ateliers d’Hermès Horloger

**Super-LumiNova on the dials**: Frédérique Thierry / Monyco

**Buckle**: G&F Chatelain

**Crown and correctors**: Cheval Frères

**Hands**: Waeber HMS

**Sapphire crystals**: Stettler

**Anti-refection treatment for sapphire crystals***:* Anthony Schwab / Econorm

**Strap**: Thierry Rognon / Valiance

**Presentation box**: Olivier Berthon / SoixanteetOnze

**Production logistics**: David Lamy, Isabel Ortega and Ashley Moussier / MB&F

**Marketing & Communication**: Charris Yadigaroglou, Virginie Toral and Arnaud Légeret / MB&F

**M.A.D.Gallery**: Hervé Estienne and Juliette Duru / MB&F

**Sales**: Thibault Verdonckt, Virginie Marchon, Cédric Roussel and Jean-Marc Bories / MB&F

**Graphic design**: Sidonie Bays / MB&F, Adrien Schulz and Gilles Bondallaz / Z+Z

**Product photography**: Laurent-Xavier Moulin and Alex Teuscher

**Portrait photography**: Régis Golay / Federal

**Website**: Stéphane Balet / Nord Magnétique, Victor Rodriguez and Mathias Muntz / NIMEO

**Film**: Marc-André Deschoux / MAD LUX and Brosky Media

**Texts**: Suzanne Wong / WorldTempus

**MB&F – GENESIS OF A CONCEPT LABORATORY**

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 yesteryear 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. 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 5 Grand Prix awards from the famous Grand Prix d'Horlogerie de Genève: 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.