Horological Machine No.7 ‘Aquapod’

Take a deep breath…

First launched in 2017 – in red gold with black ceramic bezel, and in titanium with blue ceramic bezel – HM7 is back in a titanium case with a green sapphire crystal bezel, limited to 50 pieces.

After pushing the boundaries of horological exploration by blasting into outer space (HM2, HM3, HM6), launching into the sky (HM4), and powering down the road and around the track (HM5, HMX, HM8), MB&F plunges into the water with Horological Machine No.7, aka HM7 Aquapod.

The organic jellyfish-inspired design of HM7 Aquapod is counter-balanced by the very mechanical horology within: a central flying tourbillon tops the concentric vertical movement architecture, with indications radiating out from the centre like ripples in a pond.

HM7 Aquapod began its gestation as a horological jellyfish, and the architecture of its Engine is appropriately biomorphic. Jellyfish are radially symmetric, Aquapod is radially symmetric. Where a jellyfish generates power from food caught in its tentacles, HM7 generates power from its tentacle-like automatic winding rotor.

Where jellyfish have a radially symmetric ring of neurons for a brain, Aquapod has radially symmetric rings displaying hours and minutes. Where jellyfish have a hood or bell on top, HM7 Aquapod has an imposing flying tourbillon regulating the power generated by the rotor, and transforming it into the display of time.

The winding rotor’s tentacles are crafted from a solid block of titanium; their very three-dimensional nature makes machining and finishing extremely challenging. Underneath the tentacles, a platinum mass ensures powerful and efficient winding.

And then there's that bezel. While Horological Machine No.7 is not a dive watch, it is a timepiece comfortably at home in the water – so MB&F added the one element that all serious aquatic watches possess: a unidirectional rotating bezel. However, unlike every other dive watch on the planet, Aquapod's bezel isn't attached to the case, but floats apart like a life buoy.

The 303-component, 72-hour power reserve HM7 Engine was developed in-house by MB&F. Spherically three-dimensional, all its mechanisms – from the winding rotor at the bottom, past the mainspring barrel and hour and minute displays, to the flying tourbillon on top – rotate concentrically around the centre. The curves of the high-domed sapphire crystal are mirrored in the shape of the time display rings, which are not simply flat and angled, but are mathematically precise, curved spherical segments.

And, like many jellyfish, HM7 glows in the dark. It glows where you would expect it to – on the hour and minute numerals – but also around the inside of the movement, to light up that flying tourbillon at night… and in addition, along the tentacle-like winding rotor so that its operation, too, can be appreciated in the dark.

**HM7 Aquapod is available in 3 limited editions: titanium with blue ceramic bezel limited to 33 pieces, red gold with black ceramic bezel limited to 66 pieces, and titanium with green sapphire crystal bezel limited to 50 pieces.**

# HM7 Aquapod in detail

## Inspiration

The idea for an aquatic watch originated from MB&F founder Maximilian Büsser’s memories of family beach holidays, which included an encounter with a jellyfish. While the encounter may have been minor, the seed it planted in Büsser's brain for a three-dimensional timepiece powered by tentacles was anything but. And even though the concept for Horological Machine No.7 came relatively quickly, the development took many years. So many years of development were necessary that, perhaps confusingly, HM8 ended up launching before HM7.

## Engine

While HM7 Aquapod is as contemporary as could be, the concept of the three-dimensional, spherical movement architecture is centuries old, originating in the "onion" pocket watches popular in the 18th century. Whereas the majority of watch movements are developed horizontally to be as flat as possible, the Engine of HM7 goes up, not out, with all of its components arranged vertically. The movement of HM7 was entirely developed in-house by MB&F.

From bottom to top, the winding rotor, mainspring barrel, hour and minute indications, and flying tourbillon are all concentrically mounted around the central axis. Energy travels from the rotor at the very bottom of the movement to the flying tourbillon regulator at the very top via gearing acting like a series of stairs, allowing power to transition from one level to the next.

This concentric architecture allows for the hours and minutes to be displayed around the periphery of the movement; however, this presented a serious challenge in itself: how to support such large-diameter time display rings? The answer was to develop extra-large diameter ceramic ball bearings, to support the spherical segment hour and minute displays and rotate with a very low coefficient of friction. The spherical segment discs are in aluminium and titanium for both minimum mass and maximum rigidity.

The choice of a flying tourbillon was deliberate as the upper bridge of a normal tourbillon would have necessitated the use of smaller, less legible time-display rings. The continually rotating flying tourbillon regulator at the very top of the movement is positioned for maximum appreciation by day, while three panels of AGT Ultra (Ambient Glow Technology) lume around the inside of the movement illuminate the tourbillon for maximum appreciation by night.

The winding rotor’s tentacles are machined from a solid block of titanium. Their curved, very three-dimensional nature is a manufacturing challenge, both for machining and for finishing, which alternates between polished and satin-finished sections. Hidden underneath the lightweight titanium tentacles, a sector in much heavier platinum ensures that the HM7 Engine is wound efficiently.

## Indications

Hours and minutes are displayed by two spherical segment discs in aluminium and titanium, which are supported by specially developed oversized ceramic ball bearings.

The hour and minute numerals and markers have been hand-painted in Super-LumiNova, making them legible by night. They are hand-painted, because it is impossible to print neatly on such complexly-curved components.

## Case

The case of HM7 Aquapod is basically a three-dimensional sandwich comprising two hemispheres of high-domed sapphire crystal on either side of a metal case band. The unidirectional bezel floats outside the case proper, while dual crowns are located between the two structures: the one on the left is for winding the movement (if necessary) and the crown on the right is for setting the time. The large crowns are ergonomically designed for ease of use, even when manipulated with wet fingers.

For the blue and black bezels, the numerals and markers are first engraved in the ceramic using a laser, after which the engraved sections are filled with metalized titanium. The whole ring is then polished to a high gloss. In order to obtain the perfect colour for the green edition, a sapphire crystal ring is inserted in the bezel; numbers and markets are metalized under the sapphire crystal, along with a layer of green lacquer.

The strap in engraved aircraft-grade rubber highlights the casual nature of HM7 Aquapod, ensuring that it looks just as good with jeans and a t-shirt on land as it does with a bathing suit in the water.

## Jellyfish

Paradoxically, jellyfish (also known as medusa) are neither fish, nor are they made of jelly; like us they are mainly composed of water. Jellyfish, the oldest multicellular animals on the planet, much older than dinosaurs, are the ultimate in distributed information processing, having no central brain but a connected ring of nerves that takes care of any thinking required. Jellyfish are sensitive to touch, they see and they navigate.

Jellyfish can be easily cloned: if you cut one in half (not recommended), it will grow into two genetically identical jellyfish. And jellyfish have been in space: in 1991 the space shuttle Columbia took a few jellyfish into space, where they successfully bred.

Jellyfish glow, often quite beautifully. Various species use phosphorescence, luminescence, or bioluminescence to glow, with the aim of either attracting prey or warding off predators. Luminescent tentacles are particularly effective as they have the effect of making a relatively small organism look very large.

# HM7 Aquapod technical details

**3 limited editions:**

**- grade 5 titanium, with blue ceramic bezel and blue lume (33 pieces);**

**- 18k 5N+ red gold, with black ceramic bezel and blue lume (66 pieces);**

**- grade 5 titanium, with green sapphire crystal bezel and green lume (50 pieces).**

## Engine

Three-dimensional vertical architecture, automatic winding, conceived and developed in-house by MB&F

Central flying 60-second tourbillon

Power reserve: 72 hours

Balance frequency: 2.5 Hz / 18,000 bph

Three-dimensional winding rotor in titanium and platinum

Number of components: 303

Number of jewels: 35

## Functions/indications

Hours and minutes displayed by two aluminium / titanium spherical segment discs rotating on oversized central ceramic bearings

Unidirectional rotating bezel for elapsed time

Numerals, markers and segments along the winding rotor in Super-LumiNova

3 panels of AGT Ultra (Ambient Glow Technology) lume around the flying tourbillon

Two crowns: winding on left and time-setting on right

## Case

Spherical construction

Material: Grade 5 titanium or 18k 5N+ red gold

Dimensions: 53.8 mm x 21.3 mm

Number of components: 95

Water resistance: 50 m / 150 feet / 5 atm

## Sapphire crystals

Top and bottom sapphire crystals treated with anti-reflective coating on both faces.

## Strap & buckle

Rubber bracelet moulded in aircraft-grade Fluorocarbon FKM 70 Shore A elastomer with folding buckle matching case material.

# 'Friends' responsible for HM7 Aquapod

*Concept:* Maximilian Büsser / MB&F

*Design:* Eric Giroud / Through the Looking Glass

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

*R&D:* Guillaume Thévenin, Ruben Martinez and Simon Brette/ MB&F

*Movement development:* Ruben Martinez / MB&F

*Case:* Pascal Queloz / Oreade

*Sapphire crystals:* Sebal

*Precision turning of wheels, pinions and axes:* Rodrigue Baume / DMP, Yves Bandi / BANDI, AZUREA

*Springs:* Alain Pellet / Elefil Swiss

*Tourbillon:* Dominique Lauper / Precision Engineering

*Wheels:* Patrice Parietti / MPS Micro Precision Systems

*Titanium rotor:* Marc Bolis / Systech analytics

*Plates and bridges:* Rodrigue Baume / DMP and Benjamin Signoud / AMECAP

*Mystery winding rotor in titanium/platinum:* Roderich Hess / Cendres et métaux

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

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

*In-house machining:* Alain Lemarchand and Jean-Baptiste Prétot / MB&F

*Quality control:* Cyril Fallet / MB&F

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

*Buckle:* Dominique Mainier / G&F Châtelain

*Crowns:* Cheval Frères SA

*Anti-refection treatment for sapphire crystals:* Jean-Michel Pellaton / BLOESCH

*Dials (discs for hours - minutes):* Hassan Chaïba and Virginie Duval / Les Ateliers d’Hermès Horlogers, Aurora Amaral Moreira / Panova

*Strap:* Thierry Rognon / Valiance

*Presentation box:* Olivier Berthon / ATS Atelier Luxe

*Logistics and production:* David Lamy, Isabel Ortega and Raphaël Buisine / MB&F

*Marketing & Communication:* Charris Yadigaroglou, Virginie Toral and Juliette Duru / MB&F

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

*Sales:* Rizza Naluz, Stéphanie Réa and Jean-Marc Bories / MB&F

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

*Watch photography:* Maarten van der Ende

*Portrait photography:* Régis Golay / Federal

*Webmasters:* Stéphane Balet / Nord Magnétique, Victor Rodriguez and Mathias Muntz / Nimeo

*Film:* Marc-André Deschoux / MAD LUX

*Texts:* Ian Skellern / Quill & Pad

# MB&F – Genesis of a Concept Laboratory

In 2015, MB&F celebrated its 10th anniversary – and what a decade it was for the world’s first ever horological concept laboratory: 10 years of hyper-creativity; 11 remarkable calibres forming the base of the critically acclaimed Horological Machines and Legacy Machines for which MB&F has become renowned.

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: HM2, HM3, HM4, HM5, HM6, HM7, HM8 and HMX – all Machines that tell the time, rather than Machines to tell the time.  
  
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. The year 2015 saw the launch of Legacy Machine Perpetual featuring a fully integrated perpetual calendar. LM SE was launched in 2017. MB&F generally alternates between launching contemporary, resolutely unconventional Horological Machines and historically inspired Legacy Machines.

As well as Horological and Legacy Machines, MB&F has created space-age MusicMachines (1, 2 and 3) in collaboration with music box specialist Reuge; and with L’Epée 1839, unusual clocks in the form of a space station (Starfleet Machine), a rocket (Destination Moon), a spider (Arachnophobia), an octopus (Octopod) and three robot clocks (Melchior, Sherman, and Balthazar) – as well as a mechanical weather station (The Fifth Element). In 2016, MB&F and Caran d’Ache created a mechanical rocket-pen called Astrograph.

And 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 4 Grand Prix awards from the famous Grand Prix d'Horlogerie de Genève: in 2016, LM Perpetual won the Grand Prix for Best Calendar Watch; in 2012, Legacy Machine No.1 was awarded 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.