

HYT



HYT CONICAL TOURBILLON

HYT CONICAL TOURBILLON: 10 years of watchmaking revolutions celebrated with an innovative tourbillon

The new HYT Conical Tourbillon is a hypnotic, technical response to the promise made by the Neuchâtel company ten years ago: to take high-end watchmaking into the future. A symbiosis between science and the expertise of the finest watchmakers, this mechanical fluidic watch is fitted with a conical tourbillon. Created by master watchmaker Eric Coudray, who took inspiration from the unique inclined balance tourbillon developed by Walter Prendel in 1928, it provides a new solution to improve the stability and performance of the tourbillon.

The new *HYT Conical Tourbillon* watch is both visually captivating and technically fascinating. By combining its animations and the complexity of an innovative, original conical tourbillon with the exclusive mechanical fluidic technology from HYT, this new timepiece expresses the independent Swiss brand's utterly unique vision of watchmaking.

For ten years, HYT has been continuously pushing the boundaries of high-end contemporary watchmaking in both technical and aesthetic terms. The *HYT Conical Tourbillon* is the result.

This contemporary timepiece is the most accomplished of those designed by HYT. The *HYT Conical Tourbillon* stands for everything that makes this independent Swiss watchmaking brand – founded in 2012 – so unique and different. Ten years of history already! Yet, only ten years...

The *HYT Conical Tourbillon* is clearly the start of a new chapter. "HYT is entering a new phase in its history, a phase of maturity," says Nicolas Sestito, the brand's product director. "For ten years, we have been positioning ourselves as the 'Mechanical Fluidic Engineering', opening up numerous fields of research in order to make our approach a reality. From the very beginning of the adventure, we have brought mechanics back to its most beautiful and noble form. Something which can not only be seen and touched, it can also be felt with tools. It has taken lots of discipline and excellence to perfect these complex devices. We were then able to further develop our creative approach by giving it a conceptual dimension at an intellectual level" to illustrate that the fluidic indication made possible by the mechanical movement in HYT watches goes far beyond the status of a simple instrument.

Ten years old, and a time for a bold approach.

At ten years old, your temperament is fully-formed and the essentials of your character are set. It is an age of boldness and enthusiasm. At ten years old, a child develops a powerful energy which feeds their desire for growth and development. But it is also a phase which allows for more structured experimentation.

Based on this philosophy, the new *HYT Conical Tourbillon* watch is a return to the purity of the brand's creative sources, a full expression of its singular character.

It is both animated and sensual thanks to the dual movement effect created by the retrograde fluid hour markers and the turning of the conical tourbillon with its dynamic movements. The *HYT Conical Tourbillon* is a new form of life, symbolised by the central mechanism at its heart.

On the wrist, the seductive lines and finish of the *HYT Conical Tourbillon* are beautifully showcased. The piece symbolises a contemporary approach to watch design perfectly combined with the most refined work of the Swiss watchmaking sector's master craftsmen. A careful eye will spot the sand-blasted and satinised finish of the 701 TC calibre, a hand-wound mechanical movement beating at a frequency of 21,600 vib/h (3 Hz).

More discerning lovers of high-end watchmaking will be interested in the specifications of the suspended tourbillon movement with a spring-balance inclined at 30 degrees to horizontal, the escape wheel at 15 degrees, and a pallet at 23 degrees. This bold technical achievement takes its inspiration directly from the works of German watchmaker Walter Prendel and his inclined balance tourbillon.



When Eric Coudray amplifies Prendel's tourbillon.

The tourbillon is a mechanical device invented by Abraham-Louis Breguet to improve the precision of mechanical watches by counteracting disruptions to the isochronism of the balance caused by Earth's gravity. The principle is to place the movement's regulator and escapement in a cage rotating around its own axis in order to obtain a range of vertical positions and ensure mutual compensation and thus release itself from the pull of the Earth.

Watchmakers have been working on perfecting this system for more than two centuries and there are numerous interpretations and variations on the theme, from the original principle patented in 1801 by Abraham-Louis Breguet to Omega's central tourbillon in 1995.

However, one of the most important steps in the evolution of the tourbillon is not one of the most well-known. This was the development in 1928 of an oblique tourbillon by the German watchmaker Walter Prendel.

In his workshops in Groitzsch, a part of Saxony which is as well-known as Switzerland for the development of cutting-edge watches, Walter Prendel aimed to prove the relevance of his research – based on the theories of master watchmaker Alfred Helwig – into improving the stability and regularity of the rate of his oblique tourbillon with a spring-balance inclined at 30° to horizontal. This would be demonstrated through the creation of a unique pocket watch equipped with his ingenious device, completing one rotation in 6 minutes. A key milestone, this historic watch has not been seen since it was sold at auction in Geneva in 2021.

It was in the early 2020s that master watchmaker Eric Coudray, winner of the Prix Gaïa and familiar with the complex works of Walter Prendel, decided to continue this work to improve the tourbillon, using this oblique tourbillon as his base. Eric Coudray devised his conical tourbillon, which he called the "Cônillon", a revision and reinterpretation of Prendel's oblique tourbillon.

Given its advances in contemporary fine watchmaking, it was only logical that HYT would decide to include a tourbillon in the design of the mechanical movement for its new watch. Of course, the independent company turned to Eric Coudray, closely associated with the development of the brand for many years, to help it achieve this.

In the same way that the ebb and flow of the fluids in HYT watches are visible and evident, the capacities of the conical tourbillon can be understood without a magnifying glass or other tools by any discerning watch lover thanks to the unusual dynamic animation.

At the very heart of the dial, where the conical tourbillon completes a clockwise revolution in 30 seconds, there are three spheres rotating at different speeds which are easy to observe: the first completes four turns a minute, the second five turns a minute, and the third six turns a minute, clockwise.

These rotations introduce a particularly bold form of chaos as, paradoxically, they demonstrate the stability of the conical tourbillon's rate. Any observer would intuitively be tempted to think that their contradictory forces would cause disruption, upsetting the equilibrium, which seems to fly in the face of strict watchmaking logic.

On the contrary, they demonstrate the perfect stabilisation of the rhythm of the tourbillon as, unlike other types of animation which are positioned after the balance in the chain of movement, the animated spheres in the *HYT Conical Tourbillon* are cut across by the energy produced by the four cylinders in order to reach the regulating organ.

The unconnected, rapid movements of the animated spheres ensure the conical tourbillon keeps perfect time, providing a tangible demonstration of its technical efficiency.



Excellence and artistry on a micron scale

If we look closer, these spheres provide yet another indication of the level of quality put into the production of the HYT Conical Tourbillon. Each of these three spheres measuring 2.5 mm in diameter is produced individually by a glass blower using traditional methods.

This ancient technique relies on skilled craftsmanship and extreme precision, the latter taken to remarkable extremes here, requiring work to the nearest micron. The walls of these spheres are extremely thin, with very minute tolerances of just five hundredths to one tenth of a millimetre. This makes each sphere completely unique and requires bespoke calibration.

The difficulty does not end with the dimensions as the spheres are then filled with fluorescent liquid so that their rotations can be seen. In order to contain this glow-in-the-dark liquid, the first stage is to guarantee the spheres are completely sealed at a molecular level.

Last but not least, the spheres are filled with luminescent fluid, which is another complex, precision manual operation which can only be carried out by the expert hand of a true artisan.

This is why HYT has two dedicated qualified watchmakers working solely on producing this exceptional movement which marries technical watchmaking skills with craftsmanship. There are 533 components in the assembly. The tourbillon cage alone has 159 components. If you add the 39 dial components and the 66 case components, the whole of the HYT Conical Tourbillon is made up of 750 components, all of which are assembled and checked by hand. The entire mechanism, made up of HYT's proprietary fluid module, here with a green liquid, and the conical tourbillon in its modernist cage, sits beneath a dome of sapphire crystal which encloses a 48 mm case made of hydrocarbon and titanium.



Telling the time using fluids: a sophisticated contemporary response to an age-old principle.

HYT was born in 2012 from a dream of using liquid to display the time on a mechanical watch. The independent Swiss watchmaker has developed a very personal approach to the art of watchmaking, guided by the ambition to return to the very sources of timekeeping as they were first established many thousands of years ago. In order to do this, HYT has developed cutting-edge technology which allows it to transfer the energy developed by the watch movement to animate the fluid mechanics.

Specifically, it involves using a very fine glass capillary tube connected to two bellows with walls one quarter the thickness of a human hair but 10,000 times more watertight than even a traditional diver's watch.

The mechanical movement uses pressure to move two immiscible liquids contained in two flexible reservoirs known as bellows. One of the liquids is transparent, the other is coloured. Where the two liquids meet is the point of reference in order to tell the time. This is a retrograde reading as the compression energy is transferred to the first of the two reservoirs after six hours. The liquid then reverses its course in about a minute before starting a new 12-hour compression cycle.

To enable a link between the liquid system and the watch calibre, the movement has an oversized lever known as the feeler. It establishes a connection between the functioning of the cam and that of the bellows, whose role is to control the movement of the two liquids. This cam allows perfect synchronisation between the fluidic time and the mechanical time. By improving the energy regulation of the mechanical calibre, the tourbillon increases the precision of this coordination. In order to keep the liquids separated while controlling their movement using the bellows, the engineers harnessed a physical phenomenon which uses the force of repulsion of the molecules of each fluid and the walls of the capillary tube.

The liquid module needs to be perfectly hermetically sealed and able to compensate for the expansion of the liquids due to temperature fluctuations. This is a particularly challenging constraint for an item worn on the wrist, which is exposed to changing body temperature, changing external temperatures and other hazards of everyday life, both indoors and outdoors. The key element is the thermal compensator inside one of the two bellows.

For more than ten years, HYT has been constantly improving both its system and its movements. 2023 sees an important step forward. HYT is entering a new phase in its development, reaching a certain level of maturity. Its limited-edition timepieces are sophisticated, complex and highly unusual, while still exemplifying a form of hedonism. The brand's course is set, and exclusivity is the watchword.

Specifications



MODEL

HYT Conical Tourbillon

REFERENCE: H02759-A

LIMITED EDITION OF: 8

SUGGESTED PRICE: CHF 335'000 H.T.

CASE

- Carbon & black DLC titanium case
- Crown in black dlc titanium
- Domed sapphire crystal (box) with anti-reflective coating
- Black side grids with green background

DIAL

- Black coated brass (39 pcs)
- 3D black coated appliques, green luminous numbers (Lumicast®)
- Black grid with black background
- Green liquid inside borosilicate capillary tube
- Black mat minutes hands, white SLN

MOVEMENT

- Ref.: 701-TC (533 pièces)
- Type: Mechanical
- Frequency: 21,600 vib/h (3 Hz)
- Jewels: 61
- Winding: with winder tool
- Power reserve: 40h
- Finishing: Finely sandblasted and satin
- Coating: Black coating

FUNCTIONS

- Retrograde fluidic hours
- Central minutes hand
- Tourbillon
- Chaotic animation
- 50 m Water-resistant

STRAP

- Black rubber strap
- Black Microfibre embossed strap decor
- Green stitching

CLASP

- Pin-buckle
- Black coated titanium
- Satin & sandblasted finishes

DIMENSIONS

- Width: 48.00 mm
- Length: 52.30 mm
- Thickness: 25.15 mm