



## Les Cabinotiers Celestia Astronomical Grand Complication 3600

### A shining new addition to the watchmaking galaxy

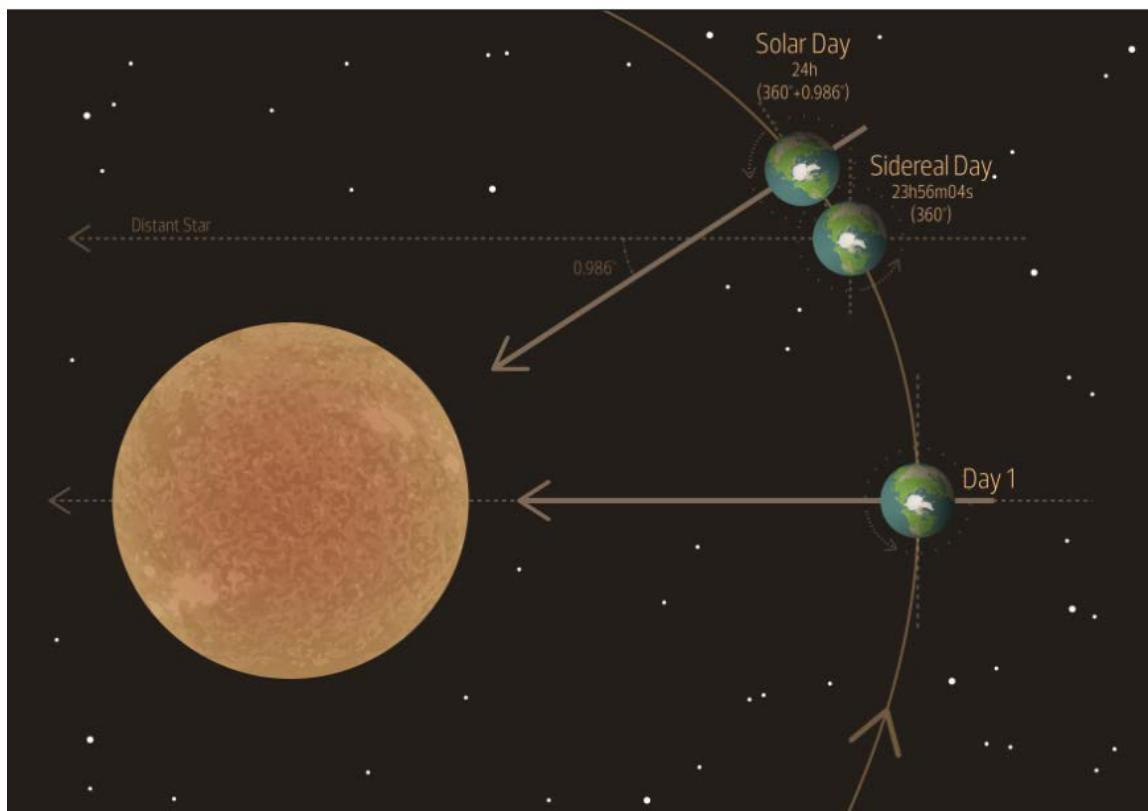
- One model / five years of development from scratch / one dedicated master-watchmaker
- Worthwhile astronomical functions / 23 horological complications / new integrated movement
- Tropical gear train for solar time and running equation of time
- Tourbillon with three-week power reserve
- Hallmark of Geneva certification

The Fine Watchmaking firmament welcomes a bright new star: the unique twin-dial Celestia Astronomical Grand Complication 3600 combines astronomy and the watchmaking art in a celestial white gold composition. Twenty-three essentially astronomical complications appear on the front and back dials of the watch, providing a reading of time in three modes – civil, solar and sidereal – each driven by its own gear train. Embodying the height of technical sophistication, its new fully integrated 514-part caliber measures a mere 8.7 mm thick, while six barrels guarantee three full weeks of autonomy.

Pursuing the path traced by the majestic Reference 57260 – the world's most complicated watch equipped with 57 complications created for the 260<sup>th</sup> anniversary of the Manufacture – Vacheron Constantin now presents Les Cabinotiers Celestia Astronomical Grand Complication 3600. Featuring an all-new construction, this mechanical masterpiece follows in the eminent wake of a unique creation representing a milestone in the history of mechanical horology and laying a veritable cornerstone for new watchmaking feats by Vacheron Constantin. Five years of development starting from a blank page, a dedicated master-watchmaker, along with two years of design, have given life to the one-of-a-kind Les Cabinotiers Celestia Astronomical Grand Complication 3600, displaying 23 complications on its twin dials. This Haute Horlogerie 'heavenly phenomenon' is one of the most complex ever made and heir to a proud lineage of astronomical timepieces. Astronomy, the study of celestial objects, is closely bound up with horology. The former seeks to explain the origins, evolution and properties of heavenly bodies. The latter strives to capture and mechanically express the course of time and its perpetual dance with the stars – a challenge successfully met in this watch providing a combined display of civil, solar and sidereal times by means of three separate gear trains.

A remarkable feat of miniaturisation and engineering, the new Vacheron Constantin Caliber 3600 – an integrated movement comprising 514-parts while measuring just 8.7 mm thick – controls more than 20 functions and has a three-week power reserve. It is yet another vivid demonstration of the technical expertise cultivated by the Maison in the field of astronomical complications. This expertise dates back to the late 19<sup>th</sup> century, with pocket-watches featuring a perpetual calendar, moon phases and sidereal time; and later, in 1914, equipped with a running equation of time display. More recent exceptional models – such as the Tour de l'Île (16 complications) presented in 2005 and Reference 57260 (the world's most complicated watch, 57 complications) in 2015 – bear further eloquent testimony to this path marked by remarkable achievements.

A waltz in triple – civil, solar and sidereal – time



Epitomising the peak of horological mastery, this unique timepiece equipped with a wealth of astronomical complications united within an incredibly small area represents an impressive sum of knowledge, calculations and fine adjustments. Its captivating functions notably feature the triple-time civil, solar and sidereal displays powered by three distinct gear trains, including a "tropical" gear train dedicated to all the solar functions.

Swept over by a pair of white gold open-tipped hands, civil (or standard) time is read off in the traditional manner on the front dial. Civil time is a universally recognised mean time based on the fictional principle that the Sun moves around the equator at a constant speed throughout the year, averaging one full turn every 24 hours. This convenient and conventional choice divides the year into 365.25 days, each day into 24 hours and each hour into 60 minutes.

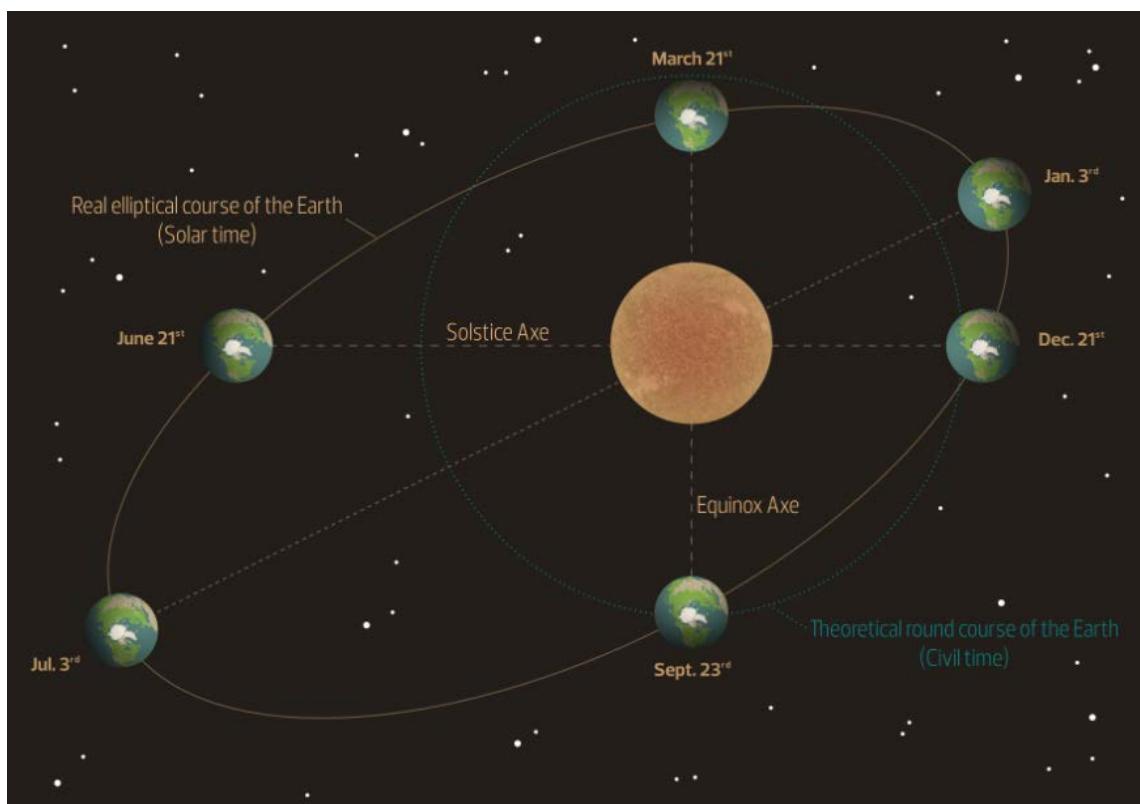
True solar time is on the other hand based on the visible trajectory of the Sun in the course of the day, expressed through its hour angle measured at a given place and time. Depending on the day of the year, the difference between solar time and mean time ranges from +14 to -16 minutes, with the two exactly coinciding only four times a year. This discrepancy is due to the fact that the Earth's orbit is elliptical (and not round); that the Sun is not in the centre of this ellipse; that the Earth does not follow this orbit at a constant speed; and lastly that the Earth's rotation axis is tilted in relation to the plane of its orbit.

## Head in the stars

Thirdly, sidereal time is read off on the back of the watch. Technically regarded as an astronomical time scale based on the Earth's rate of rotation measured with respect to the apparent motion of the 'fixed' stars as observed from a local meridian, sidereal time differs from mean time by approximately four minutes per day, meaning that 24 sidereal hours correspond to 23 hours, 56 minutes and 4 seconds of civil time. Sidereal hours and minutes are indicated in an original and refined way by means of two superimposed sapphire discs. The lower one forming the background features the celestial dome, the celestial time minute-track and the four cardinal points; while the second one placed on top bears the constellations, the projections of the equator (white circle) and the ecliptic (red circle) – the latter depicting the Sun's annual trajectory as seen from Earth. This Lambert projection is an authentic scientific map corresponding to the constellations in the Northern Hemisphere.

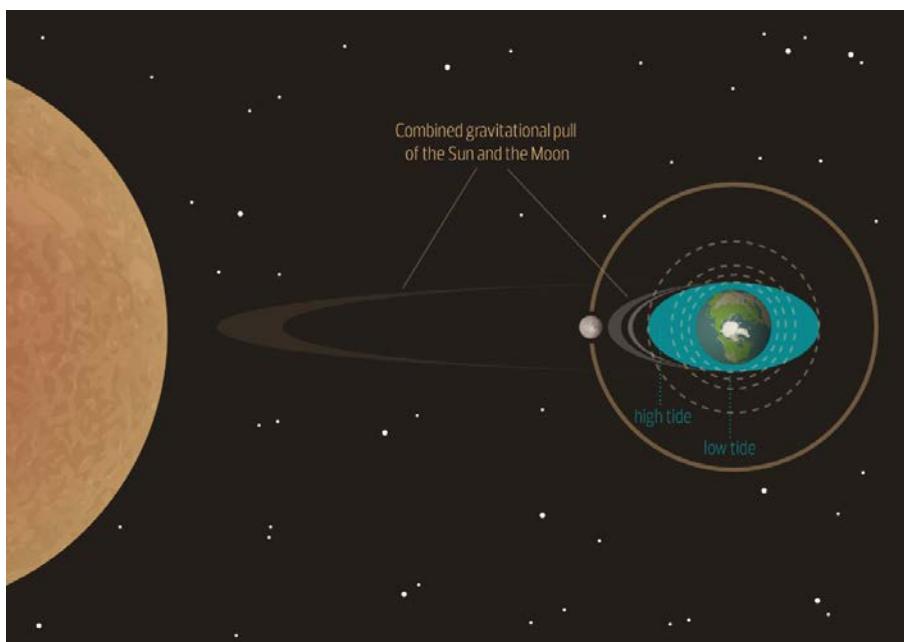
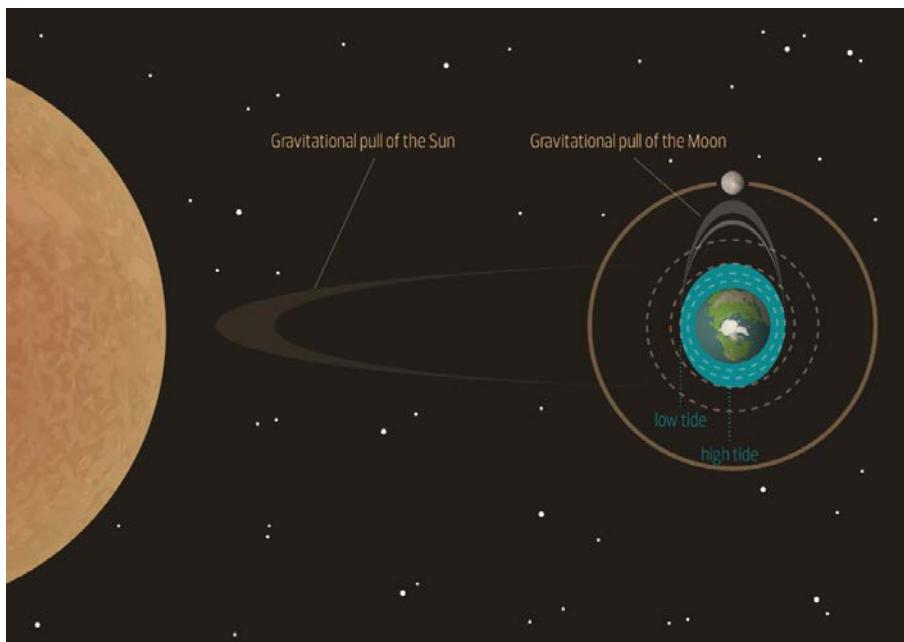
## Running equation of time on tropical gear train

To measure and display the difference between civil and solar time, this timepiece is equipped with a complex and refined equation of time mechanism. Moreover, the latter is also a 'running' equation of time, a kind rarely seen in wristwatches and indicating solar time by means of an additional coaxial pink gold minutes hand adorned with a cut-out sun. The equation of time is generally displayed by a hand moving across an auxiliary sector with a scale running from +14 to -16 minutes and requiring a bit of mental arithmetic to check solar time. The running equation of time is far more complex to create and enables instant readings of solar and civil times. To ensure exactitude and precision, Vacheron Constantin has adjusted it to a tropical gear train simulating the tropical year, meaning the time the Earth takes to make a full turn around the Sun and corresponding to 365.2421898 days.



## Time and tides

This unique creation features a doubled-sided display of 23 complications. On the front, the slate grey dial reveals 15 artfully arranged complications. As well as readings of civil and solar time (running equation of time) by three coaxial hands, it also has a perpetual calendar with a precision moon phase as well as a remarkable mareoscope composed of a tide level indicator and a 3D depiction of the Earth-Moon-Sun alignment. Tides are governed by physical laws and depend on the gravitational attraction and centrifugal forces of these three heavenly bodies.





Representing a 'memory' of time yet to come, a perpetual calendar is able to keep track of the irregularities of the Gregorian calendar with no need for any intervention other than a date change every 400 years. It displays the day of the week, the month and the leap-year cycle through apertures, while pointing to the date with a serpentine hand.

The fascinatingly elegant precision moon-phase display requires a one-day correction only once in 122 years and is read off by means of two superimposed discs bearing a laser-engraved true image of the full moon, a day/night indication and the age of the moon – meaning the number of days elapsed since the last full moon. These precious functions are complemented by sunrise and sunset times, pointed two by slim hands moving over two graduated scales, as well as the length of day and night appearing on a special gauge at 6 o'clock. This set of complications that occur but rarely in the Fine Watchmaking sky is further enriched by other captivating indications arranged in a semi-circle: zodiacal signs, seasons, solstices and equinoxes. Solstices – at which the day is at minimum or maximum length – occur twice a year in summer and winter; whereas equinoxes – when day and night are of equal length – correspond to the start of spring and autumn.

### Stellar transparency

On the back of the watch, a second dial is also brimming with worthwhile astronomical functions. Composed of two superimposed sapphire discs, it is distinguished by its limpid, airy design as well as the originality of its translucent celestial chart for which a patent has been filed. In the foreground, this display depicts the constellation viewed from the Northern Hemisphere, ringed by an anthracite inner bezel ring showing the months of the year as well as a gauge-type power-reserve indicator. On this same transparent disc, two ellipses – one red and the other white – respectively correspond to the projections of the ecliptic and the celestial equator. Positioned beneath the constellation, a second disc rimmed by a graduated scale displays sidereal time and the four cardinal points, while an anthracite-coloured sphere reveals a see-through view of the celestial map. In addition, this innovative sky chart also provides a fascinating glimpse of the tourbillon at 6 o'clock.

### A feat of technical sophistication and miniaturisation

The extremely complex and exclusive Caliber 3600 powering this exceptional watch called for five years of development, from the start of its fully integrated conceptualisation through to the finishing touches on its refined exterior. This mechanical manual-winding movement not only achieves the feat of combining more than 20 horological complications – including three distinct times driven by three dedicated gear trains – but also has an extraordinary three-week power reserve ensured by six barrels, coupled by three. It naturally takes considerable energy to ensure that such an impressive number of astronomical indications operates with all due precision.

To achieve this, the Manufacture worked simultaneously on two fronts: by seeking to save energy on the one hand, and by increasing the size of its power supply. So as to optimise the energy stored as well as its transmission, the barrel springs are made from a sturdy and ductile Bioflex®\* alloy, while the involute gears mesh in an ideal manner. Finally, the six barrels guarantee a substantial storage volume, while keeping the caliber as slim as possible. The resulting ensemble is a true feat of miniaturisation comprising 514-part finely adjusted and meticulously decorated parts and measuring just 8.7 mm thick! This unique mechanism, equipped with a tourbillon featuring a large balance wheel for enhanced precision and regularity, fits neatly inside an elegant 45 mm-diameter white gold case.

\* Bioflex® is a registered mark which does not belong to Vacheron Constantin.



The eminently legible, visually harmonious and original display of its 23 functions also represents a technical and aesthetic tour de force. Enabling a beautifully balanced layout on the front dial, its movement is adorned with a matt finish and transparent jewels so as to guarantee optimal readability of its sapphire-disc display on the back. Like the entire Vacheron Constantin collection, Les Cabinotiers Celestia Astronomical Grand Complication 3600 bears the Hallmark of Geneva, confirming that it meets the numerous demanding criteria governing this prestigious quality certification.

### Reaching for the stars

Presented in the collection Les Cabinotier, made of exclusive timepieces, this astronomical supercomplication model exemplifies the tradition of Geneva's 18<sup>th</sup> century "cabinotiers". These highly specialised watchmaking artisans in their attic workshops created authentic bespoke masterpieces intended for prestigious clients around the world. Fired by the same spirit of blending horological prowess with exclusive service and extreme personalisation, Vacheron Constantin perpetuates this same philosophy of excellence. The quintessentially rare Les Cabinotiers Celestia Astronomical Grand Complication 3600 is issued in a limited edition of one. Fitted with an alligator leather strap secured by a white gold pin buckle, it comes in a luxurious presentation box adorned with wood marquetry.

#VCSIHH

#VCcelestia

<http://sihh.vacheron-constantin.com>



## TECHNICAL DATA

	Les Cabinotiers Celestia Astronomical Grand Complication 3600
Reference	9720C/000G-B281 Hallmark of Geneva certified timepiece
Calibre	3600 Developed and manufactured by Vacheron Constantin Mechanical, manual-winding 36 mm (15 3/4 '') diameter, 8.7 mm thick Approximately 3 weeks of power reserve 2.5Hz (18,000 vibrations/hour) 514 components 64 jewels
Indications	Hours, minutes, perpetual calendar, day/night indication, precision moon phase, age of the moon, running equation of time, sunrise and sunset time, day and night length, seasons, solstices, equinoxes and zodiacal signs, tide level indicator, Sun-Earth-Moon conjunction, opposition and quadrature, transparent sky chart of the northern hemisphere with indication of the Milky Way, of the ecliptic and celestial equator, hours and minutes of sidereal time, tourbillon, 3 weeks of power reserve (6 barrels), power reserve indication
Case	18K white gold 45 mm diameter, 13.6 mm thick Transparent sapphire crystal caseback Water-resistance tested at a pressure of 3 bar (approx. 30 metres)
Dial	Slate-colored opaline 18K gold applied hour-markers 18K gold hands
Strap	Black Mississippiensis alligator leather with alligator inner shell, hand-stitched, saddle-finish, large square scales
Clasp	18K white gold pin buckle Polished half Maltese cross-shaped
Accessories	Delivered with a corrector pen and a magnifying glass
Unique timepiece	« Pièce unique » and « Les Cabinotiers » engraved on the back of the timepiece