
THE IWC SCHAFFHAUSEN PORTUGIESE ETERNAL CALENDAR WITH MOON PHASE ACCURACY OF 45 MILLION YEARS

Schaffhausen/Geneva, 9th April 2024: IWC Schaffhausen introduces the Portugieser Eternal Calendar at Watches and Wonders Geneva. Drawing on the extensive calendar expertise it has acquired since introducing the perpetual calendar almost four decades ago, IWC now pushes the boundaries once again with its first secular perpetual calendar. In addition to recognising the different lengths of the months and adding a leap day every four years, the Portugieser Eternal Calendar also takes into account the Gregorian calendar's complex leap-year exception rules. A newly engineered 400-years gear ensures that the calendar automatically skips three leap years over four centuries – an event which will occur for the first time in the year 2100. Another key feature of this watch is the extremely precise moon phase display. Thanks to a newly developed reduction gear, the Double Moon™ phase display will only deviate from the moon's orbit by one day after 45 million years. The Portugieser Eternal Calendar features an intricately finished platinum case and a black alligator leather strap from Santoni. The extensive use of glass elements such as a glass dial and double box-glass sapphire crystals showcases the ingenious mechanism inside. The increased transparency also creates a unique sense of lightness, airiness and understated elegance.

Translating the irregular calendar into a mechanical program for a wristwatch remains one of the most challenging engineering feats in fine watchmaking. The Gregorian calendar, which is used across most continents and cultures today, divides the year into twelve months with 28, 30 or 31 days. Years that are divisible by four count as leap years, meaning that a 29th day must be added at the end of February. However, an additional correction is needed to keep the calendar in sync with the actual solar year: only those centurial years that can be divided by 400 are leap years, all others are common years. This means that 2000 and 2400 are leap years, while 2100, 2200 and 2300, for example, are common years. A traditional perpetual calendar, however, is only programmed for a four-year cycle, in which three common years are always

followed by a leap year. By design, it will interpret the year 2100 as a leap year and need a correction. The same will happen again in 2200 and 2300. As a result, a perpetual calendar will need three corrections over a period of 400 years. A secular perpetual calendar like the **Portugieser Eternal Calendar** (Ref. IW505701), on the other hand, is mechanically programmed to take these complex nuances into account. It will calculate the leap year correctly until at least the year 3999, as it has not yet been officially decided whether the year 4000 will be a leap year or not.

“Since Kurt Klaus developed his legendary perpetual calendar in the 1980s, IWC Schaffhausen has accumulated unique expertise in mechanical calendars that are ingeniously efficient in their design and easy to use.

With the new Portugieser Eternal Calendar, we now venture further than ever before, touching the limits of eternity. Our first secular perpetual calendar automatically takes into account the Gregorian calendar's complex leap-year exception rules by skipping the leap year three times over 400 years. True to the spirit of engineers who are always pushing the boundaries, we have also fitted this technical marvel with a moon phase display that will only deviate from the moon's orbit by one day after 45 million years," explains Chris Grainger-Herr, CEO of IWC Schaffhausen.

THE 400-YEARS GEAR SKIPS THREE LEAP YEARS IN FOUR CENTURIES

The Portugieser Eternal Calendar is based on the same modular and synchronised design as the existing perpetual calendar. All its displays can be advanced using the crown. However, while the perpetual calendar is programmed for a four-year cycle, the Portugieser Eternal Calendar features an additional mechanism. Every four years at the end of February, a new module informs the calendar about whether the leap year takes place or not. This so-called 400-years gear completes only one revolution every four centuries. It contains three indentations, which cause the calendar to skip three leap years over that period. This module is designed with impressive efficiency and technical elegance and consists of only eight parts, underscoring IWC Schaffhausen's engineering approach to fine watchmaking.

MOON PHASE WITH A CALCULATED ACCURACY OF 45 MILLION YEARS

Since the introduction of the perpetual calendar almost four decades ago, IWC has also taken great strides to continuously improve the accuracy of its moon phase displays. While the Da Vinci Perpetual Calendar Chronograph (Ref. IW3750) from 1985 featured a moon phase precision of 122 years, the first Portugieser Perpetual Calendar (Ref. IW5021) from 2003 impressed with a moon phase accuracy of 577.5 years. IWC's engineers have now taken on the challenge to develop a new moon phase display with unprecedented precision.

The difficulty in displaying the moon phase on the dial of a watch lies in the fact that the moon does not follow a daily rhythm in its orbit around the Earth. A cycle from

new moon to new moon – one lunation – does not last 30 days, but rather 29 days, 12 hours, 44 minutes, and 2.88 seconds. The duration of one calendar month must therefore be reduced as close as possible to one lunar cycle. This is achieved by placing a reduction gear between the base movement and the moon phase disc. The key to high precision lies in the quantity of wheels used, their proportions and the number of teeth they have. IWC's engineers have now used a special computer program to simulate more than 22 trillion different combinations. For the Portugieser Eternal Calendar, they came up with a new reduction gear train using three intermediate wheels. Mathematically, the display will only deviate from the moon's orbit by one day after 45 million years. Another challenge consisted in integrating this new gear train into the confined space of the eternal calendar module.

The moon phase is displayed on the dial using the characteristic Double Moon™ indication, which shows the moon as seen from the Northern and Southern hemispheres. The display consists of two superimposed discs. A celestial disc with two small circular openings rotates above an immobile lower disc with two dots. This negative representation gives the impression that two small moons are waxing or waning. Here, the lower disc is made of titanium and decorated with a Guilloché pattern. The upper disc is made of glass.

INTRICATELY CRAFTED GLASS DIAL AND DOUBLE BOX-GLASS

The Portugieser Eternal Calendar features an intricately finished platinum case with polished and brushed surfaces. Another highlight is the glass dial, which is manufactured in a complex process. In the first step, the underside of the dial is frosted and lacquered in white. The subdials are machined and polished separately and subsequently fixed onto the dial. In the next step, the printing is applied, and the appliques are mounted by hand. The depth of the glass lends the print and appliques a floaty lightness. The numerals and the characteristic Portugieser minute scale are printed on a white lacquered flange sitting between the glass dial and the front glass. The box-glass sapphire crystals are machined and polished in an elaborate process. The Portugieser Eternal Calendar is fitted with a black alligator leather strap from the Italian leather artisan Santoni with a platinum folding clasp.

**IWC-MANUFACTURED 52640 CALIBRE
WITH SEVEN DAY POWER RESERVE**

At work inside the platinum case is the newly developed IWC-manufactured 52640 calibre. The high-end calibre features a highly efficient Pellaton winding system. Using movements of the rotor in both directions, it reliably builds up a power reserve of seven days (168 hours) in the two barrels. Parts of the winding system that are subject to extremely high stresses are manufactured using virtually wear-free zirconium oxide ceramic. The movement has been elaborately finished with circular graining and Geneva stripes and can be admired through the box-shaped sapphire glass case back.

PORTUGIESER ETERNAL CALENDAR

REF. IW505701

FEATURES

Mechanical movement – Pellaton automatic winding system – Power reserve display –
Secular perpetual calendar with displays for the date, day, month, year in four digits –
Perpetual moon phase with 45,000,000 years accuracy for both northern and southern hemispheres –
400-years gear for the recognition of irregular leap years – Small hacking seconds – Rotor in 18-carat gold –
See-through sapphire glass back

MOVEMENT

IWC-manufactured calibre	52640
Frequency	28,800 vph / 4 Hz
Jewels	54
Power reserve	7 days (168 h)
Winding	Automatic

WATCH

Materials	Platinum case, glass dial with white lacquer, rhodium-plated hands and appliques, black alligator leather strap from Santoni with platinum folding clasp
Glass	Sapphire, double box-glass, antireflective coating on both sides
Water-resistant	5 bar
Diameter	44.4 mm
Height	15 mm

IWC SCHAFFHAUSEN

IWC Schaffhausen is a leading Swiss luxury watch manufacturer based in Schaffhausen in the north-eastern part of Switzerland. With collections like the Portugieser and the Pilot's Watches, the brand covers the whole spectrum from elegant to sports watches. Founded in 1868 by the American watchmaker and engineer Florentine Ariosto Jones, IWC is known for its unique engineering approach to watchmaking, combining the best of human craftsmanship and creativity with cutting-edge technology and processes.

Over its more than 150-year history, IWC has earned a reputation for creating professional instrument watches and functional complications, especially chronographs and calendars, which are ingenious, robust, and easy for customers to use. A pioneer in the use of titanium and ceramics, IWC today specialises in highly engineered watch cases manufactured from advanced materials, such as coloured ceramics, Ceratanium®, and titanium aluminide.

A leader in sustainable luxury watchmaking, IWC sources materials responsibly and takes action to minimise its impact on the environment. Along the pillars of transparency, circularity, and responsibility, the brand crafts timepieces built to last for generations and continuously improves every element of how it manufactures, distributes, and services its products in the most responsible way. IWC also partners with organisations that work globally to support children and young people.

DOWNLOADS

Images of the Portugieser Eternal Calendar can be downloaded free of charge from press.iwc.com

FURTHER INFORMATION

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