

The background of the entire page is a detailed, white line-art illustration of a complex mechanical watch movement, specifically a repeater. The illustration shows various gears, levers, and the escapement mechanism. It is split vertically: the left half is on a white background, and the right half is on a dark green background.

Instructions for use
Mode d'emploi

MILLENNARY
MINUTE REPEATER
WITH AP ESCAPEMENT

Calibre 2910
Hand-wound

AP
AUDEMARS PIGUET
Le maître de l'horlogerie depuis 1875



ENGLISH

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The Manufacture Audemars Piguet

The Vallée de Joux : cradle of the watchmaker's art

In the heart of the Swiss Jura, around 50 kilometres north of Geneva, nestles a landscape which has retained its natural charm to this day: the Vallée de Joux. Around the mid-18th century, the harsh climate of this mountainous region and soil depletion drove the farming community settled there to seek other sources of income. With their high degree of manual dexterity, inexhaustible creativity and enormous determination, the inhabitants of the valley, known as Combiens, were naturally drawn to watchmaking.

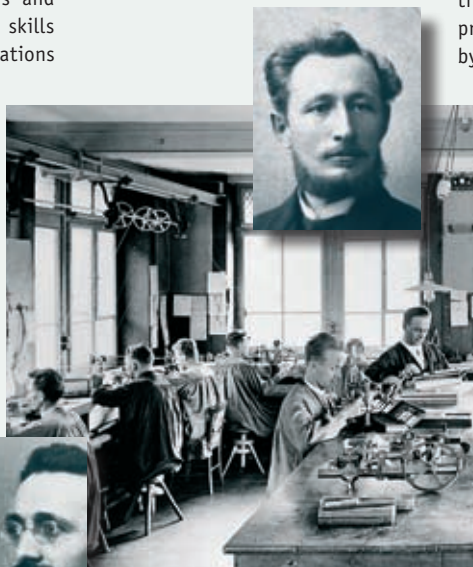
Due to their high quality, the movements they produced acquired great popularity with the Geneva firms which used them to create complete watches.

From 1740 onwards, watchmaking developed into the principal industry of the Vallée de Joux. This region was thus transformed, as an 1881 chronicle put it, "into a land of milk and honey, in which poverty has rapidly disappeared".

Two names for a great adventure

In 1875, two young men passionate about Haute Horlogerie — Jules-Louis Audemars and Edward-August Piguet — decided to pool their skills to design and produce watches with complications in the Vallée de Joux, the cradle of Haute Horlogerie. Determination, imagination and discipline led them to instant success. A branch in Geneva was their next move in about 1885 and new commercial links were forged at the 1889 Paris World Exposition, where they exhibited complication pocket watches. The Audemars Piguet factory continued to expand as the years went by. Its creations represented major milestones in the history of Haute Horlogerie, like the first minute repeater wristwatch in 1892 and the smallest five-minute repeater movement ever made in 1915.

From 1918 onwards, the founders passed the reins of the business onto their sons, who in turn perfected their expertise in manufacturing men's and ladies' wristwatches as well as designing new sophisticated, ultra-thin movements. Perseverance and initiative were the watchwords: while the Wall Street crash in 1929 was a bitter blow, the company directors were soon designing so-called skeleton watches before embarking on chronograph production.



But this new momentum was abruptly interrupted by the Second World War. Re-organisation was necessary in the aftermath of the conflict. The factory focused on creating top-of-the-range items in keeping with its tradition of innovation. A strategy that would prove its worth, especially since it was backed by outstanding creative daring.

Audemars Piguet continued to build on its now international reputation with creative designs. 1972 saw the launch of the Royal Oak, the first, immediately successful high-quality sports watch in steel, followed in 1986 by the first ultra-thin tourbillon wristwatch with automatic winding. The creative spirit of the Manufacture has not faltered since, offering aesthetically original timekeepers with outstanding movements. Thus it brought watches with complications back into fashion at the end of the 1980s, launching its extraordinary Tradition d'Excellence collection in 1999. All the signs of a bold spirit rooted firmly in tradition and auguring well for the future.



Millenary Minute Repeater with AP escapement

Founded in Le Brassus in 1875, the Audemars Piguet Manufacture very rapidly made a name for itself in the art of striking watches. As time went by, further complications were added (perpetual calendar and chronograph in 1882 and power reserve display in 1885). The experience thus acquired enabled it to make the first minute repeater wristwatch in 1892. This masterpiece of miniaturization has earned this complication a permanent place in the history of the brand. To the point that at the end of the 1980s, when no designs remained for these watches that had become obsolete, Audemars Piguet launched a minute repeater jump hours, thereby reviving this type of watch.

The new Millenary Minute Repeater is entirely in line with this longstanding tradition, while adopting the latest technological breakthroughs developed by Audemars Piguet, starting with the new AP escapement. As an essential component in the smooth running of a watch, the escapement serves to sequence the linear energy transmitted by the barrel. Audemars Piguet developed a new system that combined the high efficiency of a direct impulse escapement with the security of a Swiss lever escapement. The watchmakers in Le Brassus thereby succeeded in reducing the energy losses and in eliminating the need to lubricate the pallet-stones. This groundbreaking technical development in turn enhanced rating accuracy, long-term stability and shock-resistance.

The Millenary Minute Repeater with AP escapement - a unique combination of aesthetics and modern technology - is a new, influential contribution to the history of the Audemars Piguet collection.

The Minute Repeater

Watchmakers in the Vallée de Joux have always nurtured a great passion and an innate talent for striking mechanisms. Perhaps because, amid the silence of the mountains and the hushed serenity of long snowbound winters, the crystal-clear sound of these miniature musical marvels strikes an even deeper, more meaningful chord. Or possibly because such a complex mechanism was bound to stir their legendary inventive spirit.

How does a minute repeater work?

The striking mechanism is activated by a well-protected sliding bolt built into the left side of the case-middle. Two, highly-polished hammers tap out a controlled rhythm on two gongs of different lengths to produce a high-pitched note and a low-pitched note.

The Millenary Minute Repeater with Audemars Piguet escapement strikes on demand with a low tone for each hour, a double, high-and-low tone for each quarter hour and a high tone for each minute elapsed since the last quarter.

This called for a particularly sophisticated mechanism as the watch hammers must be tuned like a musical instrument and the movement must also “know” at any given time how many notes it must strike.

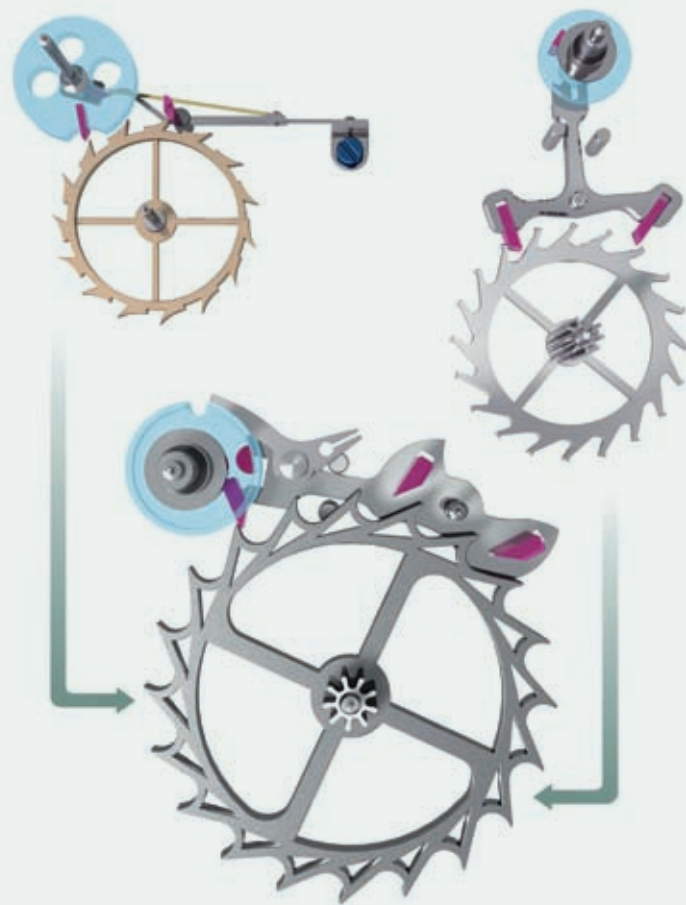


New Audemars Piguet escapement

Taking its inspiration from Robin, the famous French watchmaker (1742-1799), Audemars Piguet has developed a new direct impulse escapement. This new AP escapement combines the advantages of a chronometer escapement (extremely accurate) with those of a Swiss-lever escapement (extremely resistant). Its innovative design and outstanding performance render this patented system a minor revolution in watchmaking mechanics. It heralds the new generation of Audemars Piguet movements and furthers the performances of the watches produced by the Manufacture.

The new AP design hosts a number of technical features far superior to the traditional (Swiss lever) escapement:

- **Detached pin-pallet escapement:** a single impulse corresponds to two vibrations, causing fewer setting disturbances and very high efficiency.
- **Improved chronometry:** the spring balance isochronism may be adjusted by moving the quiescent point with respect to the impulse given to the balance; reducing mechanical disturbances at the escapement increases movement accuracy.
- **Optimum long-term stability:** tests conducted over five years have shown that this escapement displays excellent operational stability.

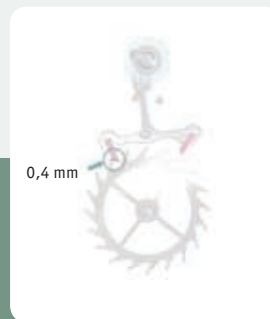


■ **High efficiency:** with the conventional Swiss lever system, the escapement absorbs around 70% of the energy; the new AP system reduces this figure to 50%, enabling a significant boost in efficiency over traditional designs.

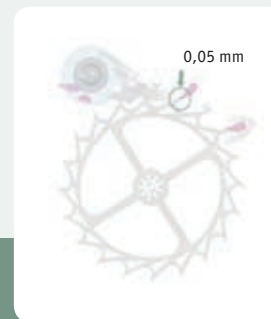
■ **No lubrication on the lifts (Dia. 1a and 1b):** the special geometry of the Audemars Piguet escapement means no lubrication - a watchmaker's dream! - which facilitates maintenance and prevents greasy paste build up after oil evaporation.

■ **Direct impulse on balance (Dia. 2a and 2b):** energy is transmitted directly from the escapement to the balance without passing through a pallet fork, which limits energy losses by improving efficiency.

■ **Excellent shock resistance:** the meticulous shape of the various components (especially the guard pin) and their ultraprecise cut out provide maximum security against tripping and over-banking. This development has been patented by Audemars Piguet.

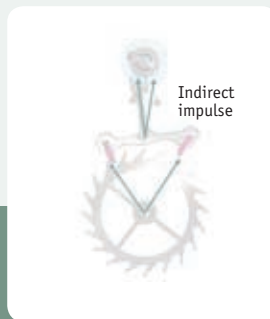


Dia. 1a

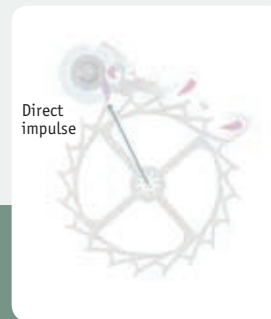


Dia. 1b

The need for oiling is eliminated by shortening the sliding



Dia. 2a



Dia. 2b

Fewer moving parts in the transmission equals greater efficiency

Dual balance-spring

The calibre 2910 also stands out for its totally new regulator component. It has two spirals one on top of the other offset by 180°.

Undoubted advantages

The system of dual “opposing” flat balance-springs has many advantages:

- no more balance-spring “end curves” pioneered by Breguet or Phillips, which require painstaking construction.
- automatic compensation for any balance-spring balancing defects, thus improving accuracy.
- prevents errors caused by the watch’s vertical position.

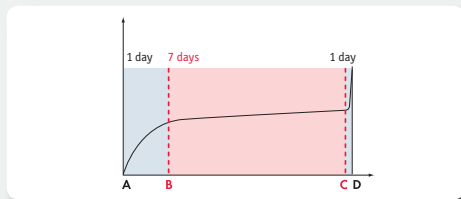


Power reserve

Calibre 2910 has a power reserve of 165 hours (about 7 days). This endurance is achieved by a large-diameter, dual barrel system developed by Audemars Piguet, with a blocking mechanism guaranteeing optimum performances.

Energy at its best

The fast-rotating, dual barrel system - with revolutions limited to 19.75 - guarantees a constant force during the seven-day running time, hence improved efficiency and chronometry. In reality the two barrels fitted in parallel produce a power reserve of nine days. But an ingenious blocking system - in the high (C-D, see graph below) and low (A-B, see graph below) load zones - concentrates the watch rate on the seven median running days, with the most regular (B-C, see graph below) providing optimum efficiency.



The 19.75 winding revolutions on each barrel - far higher than standard - are possible by using a particularly fine spring. This specific feature transmits the energy far more gently and regularly to the wheels, thus ensuring greater rate accuracy and reliability.

Tremendous operating accuracy

■ The blocking system



Position of the gears when fully wound



Position of the gears 3 days before stopping



Position of the gears when stopped

■ A parallel barrel system



Parallel system (AP)



Series system

- Reduced pressure in the gears
- Barrel spring friction used to cancel out any force variations

Views of the movement

Calibre 2910

Bridge side



Dial side



Technical data of the movement

Total thickness: 10.05 mm

Dimensions of the movement: 32.90 x 37.90 mm

Fitting dimensions: 32 x 37 mm

Frequency: 21,600 vibrations/hour (3 Hz)

Number of jewels: 40

Power reserve: 165 hours (approx. 7 days)

Manual winding

Audemars Piguet lubrication-free escapement

KIF Elastor shock protection system

Variable inertia balance

Flat dual balance springs

Balance stopping device when the time is adjusted (second hand is stopped)

Number of parts: 443

Watch indications and functions

(see figure on the inside cover)

- ❶ Hour hand
- ❷ Minute hand
- ❸ Small second hand (at 7 o'clock)

Minute repeater:

- ❹ Repeater slide to activate the striking mechanism

Your watch is fitted with a three-position crown:

- N** Crown in the neutral position
- A** Crown in manual winding position
- B** Crown in time-setting position



Setting the time

Precautions to be taken before setting the time:

Your watch is equipped with a clutch system making it impossible to set the time **while** the striking mechanism is working.

If you are in position **B** (setting the time) and you activate the strike (**G**), the crown returns automatically to position **A**. It is impossible to pull the crown to position **B** (setting the time) when the strike is running.

Despite this uncoupling system, it is advisable to avoid trying to set the time when the minute repeater is working.

Pull the crown to position **B**. The stop-seconds arresting lever is automatically activated when the crown is pulled to ensure precision time adjustment.

You may now set the time by winding in either direction without risk of damaging the movement. It is advisable to set the hand five minutes past the desired time and then to move it back to the exact time. This allows the gears to re-align themselves, thus ensuring optimal precision.

NB: to ensure proper operation of the watch, it is essential to push the crown back to position **N** (neutral) immediately after setting.

Winding the watch

Your watch is fitted with a mechanical hand-wound movement.

We recommend you to wind the watch fully every five days (crown in position **A**), or at most every seven days, by turning the crown clockwise.

The crown is fitted with an uncoupling system to protect the mainsprings from overtightening when maximum winding is reached.

NB: to ensure proper operation of the watch, it is essential to push the crown back to position **N** (neutral) immediately after setting.

If your watch stops

Normally if your watch stops, simply winding it with the crown is enough to start the movement. However, sometimes the movement does not start again automatically.

This is because the escapement is no longer receiving an impulse, as the impulse-pin and pallet fork remain fixed in this position (Fig. 1). No impulse is being sent to the balance.

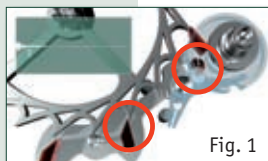


Fig. 1

Turning the case a few times to turn the balance is enough to reactivate it (Fig. 3). This means that the escapement wheel sends the necessary impulse to the balance (Fig. 2).

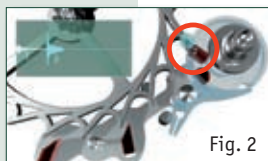


Fig. 2

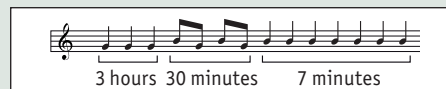


Fig. 3

Functions and use of the minute repeater

The Millenary Minute Repeater watch with Audemars Piguet escapement strikes the hours, quarters and minutes on demand, using two hammers that strike gongs on two notes, a low tone for the hours, the high tone, for the minutes, and both alternately for the quarters.

Example: 3 hours 37 minutes

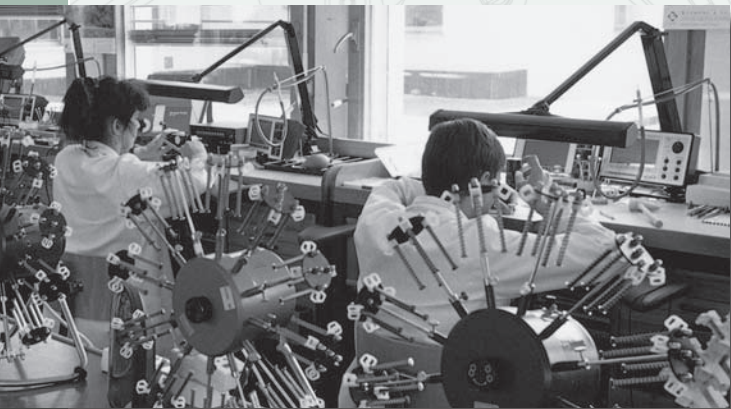


The striking mechanism is activated by means of the repeater slide **G** built into the left side of the case-middle.

A safety system makes it impossible to activate the striking mechanism if the slide has not been fully deployed.

N.B. : the extent of slide deployment depends on the number of hours to be struck.

N.B. : when the strike mechanism is activated, the slide should be completely free of all external constraints.



Guarantee and care

All details concerning the guarantee and instructions on caring for your watch are provided in the enclosed certificate of origin and guarantee.

