

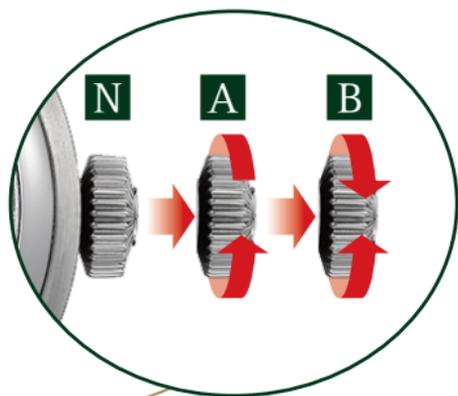
INSTRUCTIONS FOR USE  
MODE D'EMPLOI

MILLENARY  
MINUTE  
REPEATER  
WITH AP  
ESCAPEMENT

CALIBRES 2910 AND 2928

AUDEMARS PIGUET

*Le Brassus*



# ENGLISH

ENGLISH

Quick-link contents page.

Simply click on the relevant title or subheading to following the link to your chosen section.

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## GUARANTEE AND CARE

All details concerning the guarantee and care instructions of your watch are provided in the certificate of origin and guarantee attached.



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## Introduction

# THE MANUFACTURE AUDEMARS PIGUET

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### THE VALLÉE DE JOUX : CRADLE OF THE WATCHMAKER'S ART

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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 Combiers, 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”.



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## TWO NAMES FOR A GREAT ADVENTURE

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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.

## Introduction

# MILLENNARY MINUTE REPEATER WITH AP ESCAPEMENT

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FOUNDED IN LE BRASSUS IN 1875, THE AUDEMARS PIGUET MANUFACTURE VERY RAPIDLY MADE A NAME FOR ITSELF IN THE ART OF STRIKING WATCHES.

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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 Millenary Minute Repeater is entirely in line with this longstanding tradition, while adopting the latest technological breakthroughs developed by Audemars Piguet, starting with the AP escapement. As an essential component in the smooth running of a watch, the escapement serves to distribute the 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 and long-term stability and avoided shock-related disturbances to the settings.

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.



## About the watch

### 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.

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#### HOW DOES A MINUTE REPEATER WORK?

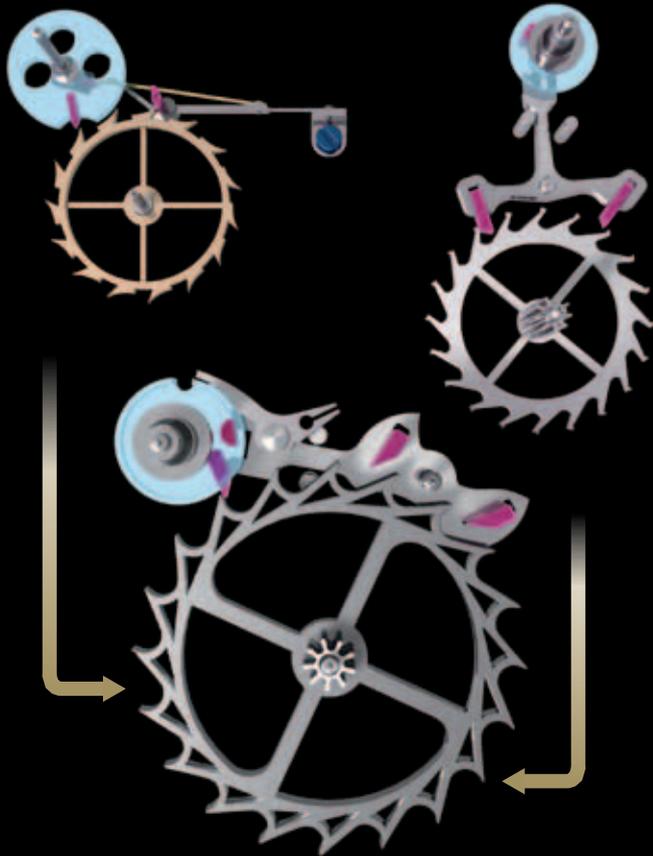
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The strike is activated by the winding slide on the left of the middle-case. Two hand-worked, finely polished hammers strike at a rhythm set on two gongs of different lengths to produce high-pitched and low-pitched tones.

The AP Millenary Minute Repeater watch strikes as it moves on as well as upon request: a low-pitched tone on the hour, a high-pitched followed by a low-pitched tone on the quarter hour and then a high-pitched tone for every minute elapsed since the last quarter.

It relies on a particularly sophisticated mechanism as the movement must know incessantly how many times to strike and the chimes must be in tune like a musical instrument.





## About the watch

# THE AUDEMARS PIGUET ESCAPEMENT

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TAKING ITS INSPIRATION FROM ROBIN, THE FAMOUS FRENCH WATCHMAKER (1742-1799), AUDEMARS PIGUET HAS DEVELOPED A DIRECT IMPULSE ESCAPEMENT.

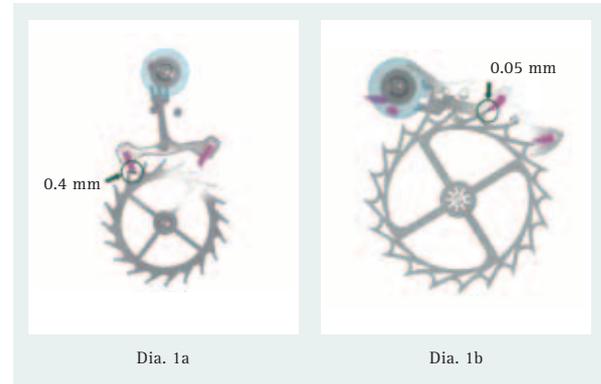
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This AP escapement combines the advantages of an extremely accurate escapement with those of a Swiss-lever escapement, renowned for its reliability. Its innovative design and outstanding performance render this patented system a minor revolution in watchmaking mechanics. It heralds the new generation of Audemars Piguet movements and furthers the performances of the watches produced by the Manufacture.

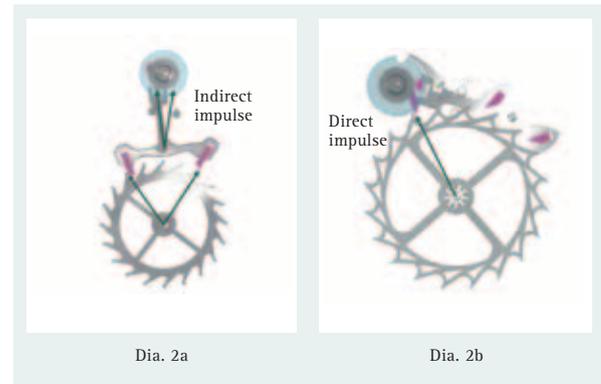
The new AP design hosts a number of technical features far superior to the traditional (Swiss lever) escapement :

- **Detached pin-pallet escapement** : a single impulse corresponds to two vibrations, causing fewer disturbances to the settings 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 variations in operation caused by the ageing of lubricants.
- **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 knocking and over-banking. This development has been patented by Audemars Piguet.



The need to lubricate the pallet fork pallets is eliminated by shortening the sliding.



Fewer moving parts in the transmission equals greater efficiency

## About the watch

### DUAL BALANCE-SPRING

Calibres 2910 and 2928 also stand out for their totally new regulator component. They in fact have two spirals one on top of the other with an attachment point offset by 180°.

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#### UNDOUBTED ADVANTAGES

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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.



## About the watch

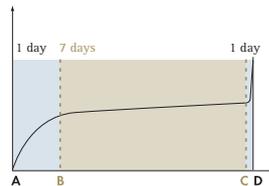
### POWER RESERVE

Calibres 2910 and 2928 have a power reserve of 165 hours (about seven 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

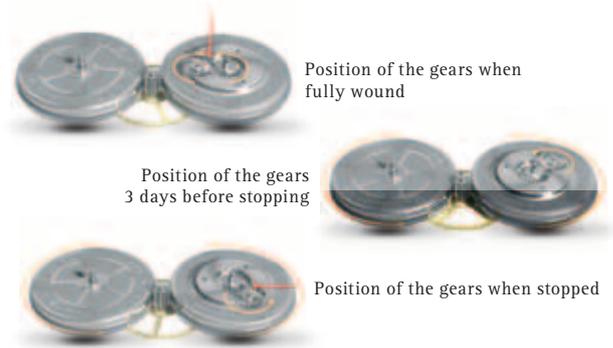
The fast-rotating, dual barrel system - with revolutions limited to 19.75 made possible by using an especially thin spring - guarantees a constant force during the seven-day running time, hence improved efficiency and chronometry. In reality the two barrels fitted in parallel produce a power reserve 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.

This specific feature transmits the energy far more gently and regularly to the wheels, thus ensuring optimum efficiency and therefore greater rate accuracy and reliability.

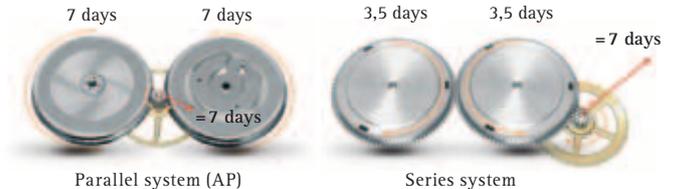


#### TREMENDOUS OPERATING ACCURACY

##### ■ The blocking system



##### ■ A parallel barrel system



- reduces pressure in the gearing
- the friction in the barrels is used to offset torque variations
- increased running precision, a greater power reserve and enhanced reliability.

## Watch description

# VIEWS OF THE MOVEMENT

Calibre 2910



Caseback side



Dial side

## TECHNICAL DATA OF THE MOVEMENT

Total thickness: 10.05 mm

Total dimensions: 37.90 x 32.90 mm

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

Number of jewels: 40

Minimal power reserve: approx. 165 hours

Hand-wound

Balance with variable inertia blocks

Flat dual balance-spring

Mobile stud-holder

Number of parts: 443

## SPECIFICITIES

Oval shaped movement

Stop balance when setting time  
(stops second hand)

Direct-impulse escapement without lubrication

Sequence of striking the hours, quarters and  
minutes without interruption

Manual finishes to bridges (rounded-off and  
polished angles, satin-polish sides, circular-  
grained countersinks)

Manual finishing of the cut out parts (polished  
bevels, grained finishing on top and Matt  
"brouillé" finishing underneath)

## Watch description

# VIEWS OF THE MOVEMENT

Calibre 2928



Caseback side



Dial side

## TECHNICAL DATA OF THE MOVEMENT

Total thickness: 10.05 mm

Total dimensions: 37.90 x 32.90 mm

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

Number of jewels: 40

Minimal power reserve: approx. 165 hours

Hand-wound

Balance with variable inertia blocks

Flat dual balance-spring

Mobile stud-holder

Number of parts: 443

## SPECIFICITIES

Oval shaped movement

Stop balance when setting time  
(stops second hand)

Direct-impulse escapement without lubrication

Sequence of striking the hours, quarters and minutes without interruption

Manual finishes to bridges (rounded-off and polished angles, satin-polish sides, circular-grained countersinks)

Manual finishing of the cut out parts (polished bevels, grained finishing on top and Matt "brouillé" finishing underneath)

## Use of functions

# WATCH INDICATIONS AND FUNCTIONS

(see figure on the inside cover)

- 1 Hour hand
- 2 Minute hand
- 3 Small seconds hand (at 7 o'clock)

Minute repeater :

- G 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 position for winding movement manually
- B Crown in position for setting the time



## Use of functions

### 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.

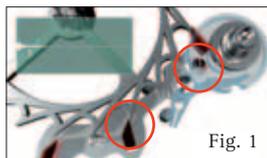
**NB:** to ensure proper operation of the watch, it is essential to push the crown back to position **N** (neutral) immediately after setting.

## Use of functions

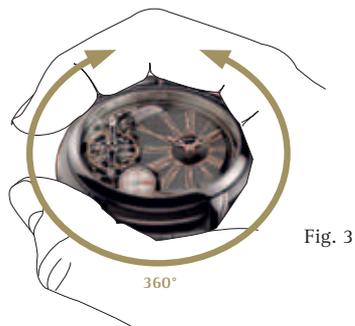
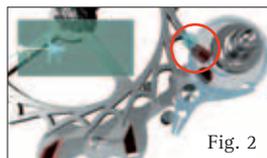
### IF YOUR WATCH STOPS

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.



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).



### 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.

