TECHNICAL SPECIFICATIONS OF THE RICHARD MILLE RM 027 TOURBILLON

Richard Mille has developed the RM 027 Tourbillon in collaboration with Rafael Nadal who tested this watch in real world conditions and who will wear it during matches.

CALIBER RM 027: manual winding tourbillon movement with hours and minutes.

Dimensions: 48 mm x 39.70 mm x 11.85 mm
Weight of the movement: 3.83 g
Weight of the watch without strap: circa 13 g

MAIN FEATURES

(MANY OF WHICH ARE MAJOR TECHNICAL INNOVATIONS)

TITANIUM BASEPLATE WITH BRIDGES OF ALUMINUM LITHIUM

The movement of the RM 027 Tourbillon is made from titanium and LITAL® alloy, a high lithium content alloy containing aluminium, copper, magnesium and zirconium, possessing a density of 2.55 g cm^3. The addition of Lithium provides to the mechanism more flexibility and greater shock resistance. This alloy is also applied in aerospace on the Airbus A380, helicopters, rockets, satellites as well as in Formula 1.

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POWER RESERVE

48 hours.

VARIABLE INERTIA, FREE SPRUNG BALANCE

The free-sprung balance gives better reliability in the event of shocks, movement assembly and disassembly, and also guarantees better chronometric results over an extended period of time.

FAST ROTATING BARREL (6 hours per revolution instead of 7,5)

This type of barrel provides the following advantages:

- the phenomenon of periodic internal mainspring adhesion is significantly diminished, thereby increasing performance;
- provision of an excellent mainspring delta curve with an ideal power reserve/performance and regularity ratio.

BARREL PAWL WITH PROGRESSIVE RECOIL

This device permits an appreciable winding gain (circa 20 %), especially during the start of winding. It also promotes the even distribution of the mainspring's internal tension.

SPLINE SCREWS IN GRADE 5 TITANIUM FOR THE BRIDGES AND CASE

This permits better control of the torque applied to the screws during assembly. These screws are therefore unaffected by physical manipulation during assembly or disassembly and age well.

WINDING BARREL TEETH AND THIRD-WHEEL PINION WITH CENTRAL INVOLUTE PROFILE

The central involute profile of the winding barrel teeth and pinion provide an optimal pressure angle of 20°. This promotes effective rotary motion and allows for compensation of possible variations in the engagement of the going train, thus insuring excellent torque transmission with a distinct improvement in performance.

RM 027 TOURBILLON

CASE

The RM 027 watchcase, composed of a composite containing large amounts of carbon, provides a tough and resilient enclosure for the tourbillon movement at its center. The back bezel and caseband are monobloc to ensure total lightness. The glass, with anti-glare treatment, has remarkable properties of stiffness and torsional rigidity.

OTHER FEATURES

- Movement dimensions: 30.20 x 28.80 mm
- Thickness: 7.00 mm
- Tourbillon diameter: 10.90 mm
- Balance wheel diameter: 9.12 mm
- Number of jewels: 19
- Balance: GLUCYDUR, 2 arms, 4 setting screws
- Inertia moment 11.50 mg.cm^2, angle of lift 53º
- Frequency: 21,600 vph (3 Hz)
- Balance spring: ELINVAR by NIVAROX
- Shock protection: KIF ELASTOR KE 160 B28
- Barrel shaft in nickel-free chronifer (DIN x 46 Cr 13 + S) with the following characteristics: stainless- antimagnetic- suitable for tempering

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FINISHING

MOVEMENT BLANK

- chamfers with lengthwise hand-drawn finishing
- beadblasted milled sections
- hand-drawn upper faces

STEEL PARTS

- beadblasted surfaces
- satin-brushed surfaces
- hand-polished bevels
- hand-drawn finishing on the upper surface
- matt strokes on the underside
- lengthwise hand-drawn strokes on the flanks
- polished sinks

PROFILE-TURNING

- lapped and polished ends
- burnished pivots

GEAR WHEELS

- Concave chamfering with a diamond tool
- Circular-smoothed faces
- Gilding (before cutting the teeth)

Minimum manual correction to the wheels undertaken in order to preserve geometry and performance